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The Nexus between International Law and Science

An Analysis of Scientific Expert Bodies in Multilateral Treaty-Making

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Abstract

Limited legal analysis exists of how scientific expert bodies participate in multilateral treaty-making. This impedes effective collaboration between treaty-making and scientific expert bodies. This article analyses how scientific expert bodies (1) participate in multilateral treaty-making and (2) how they interface with treaty-making bodies. Based on an updated conceptual framework of the general multilateral treaty-making process, the makings of two treaties are studied: the Paris Agreement and the International Legally Binding Instrument on marine biodiversity in areas beyond national jurisdiction. In these case studies, scientific expert bodies had three integral roles: preparing evidence for treaty-making bodies, scientifically advising these bodies and directly exchanging with them. When scientific bodies directly exchanged with treaty-making bodies, they interfaced through intergovernmental body sessions or dialogical events. In conclusion, this study provides evidence of the nexus between international law and science for improved multilateral treaty-making.

Keywords

international lawmaking – treaty-making – science – scientific expert bodies – international organizations

1 Introduction

States have developed international law to address common, transboundary and global issues, such as climate change, human rights abuses, ozone depletion, poverty and war. Overtime, three general processes of international law have formalized and institutionalized: lawmaking, implementation and enforcement. These processes are largely overseen by international organizations and governed by global administrative law.[1] Legal and political actors often appear to spearhead these processes. However, scientific actors contribute scientific evidence bases to these processes that can strengthen international law and its objectives.[2] Studies of when and how scientific actors participate in international law processes are important, because they help develop a blueprint for constructive and effective collaboration between legal, political and scientific actors.

1.1 *Definitions and Concepts*

This article focuses on the process of *lawmaking*, defined as the 'mechanisms and procedures whereby new rules of law are created or old rules are amended or abrogated'.[3] International lawmaking has several subprocesses: treaty-making, forming customary international law, judicial decision-making, identifying legal principles and making unilateral declarations.[4] Due to the proliferation of multilateral treaties (hereinafter treaties), this article studies *multilateral treaty-making* (hereinafter treaty-making) processes.[5] A *treaty* is a written agreement between international legal subjects that is governed by international law.[6] Debates on what constitutes treaties remain unresolved, but treaties take numerous forms (e.g., agreements, conventions and protocols).[7]

1 Benedict Kingsbury, 'The Concept of "Law" in Global Administrative Law', 20(1) *European Journal of International Law* (2009) p. 23.

2 Dionysia-Theodora Avgerinopoulou, *Science-Based Lawmaking: How to Effectively Integrate Science in International Environmental Law* (2019) p. 319.

3 Antonio Cassese and Joseph Weiler, *Change and Stability in International Law-Making* (1988) p. 38; Alan Boyle and Christine Chinkin, *The Making of International Law* (2007) p. 1; Catherine Brölmann and Yannick Radi (eds.), *Research Handbook on the Theory and Practice of International Lawmaking* (2016) p. 2.

4 Anthony Aust, *Handbook of International Law* (2nd ed., 2010) p. 5.

5 David Bewley-Taylor and Malgosia Fitzmaurice, 'The Evolution and Modernisation of Treaty Regimes', 20(5) *International Community Law Review* (2018) pp. 403, 404.

6 *Vienna Convention on the Law of Treaties* (23 May 1969), 1155 UNTS 331 (VCLT), Article 2(2).

7 Malgosia Fitzmaurice and Panos Merkouris, *Treaties in Motion: The Evolution of Treaties from Formation to Termination* (2020) p. 23.

Science is a system of knowledge about the structure and behaviour of the natural and physical world.[8] Scientific actors produce or assess scientific evidence that is commonly reviewed by academic peers to test its acceptability within the scientific community.[9] During treaty-making, scientific actors provide scientific evidence bases for decisions-making and the substance of treaties. Scientific actors are here defined as either: *scientific experts*, individual persons with specialized knowledge of an element of science; or *scientific expert bodies*, groups of scientific experts that systematically produce or assess evidence on topics.[10] Some scientific expert bodies are institutional, permanent bodies that make regular contributions sometimes channelled to treaty-making bodies; others are ad hoc, temporary bodies that exclusively support treaty-making bodies. Understanding scientific expert body participation in treaty-making processes will help streamline science in treaty-making, justify the use of evidence, create transparency for scientific actor participation and further legitimize treaty-making.[11]

1.2 *Analytical Approach and Case Studies*

This article investigates scientific expert body participation in treaty-making. It seeks to answer the following three questions: How are treaties made? How do scientific expert bodies participate in treaty-making? And how do treaty-making bodies interface with scientific expert bodies during treaty-making processes? Scientific expert bodies may participate differently in other international law processes and other international lawmaking subprocesses, and the participation of other types of expert bodies in treaty-making may differ; these are thus beyond the scope of this article.

The above questions are answered through two case studies of the makings of the: Paris Agreement; and International Legally Binding Instrument (ILBI) under the United Nations Convention on the Law of the Sea (LOSC) on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction (BBNJ).[12] These recent and ongoing processes

8 Joseph Dellapenna, 'Law in a Shrinking World: The Interaction of Science and Technology with International Law', 88(4) *Kentucky Law Journal* (2000) pp. 809, 821.

9 Avgerinopoulou (n 2), p. 2.

10 Holly Cullen, Joanna Harrington and Catherine Renshaw, *Experts, Networks and International Law* (2017) p. 1.

11 Fitzmaurice and Merkouris (n 7), p. 84; Daniel Bodansky, 'Legitimacy', in D. Bodansky, J. Brunnie and E. Hey (eds.), *The Oxford Handbook of International Environmental Law* (2008), pp. 706, 707.

12 Paris Agreement (12 December 2015), UNTS 54113; Revised draft text of an agreement under the United Nations Convention on the Law of the Sea on the conservation and

have involved scientific actors under different international law regimes (i.e., international climate change law and law of the sea), which entail different institutions, procedures and scientific expert bodies. Scholars have concluded that treaty-making under different regimes are part of general international law, rely on general legal principles and include similar types of actors and sources.[13] Analyses of the Paris Agreement and ILBI will therefore contribute knowledge to their respective regimes and general international law. The findings could inform current and future treaty-making, such as the World Health Assembly's forthcoming pandemics treaty and the United Nations Environment Assembly's forthcoming treaty to end plastic pollution.[14]

This article aims to fill the current knowledge gap on scientific expert body participation in treaty-making. Most studies on international law processes centre on implementation and enforcement; only a handful focus on lawmaking and fewer on treaty-making. In their recent study, Carlos Iván Fuentes and Santiago Villalpando conceptualize treaty-making as a four-stage process: (1) drawing up; (2) adoption and authentication; (3) expression of consent to be bound; and (4) entry into force (Figure 1).[15] Similar to other United Nations (UN) officials and scholars, they note that despite the final products of treaty-making being widely researched and interpreted, treaty-making processes themselves are under-researched and poorly understood.[16] Legal analysis of scientific expert body participation in treaty-making is needed.

Some related studies do exist. First, some studies focus on scientific experts in other subprocesses of international lawmaking, namely judicial decision-making.[17] In the *Case concerning Pulp Mills*, the International Court of Justice (ICJ) relied on scientific evidence on water preservation and transboundary

sustainable use of marine biological diversity of areas beyond national jurisdiction (2019), A/CONF.232/2020/3 (draft ILBI).

13 Boyle and Chinkin (n 3), p. 10; Pierre-Marie Dupuy and Jorge Viñuales, *International Environmental Law* (2nd ed., 2019), p. 51.

14 Special session of the World Health Assembly, The World Together: Establishment of an intergovernmental negotiating body to strengthen pandemic prevention, preparedness and response (Fifth Plenary Meeting, 1 December 2021) SSA2(5); Fifth Session of the United Nations Environment Assembly, Draft resolution: End plastic pollution: Towards an international legally binding instrument (2022), UNEP/EA.5/L.23/Rev.1.

15 Carlos Iván Fuentes and Santiago Villalpando, 'Making the Treaty', in D. Hollis (ed.), *The Oxford Guide to Treaties* (2nd ed., 2020) p. 201. Some scholars theorise treaty-making as continuing beyond stage 4 through amendments, modifications and revisions.

16 Boyle and Chinkin (n 3), p. 19; Jean d'Aspremont, 'Current Theorizations about the Treaty', in Hollis (ed.) (n 15), p. 46; Simon Chesterman, David Malone and Santiago Villalpando, *The Oxford Handbook of United Nations Treaties* (2019) p. 2.

17 Caroline Foster, *Science and the Precautionary Principle in International Courts and Tribunals* (2011), p. 136.

pollution submitted by both parties.[18] In the *Whaling in Antarctica* case, experts on mathematical biology and marine mammals were cross-examined during pleadings.[19] In the *South China Sea Arbitration*, the arbitral tribunal reviewed scientific evidence and retained independent experts on technical matters.[20] The controversies on scientific expert participation and the use of scientific evidence in these cases are beyond the scope of this article, but the cases demonstrate how science is used for judicial decision-making and treaty interpretation.[21]

Second, the International Law Commission (ILC) and scholars have analysed the role of expert bodies that are established by treaties (i.e., 'expert treaty bodies') in treaty interpretation. The ILC's draft conclusions provide that expert treaty bodies' pronouncements, which are subject to the rules of the respective treaty, may give rise to: a subsequent agreement between parties in the interpretation of a treaty; a subsequent practice in the application of a treaty, which would establish an agreement of the parties on its interpretation; or supplementary means for interpreting the treaty.[22] This growing body of research, albeit addressing the interpretation of existing treaties (rather than treaty-making), suggests the weight that scientific expert bodies involved in treaty-making and their background work may have in treaty-making processes and that these could become pertinent in interpreting treaties once adopted.

