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Climate Change Loss and Damage: A Case for Mandatory Cooperation and Contribution under the United Nations Convention of the Law of the Sea (UNCLOS)

Rachel Wam

Abstract

While climate change impacts all countries around the world, many of the most vulnerable countries are not just the lowest historical greenhouse gas emitters, but also have the least financial capacity to deal with climate loss and damage. It is thus a matter of climate justice to set up an effective loss and damage fund, which provides fast finance following extreme weather or climate-related disaster events, and funding to address the negative impacts of slow-onset climate events such as sea level rise.

Although the recent COP28 finally operationalized a loss and damage fund, this Article explores how it remains voluntary and inadequate. This Article elaborates on the justifications, background and weaknesses of the current loss and damage regime, before proposing some solutions. This Article argues that the United Nations Convention on the Law of the Sea ("UNCLOS") is an effective tool to ensure mandatory cooperation and contribution to a loss and damage fund, given its compulsory dispute resolution mechanism and Article 235, which covers State responsibility and liability. If climate change resulting from greenhouse gas emissions is construed as marine pollution, it may be argued under UNCLOS that States have an obligation to contribute to and cooperate in the development of a loss and damage fund.

This Article also explores how the climate loss and damage regime can be better structured so that there will be adequate funding. In particular, this Article draws on the existing oil spill compensation regime to propose a two-tiered insurance pool, with the first tier based on contributions from industry and the second tier funded by nations based on their emissions and capacity to contribute.

About the Author

Rachel Wam graduated with an LL.M. from the University of California, Berkeley in 2023. Previously, she graduated with an LL.B. (First Class Honors) from the National University of Singapore and a B.A. in Liberal Arts (*summa*

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cum laude) from Yale-NUS College. She would like to thank Professor Holly Doremus for her comments on the initial draft of this Article, as well as the JELP team for their meticulous editing and feedback. All views expressed in this Article are solely of the author's own, and do not necessarily reflect the views, positions or policies of any organization that the author is or was affiliated with.

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I. Introduction

As the effects of climate change become more perceptible, it is increasingly evident that many climate-vulnerable countries lack the capacity to deal with climate change. In the summer of 2022, Pakistan experienced extreme rainfall that flooded a third of the county, impacted over 33 million people and resulted in the death of over 1,700 people.[1] The historic flooding led to loss and damage of over US$30 billion, which Pakistan's climate minister says the country cannot afford.[2] The sum amounted to almost 10 percent of Pakistan's annual gross domestic product in 2022.[3] Similarly, droughts and

1. *Pakistan: Flood Damages and Economic Losses Over USD 30 Billion and Reconstruction Needs Over USD 16 Billion - New Assessment*, World Bank (Oct. 28, 2022), https://www.worldbank.org/en/news/press-release/2022/10/28/pakistan-flood-damages-and-economic-losses-over-usd-30-billion-and-reconstruction-needs-over-usd-16-billion-new-assessme [https://perma.cc/DR5Y-AHSQ].

2. *Pakistan Can't Afford Flood Recovery, Asks World To Help Out*, Ndtv (Oct. 4, 2022), https://www.ndtv.com/world-news/pakistan-cant-afford-flood-recovery-asks-world-to-help-out-3402409 [https://perma.cc/8RDL-78HE].

3. *GDP (current US$) – Pakistan*, World Bank, https://data.worldbank.org/indicator/NY.GDP.MKTP.CD?locations=PK [https://perma.cc/GM6F-TFR6] (last visited Jan. 23,

floods have increased in intensity in the Sahel and West Africa regions, resulting in 41 million people facing food insecurity.[4] In April 2022, the UN World Food Programme called for US$777 million to tackle famine, malnutrition and drought-induced displacement in the region.[5] In the Pacific, small island developing states ("SIDS") face an existential crisis as their islands are at high risk of disappearing entirely due to sea level rise and are battered by extreme weather events. For example, Vanuatu was hit by two cyclones back-to-back in March 2023, prompting the country to announce a state of emergency.[6]

The inability of these countries to effectively deal with the impacts of climate change prompted a landmark deal in the 2022 United Nations Climate Change Conference of the Parties in Sharm el-Sheikh, Egypt ("COP27"), to establish a loss and damage fund.[7] "Loss and damage" in the context of climate change refers to the negative impacts of climate change. A loss and damage fund aims to provide financial support or compensation for dealing with these negative impacts. Such negative impacts may be economic or non-economic, with the latter referring to losses that are difficult to quantify, such as the loss of culture, community, or biodiversity.[8] The relationship between "loss and damage" and adaptation is politically contentious. While developing countries view responses to climate change as falling within three categories: mitigation, adaptation, and loss and damage,[9] developed countries choose to view loss and damage as a way to finance adaptation measures.[10] This latter definition, which conceptualizes loss and damage as a subset of adaptation, aims to avoid discussions of compensation by averting historical responsibility for climate change. In this sense, developed countries categorize responses to climate change as either mitigation or adaptation. This contrasts the stance of developing countries, where loss and damage covers climate damages that have already been incurred, while adaptation funding is forward-looking and anticipates future

2024).

4. United Nations, *Sub-Saharan Africa Under Threat From Multiple Humanitarian Crises*, UN News (Apr. 8, 2022), https://news.un.org/en/story/2022/04/1115922 [https://perma.cc/2X7Z-N2N2].

5. *Id.*

6. Dechlan Brennan, *Pair of Cyclones Highlights Vanuatu's Vulnerability*, The Diplomat (Mar. 7, 2023), https://thediplomat.com/2023/03/pair-of-cyclones-highlights-vanuatus-vulnerability [https://perma.cc/82UL-X2DK].

7. *COP27 Reaches Breakthrough Agreement on New "Loss and Damage" Fund for Vulnerable Countries*, United Nations Climate Change (Nov. 22, 2022), https://unfccc.int/news/cop27-reaches-breakthrough-agreement-on-new-loss-and-damage-fund-for-vulnerable-countries [https://perma.cc/H4PC-Q9E4].

8. *Loss and Damage: A Moral Imperative to Act*, United Nations, https://www.un.org/en/climatechange/adelle-thomas-loss-and-damage [https://perma.cc/QNN9-FGWZ] (last visited Jan. 23, 2024).

9. *Id.*

10. *What is Climate Change 'Loss and Damage'?*, Grantham Rsch. Inst. on Climate Change and the Env't (Oct. 28, 2022), https://www.lse.ac.uk/granthaminstitute/explainers/what-is-climate-change-loss-and-damage [https://perma.cc/LND9-AKRD].

damages. A potential middle ground, which this Article adopts, is to acknowledge that loss and damage comprises both compensation of losses that have already been suffered and funding for adaptation measures. This is because a loss and damage regime generally consists of (1) fast finance for rehabilitation, recovery and reconstruction following extreme weather or climate-related disaster events; and (2) addressing the negative impacts of slow-onset climate events such as sea level rise.[11] The latter inevitably includes adaptation funding as well.

Given the wide scope of a climate loss and damage regime, it is unsurprising that the COP27 agreement was met with much fanfare.[12] The most recent 2023 United Nations Climate Change Conference of the Parties in Dubai, United Arab Emirates ("COP28") was even hailed as a "major breakthrough" on the operationalization of a loss and damage fund (hereinafter referred to as "the Fund").[13] However, the climate loss and damage regime remains both voluntary and inadequate,[14] with the United Nations Framework Convention on Climate Change ("UNFCCC") and the Paris Agreement falling short of creating binding obligations on countries to contribute to the Fund.

This Article thus looks beyond international climate change law to seek other ways in which climate change loss and damage may be informed. Specifically, this Article focuses on how the law of the sea may provide teeth to the existing regime through the United Nations Convention on the Law of the Sea ("UNCLOS"). While existing literature has covered the intersection between climate change and UNCLOS in the areas of climate change litigation,[15] ocean

11. UNFCCC Conference of the Parties, November 11–23, 2013, Decision 2/CP.19, ¶ 1, U.N. Doc. FCCC/CP/2013/10/Add.1 (Jan. 31, 2014).