Finally, certain studies explore scientific expert bodies as actors in international policymaking and governance.[23] According to Cameron Jefferies, international governance structures must institutionalize and embed scientific expertise in decision-making processes to effectively inform state positions.[24] He emphasized the importance of balancing scientific expertise's weight with

18 *Pulp Mills on the River Uruguay* (*Argentina v Uruguay*), Judgment, ICJ Reports 2010, p. 14.

19 *Whaling in the Antarctic* (*Australia v Japan: New Zealand intervening*), Judgment, ICJ Reports 2014, p. 226.

20 *The Republic of the Philippines v The People's Republic of China*, PCA Case No. 2013–19, Award, 12 July 2016.

21 Foster (n 17), p. 77.

22 Fifth report on subsequent agreements and subsequent practice in relation to the interpretation of treaties by Georg Nolte, Special Rapporteur (28 February 2018), A/CN.4/715, p. 36; Danae Azaria, 'The Legal Significance of Expert Treaty Bodies Pronouncements for the Purpose of the Interpretation of Treaties', 22 *International Community Law Review* (2020) p. 34.

23 Cullen et al. (n 10); Peter Haas, 'Introduction: Epistemic Communities and International Policy Coordination', 46 *International Organization* (1992) pp. 1, 8.

24 Cameron Jefferies, 'Institutional Expertise: Reconsidering the Role of Scientific Experts in the International Conservation and Management of Cetaceans', in Cullen et al. (n 10), pp. 124, 132.

decision-making bodies' authority. Jefferies however focused on scientific experts in international policymaking – not lawmaking (as this article does). Other studies analyse the scientific and political drivers of international laws and policies.[25] In summary, previous scholarship has not addressed *scientific expert bodies in treaty-making processes*. This article contributes such legal analysis, expanding scholarship on the international law-science nexus.

1.3 *Structure of the Article*

Section 2 addresses treaty-making through a synthesis of legal evidence on the general treaty-making process, followed by comparative analysis of making the Paris Agreement and ILBI. Section 3 analyses scientific expert body participation in treaty-making, supported by comparative analysis of the cases. Section 4 analyses how scientific expert bodies interface with treaty-making bodies, again based on a cross-case comparison. Sections 2 to 4 apply different research methods with different analytical categories; therefore, methods are described in each section. Section 5 brings together the analytical findings to draw conclusions.

2 Treaty-Making

International law provides only a few rules on treaty-making.[26] In the 1980s, the General Assembly's Sixth Committee established the Working Group on the Review of the Multilateral Treaty-Making Process. This group and subsequently UN officials and scholars have identified diversity in the processes and actors involved, but also common features across these.[27] Fuentes and Villalpando advanced scholarship on the general four-stage process of treaty-making.[28] This conceptual framework can be applied to analyse individual treaty-making processes and actors. The bodies overseeing these stages (usually intergovernmental bodies) are hereafter referred to as *decision-making*

25 Avgerinopoulou (n 2); Andreas Fischlin, 'Scientific and Political Drivers for the Paris Agreement', in D. Klein, M.P. Carazo, M. Doelle, J. Bulmer and A. Higham (eds.), *The Paris Agreement on Climate Change* (2017) p. 3.

26 Fuentes and Villalpando (n 15), p. 201; 'Public International Law: Treaties and International Organizations', in *Stanford Law School Introduction to the Laws of Kurdistan and Iraq Working Paper Series* (2016), p. 11.

27 Report of the Working Group of the Multilateral Treaty-Making Process (27 November 1984), A/C.6/39/L.12; Stephen Mathias, 'Treaty-Making at the United Nations: The View from the Secretariat', in Chesterman et al. (n 16), p. 51.

28 Fuentes and Villalpando (n 15), p. 202.

bodies. Existing rules and most scholarship on treaty-making and its decision-making bodies mainly pertain to stages 2 to 4.

This article studies stage 1 (drawing up) because it is the most formative stage and provides windows for scientific expert body participation. The other stages are more legalistic and political and generally do not involve scientific expert bodies.[29] This article proposes that stage 1 has three main components: (1) preparation, (2) drafting and (3) negotiation (Figure 1). Under decision-making bodies, other types of *treaty-making bodies* (e.g., ad hoc working groups, commissions, other intergovernmental bodies and preparatory committees (PrepComs)) execute these components. While existing theories on stage 1 mainly focus on or even frame stage 1 entirely by negotiations, this article proposes a broader conceptual framework encompassing all three components.[30]

In this section, stage 1 of treaty-making was analysed with the following method. Relevant UN databases were searched for primary sources containing rules on the general treaty-making process and on making the Paris Agreement and ILBI. Eligible documents identified included: decisions, guidelines, resolutions, statutes and treaties. Scholarly databases were also searched for secondary literature. The primary and secondary sources collected were then analysed against the following categories: decision-making bodies, preparations, drafting and negotiation.

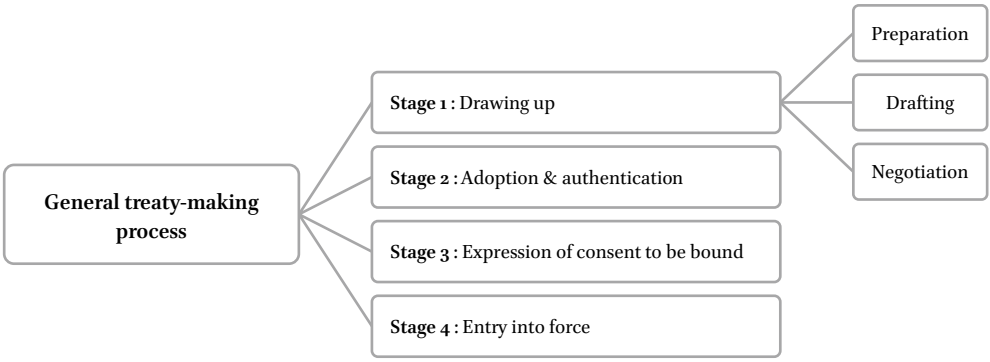

FIGURE 1 Conceptual framework of the general treaty-making process: four stages and three components of stage 1

29 Daniel Costelloe and Malgosia Fitzmaurice, 'Lawmaking by treaty: Conclusion of treaties and evolution of treaty regimes in practice', in Brölmann and Radi (eds.) (n 3), p. 111.

30 Fuentes and Villalpando (n 15), p. 201–215; Boyle and Chinkin (n 3), p. 98; Kirsten Schmalenbach, 'Lawmaking by treaty: Negotiation of agreements and adoption of treaty texts', in Brölmann and Radi (eds.) (n 3), p. 87.

2.1 *Analytical Findings*

2.1.1 General Treaty-Making Process

Decision-making bodies agree on treaty-making processes. Most prominently, the General Assembly is empowered to 'initiate studies and make recommendations for the purpose of [...] encouraging the progressive development of international law and its codification'.[31] It has facilitated numerous treaty-making processes.[32] Other UN bodies (e.g., UN Environment Programme (UNEP)) and international organizations (e.g., World Trade Organization) also oversee treaty-making. Additionally, treaty bodies (e.g., Conferences of the Parties (COPS)) facilitate the making of agreements or protocols under the conventions they govern. States choose decision-making bodies due to availability, political interests and the probability of successfully adopting the treaty.[33]

Decision-making bodies facilitate the three components of stage 1. First, *treaty preparation* requires the identification of an underlying problem. Since problems develop over years and disparate resolutions and decisions, identifying when preparations begin is not always apparent. However, decision-making bodies eventually add the problem to their lawmaking agenda.[34] Campaigning, lobbying, fact-finding missions, reporting and submissions by international organizations, civil society and states often lead to identifying and adding problems to agendas. Then, a regime must be designed to address the problem. Decision-making bodies mandate permanent or establish ad hoc preparatory bodies to scope the problem and prepare guidance on the remainder of stage 1.[35] Preparatory bodies conclude their work when they agree on the substantive elements of a treaty and a plan to move forward, which they report and recommend to decision-making bodies.

Second, *drafting* involves transcribing tentative terms of treaties into text. Guided by preparatory work, drafting practices involve: elaborating on the main elements of treaties; reviewing and interpreting existing laws, policies and state practices; collecting stakeholders' views and proposals; facilitating meetings and negotiations; developing provisions for parties to review; and preparing and revising full draft treaties.[36] The General Assembly adopted several of these practices in the Statute of the ILC, which most drafting bodies

31 *Charter of the United Nations* (26 June 1945), Article 13(1)(a).

32 Hersch Lauterpacht, 'Codification and Development of International Law', 49 *American Journal of International Law* (1955), pp. 16, 30.

33 Fuentes and Villalpando (n 15), p. 205.

34 Boyle and Chinkin (n 3), p. 104.

35 *Ibid.*, p. 180.

36 *Statute of the International Law Commission* (21 November 1947), UNGA Res. 174(II), as amended by resolutions 485(V) (12 December 1950), 984(X) (3 December 1955), 985(X)

naturally align with.[37] The tentativeness of terms refers to the revisions made throughout stage 1.