12. *See*, *e.g.*, *Why COP27 Will Be Remembered as the Loss and Damage COP and What to Expect Next*, Grantham Rsch. Inst. on Climate Change and the Env't (Nov. 28, 2022), https://www.lse.ac.uk/granthaminstitute/news/why-cop27-will-be-remembered-as-the-loss-and-damage-cop-and-what-to-expect-next [https://perma.cc/Z8AW-8QCG]; Fiona Harvey, et al., *COP27 Agrees Historic Loss and Damage' Fund for Climate Impact in Developing Countries*, The Guardian (Nov. 20, 2022), https://www.theguardian.com/environment/2022/nov/20/cop27-agrees-to-historic-loss-and-damage-fund-to-compensate-developing-countries-for-climate-impacts [https://perma.cc/9NV6-HWHC].

13. *COP28 Talks Open in Dubai With Breakthrough Deal on Loss and Damage Fund*, UN News (Nov. 30, 2023), https://news.un.org/en/story/2023/11/1144162 [https://perma.cc/L4DZ-SDJA].

14. *See* Raju Pandit Chhetri, Laura Schäfer & Charlene Watson, Exploring loss and damage finance and its place in the Global Stocktake (2021), https://www.climateworks.org/wp-content/uploads/2022/04/Loss-and-Damage-Finance-iGST.pdf; Intergovernmental Panel on Climate Change, Climate Change 2022: Impacts, Adaptation, and Vulnerability, Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (2022), https://report.ipcc.ch/ar6/wg2/IPCC_AR6_WGII_FullReport.pdf [hereinafter IPCC Sixth Assessment Report]; *Loss and Damage: A Moral Imperative to Act*, *supra* note 8.

15. *See*, *e.g.*, Seokwoo Lee & Lowell Batista, *Part XII of the United Nations Convention on the Law of the Sea and the Duty to Mitigate Against Climate Change: Making Out a Claim, Causation, and Related Issues*, 45 Ecology L.Q. 129 (2018).

acidification,[16] and sovereignty and boundary issues arising from sea level rise,[17] this Article fills the gap in the literature by looking specifically at how UNCLOS may inform climate loss and damage. This Article also looks at how the law of the sea can provide a model for the Fund through the oil spill compensation regime.

This Article proceeds as follows: Section II explores the importance of setting up a climate loss and damage regime, provides an overview of the existing regime and analyzes areas for improvement. Section III elaborates on how loss and damage can fit into the UNCLOS regime, with a focus on State obligations surrounding loss and damage that may flow from UNCLOS. In particular, this Article argues that climate change falls under Part XII of UNCLOS which addresses marine pollution, and that States are thus obligated under Article 235 to cooperate in the development of, and to contribute to, a loss and damage fund. Section IV explores how such a fund can be modelled after the oil spill compensation regime to ensure that there is adequate funding. Section V concludes with how UNCLOS can be used to place climate loss and damage not only on the political agenda of countries, but also on their legal agenda.

II. The Existing Loss and Damage Regime

This Section explores the importance of a loss and damage regime and provides an overview of how compensation for environmental harm is currently provided at the international level. This Section then elaborates on the patchwork of regional and international institutional arrangements available for climate loss and damage, which this Article argues are both voluntary and inadequate.

A. *The Importance of a Loss and Damage Regime*

As illustrated in the previous Section, developing countries face climate threats such as sea level rise, ocean acidification and extreme weather events, but have limited financial ability to respond to such challenges. Small island developing states ("SIDS") are particularly vulnerable, since sea level rise poses an existential threat. However, it is not just SIDS which are vulnerable to the effects of climate change. Least developed countries are not financially equipped to deal with extreme weather events that threaten livelihoods, freshwater supply and subsistence agriculture.[18] Countries like those in Southwest

16. *See*, *e.g.*, Nilufer Oral, *Ocean Acidification: Falling Between the Legal Cracks of UNCLOS and the UNFCCC*, 45 Ecology L.Q. 9 (2018); Ellycia R. Harrould-Kolieb, *The UN Convention on the Law of the Sea: A Governing Framework for Ocean Acidification?*, 29 Rev. of Eur., Compar. & Int'l Env't L. 257 (2020).

17. *See*, *e.g.*, Kya Raina Lal, *Legal Measures to Address the Impacts of Climate Change-induced Sea Level Rise on Pacific Statehood, Sovereignty and Exclusive Economic Zones*, 23 Te Mata Koi: Auckland Univ. L. Rev. 235 (2017).

18. *See UN List of Least Developed Countries*, United Nations Conference on Trade and Development (last visited Jan. 23, 2024), https://unctad.org/topic/

Africa and Central Asia are vulnerable to droughts, while countries like Pakistan and the Philippines face increasingly extreme rainfall and flooding.[19]

For many of these climate-vulnerable countries, it is too late to adopt adaptation and mitigation strategies, as the impacts of climate change have already been "locked in" by the present 1.1 degrees Celsius of global warming.[20] There is thus a need to look to other forms of financing, such as loss and damage, to enable climate-vulnerable countries to deal with the impacts of climate change.

The magnitude of the problem is staggering. Research has found that the Vulnerable 20 Group ("V20"), an association of 58 countries most vulnerable to climate change, has lost US$525 billion to climate impacts since 2000.[21] Further, 98 percent of the V20 population do not have financial protection such as disaster-related insurance.[22] The financial vulnerability of such countries has prompted SIDS to form the Alliance of Small Island States ("AOSIS") to lobby for a climate compensation regime. The first proposals for loss and damage were raised by AOSIS at the 1991 Intergovernmental Negotiating Committee for a Framework Convention on Climate Change.[23]

The call for compensation of loss and damage is fundamentally a question of climate justice. As climate change law scholar Julia Dehm describes, the impacts of climate change should be understood as a function of structural violence that is inflicted by developed nations onto developing nations which have less power.[24] Indeed, the impacts of climate change are accurately described by environmental humanities professor Rob Nixon's concept of "slow violence," which "appears gradually and out of sight, a violence of delayed destruction that is disbursed across time and space, an attritional violence that is typically not viewed as violence as all."[25] In addition to slow-onset events like sea level rise, extreme weather events that come about because of climate change are urgent, visible, and immediately devastating. Developing countries thus face a double whammy with both the gradual and sudden impacts of climate change. The injustice of climate change is further exacerbated by the fact that

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least-developed-countries/list [https://perma.cc/8KS9-3ZCN].

19. *See* IPCC Sixth Assessment Report, *supra* note 14.

20. *Loss and Damage: A Moral Imperative to Act*, *supra* note 8.

21. *V20 and G7 Jointly Launch Global Shield Against Climate Risks at COP27*, Vulnerable Grp. of Twenty (Nov. 14, 2022), https://www.v-20.org/v20-and-g7-jointly-launch-global-shield-against-climate-risks-at-cop27 [https://perma.cc/EDQ3-8LHN].

22. *Id.*

23. Lisa Vanhala & Cecilie Hestbaek, *Framing Climate Change Loss and Damage in UNFCCC Negotiations*, 16 Global Env't Politics 111, 115 (2016); *An Insurance Mechanism for the Consequences of Sea Level Rise*, Alliance of Small Island States (Dec. 9, 1991), https://www.aosis.org/an-insurance-mechanism-for-the-consequences-of-sea-level-rise [https://perma.cc/43GN-H99W].

24. Julia Dehm, *Climate Change, 'Slow Violence' and the Indefinite Deferral of Responsibility for 'Loss and Damage,'* 29 Griffith L. Rev. 220 (2020).

25. Rob Nixon, Slow Violence and the Environmentalism of the Poor 2 (2013).

developing countries have often been the lowest emitters of greenhouse gases.[26] In this vein, scholars have argued that reparations are needed to rectify climate injustice, which involve "a form of repayment, restitution, or recompense for some [historical, intentional] wrong" and which extend beyond compensation that is focused on remedying accidental damage.[27] Regardless of which type of remedy is sought, it is clear that in tackling climate change, one must also reckon with the moral issue of rectifying the unequal burdens of climate change across the globe.[28]

B. *Compensation for Environmental Harm*

The idea that environmental harm should be compensated can be found in the duty to prevent transboundary harm, which is one basic principle of international environmental law.[29] As elaborated in the Rio Declaration, this involves the "responsibility [of States] to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."[30] Along with the general international legal principle that a breach of an obligation gives rise to an obligation to make adequate reparation, it follows that a breach of the duty to prevent transboundary harm must be remedied by such adequate reparation. This was envisaged in the Rio Declaration itself, which provides in Principle 13 that "States shall . . . co-operate . . . to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction."[31]

Despite these principles gaining widespread recognition,[32] court-ordered compensation for environmental harm in international law remains in

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26. Stéphane Hallegatte, *Getting It Right on Development: We Do Not Have to Choose Between People and Climate*, World Bank Blogs (Apr. 13, 2022), https://blogs.worldbank.org/climatechange/getting-it-right-development-we-do-not-have-choose-between-people-and-climate [https://perma.cc/F3P9-BKSW].

27. Rebecca Buxton, *Reparative Justice for Climate Refugees*, 94 Philosophy 193, 200 (2019).

28. Farhana Sultana, *Critical Climate Justice*, 188 The Geographical Journal 118, 118–119 (2022).

29. United Nations Conference on Environment and Development, Rio de Janeiro, Braz., June 3–14, 1992, Rio Declaration on Environment and Development, Principle 2, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Annex I (Aug. 12, 1992) [hereinafter Rio Declaration].

30. *Id.*

31. *Id.* at Principle 13.

32. *See* Marte Jervan, *The Prohibition of Transboundary Environmental Harm. An Analysis of the Contribution of the International Court of Justice to the Development of the No-Harm Rule*, PluriCourts Research Paper No. 14-17 (2014), https://papers.ssrn.com/abstract=2486421 (last visited Jan. 23, 2024); Kirsten Schmalenbach, *States Responsibility and Liability for Transboundary Environmental Harm*, *in* Corporate Liability for Transboundary Environmental Harm: An International and Transnational Perspective 43 (Peter Gailhofer et al. eds., 2023).

its infancy. By contrast, domestic case law surrounding toxic torts has been developing for years.[33] It was only in 2010 that the International Court of Justice ("ICJ") first ordered a country to provide environmental compensation. Specifically, the ICJ held that Nicaragua must compensate Costa Rica a total of US$378,890.59 for causing environmental damage as a result of its unlawful activities on Costa Rica's territory.[34] Prior to 2010, there were several cases by the ICJ relating to compensation, but none with regard to environmental harms specifically.[35] However, public international law professor Jason Rudall points out that this emerging practice of awarding environmental compensation has since spread to investor-state disputes, with a tribunal ordering environmental compensation of US$41 million in *Burlington Resources v. Ecuador*.[36] Environmental compensation has also been increasingly recognized in human rights courts, such as the Inter-American Court of Human Rights and the European Court of Human Rights.[37]

However, compensation ordered by a judicial body is difficult to enforce in international law. Unlike in domestic legal systems, international courts do not have an enforcement body and instead rely on the good faith of countries to comply with judicial orders. While the Security Council may enforce judgments under the UN Charter, this remains discretionary and not an obligation.[38] Further, permanent members of the Security Council may veto Security Council resolutions that attempt to effectuate judgments.[39] This was most clearly demonstrated in *Nicaragua v. United States*, where the International Court of Justice held that the United States must pay reparations to Nicaragua for its use of force in supporting a rebellion in Nicaragua and for mining Nicaragua's harbors.[40] The United States, however, refused to pay reparations and blocked

33. *See generally* Robert Blomquist, *American Toxic Tort Law: An Historical Background, 1979–87*, 10 Pace Env't L. Rev. 85 (1992); Douglas A. Kysar, *What Climate Change Can Do About Tort Law*, 41 Env't L. 1 (2011).

34. *Certain Activities Carried Out by Nicaragua in the Border Area* (*Costa Rica v. Nicar.*), Compensation, Judgment, 2018 I.C.J. Rep. 16 (Feb. 2).

35. These include *Corfu Channel* (*U.K. v. Alb.*), Judgment, 1949 I.C.J. Rep. 244, (Dec. 15); *Case Concerning Ahmadou Sadio Diallo* (*Republic of Guinea v. Dem. Rep. Congo*), Judgment on compensation, 2012 I.C.J. Rep. 324 (June 19); *M/V Saiga (No. 2)* (*St. Vincent v. Guinea*), Case No. 2, Judgment, 1999 ITLOS Rep. 10 (July 1) [hereinafter *M/V Saiga (No. 2)*]. *See* Jason Rudall, Compensation for Environmental Damage Under International Law 15–16 (2020).

36. *See* Jason Rudall, Compensation for Environmental Damage Under International Law 32–34 (2020).

37. *Id.* at 36–37.

38. U.N. Charter art. 94.

39. Mary Ellen O'Connell, *International Court Enforcement*, *in* The Power and Purpose of International Law: Insights from the Theory and Practice of Enforcement 295, 297-298 (Mary Ellen O'Connell ed., 2008).

40. *The Republic of Nicaragua v. The United States of America*, Judgment, 1986 I.C.J. 14, (June 27).

the Security Council's attempt to enforce the judgment.[41] More fundamentally, as many treaties do not have compulsory dispute settlement mechanisms, States may choose to opt out of adjudication, which would entirely preclude the issuance of enforceable compensation orders. Academics like international dispute resolution professor Mary Ellen O'Connell have highlighted that compliance with judicial orders has not been an issue across the board, but might be delayed.[42] Nonetheless, the enforcement of international law remains fraught and is in no way as straightforward as the enforcement of domestic law.

While environmental compensation has found its way into several treaties,[43] the most effective forms of compensation have involved institutions that are able to disburse funds to claimants. For example, the oil spill compensation regime addressed in Section IV is administered by the International Oil Pollution Compensation Fund ("IOPC Fund"), through which the Secretariat aims to ensure prompt and equitable payment of compensation to victims of oil pollution damage.[44] From 1978 through 2023, the IOPC Fund has paid some £753.6 million in compensation.[45] Another successful compensation regime is the United Nations Compensation Commission ("UNCC"). The UNCC was set up in 1991 as a subsidiary organ of the United Nations Security Council to facilitate claims for compensation, including those of environmental damage, arising from Iraq's invasion and occupation of Kuwait. The UNCC has paid out a total of US$52.4 billion in compensation to some 1.5 million claimants, although this sum includes non-environmental compensation as well.[46]

As the next Subsection will elaborate, the climate change regime has begun to establish institutions for climate loss and damage, with the recent COP28 decision finally operationalizing the Fund.

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41. O'Connell, *supra* note 39.

42. *Id.*

43. *E.g.*, Basel Protocol on Liability and Compensation for Damage Resulting from Transboundary Movements of Hazardous Wastes and their Disposal Basel, U.N. Doc. UNEP/CHW.1/WG/1/9/2 (Dec. 10, 1999) [hereinafter Basel Protocol]; Convention on Third Party Liability in the Field of Nuclear Energy, July 29, 1960, 1988 U.N.T.S. 329; Convention on the International Liability for Damage Caused by Space Objects, September 1, 1972, 961 U.N.T.S. 187; Protocol on Environmental Protection to the Antarctic Treaty, January 14, 1998, 2941 U.N.T.S. 3.

44. *What We Do*, Int'l Oil Pollution Compensation Funds, https://iopcfunds.org/about-us/what-we-do [https://perma.cc/JRG6-JKDU] (last visited Jan. 23, 2024).

45. *Incidents*, Int'l Oil Pollution Compensation Funds, https://iopcfunds.org/incidents/incident-map [https://perma.cc/SP5G-B3Z8] (last visited Jan. 23, 2024).

46. *Home*, United Nations Compensation Commission, https://web.archive.org/web/20231206192457/https://uncc.ch/ (last visited May 7, 2023). Unlike the IOPC Funds, the UNCC's payouts were drawn from the United Nations Compensation Fund, which was partially funded by the export sales of Iraqi petroleum and petroleum products. *See UNCC at a glance*, United Nations Compensation Commission, https://web.archive.org/web/20231112023604/https://uncc.ch/uncc-glance (last visited May 7, 2023).

C. *UNFCCC's Voluntary Regime on Loss and Damage*

The loss and damage regime under the UNFCCC has been in the works for over twenty years, but to date, does not mandate that countries contribute to loss and damage funds. Its incremental development has also led to a patchwork of funding arrangements that have yet to be harmonized. As discussed briefly in Section II.A, the creation of a loss and damage regime has long been on the agenda of small island nations. In 1991, during UNFCCC negotiations, Vanuatu proposed on behalf of AOSIS to incorporate a compensation regime into the UNFCCC.[47] The proposal focused on tackling the impacts of sea level rise, but also noted that a parallel scheme could be enacted for developing countries vulnerable to desertification and drought.[48] The proposed regime was modelled after the 1963 Brussels Supplementary Convention on Third Party Liability in the Field of Nuclear Energy.[49] As is set up in the Brussels Convention, the proposal suggested that countries should contribute to an "insurance pool" based equally on each country's gross national product and its carbon emissions in the previous year.[50] The proposal was unfortunately rejected and the term "loss and damage" did not enter into the text of the UNFCCC.