Drafting bodies normally entail legal and policy experts working in permanent or ad hoc groups. Permanent ones (e.g., ILC) are long-running, institutionalized and often draft general international law treaties. Decision-making bodies also establish temporary, ad hoc ones to draft specialized treaties.[38] All drafting bodies refer their drafts to other legal and negotiating bodies for reviewing, interpreting and reworking; sometimes they split into sub-bodies to internally complete this. Additionally, some decision-making bodies permit international organizations, states and civil society to submit draft text.[39] Once drafting bodies agree on a full draft treaty, they submit it to the respective decision-making bodies. Then, decision-making bodies, normally led by their president or chair with secretariat support, resolve outstanding issues and request technical committees to review the final text for accuracy and across translations.[40]

Third, *negotiation* entails discussing and resolving issues within the preparatory and drafting work to make treaties agreeable for adoption.[41] Decision-making bodies, which are comprised of the states that eventually adopt and ratify treaties, decide on negotiation techniques (e.g., consensus-building, voting procedures).[42] A common strategy is the 'package deal approach', whereby parties agree on the main elements of treaties and later compromise on measures around them.[43] Common fora for negotiations are plenary, committee, drafting body and working group meetings, with each forum's rules regulating participation. Negotiations are however not always transparent, particularly when entailing informal meetings or closed sessions.[44] Stage 1 concludes when decision-making bodies agree to adopt and authenticate treaty texts.

(3 December 1955) and 36/39 (18 November 1981) (ILC Statute), Articles 15–23; Fuentes and Villalpando (n 15), p. 206.

37 ILC Statute (n 36), Articles 15–23.

38 Boyle and Chinkin (n 3), p. 168.

39 Fuentes and Villalpando (n 15), p. 210.

40 *Ibid.*, p. 215.

41 Schmalenbach (n 30), p. 89.

42 Edward Goodwin, 'Delegate Preparation and Participation in Conferences of the Parties to Environmental Treaties', 15 *International Community Law Review* (2013) pp. 45, 73.

43 Boyle and Chinkin (n 3), p. 146; Fuentes and Villalpando (n 15), p. 216.

44 Fuentes and Villalpando (n 15), p. 205.

2.1.2 Making the Paris Agreement

In 1992, the UN Framework Convention on Climate Change (UNFCCC) was adopted as the foundation of the international climate change law regime. It established a COP, Subsidiary Body for Scientific and Technological Advice (SBSTA), Subsidiary Body for Implementation (SBI) and secretariat. In 1997 and 2015, parties adopted the Kyoto Protocol and Paris Agreement, respectively, to help achieve UNFCCC goals. The COP was the decision-making body in making these treaties. Lasting nearly two decades, making the Paris Agreement resulted in consensus to hold the increase in the global average temperature to well below 2.0°C above preindustrial levels and to pursue efforts to limit this to 1.5°C, which Parties recognized would significantly reduce the risks and impacts of climate change.[45]

The Paris Agreement's preparatory work spanned years. Key COP decisions indicate specific problems underlying this treaty.[46] The 2001 Marrakesh Accords and 2010 Cancún Agreements stated the need to enhance action in implementing UNFCCC through adaptation, finance and technology transfer measures.[47] On this basis, parties adopted the 2011 Durban Platform to launch the process of making a treaty with legal force under UNFCCC.[48] The platform included the Ad Hoc Working Group on the Durban Platform for Enhanced Action (ADP) developing a treaty for adoption in 2015 and implementation in 2020.[49]

The Paris Agreement's main drafting body was the ADP. COP decisions guided the ADP to incrementally draft the treaty, including to: consider the main elements for COP-19 (2013);[50] elaborate on the elements of adaptation, capacity-building, finance, mitigation, technology development and transfer and transparency for COP-20 (2014);[51] and make an adoptable text for COP-21

45 Christiana Figueres, 'Foreword', in Klein et al. (n 25), p. v; Paris Agreement (n 12), Article 2(1)(a).

46 Joanna Depledge, 'Foundations for the Paris Agreement', in Klein et al. (n 25), pp. 27, 35.

47 COP-7 Report Addendum (21 January 2002), FCCC/CP/2001/13/Add.1; COP-15 Report Addendum (20 March 2010), FCCC/CP/2009/11/Add.1.

48 Fuentes and Villalpando (n 15), p. 204.

49 Dec. 1/CP.17, 'Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action' (adopted 11 December 2011), in COP-17 Report Addendum (15 March 2012), FCCC/CP/2011/9/Add.1.

50 Dec. 2/CP.18, 'Advancing the Durban Platform' (adopted 8 December 2012), in COP-18 Report Addendum (28 February 2013), FCCC/CP/2012/8/Add.1.

51 Dec. 1/CP.19, 'Further advancing the Durban Platform' (adopted 23 November 2013), in COP-19 Report Addendum (31 January 2014), FCCC/CP/2013/10/Add.1.

(2015).[52] Over this period, the ADP collected parties' views (e.g., from statements and interventions) and proposals, collated them into lists and revised them into provisions for negotiations.[53] The ADP agreed on a full draft treaty, including with alternative provisions where parties disagreed, and communicated it to parties for meetings preceding COP-21. The ADP concluded its work after drafting three more editions and a penultimate version for COP-21.[54] COP-21's president established three minister-led informal consultative groups called *le Comité de Paris* to resolve the outstanding issues.[55] The president, ministers and secretariat then revised the draft into the final treaty text.

The ADP, COP, Meeting of the Parties to the Kyoto Protocol, SBSTA and SBI facilitated Paris Agreement negotiations. ADP negotiations entailed round tables and workshops on specific provisions. At meetings of the COP, COP presidents played vital roles in building consensus. The COP-17 president hosted a series of informal meetings called *indabas* (i.e., traditional Xhosa meetings in South Africa) that resulted in establishing the ADP; the COP-21 president established *le Comité de Paris* that delivered the final treaty text.[56] Many parties negotiated under blocs, such as Group 77 and China supporting elements of finance, technology and capacity-building.[57] The Paris Agreement was adopted at COP-21.

2.1.3 Making the ILBI

In 1982, LOSC was adopted as the foundation of the law of the sea regime. It established the Meeting of State Parties (SPLOS), International Seabed Authority (ISA) and a commission and tribunal. The UN Office of Legal Affairs Division for Ocean Affairs and the Law of the Sea (DOALOS) is the LOSC secretariat. With SPLOS's limited powers, the General Assembly makes decisions on the law of the sea beyond SPLOS's purview. In 2015, the General Assembly adopted a resolution to initiate the making of the ILBI to have legal force under LOSC and establish itself as the decision-making body of that process.[58] The ILBI's main goal is to 'ensure the [long-term] conservation and sustainable use

52 Dec. 1/CP.20, 'Lima Call for Climate Action' (adopted 14 December 2014), in COP-20 Report Addendum (2 February 2015), FCCC/CP/2014/10/Add.1.

53 Parties' views and proposals on the elements for a draft negotiating text (7 July 2014), ADP.2014.6.NonPaper.

54 Jane Bulmer, Meinhard Doelle and Daniel Klein, 'Negotiating History of the Paris Agreement', in Klein et al. (n 25), p. 71.

55 *Ibid.*, p. 69; Fuentes and Villalpando (n 15), p. 215.

56 *Ibid.*, pp. 61–67; Fuentes and Villalpando (n 15), p. 217.

57 Bulmer et al. (n 54), p. 53.

58 UNGA Res. 69/292 (19 June 2015), para. 1.

of [BBNJ] through effective implementation of the relevant provisions of the [LOSC] and further international cooperation and coordination'.[59]

The ILBI's preparatory work can be traced to 2004. The General Assembly established the Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of BBNJ (BBNJ Working Group).[60] In 2011, the group agreed on a package of elements to be addressed: marine genetic resources; area-based management measures; environmental impact assessments; and capacity-building and the transfer of technology.[61] At its final meeting in 2015, the BBNJ Working Group recommended that the General Assembly develop the ILBI around this package.[62] The General Assembly then established the PrepCom to further develop the package and make recommendations.[63] In 2017, the General Assembly convened the Intergovernmental Conference of the ILBI (IGC) to prepare the treaty.[64]

The ILBI's drafting has remained under the IGC. In 2017, the General Assembly called for an IGC organizational meeting to develop a process for preparing a zero draft.[65] The IGC has convened its four originally planned sessions, with the fourth having been postponed due to the COVID-19 pandemic and a fifth one to come. At the first, parties elected a president and vice presidents and started preparing a draft based on the package, PrepCom report and other materials.[66] The second session included discussions on the IGC president's proposals to facilitate options for the package, negotiations and treaty language.[67] Between these sessions, participants reviewed treaties relating to BBNJ and drafted provisions. The president, with secretariat support from DOALOS, prepared a full draft treaty for the third session, to which parties requested the president to revise for the fourth.[68] At the fourth, Parties decided

59 Draft ILBI (n 12), Article 2.

60 UNGA Res. 59/24 (17 November 2004), para. 73.

61 Letter from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly (30 June 2011), A/66/119, Annex para. 1(b); Cymie R. Payne, 'Negotiation and Dispute Prevention in Global Cooperative Institutions', 22 *International Community Law Review* (2020), pp. 428, 430.

62 Letter from the Co-Chairs of the Ad Hoc Open-ended Informal Working Group to the President of the General Assembly (13 February 2015), A/69/780*, Annex para. 1(e).

63 UNGA Res. 69/292 (n 58), para. 1(a).

64 UNGA Res. 72/249 (adopted 24 December 2017), paras. 1, 21–22.

65 *Ibid*., para. 4.

66 Statement by the President at the closing of the first session (20 September 2018), A/CONF.232/2018/7.

67 Statement by the President at the closing of the second session (18 April 2019), A/CONF.232/2019/5.

68 Statement by the President at the closing of the third session (13 September 2019), A/CONF.232/2019/10*.

a fifth session was needed and agreed to work on submissions to contribute to another revised version in advance. It's unclear whether the fifth session will result in states agreeing on the revised draft, but the General Assembly's view is to adopt the ILBI as soon as possible.[69]

The IGC, General Assembly and SPLOS have facilitated ILBI negotiations. Many parties negotiated around the package in blocs (e.g., Alliance of Small Island States). The General Assembly's rules of procedure apply *mutatis mutandis* to IGC sessions with additional rules on consensus building.[70] During the second session, parties decided to facilitate 'informal-informals' at the third and fourth sessions.[71] This involved small groups with focused negotiations meeting in parallel. The IGC president has also facilitated negotiations between IGC sessions. For example, parties were asked to study the revised draft treaty (November 2019), decide whether agreement is reached and consider additional proposals. She encouraged delegations to consult each other prior to the fourth and fifth sessions, aiming for negotiations to streamline stage 1 to conclusion.[72]

2.2 *Cross-Case Analysis*

Five main conclusions have been drawn in comparing the analytical findings from stage 1 of making the Paris Agreement and ILBI. First, intergovernmental bodies facilitated both processes. The UNFCCC COP oversaw the Paris Agreement; the General Assembly is overseeing the ILBI, since adopting such a treaty is beyond SPLOS's powers. Second, outstanding and growing issues under the framework conventions drove the preparatory work of both treaties. COP decisions led to the Paris Agreement's main elements, which were based on difficulties in achieving UNFCCC goals; the BBNJ Working Group's and PrepCom's reports developed into the ILBI's package, which is based on gaps in the LOSC and other treaties. Third, drafting and negotiating did not begin until the treaties' main elements were agreed upon. Fourth, the decision-making bodies of both treaties assigned temporary drafting bodies to incrementally develop texts. Intergovernmental body presidents, in cooperation with the respective secretariats, took on final drafting tasks for both treaties. Finally, intergovernmental sessions and drafting body meetings provided negotiating fora, but the most critical negotiations were more informal, focused meetings.

69 UNGA Res. 72/249 (n 64), para. 1.
70 *Ibid.*; Fuentes and Villalpando (n 15), p. 208.
71 President Statement from the second session (n 67).
72 Draft ILBI (n 12), Introduction para. 9.

2.3 *Discussion*

Treaty-making processes are comprised of four stages. This section synthesized existing legal evidence on stage 1 (drawing up). This is the most formative stage but has the least number of rules. Indeed, general international law provides virtually no rules on stage 1.[73] This article proposes that stage 1 encompasses three components: preparation, drafting and negotiation. Decision-making bodies of treaty-making processes oversee these components and the distinct bodies that execute them. At times, this involves decision-making bodies and other treaty-making bodies interfacing with other actors, including scientific expert bodies. Stages 2 to 4 generally do not entail scientific actors.

The case studies demonstrated that parties have discretion in choosing how to prepare, draft and negotiate treaties. Nevertheless, stage 1 was similar across the cases, entailing similar treaty-making bodies, procedures and strategies. However, some identified differences were the conditions of treaty-making bodies (e.g., permanent versus ad hoc), political interests in negotiating the packages and best means for adopting treaties within the international law regimes and fora. Building on this section's background analysis, sections 3 and 4 investigate scientific expert body participation in treaty-making and interfaces between treaty-making and scientific expert bodies.

3 Scientific Expert Body Participation

Scientific actors are integral to treaty-making. While innumerable scientific expert bodies provide evidence and advice relevant to the making of any given treaty, treaty-making bodies formally call on specific bodies to contribute to stage 1. This includes requesting permanent bodies and establishing temporary, ad hoc ones to deliver reports on the problems underlying the development of treaties and advice on the potential consequences of legal provisions. Types of scientific expert bodies include committees, panels, processes, subsidiary bodies and working groups. Treaty-making and/or scientific expert bodies themselves adopt rules that inform scientific expert body participation in treaty-making processes.

This section analyses the legal parameters of scientific expert body participation in treaty-making. The analysis is limited to the scientific expert bodies

73 Certain VCLT rules apply to stages 2 to 4 (e.g., Article 7 defines the full powers of state representatives to 'adopt and authenticate' and 'express consent to be bound'). Also, rules of procedure of decision-making bodies inform treaty-making, but they apply generally (i.e., not specifically to treaty-making).

formally involved in stage 1 of making the Paris Agreement and ILBI, whereby the decision-making bodies of these processes adopted decisions or resolutions to involve them. The following research method was used. Relevant UN databases were searched for primary sources on the two cases. Eligible documents identified included: treaties, memoranda of understanding, resolutions, decisions, procedures, codes of conduct, conflict of interest (COI) policies and outputs of scientific expert bodies. Scholarly databases were also searched for relevant secondary literature. The primary and secondary sources were then analysed for evidence on the legal parameters of scientific expert body participation, including through their: establishment, mandate, governance structure, rules and outputs.

3.1 *Analytical Findings*

3.1.1 Scientific Expert Body Participation in Making the Paris Agreement

Stage 1 of the Paris Agreement primarily involved two scientific expert bodies: the Intergovernmental Panel on Climate Change (IPCC) and SBSTA. These bodies were permanently established decades ago, as the international climate change law regime predates the Paris Agreement and greatly relies upon science. Their mandates have changed according to legal and policy developments and member states' needs. These bodies generated evidence, estimations and projections on climate change and national actions and provided advice that informed the Paris Agreement.

In 1988, UNEP and the World Meteorological Organization (WMO) established the IPCC through a memorandum of understanding.[74] Its mandate is threefold: assess scientific information on climate change; assess environmental and socioeconomic impacts of climate change; and formulate strategies to meet climate change challenges.[75] The IPCC has a plenary, bureau and secretariat to oversee and coordinate three working groups in pursuing this mandate. Within assessment cycles, the working groups prepare reports and policy options for governments, UN agencies and the public. Also in 1988, the General Assembly endorsed the IPCC, noting 'emerging evidence indicates that continued growth in atmospheric concentrations of "greenhouse" gases could produce global warming with [...] effects of which could be disastrous for mankind if timely steps are not taken'.[76]

74 Memorandum of Understanding between UNEP and WMO on the IPCC (1989).

75 *Ibid.*, para. 1.

76 UNGA Res. 43/53 (6 December 1988), Preamble, para. 7.

The IPCC's governance structure is multifaceted. Its 195-member state plenary meets annually to vote on the work programme, bureau members, working group mandates and chairs and approval of reports and procedures. The bureau guides the plenary on scientific and technical work and advises it on management.[77] The working groups consist of independent authors, contributors and reviewers that the IPCC neither pays nor employs; they should reflect balanced gender and geographic representations.[78] Their six assessment reports and many synthesis, methodology and special reports have informed treaties. The UNFCCC secretariat said the second assessment report's 'statement that "the balance of evidence suggests a discernible human influence on global climate", stimulated many governments into intensifying negotiations on what was to become the Kyoto Protocol'.[79]

IPCC rules aim to ensure sound scientific work. In 1998, member states adopted the Principles Governing IPCC Work that require 'comprehensive, objective, open and transparent' work and neutrality through expert and government reviews.[80] The principles cover report preparation and publication, financial procedures and bureau elections. After a 2010 request from UN Secretary-General Ban Ki-moon and IPCC Chair Rajendra Pachauri, the InterAcademy Council independently reviewed the IPCC rules, and member states adopted changes, including the 2011 COI Policy to protect the IPCC's legitimacy, integrity and credibility.[81] A committee oversees this policy and reviews working groups' COI reports. The IPCC also follows WMO's ethics code and staff regulations.

Many IPCC outputs informed the Paris Agreement. In 2012, the *Special Report on Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation* provided key information on adaptation. The

77 'Terms of Reference of the IPCC Bureau', in Decisions Taken with Respect to the Review of IPCC Processes and Procedures: Governance and Management (IPCC 33rd Session, 2011), Annex A para. 5.

78 IPCC, *Structure* (2020), available at: https://archive.ipcc.ch/organization/organization_structure.shtml. Accessed on 11 March 2022.

79 UNFCCC, *Background – Cooperation with the IPCC* (2020), para. 5, available at https://unfccc.int/topics/science/workstreams/cooperation-with-the-ipcc/background-cooperation-with-the-ipcc. Accessed on 11 March 2022.

80 *Principles Governing IPCC Work* (IPCC 14th Session, 1 October 1998), as amended up to the 37th Session, paras. 2–3.

81 *Review of IPCC Processes and Procedures* (IPCC, 2020), https://archive.ipcc.ch/organization/organization_review.shtml; 'Conflict of Interest Policy', in Decisions Taken with Respect to the Review of IPCC Processes and Procedures (IPCC 33rd Session, 2011) and 'Conflict of Interest Policy*' (IPCC 34th Session, 2011).

treaty advanced adaptation in the international climate change law regime.[82] Following a 2013 UNFCCC request, the IPCC prepared guidance on inland wetlands and expressed hope it would inform international action on wetlands.[83] The treaty features mitigation provisions on conserving and enhancing wetlands.[84] The UNFCCC secretariat also noted that the IPCC fifth assessment report 'inform[ed] the negotiations and policy formulation towards the Paris Agreement'.[85] Additionally, the UNFCCC COP and SBSTA requested technical papers from the IPCC up to the treaty's adoption.