After the proposal was rejected, discussion of loss and damage fell off the UNFCCC radar until 2007 at COP13 in Bali, where loss and damage was incorporated as part of discussions on adaptation.[51] The Bali Action Plan, which was concluded at COP13, sought to address "[e]nhanced action on adaption" via "[r]isk management and risk reduction strategies, including risk sharing and transfer mechanisms such as insurance," and "[d]isaster reduction strategies and means to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change."[52] Three years later in 2010 at COP16 in Cancun, a work program was established under the UNFCCC's Subsidiary Body for Implementation ("SBI") to "consider . . . approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change."[53] The SBI's work

47. *An Insurance Mechanism for the Consequences of Sea Level Rise*, *supra* note 23.

48. Intergovernmental Negotiating Committee for A Framework Convention on Climate Change, Working Group II, December 9–20, 1991, p. 7, U.N. Doc. A/AC.237/WG.11/CRP.8 (Dec. 17, 1991).

49. *Id.* at 3. *See* Convention on Third Party Liability in the Field of Nuclear Energy, *supra* note 43.

50. Intergovernmental Negotiating Committee for A Framework Convention on Climate Change, Working Group II, December 9–20, 1991, ¶ 3(4), U.N. Doc. A/AC.237/WG.11/CRP.8 (Dec. 17, 1991).

51. Dehm, *supra* note 24.

52. UNFCCC Conference of the Parties, *Report of the Conference of the Parties on Its Thirteenth Session, Held in Bali from 3 December to 15 December 2007*, Decision 1/CP.13, ¶¶ 1(c)(ii)-(iii), U.N. Doc. FCCC/CP/2007/6/Add.1 (Mar. 14, 2008).

53. UNFCCC Conference of the Parties, *Report of the Conference of the Parties on Its Sixteenth Session, Held in Cancun from 29 November to 10 December 2010*, Decision 1/CP.16,

built up to COP18 in Doha, where parties decided to establish an international mechanism to address loss and damage the next year.[54]

In the next few years, mechanisms were set up to increase dialogue and the sharing of information. For example, at COP19 in 2013, the Warsaw International Mechanism for Loss and Damage was established as a coordinating body that seeks to enhance knowledge of risk management approaches, strengthen dialogue and cooperation, and enhance action and support to address loss and damage by providing technical information and expertise.[55] However, it failed to impose binding requirements for countries to create and contribute to a loss and damage fund. In 2017 at COP23, the Fiji Clearing House for Risk Transfer was launched, which aims to facilitate the efforts of Parties to develop and implement comprehensive risk management strategies.[56] This came after the Paris Agreement laid the groundwork to establish a clearing house for risk transfer, which was to serve as a repository for information on insurance and risk transfer.[57] Similar to the Warsaw Mechanism, the Fiji Clearing House serves as a coordinating body but does not oblige countries to establish comprehensive risk management strategies.

This lack of legal obligation to create and contribute to a loss and damage regime was reflected in the Paris Agreement, which was adopted at COP21. Granted, the Paris Agreement recognized the "importance of averting, minimizing and addressing loss and damage," subjected the Warsaw Mechanism under the authority of future Paris Agreement COPs, and stated that "Parties should enhance understanding, action and support, . . . on a cooperative and facilitative basis with respect to loss and damage."[58] Areas of cooperation included a comprehensive list of (a) early warning systems; (b) emergency preparedness; (c) slow-onset events; (d) irreversible and permanent loss and damage; (e) risk assessment and management; (f) risk insurance facilities, climate risk pooling and other insurance solutions; (g) non-economic losses; and

¶¶ 26–27, U.N. Doc. FCCC/CP/2010/7/Add.1 (Mar. 15, 2011).

54. UNFCCC Conference of the Parties, *Report of the Conference of the Parties on its eighteenth session, held in Doha from 26 November to 8 December 2012*, Decision 3/CP.18, U.N. Doc. FCCC/CP/2012/8/Add.1 (Feb. 28, 2013).

55. UNFCCC Conference of the Parties, *Report of the Conference of the Parties on Its Nineteenth Session, Held in Warsaw from 11 to 23 November 2013*, Decision 2/CP.19, ¶ 5, U.N. Doc. FCCC/CP/2013/10/Add.1 (Jan. 31, 2014).

56. *Fiji Clearing House for Risk Transfer*, United Nations Climate Change, https://unfccc.int/process-and-meetings/bodies/constituted-bodies/executive-committee-of-the-warsaw-international-mechanism-for-loss-and-damage-wim-excom/fiji-clearing-house-for-risk-transfer [https://perma.cc/2Y38-AXRW] (last visited Jan. 23, 2024).

57. UNFCCC Conference of the Parties, *Report of the Conference of the Parties on Its Twenty-First Session, Held in Paris from 30 November to 13 December 2015*, Decision 1/CP.21, ¶ 48, U.N. Doc. FCCC/CP/2015/10/Add.1 (Jan. 29, 2016).

58. Paris Agreement, *Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015*, U.N. Doc. FCCC/CP/2015/10/Add.1 Decision 1/CP.21 arts. 8(1)-(3) [hereinafter Paris Agreement].

(h) resilience of communities, livelihoods and ecosystems.[59] However, the Paris Agreement stopped short of establishing an actual loss and damage fund and failed to make cooperation and participation mandatory. Article 8 makes no mention of liability or compensation, enabling States to avoid legal culpability and hence the obligation to provide compensation for the effects of its historical greenhouse gas emissions.[60]

This focus on information sharing and voluntary cooperation persisted at subsequent COPs. At COP25 in 2019, the Santiago Network was established to strengthen the implementation of the Warsaw Mechanism's functions.[61] This was the result of demands from 134 developing countries, including the Group of 77 ("G77") and China.[62] The Santiago Network seeks to catalyze technical assistance for countries particularly vulnerable to climate change, by assisting in (a) identifying, prioritizing and communicating technical assistance needs and priorities; (b) identifying types of relevant technical assistance; (c) actively connecting those seeking technical assistance with best suited organizations, bodies, networks and experts; and (d) accessing technical assistance available including from such organizations, bodies, networks and experts.[63] While the Santiago Network's mandate to actively facilitate access to assistance is a step up from the Warsaw Mechanism's coordinating functions, the Santiago Network does not require nations to provide such assistance. The subsequent COP26 further strengthened the Santiago Network by providing it with funds, and by setting out a process to further develop its institutional arrangements.[64] At both COP25 and COP26, the G77 proposed the creation of a loss and damage finance facility, but this proposal was rejected by developed countries such as the European Union countries and the United States.[65]

The turning point finally came at COP27, when continued lobbying by the G77 led to the establishment of new loss and damage funding arrangements to assist developing countries vulnerable to climate change.[66] The agreement at COP27 sets up a financial mechanism for loss and damage under the UNFCCC,

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59. *Id.* at art. 8(4).

60. This condition to not include mentions of liability or compensation was put forward by the United States. *See* Arthur Wyns, *COP27 Establishes Loss and Damage Fund to Respond to Human Cost of Climate Change*, 7 The Lancet Planetary Health e21, e21 (2023).

61. UNFCCC Conference of the Parties, *Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts,* ¶ 9(a), U.N. Doc. FCCC/PA/CMA/2021/L.22 (Nov. 13, 2021) [hereinafter Warsaw Mechanism decision].

62. Wyns, *supra* note 60.

63. Warsaw Mechanism decision, *supra* note 61, at ¶ 9(b).

64. *Id.* at ¶ 42.