The other major scientific expert body, the SBSTA, was established as a permanent UNFCCC COP subsidiary body 'to provide the [COP …] with timely information and advice on scientific and technological matters relating to the Convention'.[86] Its mandate is fivefold: assess scientific knowledge on climate change; assess UNFCCC's implementation; identify and advise on technology; advise on scientific programmes, international research, development cooperation and capacity-building; and respond to the COP's questions.[87] The COP described the SBSTA as 'the link between the scientific, technical and technological assessments and the information provided by competent international bodies, and the [COP's] policy-oriented needs'.[88] The SBSTA's work provided the COP with a scientific basis for interpreting difficulties in achieving UNFCCC's goals and how a new treaty could address them.

The SBSTA's governance structure includes a chair, vice chair and rapporteur. The COP elects the chair, approves the SBSTA's agenda and elaborates its terms and functions. The SBSTA is open to UNFCCC parties and elects its own vice chair and rapporteur. The COP and SBSTA must fill these seats with due regard to equitable geographic representation.[89] UNFCCC parties can participate in SBSTA sessions and nominate individuals for the Roster of Experts to assist the SBSTA. The SBSTA is thus made up of a more political membership with state representatives and state-nominated experts. SBSTA sessions are normally private.

82 Paris Agreement (n 12), Articles 2(b), 7.

83 SBSTA session thirty-three Report (4 December 2010), FCCC/SBSTA/2010/13, paras. 72–73.

84 Paris Agreement (n 12), Preamble, Articles 4(1), 5(1), 13(7)(a).

85 *Background – Cooperation with the IPCC* (n 79), para. 5.

86 United Nations Framework Convention on Climate Change (8 May 1992), 1771 UNTS 107 (UNFCCC), Article 9(1).

87 *Ibid.*, Article 9(2).

88 Dec. 6/CP.1, 'The subsidiary bodies established by the Convention' (adopted 7 April 1995), in COP-1 Report Addendum (6 June 1995), FCCC/CP/1995/7/Add.1, Preamble para. 3(a) and Annex I.

89 Draft Rules of Procedure of the COP and its Subsidiary Bodies (22 May 1996), FCCC/CP/1996/2 (Draft Rules of Procedure), Rule 27(5).

The COP's decisions and draft rules contain rules for the SBSTA. UNFCCC obliged the COP to adopt rules of procedure at COP-1, but this has not eventuated due to disagreement on a voting provision.[90] The 1996 draft rules of procedure have however largely been followed.[91] These provide election procedures and representation requirements for the SBSTA and empower the COP to adjust its work programme.[92] Some parties proposed the development of a COI policy, but this also has not eventuated due to parties opposing.[93]

Several SBSTA outputs informed the Paris Agreement. In 2014, the SBSTA reviewed the IPCC's fifth assessment report and submitted its conclusions to the COP. It also invited the IPCC to inform the COP about gaps in the report.[94] In 2015, the SBSTA and SBI prepared a joint report for the COP following their two-year review of the long-term temperature goal and related issue (e.g., adaptation, loss and damage and climate vulnerabilities).[95] The report's content aligned with negotiation topics and treaty provisions. The SBSTA also promoted work on development and technology transfer, which feature in the treaty. Moreover, the ADP was mandated to be informed by the SBSTA's work.[96] In producing and relaying scientific knowledge between the COP and IPCC and informing the ADP, the SBSTA was integral to making the Paris Agreement.

3.1.2 Scientific Expert Body Participation in Making the ILBI

Stage 1 of making the ILBI primarily involved two scientific expert bodies: the Regular Process for Global Reporting and Assessment of the State of the Marine Environment (Regular Process) and BBNJ Working Group. The law of the sea regime does not have a permanent scientific expert body exclusively working on BBNJ. The General Assembly mandated the existing Regular Process and established the BBNJ Working Group to generate evidence on BBNJ issues and advise on legal decisions regarding the ILBI, which informed the IGC and PrepCom. This section analyses the legal parameters of these scientific expert bodies' participation.

The Regular Process is a global mechanism that conducts reviews of environmental, economic and social aspects of the oceans. Established by the

90 UNFCCC (n 86), Article 7(3); Fuentes and Villalpando (n 15), p. 209.

91 Joanna Depledge, *Pocket Guide to the UNFCCC* (2019), p. 38.

92 COP-9 Report Addendum (12 December 2003), FCCC/CP/2003/6/Add.1, Annex I.

93 *Attempts To Block Issue Of 'Conflict Of Interest' Policy In UNFCCC* (Corporate Accountability International 2018).

94 IPCC Fifth Assessment Report (5 December 2014), FCCC/SBSTA/2014/L.27, paras. 3, 5.

95 Report on the structured expert dialogue on the 2013–2015 review (4 May 2015), FCCC/SB/2015/INF.1 (SED Report).

96 Durban Platform (n 49), para. 6.

General Assembly in 2004, the Regular Process's mandate is found in resolutions approving its assessment cycles.[97] The first cycle focused on establishing a baseline for measuring the state of the marine environment and resulted in the *World Ocean Assessment* (*WOA*)-*I*.[98] The second cycle extended to assess trends and identify gaps, resulted in *WOA-II* and other assessments and supported ocean-related intergovernmental processes, including Agenda 2030 and the ILBI's development.[99] The third ongoing cycle has a similar mandate but also includes a capacity-building programme to strengthen science-policy interfaces.[100]

The Regular Process has the following governance structure. The General Assembly sets its agenda and policies. It established the Ad Hoc Working Group of the Whole on the Regular Process (Working Group of the Whole) to oversee and guide the mechanism.[101] Under two co-chairs appointed by the General Assembly's president and from developing and developed countries, the group comprises UN member states and a bureau of fifteen members from the UN's five regions. The Working Group of the Whole supervises two groups. The group of experts, comprised of twenty-five members nominated by the UN's regional groups to reflect balanced gender and geographic representations and different disciplines, conducts research during assessment cycles.[102] The pool of experts, comprised of UN member state nominees and respondents to calls, assists the group of experts. All these experts work in their personal capacity.[103] Experts from international organizations also contribute to the groups.

International law guides the Regular Process' policies and procedures.[104] The Working Group of the Whole indicated several principles that apply to the mechanism: using sound science and promoting scientific excellence; linking with policymakers; recognising and utilising traditional and Indigenous knowledge; transparency and accountability; exchanging information at all

97 UNGA Res. 57/141 (12 December 2002).

98 *First Cycle of the Regular Process* (2021), available at https://www.un.org/regularprocess/content/first-cycle. Accessed on 11 March 2022.

99 *Second Cycle of the Regular Process* (2021), available at https://www.un.org/regularprocess/content/second-cycle-regular-process. Accessed on 11 March 2022.

100 *Third cycle of the Regular Process* (2021), available at https://www.un.org/regularprocess/cycle3. Accessed on 11 March 2022.

101 UNGA Res. 65/37 (7 December 2010), para. 203.

102 Working Group of the Whole Report (15 March 2012), A/67/87, Annex III para. 6.

103 *Ibid.*, Annex III para. 5(g).

104 Working Group of the Whole Report (14 March 2013), A/68/82, para. 7.

levels; and adherence to equitable geographical representation.[105] No COI policy was found.

Several Regular Process outputs informed the ILBI. The 2016 *WOA-I* and 2021 *WOA-II* provide comprehensive oceanic assessments, including with information pertinent to the ILBI's package. In 2017, three technical abstracts covering BBNJ issues were published, with the *Technical Abstract of the First Global Integrated Marine Assessment on the Conservation and Sustainable Use of BBNJ* particularly supporting the ILBI. The Regular Process has also facilitated regional workshops and developed promotional materials. These deliverables satisfy the mechanism's ILBI-related mandate.

In 2004, the General Assembly established the BBNJ Working Group to study BBNJ issues and make recommendations and recalled that applying marine scientific knowledge to decision-making 'is important for eradicating poverty, contributing to food security, conserving the world's marine environment and resources, helping to understand [...] natural events, and promoting the sustainable development of the oceans and seas'.[106] The BBNJ Working Group's mandate was fourfold: survey international organizations' BBNJ activities; examine scientific, legal, environmental, socioeconomic and other aspects of BBNJ; identify issues for more studies; and indicate approaches for international cooperation.[107] The UN secretary-general's 2005 report on oceans and law of the sea addressed these points to guide the group and DOALOS's secretariat support.[108]

The BBNJ Working Group was an ad hoc informal group and not as institutionalized as the Regular Process or IPCC. The General Assembly's president, in consultation with member states, appointed two co-chairs from developed and developing countries.[109] The BBNJ Working Group did not have its own rules; rather, it was required to facilitate sessions in accordance with the General Assembly's rules of procedure.[110] This entailed co-chairs coordinating its meetings and inviting scientific experts to present. Meetings were open to all UN member states and LOSC state parties, and delegations were encouraged

105 Report on the Working Group of the Whole to recommend a course of action to the General Assembly on the regular process (11 September 2009), A/64/347, Annex para. 21.

106 UNGA Res. 59/24 (n 60), Preamble and para. 73.

107 *Ibid.*

108 *Ibid.*, para. 74; Addendum to the Report of the Secretary-General: Oceans and the law of the sea (15 July 2005), A/60/63/Add.1.

109 UNGA Res. 60/30 (29 November 2005), para. 80.

110 Rules of Procedure of the General Assembly (with amendments and additions up to September 2016) (reissued 21 February 2017), A/520/Rev.18* (Rules of Procedure).

to include experts.[111] The group invited observers, including NGOs holding consultative status with the Economic and Social Council and accreditation with the Commission on Sustainable Development. Meetings were conducted in closed sessions; however, the General Assembly recognized the importance of making the BBNJ Working Group's outcomes widely available.[112] No COI policy was found.

Several BBNJ Working Group outputs informed the ILBI. The group submitted reports to the General Assembly and SPLOS. Based on evidence reviews, expert assessments and in-session communications, the reports provided information on key issues, including elements the General Assembly has since agreed on for the ILBI's package.[113] The co-chairs also submitted joint statements summarizing issues needing further assessment and proposals raised during meetings. These statements illustrated issues for the General Assembly to scrutinize and give legal attention to in treaty drafts and negotiations. The General Assembly established the PrepCom, albeit more legal and policy-oriented, to consider these outputs and conduct further preparatory work.[114] Therefore, the BBNJ Working Group has been central to the ILBI.

3.2 *Cross-Case Analysis*

This sub-section compares findings from the five categories used to analyse scientific expert body participation in stage 1 of making the Paris Agreement and IBLI. First, intergovernmental bodies or international organizations *established* the scientific expert bodies through memoranda of understanding, resolutions or other agreements. Permanent scientific expert bodies (e.g., SBSTA) were longstanding with workstreams predating and continuing beyond the treaty-making process; decision-making bodies reviewed their regular reports and requested information from them. Ad hoc scientific expert bodies (e.g., BBNJ Working Group) were temporary and exclusively contributed to treaty-making; their work concluded upon submitting reports and recommendations to treaty-making bodies.

Second, the scientific expert bodies had similar *mandates*. Although their substantive work differed, all were requested or required to assess the problems and main elements underlying the treaties being developed, generate scientific knowledge and advise treaty-making bodies. Permanent scientific expert bodies operated on cycles to regularly prepare outputs; however, due to

111 UNGA Res. 60/30 (n 109), para. 79.

112 UNGA Res. 59/24 (n 60), para. 76.

113 Letter dated 13 February 2015 (n 62), Annex para. 1(f).

114 UNGA Res. 69/292 (n 58), para. 1(a).

their comprehensive work, their reports often only partially pertained to treaty-making bodies, save the technical reports requested by treaty-making bodies. Ad hoc scientific expert bodies assessed specific issues pertaining to the treaties being developed. All the scientific expert bodies' mandates transcended single-topic scientific issues to cover related issues (e.g., socioeconomic).

Third, the scientific expert bodies' *governance structures* differed according to the institutional framework of their international law regime. They all ultimately reported to intergovernmental bodies. Bureaus, chairs or committees, comprised of appointees from intergovernmental bodies, managed the scientific expert bodies' work programmes. Working groups of experts then executed the science. Independence of the experts was a core feature across most of the scientific expert bodies, except those with state representatives. Furthermore, political seats and working group membership always required balanced geographic representation and sometimes representation of developing and developed countries, gender and interdisciplinarity.

Fourth, *rules* informed how the scientific expert bodies operated. Most permanent bodies had specific rules, while ad hoc ones followed general or disparate rules from resolutions or decisions. Some scientific expert bodies had full-fledged COI policies, others followed disparate decisions on COIs and others had no COI policy. For example, the IPCC had a well-established COI policy adopted after an external review of its policies and procedures. Actual, potential or perceived COIs were never disclosed in the IPCC outputs reviewed, but certain bodies provided annual reports on COI compliance that almost always indicated full compliance. Moreover, the UN's standard ethics and policies apply to all UN bodies, but the relevant COI mechanisms only apply to staff members or service provisions. Overall, procedures and principles, including limited COI policies, could be improved to strengthen the objectivity and integrity of scientific expert body participation.

Fifth, *key outputs* of scientific expert bodies entailed: draft decisions, information, promotional materials, recommendations, reports and statements. While some scientific expert bodies produced comprehensive assessment reports for multi-year cycles, others delivered targeted reports. Regardless, the outputs allowed treaty-making bodies to understand the problems underlying treaties and gain clarification on scientific (un)certainties. Attempting to measure the extent that these outputs impacted treaty-making bodies would present challenges; however, decision-making bodies regularly referenced scientific expert body outputs in meetings and mandated drafting and negotiating bodies to consider the outputs. Scientific expert bodies thus played essential roles in the treaty-making processes analysed.

3.3 *Discussion*

Majority of the treaty-making bodies in stage 1 of the Paris Agreement and ILBI were required to consider work of scientific expert bodies. In analysing the establishment, mandates, governance structures, rules and outputs of scientific expert bodies in these treaty-making processes, this section ascertained the legal parameters of their participation. The scientific expert bodies were mandated to deliver outputs to treaty-making bodies and advise them. Each scientific expert body had a different governance structure and set of rules. Their outputs and advice were often reflected in negotiation topics, including the main elements of treaties, and provisions in treaty texts. Some were more politically-constituted and some had more established COI policies. These and other differences indicate that scientific expert bodies are regulated at varying levels in treaty-making, which could inform their outputs and/or dissemination of their outputs to treaty-making bodies. Building on this comparison, Section 4 provides analysis of how treaty-making and scientific expert bodies interface.

4 Interfaces: Treaty-Making and Scientific Expert Bodies

Treaty-making and scientific expert bodies directly interact and exchange views during stage 1 of making treaties.[115] In this article, these contact points are referred to as *interfaces* and are generally categorized as either: *intergovernmental interfaces*, where scientific expert bodies participate in high-level meetings through plenaries or side events; or *dialogical interfaces*, including consultations, floor discussions, working group sessions or workshops. Both types often complement scientific expert bodies' outputs and enable treaty-making bodies to ask questions, determine their needs and gain clarification on scientific findings.

This section analyses how treaty-making and scientific expert bodies interfaced during stage 1 of making the Paris Agreement and ILBI. The UNFCCC COP, SBSTA, General Assembly, SPLOS, IGC, BBNJ Working Group, UN Open-ended Informal Consultative Process on Oceans and the Law of the Sea (Consultative Process) and Regular Process facilitated interfaces. Interfaces were eligible for analysis if representatives of both treaty-making and scientific expert bodies attended; thus, meeting agendas, presentations and lists of participants were reviewed for participants and their professional titles and affiliations. Events with individual scientific experts only (i.e., not representing scientific expert

115 Boyle and Chinkin (n 3), p. 20.

bodies) were also analysed due to the lack of confirmable scientific expert body representation in some key interfacial events.

The following method was used to analyse the interfaces. Relevant UN databases were searched for primary sources on the two cases. Eligible documents identified included: rules of procedure; resolutions; decisions; and event documentation (i.e., agendas, participant lists, presentations and reports). Scholarly databases were also searched for relevant secondary literature. The eligible primary and secondary sources were then analysed against the interfaces': purpose, participation, facilitation, points of exchange and outcomes.

4.1 *Analytical Findings*

4.1.1 Interfaces within the Making of the Paris Agreement

Two predominate interfaces were identified in stage 1 of making the Paris Agreement: UNFCCC COP sessions and the Structured Expert Dialogue (SED). COP sessions included scientific expert body representatives addressing the plenary and facilitating side events. The SED, a SBSTA-SBI joint mechanism for reviewing international climate change law goals, provided a platform for scientific expert body representatives to respond to parties' questions during the Paris Agreement's formation. Overall, the pre-existing UNFCCC structures and practices enabled strong interfaces to emerge.

Stage 1 of making the Paris Agreement spanned COP-17 to 21. These meetings brought together: UNFCCC parties, observers and subsidiary bodies; UN bodies and specialized agencies; NGOs; and media representatives.[116] The COP invited certain scientific expert bodies, and some party and NGO delegations included scientific experts. Two codes regulated these meetings: the draft rules of procedure and code of conduct for UNFCCC conferences, meetings and events. Each COP had a bureau with a president, seven vice presidents, the SBSTA and SBI chairs and a rapporteur. The draft rules provide procedures requiring COP presidents to grant permission to speakers, while giving the SBSTA and SBI chairs and rapporteur precedence to explain their body's work.[117] Furthermore, the COP requested delegations to submit written inputs for Paris Agreement negotiations.

Scientific expert bodies participated in these COP sessions in two ways. COP presidents permitted some scientific experts to address the plenary. From COP-17 to 21, IPCC Chair Pachauri addressed the plenary, including to conclude COP-20's opening statement with findings from the IPPC's fifth assessment. Delegations also had discretion to choose their scientific experts to make

116 Draft Rules of Procedure (n 89), Rule 6.

117 *Ibid.*, Rules 32 and 33.

statements on their behalf.[118] Additionally, scientific expert bodies facilitated side events with presentations, workshops and floor discussions. The IPCC secretariat hosted side events with discussions on the fifth assessment report and special reports, including presentations from working group members. While lists of participants of IPCC side events were not found, members of the Paris Agreement's treaty-making bodies were presumably present.