65. Wyns, *supra* note 60.

66. UNFCCC Conference of the Parties, *Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change,*

Including a Focus on Addressing Loss and Damage, Decision -/CP.27 -/CMA.4, ¶ 2, https://unfccc.int/sites/default/files/resource/cma4_auv_8f.pdf [https://perma.cc/PP5Y-R9PX].

which adds to the Warsaw Mechanism's current policy function and the Santiago Network's technical role.[67]

This financial mechanism, also known as "the Fund," was operationalized at COP28. It was decided then that the Fund would be a World Bank-hosted financial intermediary fund for an interim period of four years, before being serviced by a Board consisting of members from both developed and developing countries.[68] The detailed arrangements of the Fund will be approved at COP29.[69] While the mechanism developed at COP28 goes a long way in finally operationalizing a UNFCCC fund for loss and damage, it nonetheless falls short of stipulating that States are legally obligated to contribute to the Fund. The preamble of the COP28 decision even explicitly states that "funding arrangements, including a fund, for responding to loss and damage are based on cooperation and facilitation and *do not involve liability or compensation*."[70] Financial contributions to the Fund thus remain voluntary, with the decision explicitly calling for "developed country Parties to continue to provide support and encourage other Parties to provide, or continue to provide support, on a voluntary basis, for activities to address loss and damage."[71] It should be noted however, that this wording on voluntary contributions was written "without prejudice to any future funding arrangements, any positions of Parties in current or future negotiations, or understandings and interpretations of the Convention and the Paris Agreement," which leaves open the possibility of mandatory contributions in the future.[72]

While the operationalization of the Fund is a big improvement from softer arrangements such as the Warsaw Mechanism and the Santiago Network, the voluntary nature of contributions to the Fund does not improve the inadequacy of the existing loss and damage regime. At COP28, the Fund received pledges amounting only to US$792 million,[73] which is less than 0.2% of the irreversible climate-related losses that developing countries face every year.[74] While the Fund is not the only existing funding arrangement that deals

67. *Interview: How Can the Santiago Network for Loss and Damage Meet the Technical Needs of Communities Vulnerable to Climate Change?*, International Institute for Environment and Development (Sept. 29, 2022), https://www.iied.org/interview-how-can-santiago-network-for-loss-damage-meet-technical-needs-communities-vulnerable [https://perma.cc/EMB2-HJUZ].

68. UNFCCC Conference of the Parties, November 30 - December 12, 2023, Decision -/CP.28 -/CMA.5, *Operationalization of the New Funding Arrangements, Including a Fund, for Responding to Loss and Damage Referred to in Paragraphs 2–3 of Decisions 2/CP.27 and 2/CMA.4* (advance unedited version), https://unfccc.int/sites/default/files/resource/cop28_auv_8g_lnd.pdf [hereinafter COP28 Decision].

69. *Id*.

70. *Id*. (emphasis added).

71. *Id*.

72. *Id*.

73. *Id*.

74. Nina Lakhani, *$700m pledged to loss and damage fund at Cop28 covers less than 0.2% needed*, The Guardian (Dec. 6, 2023), https://www.theguardian.com/environment/2023/

directly with loss and damage, the overall climate change loss and damage architecture nonetheless remains inadequate in funding.

D. *The Inadequacy of Funding Despite Other Institutional Arrangements*

The adequacy of loss and damage funding must also be assessed beyond the UNFCCC framework. However, while multiple institutional arrangements exist at the international and regional levels to deal with climate loss and damage, these arrangements are often underfunded or do not provide easy access to climate loss and damage.

For example, the Global Shield against Climate Risks was established by Germany and was supported by the Group of 7 ("G7") in 2022.[75] Among other things, the Global Shield seeks to increase pre-arranged finance and expand instruments of financial protection for loss and damage. To this end, the G7 works closely with V20. The Global Shield's financing structure comprises the Global Shield Solutions Platform, the Global Shield Financing Facility hosted by the World Bank, and the Climate Vulnerable Forum and V20 Joint Multi-Donor Fund.[76] Germany announced at COP27 that it will contribute 170 million euros to the Global Shield, with 84 million euros earmarked for its financing structure. Denmark has pledged around 4.7 million euros, Ireland 10 million euros, Canada US$7 million, and France 20 million euros.[77] However, the current pledges of around 200 million euros are far from the US$100 billion that developed countries previously promised to provide each year.[78]

There is also a plethora of funding arrangements at the international level which may be relevant for loss and damage. This includes the Adaptation Fund under the UNFCCC, the Least Developed Countries Fund for adaptation financing and the Special Climate Change Fund for developing countries under the Global Environment Facility, and the Green Climate Fund which addresses mitigation and adaptation.[79] These funds were not set up for the express purpose of providing loss and damage funding, so applications for loss and damage funding may be contrived and difficult to obtain under these funds.

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dec/06/700m-pledged-to-loss-and-damage-fund-cop28-covers-less-than-02-percent-needed# [https://perma.cc/9KNG-ZHX8].

75. The G7 comprises of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States, and the European Union as a non-enumerated member.

76. *V20, G7 Launch Initiative to Address Climate Risks in Vulnerable Countries*, International Institute for Sustainable Development (Nov. 23, 2022), https://sdg.iisd.org/news/v20-g7-launch-initiative-to-address-climate-risks-in-vulnerable-countries [https://perma.cc/7WAS-FNG9].

77. *V20 and G7 Jointly Launch Global Shield*, *supra* note 21.

78. *Global Shield Against Climate Risks: German G7 Presidency and V20 Concept for Consultation*, Federal Ministry for Economic Cooperation and Development (Sept. 21, 2022), https://www.bmz.de/resource/blob/127498/global-shield-against-climate-risks-concept-barrierefrei.pdf [https://perma.cc/3MFG-NS9Q].

79. UNFCCC Secretariat, *Elaboration of the Sources of and Modalities for Accessing Financial Support for Addressing Loss and Damage*, Technical paper by the secretariat, 21–24, U.N. Doc. FCCC/TP/2019/1 (June 14, 2019).

There are also disaster risk reduction schemes such as those under the United Nations Office for Disaster Risk Reduction and the Global Facility for Disaster Reduction and Recovery under the World Bank, humanitarian aid under the United Nations Office for the Coordination of Humanitarian Affairs, and specific aid for disaster displacement under the UN High Commissioner for Refugees' ("UNHCR") Platform on Disaster Displacement, among others.[80] However, disaster and humanitarian responses often do not address slow onset events caused by climate change, which is a key component of loss and damage.[81]

Regional arrangements also exist, with a 2013 UNFCCC report detailing regional arrangements by forty-six different organizations, such as African Risk Capacity, the Asian Disaster Preparedness Centre, the Caribbean Institute of Meteorology and Hydrology, El Sistema de la Integración Centroamericana, and MicroEnsure.[82] The report noted that it was challenging to track the actual funding that is disbursed for loss and damage purposes.[83]

Overall, while there is a patchwork of various international and regional arrangements that may provide loss and damage funding, the vast number of arrangements makes the loss and damage regime hard to navigate. Many funds were not set up for the express purpose of tackling loss and damage, which might make it challenging for countries to obtain funding and might not cover the exact loss and damage that a country is dealing with. With regard to the patchwork nature of the arrangements, the COP28 decision states that the Fund shall "operate in a manner that promotes coherence and complementarity with new and existing funding arrangements for responding to loss and damage," such as through "new coordination and cooperation mechanisms."[84] However, it is unclear from the COP28 decision what such coordination would look like, given that existing coordinating bodies like the Warsaw Mechanism and Santiago Network already exist.

More importantly, the current patchwork of loss and damage arrangements is both inadequate and wholly voluntary. These arrangements remain

80. Cathrine Wenger, The Institutional Ecosystem for Loss and Damage (2022), https://www.c2es.org/wp-content/uploads/2022/08/the-institutional-ecosystem-for-loss-and-damage-final.pdf [https://perma.cc/A6KL-B4S7].

81. *Climate Change Loss and Damage Briefing Series: What Congress Needs to Know About COP27*, Env'T & Energy Study Inst. (Oct. 20, 2022), https://www.eesi.org/briefings/view/102022cop [https://perma.cc/4TK6-2QP].

82. *Examples of Existing Institutional Arrangements and Measures in Addressing Loss and Damage Associated with Climate Change Impacts*, United Nations Climate Change, https://unfccc.int/topics/resilience/resources/loss--damage-inputs-on-institutional-arrangements [https://perma.cc/RKA7-J3E3] (last visited Jan. 23, 2024); UNFCCC Secretariat, *Gaps in Existing Institutional Arrangements Within and Outside of the Convention to Address Loss and Damage, Including Those Related to Slow Onset Events*, Technical paper, U.N. Doc. FCCC/TP/2013/12 (Nov. 4, 2013).