In 2012, the COP established another interface, the SED, to review scientific knowledge on climate change and policy. From 2013 to 2015, the Joint Contact Group between the SBSTA and SBI facilitated the SED to address two themes on the long-term global temperature goal: its adequacy in light of UNFCCC's objective; and progress made towards the goal.[119] The SED entailed four fact-finding sessions with scientific expert discussions, workshops and face-to-face exchanges between UNFCCC parties, observers and scientific experts.[120] Parties submitted about 330 questions before and during the sessions, to which scientific experts answered through sixty presentations and exchanges.[121] Following the sessions, the Joint Contact Group prepared a report and advisory statement on how the SED would inform the ADP's work.[122]

The first SED session covered existing scientific knowledge on the themes with presentations from the IPCC, Hadley Centre and WMO.[123] The second and third sessions entailed IPCC working groups presenting on the fifth assessment report; these sessions enabled scientific experts to explain their findings and respond to parties' inquiries. The fourth session addressed overall findings of the fifth assessment report, UN agency reports, UNFCCC work and emerging scientific information. Many scientific experts attended multiple sessions and many IPCC working group members attended all sessions. The Joint Contact Group described this attendance as generating consistency across sessions and linking scientific knowledge to law and policy.[124] After the sessions, the Joint Contact Group launched the SED report with a panel discussion.

The SED's main output was the Joint Contact Group's report with ten messages.[125] Some messages on the temperature goal were: a long-term global

118 *Ibid.*, Rule 6(2).

119 Dec. 1/CP.18, 'Agreed outcome pursuant to the Bali Action Plan' (adopted Dec. 8, 2012), in COP-18 Report Addendum (28 February 2013), FCCC/CP/2012/8/Add.1, para. 79.

120 *Ibid.*, para. 85; Fischlin (n 25), p. 12.

121 SED Report (n 95), paras. 2, 10 and Annexes V (para. 10), VI (para. 9).

122 Views on how the outcomes of the 2013–2015 review will inform the ADP work (9 April 2014), FCCC/SB/2014/MISC.2, with addendum (30 May 2014), FCCC/SB/2014/MISC.2/Add.1 (SED outcomes).

123 SED Report (n 95), p. 4.

124 *Ibid.*

125 Bali Action Plan (n 119), para. 86(b).

goal of a temperature limit is suitable; assessing the goal's adequacy requires global, regional and local assessments; the 2.0°C limit should be seen as a defence line; and, while science on the 1.5°C warming limit was weaker than that of 2.0°C, the defence line should be pushed as low as possible.[126] Parties inscribed these and other messages into the Paris Agreement.[127] Moreover, official submissions made for the report noted the SED's importance for stage 1 of the Paris Agreement. The Alliance of Small Island States said it 'expects the results of the Review to become an integral component in setting the baseline for the level of mitigation ambition that will be applicable to all in the new 2015 agreement'.[128] The European Union found 'the material provided by the experts, the record of exchanges between parties and the experts, as well as the written and oral reports from the co-facilitators are also relevant inputs to the ADP'.[129] The SED was a robust interface between scientific experts and treaty-making bodies.

4.1.2 Interfaces within the Making of the ILBI

Stage 1 of making the ILBI has entailed six main interfaces at: General Assembly sessions; SPLOS meetings; IGC sessions; Consultative Process meetings; Regular Process workshops; and BBNJ Working Group workshops. The intergovernmental interfaces involved scientific expert bodies and/or individual scientific experts addressing plenaries and facilitating side events; whereas the dialogical interfaces were part of law of the sea mechanisms or bodies' work programmes. The interfaces were analysed due to their relations to the ILBI's making, including through General Assembly mandates.

First, the ILBI or related BBNJ issues were discussed at the General Assembly's 69th to 75th sessions, SPLOS's 25th to 29th meetings and IGC's first four sessions. Rules of procedure guided participation in these sessions. The General Assembly's rules of procedure applied to the General Assembly and *mutatis mutandis* to IGC sessions.[130] Member state delegations could include five representatives, five alternatives and any number of advisers or experts.[131] UN agencies and international organizations participated as observers.[132] IGC sessions also included LOSC state parties and observers. SPLOS's rules of

126 SED Report (n 95), pp. 8–33.
127 Paris Agreement (n 12), Article 2(1)(a).
128 SED outcomes (n 122), para. 8.
129 *Ibid.*, p. 7.
130 UNGA Res. 72/249 (n 64), para. 18.
131 Rules of Procedure (n 110), Rules 25 and 100.
132 Fuentes and Villalpando (n 15), p. 210.

procedure are similar and SPLOS invited international organizations and NGOs based on their expertise.[133]

Scientific experts participated in delegations of certain member states, LOSC state parties and observers, UN specialized agencies and NGOs. The rules of procedure for all three bodies gave delegations discretion to choose which delegates addressed the plenary on their behalf, providing a window for scientific expert participation. However, the General Assembly's rules state the importance of heads of state, ministers and other high-ranking officials being representatives.[134] Only state officials and observers participated in the General Assembly plenary discussions on BBNJ and the ILBI during the above sessions. Therefore, during these sessions, interfaces between members of treaty-making bodies and scientific experts largely remained internal to those delegations with scientific experts.

IGC and SPLOS meetings entailed relevant side events and programmes. At the IGC, the NGO OceanCare's side event 'Perspectives on Integrating Management of Ocean Noise with the element of Marine Genetic Resources' included the International Union for Conservation of Nature (IUCN) and academics presenting on marine protected areas and environment impact assessments addressing noise pollution for BBNJ. Member states and scientific experts also interfaced through the Nippon Foundation's training programme that prepared state representatives from developing countries for the IGC; DOALOS organised this programme to include scientific and policy experts presenting on BBNJ, LOSC provisions and the ILBI's package. SPLOS meetings included presentations on the UN secretary-general's annual report on ocean affairs and the law of the sea and side events with scientific expert presentations. At the 28th meeting, the event 'Shedding light on the deep sea: relevance of recent discoveries for deep ocean management' included the IUCN and academics discussing life in the oceans' depths, deep-sea implications for humanity and translating science into policy.

Second, dialogical interfaces have informed the ILBI. The Consultative Process, established by the General Assembly in 2000, facilitates annual reviews of ocean affairs, the UN secretary-general's annual reports and interagency and intergovernmental coordination.[135] Meetings are open to member states of the UN and its specialized agencies, General Assembly observers,

133 Rules of Procedure for Meetings of States Parties (adopted 24 June 2005), SPLOS/2/Rev.4; Participation of intergovernmental organizations and other entities in SPLOS (1 April 2019), SPLOS/320/Rev.1.

134 Rules of Procedure (n 110), Annex VI, para. 44.

135 UNGA Res. 54/33 (24 November 1999), at para. 2.

LOSC state parties and international organizations with competence in ocean affairs.[136] The Consultative Process has convened twenty meetings with panels of UN officials and scientific experts. In 2004, the 5th meeting covered elements that have become part of the ILBI's package. This meeting's report synthesised discussions on fisheries impacting biodiversity and participants' recognition of the importance of marine protected areas for biodiversity.[137] Some delegations agreed the international community should consider 'the adoption of an international treaty that would provide a mechanism for the establishment and regulation on an integrated basis of marine protected areas on the high seas and the seabed beyond the limits of national jurisdiction'.[138] The 5th meeting report was submitted to the General Assembly one year before the BBNJ Working Group's establishment.

The Regular Process has completed two rounds of regional workshops that aim to reinforce state capacity and science-policy interfaces and undertake assessments.[139] UN member states host and organize the workshops and designate a chair and co-chairs. Experts are appointed with consideration of geographic representation and interdisciplinarity.[140] Regular Process national focal points identify participants from member states of the UN and its specialized agencies.[141] NGOs can participate if they hold consultative status with the Economic and Social Council, related Convention secretariats or meet other requirements.[142] In 2017, Round 1 aimed to raise awareness, inform the second assessment cycle's scope and provide information on *WOA-I*.[143] In 2018, Round 2 supported the collection of regional level information and data for *WOA-II*.[144] The ILBI was not the main agenda item of these events; however, participants discussed the ILBI in relation to the Regular Process.[145] Both

136 *Ibid.*, para. 3(a).

137 Report on the work of the Consultative Process at its fifth meeting (19 June 2004), A/59/122, para. 89.

138 *Ibid.*

139 Regular Process, *Workshops* (2020), https://www.un.org/regularprocess/content/workshops.

140 *Guidelines for the second round of Workshops in 2018 to Assist the Regular Process for Global Reporting and Assessment* (2020), paras. 15–16.

141 *Ibid.*, para. 11.

142 *Ibid.*, para. 12.

143 See https://www.un.org/regularprocess/content/first-round-regional-workshops. Accessed on 11 March 2022.

144 See https://www.un.org/regularprocess/content/second-round-regional-workshops. Accessed on 11 March 2022.

145 Report on the Working Group of the Whole (7 September 2018), A/73/373, para. 20(y), and (19 May 2017), A/72/89, paras. 10, 17(b).

rounds included scientific experts, DOALOS staff and state representatives involved in ILBI negotiations.

The BBNJ Working Group facilitated intersessional workshops to improve understandings of BBNJ.[146] The General Assembly approved the workshops and encouraged states to involve relevant experts.[147] The group's co-chairs facilitated the workshops amongst: UN member states, observers, bodies and agencies; the BBNJ Working Group's group of experts; other international organizations; and select NGOs. Participants submitted background information and the co-chairs, in consultation with member states, organised scientific expert panels and discussions on BBNJ issues now in the ILBI's package. For example, the 2013 workshops addressed marine genetic resources and conservation and management tools (e.g., area-based management and environmental impact assessments). Legal presentations often followed the panels. The BBNJ Working Group said the workshops offered 'valuable scientific and technical expert information as an input' to its work.[148] The above events brought together members of treaty-making bodies and scientific experts.