83. UNFCCC Secretariat, *supra* note 82.

84. COP28 Decision, *supra* note 68.

inadequate because they are underfunded compared to the losses that have been and will be suffered, with the COP27 decision acknowledging that "existing funding arrangements fall short of responding to current and future impacts of climate change and are not sufficient to address the existing funding gaps."[85] The lack of a legal obligation to contribute to these funds exacerbates the lack of funding directed to loss and damage.

III. A Legal Claim Under UNCLOS

How then, might an enforceable compensation mandate be imposed on countries? This Article proposes that State Parties to UNCLOS have a legal obligation to set up and contribute to a loss and damage fund. This Section first explores why UNCLOS is a particularly effective treaty under which States may be mandated to cooperate and contribute to loss and damages. It then makes the legal argument that climate change can be construed as marine pollution under UNCLOS, which triggers State obligations and remedies under Part XII of UNCLOS.

A. *Reasons for Litigating under UNCLOS*

This Article turns to UNCLOS as a solution because unlike many other treaties, Part XV of UNCLOS provides for a compulsory dispute settlement mechanism. This crosses the initial hurdle elaborated on in Section II, where countries may not be willing to submit disputes before an adjudicative body. In other words, as long as a valid dispute exists regarding the interpretation or application of UNCLOS, a State Party may compel another State Party to settle the dispute before (1) the International Tribunal of the Law of the Sea ("ITLOS"); (2) the International Court of Justice ("ICJ"); (3) an arbitral tribunal in accordance with Annex VII; or (4) a special arbitral tribunal in accordance with Annex VIII, which includes cases on the protection and preservation of the marine environment.[86] The compulsory nature of the dispute settlement mechanism provides UNCLOS with more teeth than international agreements in the climate change regime. For example, under the UNFCCC, disputes may be settled only through "negotiation or any peaceful means of their own choice."[87] The strength of UNCLOS is further bolstered by the fact that it is legally binding on most emitters since it has been ratified by 168 parties, and because UNCLOS does not allow for parties to enter into

85. UNFCCC Conference of the Parties, *Funding Arrangements for Responding to Loss and Damage Associated With the Adverse Effects of Climate Change, Including a Focus on Addressing Loss and Damage,* November 6–18, 2022, Decision -/CP.27 -/CMA.4, Preamble, https://unfccc.int/sites/default/files/resource/cma4_auv_8f.pdf [https://perma.cc/UT2Z-8UDF].

86. United Nations Convention on the Law of the Sea, art. 287, December 10, 1982, 1833 U.N.T.S. 397 [hereinafter UNCLOS].

87. UNFCCC, art. 14(1), May 9, 1992, 1771 U.N.T.S. 107.

reservations with regard to Part XII on the protection and preservation of the marine environment.[88]

Either of the four authorities under UNCLOS may make decisions regarding the dispute. These decisions are "final and shall be complied with by all the parties to the dispute."[89] In addition to the final decision, Article 290 of UNCLOS provides that the court or tribunal may also "prescribe any provisional measures which it considers appropriate under the circumstances to preserve the respective rights of the parties to the dispute or to prevent serious harm to the marine environment, pending the final decision."[90] Provisional measures ordered by ITLOS require parties to inform ITLOS "as soon as possible as to its compliance with any provisional measures the Tribunal has prescribed. In particular, each party shall submit an initial report upon the steps it has taken or proposes to take in order to ensure prompt compliance with the measures prescribed."[91]

Another reason why UNCLOS is a particularly strong treaty in the context of loss and damage is that it has explicit provisions on State responsibility and liability. These provisions will be detailed in Section III.D on remedies, but briefly, Article 235 of UNCLOS provides that "States shall ensure that recourse is available . . . for *prompt and adequate compensation or other relief* in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction," and that "States shall cooperate in[,] . . . where appropriate, development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds."[92] In contrast, the UNFCCC and the Paris Agreement make no mention of such compensation. In particular, the UNFCCC does not mention loss and damage after developed countries rejected AOSIS's proposal for a compensation regime in 1991.[93] While the Paris Agreement mentions loss and damage, it merely suggests that "Parties should enhance understanding, action and support, . . . on a cooperative basis with respect to loss and damage."[94] Thus, UNCLOS's provision on compensation is relatively strong compared to other climate change treaties, and its reference to "compensation funds" appears to directly apply to the development of a climate loss and damage fund.

Granted, UNCLOS has its limits as a way to mandate States to contribute to a loss and damage fund. First, Section II explored how it is difficult to enforce

88. UNCLOS, *supra* note 86, at art. 309.

89. *Id.* at art. 296.

90. *Id.* at art. 290.

91. International Tribunal for the Law of the Sea, Rules of the Tribunal, art. 95(1), March 17, 2009, ITLOS/8.

92. UNCLOS, *supra* note 86, at arts. 235(2)-(3) (emphasis added).

93. John W. Ashe, Robert Van Lierop & Anilla Cherian, *The Role of the Alliance of Small Island States (AOSIS) in the Negotiation of the United Nations Framework Convention on Climate Change (UNFCCC)*, 23 Natural Resources Forum 209, 218 (1999).

94. Paris Agreement, *supra* note 58, at art. 8(3).

international judicial orders since there is no international enforcement body. Thus, even if States are compelled to resolve disputes before an UNCLOS court or tribunal, they could easily disregard the court or tribunal's orders. This was the case in *South China Sea*, an arbitration case brought by the Philippines concerning several issues, such as China's claim over the maritime areas of the South China Sea and the alleged failure of China to protect and preserve the marine environment through its fishing and island-building activities. In that case, China opposed ITLOS' ruling and refused to acknowledge it nor accept it.[95] International courts and tribunals have no way of imposing further consequences on uncooperative States, although other nations may enact sanctions and other diplomatic measures. Second, the world's largest greenhouse gas emitter, the United States, is not a party to UNCLOS. UNCLOS's provisions and dispute resolution mechanism thus do not bind the United States. An argument may be made that the relevant provisions under UNCLOS, such as the duty to not cause environmental harm and the law of State responsibility,[96] are customary international law that bind the United States before the ICJ.[97] Further, the Biden administration has recently reiterated the view that "much of the convention reflects customary international law."[98] Given that the United States was only opposed to Part XI concerning The Area and deep seabed mining during the Third United Nations Conference on the Law of the Sea,[99] it may be inferred that the United States views Part XII and the relevant provisions on dispute resolution as binding customary international law. However, the United States may refuse to recognize the ICJ's jurisdiction, which would disallow the ICJ from reviewing the dispute.[100]

95. Tom Phillips, Oliver Holmes & Owen Bowcott, *Beijing Rejects Tribunal's Ruling in South China Sea Case*, The Guardian (July 12, 2016), https://www.theguardian.com/world/2016/jul/12/philippines-wins-south-china-sea-case-against-china [https://perma.cc/7ZJF-CKPJ].

96. *See* Chris Wold, David Hunter, Melissa Powers, *Customary Law, Human Rights and Climate Change*, *in* Climate Change and the Law (2d ed. 2013). Further, in *MOX Plant*, ITLOS held that the duty to cooperate is a fundamental principle under general international law. *MOX Plant Case* (*Ir. v. U.K.*), Case No. 10, Order of Dec. 3, 2001, 10 ITLOS Rep. 343 [hereinafter *MOX Plant*]. *See also* Nilüfer Oral, *The South China Sea Arbitral Award, Part XII of UNCLOS, and the Protection and Preservation of the Marine Environment*, *in* The South China Sea Arbitration 223, 241 (S. Jayakumar, et al. eds., 2018).

97. R.R. Churchill & A.V. Lowe, The Law of the Sea 24 (3rd ed. 1999); Robert Beckman, State Responsibility and Transboundary Marine Pollution 3 (2014), https://cil.nus.edu.sg/wp-content/uploads/2014/02/Session-4-Beckman-State-Responsibility-and-Transboundary-Marine-Pollution-27-Feb-paper.pdf [https://perma.cc/2MFX-7VVS].

98. U.S. Department of State, *Assistant Secretary Monica Medina Remarks: The Constitution of the Sea* (Dec. 8, 2022), https://www.state.gov/assistant-secretary-monica-medina-remarks-un-convention-on-the-law-of-the-sea-40th-anniversary/ [https://perma.cc/JQX7-9X6S].

99. Tommy Koh, *The United States and the UN Convention on the Law of the Sea*, U.S.-Asia Law Institute (Dec. 21, 2022), https://usali.org/usali-perspectives-blog/the-united-states-and-the-un-convention-on-the-law-of-the-sea [https://perma.cc/538E-L8JM].

100. Article 36(1) of the Statute of the ICJ provides that "The jurisdiction of the Court comprises all cases which the parties refer to it and all matters specially provided for in

Despite these shortcomings, the threat of a legal claim may nonetheless place political pressure on countries which do not want to submit to UNCLOS's dispute resolution mechanism or are not bound by it. A successful claim can legitimize calls for greater contributions to a loss and damage fund, especially if the claimant does not regularly have enough political leverage to push for such demands.[101] Legal claims might also compel other countries to apply diplomatic pressure on the uncooperative nation to cooperate and contribute to a loss and damage fund. Finally, such high-profile climate change litigation has an important storytelling function with great potential to convince the public of the importance of climate loss and damage, which would also place pressure on countries to act.[102]

Examples of impactful climate change cases abound. The landmark *Urgenda* case found that the Netherlands had a duty of care to mitigate climate change.[103] The Committee on the Rights of the Child's decision in *Sacchi et al. v. Argentina et al.* established that countries may be responsible for their emissions that negatively impact children around the world. In *Future Generations vs. Ministry of Environment*, the Colombian Supreme Court agreed with the plaintiffs that the Colombian Amazon had rights that were threatened by deforestation.[104] Climate change litigation thus has the power to reframe the way people view the environment, which strengthens the arguments against countries for stronger climate action.

The strength of UNCLOS as a treaty has been recognized by small island states, which have requested ITLOS to issue an advisory opinion on climate change and international law. In 2021, some small island states established the Commission of Small Island States on Climate Change and International Law ("COSIS"), which has a mandate to "promote and contribute to the definition, implementation, and progressive development of rules and principles, . . . including . . . [the] responsibility [of States] for injuries arising from internationally wrongful acts."[105] Later, in December 2022, COSIS referred the following legal questions to ITLOS:

> What are the specific obligations of State Parties to the United Nations Convention on the Law of the Sea ('UNCLOS'), including under Part XII:

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the Charter of the United Nations or in treaties and conventions in force." Statute of the International Court of Justice, art. 36(1), June 26, 1945, U.S.T.S. 993.

101. Alan Boyle, *Litigating Climate Change Under Part XII of the LOSC*, 34 Int'l J. Marine & Coastal L. 458, 458–459 (2019).

102. *See* Grace Nosek, *Climate Change Litigation and Narrative: How to Use Litigation to Tell Compelling Climate Stories*, 42 William & Mary Env't L. and Pol'y Rev. 733 (2018).

103. *Urgenda Foundation v. State of the Netherlands* [2015] HAZA C/09/00456689.

104. *Future Generations vs. Ministry of Environment and Others*, Radicación n.° 11001-22-03-000-2018-00319-01; STC4360-2018.

105. *Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law*, art. 1(3) (Oct. 31, 2021), https://commonwealthfoundation.com/wp-content/uploads/2021/12/Commission-of-Small-Island-States-on-Climate-Change-and-International-Law.pdf [https://perma.cc/VN4R-PUHF].

a) to prevent, reduce and control pollution of the marine environment in relation to the deleterious effects that result or are likely to result from climate change, including through ocean warming and sea level rise, and ocean acidification, which are caused by anthropogenic greenhouse gas emissions into the atmosphere?
b) to protect and preserve the marine environment in relation to climate change impacts, including ocean warming and sea level rise, and ocean acidification?[106]

While COSIS did not make any argument with regard to the above questions, it attached a dossier with relevant documents for ITLOS to review. These included the UNFCCC, the Paris Agreement, the Sixth Assessment Report of the Intergovernmental Panel on Climate Change ("IPCC") which highlighted the intersection between climate change and oceans, as well as public statements by members of COSIS which elaborate on the impacts of climate change on their countries and the need for compensation via loss and damage.[107] The following Subsections explore COSIS's questions and argue that an UNCLOS court or tribunal may mandate States to cooperate and contribute to a loss and damage fund.

B. *Climate Change as Marine Pollution*

Part XII of UNCLOS sets forth provisions on the protection and preservation of the marine environment. For a claim to be made under UNCLOS, it must first be proven that climate change constitutes marine pollution and then that States have breached their obligations under Part XII.

First, under Article 194, States have a duty to take measures to prevent, reduce and control pollution of the marine environment.[108] Greenhouse gas emissions resulting in climate change may be considered as "pollution" for the purposes of Part XII. Article 1(4) of UNCLOS details that "pollution of the marine environment" means:

> the introduction by man, directly or indirectly, of *substances or energy* into the marine environment, including estuaries, which *results or is likely to result in such deleterious effects* as harm to living resources and marine life, hazards to human health, hindrance to marine activities, including fishing

106. Press Release, International Tribunal of the Law of the Sea, *The International Tribunal for the Law of the Sea Receives a Request for an Advisory Opinion from the Commission of Small Island States on Climate Change and International Law* (Dec. 12, 2022), https://www.itlos.org/fileadmin/itlos/documents/press_releases_english/PR_327_EN.pdf [https://perma.cc/4JFJ-XEBW].

107. *Dossier Submitted by the Commission of Small Island States on Climate Change and International Law*, Int'l Trib. for the L. of the Sea, https://www.itlos.org/en/main/cases/list-of-cases/request-for-an-advisory-opinion-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law-request-for-advisory-opinion-submitted-to-the-tribunal/dossier-submitted-by-the-commission-of-small-island-states-on-climate-change-and-international-law [https://perma.cc/DH9Q-9X4F] (last visited Jan. 23, 2024).

108. UNCLOS, *supra* note 86, at art. 194.

> and other legitimate uses of the sea, impairment of quality for use of sea water and reduction of amenities.[109]

This definition requires two main elements: (1) the direct or indirect introduction of substances or energy into the marine environment; and (2) such introduction must result or be likely to result in deleterious effects to the marine environment. As will be illustrated below, the definition of marine pollution under UNCLOS is broad enough to also include phenomena such as ocean acidification, ocean warming and sea level rise, which cause further deleterious effects on the marine environment, such as coral bleaching, marine heatwaves, and flooding.[110]

The introduction of greenhouse gases into the atmosphere constitutes the "introduction . . . of substances or energy into the environment" under Article 1(4).[111] About a quarter of carbon dioxide emitted to the atmosphere is absorbed by the ocean, which results in ocean acidification.[112] Greenhouse gases also trap heat, which constitute energy that is then absorbed by the ocean, resulting in ocean warming. The IPCC's Fifth Assessment Report in 2013 reported that since the 1970s, the ocean had absorbed more than 93 percent of excess heat from greenhouse gas emissions, and projected that there will likely be an increase in mean global ocean temperature of 1–4 degrees Celsius by 2100.[113] Article 194(1) provides that marine pollution can occur from "any source."[114] Article 212 of UNCLOS further contemplates that pollution of the marine environment may occur "from or through the atmosphere," which is the mechanism by which greenhouse gas emissions are absorbed by and thus affect the marine environment.[115]

Next, the introduction of such gases and heat "results or is likely to result in . . . deleterious effects."[116] Climate science has long recognized that anthropogenic atmospheric carbon dioxide concentrations have increased over time, which has led to a myriad of climate change effects, such as global warming. The IPCC's Sixth Assessment Report has also established with high confidence that human-induced climate change has caused adverse impacts across ecosystems,

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109. *Id.* at art. 1(4) (emphasis added).

110. *E.g.*, Phillip Williamson & Valeria A. Guinder, *Effect of Climate Change on Marine Ecosystems*, *in* The Impacts of Climate Change: A Comprehensive Study of Physical, Biophysical, Social, and Political Issues 115 (Trevor M. Letcher ed., 2021).

111. *Id.*

112. U.S. Global Change Research Program, *Ocean Acidification*, Nat'l Climate Assessment,https://nca2014.globalchange.gov/report/our-changing-climate/ocean-acidification [https://perma.cc/4JZB-ET9K] (last visited Jan. 23, 2024).

113. *Ocean Warming*, Int'l Union for Conservation of Nature and Nat. Res. (Nov. 2017), https://www.iucn.org/resources/issues-brief/ocean-warming#:~:text=Data%20from%20the%20US%20National,over%20the%20past%20100%20years [https://perma.cc/ZD4S-FWRN].