4.2 *Cross-Case Analysis*

This sub-section compares the interfaces between treaty-making and scientific expert bodies in stage 1 of making the Paris Agreement and ILBI. In both cases, intergovernmental sessions provided environments for interfacing. Each intergovernmental body followed rules of procedure that determined if and how scientific experts were permitted to participate. Many state/party delegations included scientific experts. While no such delegation was found to have chosen scientific experts as representatives in session, they had discretion to do so. Most sessions allowed UN bodies, international organizations and select NGOs to attend as observers and include scientific experts. A few observer organizations were scientific expert bodies themselves. Some observers chose scientific experts to address the plenary; however, with the exception of the IPCC Chair, their speaking times were quite limited. Majority of interfacing was thus internal to delegations. These findings demonstrate the complexity of legal procedures governing intergovernmental interfaces.

146 Summary of proceedings prepared by the Working Group Co-Chairs (10 June 2013), A/AC.276/6*.

147 UNGA Res. 59/24 (n 60), para. 75.

148 Letter from the Co-Chairs of the Working Group to the President of the General Assembly (23 September 2013), A/68/399, Annex para. 1(a).

Furthermore, scientific expert bodies and individual scientific experts facilitated and participated in side events. The side events featured presentations and panels, including with floor discussions and exchanges between members of treaty-making bodies and scientific experts. However, these events had limited documentation, so concrete conclusions based on attendance of these interfaces cannot be drawn.

In both case studies, dialogical events also entailed interfaces. Some scientific expert bodies' work programmes included such events and some intergovernmental bodies established events specifically for treaty-making processes. For example, the UNFCCC COP established the SED to cover themes pertinent to the Paris Agreement. Discussions led to key messages that informed the ADP and COP. Similarly, the General Assembly approved BBNJ Working Group workshops, where scientific experts presented and responded to member states' inquiries. The form of interaction and exchange at such events depended on the organizing bodies, institutional contexts and relations between the treaty-making and scientific expert bodies, but the informal nature appeared fruitful for advancing stage 1.

4.3 *Discussion*

The interfaces analysed from stage 1 of making the Paris Agreement and ILBI show that treaty-making processes include many points of interaction and exchange between treaty-making and scientific expert bodies. The interfaces ultimately depended on the willingness of treaty-making bodies to consider, understand and apply science. The most successful interfaces involved decision-making bodies mandating their subsidiary bodies to initiate events between decision-making and scientific expert bodies. These mandates had defined scopes to guide exchanges on the treaties' main elements, encouraged wide participation and required conclusive reports for drafting and negotiating bodies to review. Thus, the importance and potential of interfaces are not only their immediate contact between drafters or negotiators and scientific experts, but also the process of those engagements and how other treaty-making bodies can access and/or are mandated to build on the interfacial outcomes.

5 Conclusion

This article has contributed legal analysis on scientific expert body participation in treaty-making processes. Stage 1 (drawing up) of the general treaty-making process is the most formative stage and provides windows for scientific expert

body participation. The lack of rules for stage 1 gives parties discretion in preparing, drafting and negotiating treaties, including when and to what extent scientific expert bodies can participate.[149] The cases suggest that stage 1 was similar across two treaties from different international law regimes. Making the Paris Agreement (international climate change law regime) and ILBI (law of the sea regime) comprised some similar treaty-making bodies, procedures and strategies. The main differences were the conditions of the treaty-making bodies, political interests in negotiations and best means for adopting the treaties within the regimes.

During stage 1, scientific expert bodies participate in three predominate ways. First, they generate evidence and information for treaty-making bodies and transmit these to them. Decision-making bodies mandate scientific expert bodies to deliver outputs on the problems underlying treaties. Then, preparatory, drafting or negotiating bodies are often required to be informed by such outputs. This process supports the development and refinement of the main elements of treaties, aligns discussions across negotiating bodies and informs provisions in treaty texts. Quantifying the extent that scientific expert bodies' deliverables impact treaty-making is difficult given the diversity of processes, governance structures, policies and rules, but intergovernmental bodies continue to establish new and mandate existing scientific expert bodies to deliver outputs.

Second, scientific expert bodies advise treaty-making bodies. On one hand, scientific expert bodies publish regular outputs indicating legal and policy implications. Such outputs broadly advise intergovernmental bodies and governments, rather than addressing specific treaty-making bodies. On the other hand, intergovernmental bodies request scientific expert body advice (e.g., guidance on the substance of draft provisions). Scientific expert bodies can therefore tailor their work to the expressed needs of treaty-making bodies. The advisory role of scientific expert bodies allows treaty-making bodies to better understand the impacts of their decisions and to measure the potential effects of legal provisions against science.

Third, scientific expert bodies directly interface with treaty-making bodies. Interfaces occur at intergovernmental sessions and dialogical events. The conditions and extent of each interface depend on how open decision-making bodies are to consider, understand and use science, as well as the relations between the treaty-making and scientific expert bodies. Many dialogical interfaces clarified and synthesized scientific evidence for members of treaty-making bodies. In the cases, the Paris Agreement's and ILBI's decision-making

149 Fuentes and Villalpando (n 15), p. 201.

bodies mandated a subsidiary body and approved an ad hoc body, respectively, to initiate dialogical events for international law-science exchange between members of treaty-making bodies and scientific experts. These interfaces (i.e., SED sessions and BBNJ Working Group workshops) encouraged wide participation, had defined scopes and required conclusive reports for drafting and negotiating bodies to consider later. This third role informs members of treaty-making bodies and, by reporting on the interfaces, treaty-making processes at large.

Scientific expert body participation in treaty-making has implications for international law. The first implication concerns this article's finding that scientific expert body participation is not always formalized or institutionalized. Several scientific expert bodies are devoid of defined rules and procedures for their participation in treaty-making. Two recommendations can be given to address this uncertainty in the international community. A general protocol could be developed under the Vienna Convention on the Law of Treaties and apply to scientific expert bodies across the UN system; however, this would be difficult as UN bodies overseeing treaty-making, scientific expert bodies across fields and scientific expert body participation across treaty-making processes are not harmonized. A more pragmatic approach is for the General Assembly to adopt a resolution urging intergovernmental bodies and international organizations to create rules and procedures for scientific expert body participation, according to the respective international law regime and scientific field. This option supports needed specificity in the formalization and institutionalization of scientific expert bodies and increased transparency. Defining the legal parameters of scientific actor participation could further legitimize treaty-making and the scientific evidence bases of international law.

The second implication is that scientific expert bodies involved in treaty-making may become relevant in the implementation and enforcement of treaties following their adoption. Governing bodies that oversee the implementation of many existing treaties have established subsidiary bodies and/or working groups comprised of scientific experts; they provide guidance or information on the interpretation of and obligations within treaties. While such groups are common, the link between scientific expert bodies involved in treaty-making and implementation could be further examined. For enforcement, international courts and tribunals have increasingly reviewed scientific evidence and cross-examined scientific experts during proceedings. Background studies conducted by preparatory bodies during treaty-making processes and the scientific experts involved in those may become relevant for courts, tribunals or compliance mechanisms when making decisions and interpreting treaties.

The third implication is that the increased participation of actors, including scientific actors, in treaty-making may lead to increased risks of actual, potential or perceived COIs. The lack of comprehensive COI policies for scientific expert bodies could compromise their work. Only some scientific expert bodies have safeguards in place. Although all scientific expert bodies under the aegis of the UN should follow UN standard ethics, relevant COI documents under the UN Ethics Office only apply to UN staff or service provisions; they do not extend to the independent experts of scientific expert bodies who are routinely unpaid and unemployed by the UN bodies facilitating them. Therefore, a solution would be to develop a central COI policy to apply to all scientific expert bodies and independent scientific experts across the UN system and their work in treaty-making. Such a policy could be overseen by the UN Ethics Office and/or Joint Inspection Unit.

The findings of this article suggest additional research is warranted. Research on treaty-making within and beyond the international climate change law and law of the sea regimes could be conducted. Applying the methods of this article to other treaty-making processes would expand the pool of evidence presented, identify patterns across a larger set of cases and substantiate the normative findings. Further research on how the outputs, advice and interfaces of scientific expert bodies impact treaty texts could reveal more on the substantive links between treaties and scientific evidence and the authority of scientific evidence. For example, this could include quantitative analysis of the number of times scientific reports are discussed in negotiations and reflected in treaty texts. Further research on the continued roles of scientific expert bodies beyond treaty-making processes, namely in treaty interpretation during implementation and enforcement (e.g., through expert treaty bodies), could also be useful. Finally, further research on how COI policies pertain to scientific expert bodies in treaty-making processes could support the development and adaptation of COI policies.

Treaty-making is an international lawmaking process that has been used to address common, transboundary and global issues. This article has shown that treaty-making involves scientific expert bodies and the ways in which those bodies participate. For treaties to be evidence-based and thus more measured in their application, scientific expert body participation in treaty-making must be clear and interfaces between treaty-making and scientific expert bodies must be optimally facilitated. It is hoped that the legal analysis in this article can inform and foster the international law-science nexus and the further integration of science into stage 1 of treaty-making. As scientific expert bodies inform the IGC's upcoming session and final revisions of the ILBI text and as processes continue to develop for the new treaties on pandemics and plastic

pollution, the conceptual framework, conclusions and recommendations provided in this article could be of use for making more legally and scientifically sound treaties.

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