114. UNCLOS, *supra* note 86, at art. 194(1).

115. *Id.* at art. 212.

116. *Id.* at art. 1(4).

including in ocean marine ecosystems.[117] These include sea level rise and ocean acidification. The report elaborates that sea level rise will "encroach on coastal settlements and infrastructure . . . and commit low-lying coastal ecosystems to submergence and loss."[118] Such displacement of coastal communities and the loss of coastal environments constitute "hazards to human health [and] hindrance to marine activities" contemplated under Article 1(4).[119] The intensification of extreme weather events brought about by sea level rise, such as flooding, is also likely to result in "harm to living resources and marine life, [and] hazards to human health."[120] The report notes too that ocean warming and acidification "have adversely affected food production from shellfish aquaculture and fisheries."[121] These changes in the distribution, abundance, and productivity of marine species constitute a "reduction of amenities" under Article 1(4). Ocean warming and acidification will also lead to more frequent and extensive coral bleaching and mortality.[122] This impact on coral reef ecosystems is clearly a form of marine pollution, since ITLOS has held in the *Southern Bluefin Tuna Case* that "the conservation of the living resources of the sea is an element in the protection and preservation of the marine environment."[123] The available science thus establishes that climate change constitutes "pollution of the marine environment" under UNCLOS.

The analysis then turns to the content of State obligations under Part XII of UNCLOS, and whether these obligations have been breached. Under Article 192, States have the general obligation "to protect and preserve the marine environment."[124] It was held in *South China Sea* that Article 192 "impose[s] a duty on States Parties, the content of which is informed by the other provisions of Part XII and other applicable rules of international law."[125] The Permanent Court of Arbitration further held that Article 192 involves protecting the marine environment from *future damage*, and preserving the *existing condition* of the marine environment by maintaining or improving it.[126] The temporality of Article 192 also entails two kinds of obligation: the "*positive* obligation to take active measures to protect and preserve the environment, and by logical implication . . . the *negative* obligation not to degrade the marine environment."[127] This broad interpretation of Article 192 effectively means that

117. *See* IPCC Sixth Assessment Report, *supra* note 14.

118. *Id.* at ¶ B.3.1.

119. UNCLOS, *supra* note 86, at art. 1(4).

120. *Id.*

121. *See* IPCC Sixth Assessment Report, *supra* note 14, at B.1.3.

122. *Id.* at Figure SPM.3.

123. *Southern Bluefin Tuna* (*N.Z. v. Japan*), Case No. 3, Order for Provisional Measures of Aug. 27, 1999, 3 ITLOS Rep. 280, 295 [hereinafter *Southern Bluefin Tuna*].

124. UNCLOS, *supra* note 86, at art. 192.

125. *South China Sea Arbitration* (*Philippines v. China*), Perm. Ct. Arb. Case 2013–19, 373 (Jul. 12, 2016) [hereinafter *South China Sea*].

126. *Id.*

127. *Id.* at 373–374 (emphasis added).

States that have emitted greenhouse gases likely have breached their negative obligation to not degrade the marine environment. However, it may be difficult to trace the impact of each country's emissions to the effects on the marine environment, given the diffused nature of climate change. Each State's duty to protect the environment is also balanced with their "sovereign right to exploit their natural resources pursuant to their environmental policies" under Article 193, so there likely will not be a requirement that a State does not emit greenhouse gases at all.[128]

An easier argument may be that States are in breach of Article 192 if they fail to adopt adequate climate mitigation strategies. The lack of sufficiently ambitious climate mitigation strategies would also be a breach of Article 194(2), which sets out specifically that:

> States shall take *all measures necessary* to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.[129]

International climate change agreements like the Paris Agreement may be instructive in determining what measures fulfill the requirement of necessity in Article 194(2). Article 237 permits UNCLOS to be interpreted by reference to specific obligations set out in other international agreements, despite the fact that UNCLOS was negotiated before climate change was part of the international agenda.[130] Since UNCLOS was conceived of as a constitutional framework, it was also designed such that it could evolve through amendments and incorporate developments in international law and policy.[131] Article 237 of UNCLOS effectively reaffirms Article 31(3)(c) of the Vienna Convention on the Law of Treaties, which states that a treaty shall be interpreted in the light of "any relevant rules of international law applicable in the relations between the parties."[132] Thus, under Article 237, treaties like the UNFCCC and the Paris

128. UNCLOS, *supra* note 86, at art. 193.

129. *Id.* at art. 194(2) (emphasis added).

130. *South China Sea*, *supra* note 125, at 374. Article 237 states:

> 1. The provisions of this Part are without prejudice to the specific obligations assumed by States under special conventions and agreements concluded previously which relate to the protection and preservation of the marine environment and to agreements which may be concluded in furtherance of the general principles set forth in this Convention.
>
> 2. Specific obligations assumed by States under special conventions, with respect to the protection and preservation of the marine environment, should be carried out in a manner consistent with the general principles and objectives of this Convention." *Id.* at art. 237.

131. Boyle, *supra* note 101, at 462.

132. Vienna Convention on the Law of Treaties, art. 31(3)(c), May 23, 1969, 1155 U.N.T.S. 331.

Agreement may inform the offenses and obligations under UNCLOS. The Paris Agreement thus may set a standard for the Part XII provisions on what is "necessary."[133] Non-compliance with the Paris Agreement's provisions on nationally determined contributions and climate change mitigation hence may be regarded as evidence of a State not taking "all measures necessary" under Article 194(2), which is proof of non-compliance with UNCLOS.[134]

Additionally, a State may not have satisfied its due diligence obligation under Article 192 if it has not adopted sufficient climate change mitigation policies. The obligation "to ensure" that there is no marine pollution under Article 192 has been clarified in *South China Sea* as an "obligation of conduct."[135] This requires States to exercise "due diligence" in adopting appropriate rules and measures.[136] The *South China Sea* case provides guidance on when a breach of the due diligence obligation is triggered. In the case, the arbitral tribunal held that China's failure to prevent the harvesting of endangered species was a breach of Articles 192 and 194(5), which was triggered when China was aware that its flag vessels were "engaged in the harvest of species recognised internationally as being threatened with extinction or are inflicting significant damage on rare or fragile ecosystems or the habitat of depleted, threatened, or endangered species."[137] This knowledge meant that China has a "duty to adopt rules and measures to prevent such acts and to maintain a level of vigilance in enforcing those rules and measures."[138] In the climate context, the existence of treaties like the UNFCCC and the Paris Agreement are indicative of the fact that states are put on notice of the impacts of climate change on the environment. This triggers the due diligence obligation, especially since their greenhouse gas emissions contributed to climate change.

The scope of such due diligence was set out in *Pulp Mills*, which concerned a dispute between Argentina and Uruguay over the construction of pulp mills on the Uruguay River.[139] This scope was reaffirmed in *South China Sea,* and requires:

> not only the adoption of appropriate rules and measures, but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators, such as the monitoring of activities undertaken by such operators, to safeguard the rights of the other party.[140]

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133. Boyle, *supra* note 101, at 467.

134. *Id.*

135. *South China Sea*, *supra* note 125, at 375.

136. *Id.* at 375–376, citing *Request for Advisory Opinion submitted by the Sub-Regional Fisheries Commission*, Advisory Opinion of Apr. 2, 2015, ITLOS Rep. 2015.

137. *Id.* at 382.

138. *Id.*

139. *Pulp Mills on the River Uruguay* (*Argentina v. Uruguay*), Judgment, 2010 I.C.J. Rep. 14, (Apr. 20) [hereinafter *Pulp Mills*].

140. *South China Sea*, *supra* note 125, at 375-376, citing *Pulp Mills* at ¶ 197.

Read together with Article 207 which covers the prevention, reduction, and control of marine pollution from land-based sources,[141] it could be argued that under Article 192, States have the obligation to regulate and control land-based activities, such as fossil fuel extraction, and fossil fuel-generated power that emits greenhouse gas.[142] Based on the wording in *Pulp Mills*, this obligation holds even if such activities were operated by private industry, as long as States have "administrative control" over such activities.[143] One counterargument to the due diligence requirement applying to land-based greenhouse gas emissions is that Article 207 does not contemplate gas emissions, but rather, water runoff.[144] This is because Article 207 describes land-based sources as "including rivers, estuaries, pipelines and outfall structures."[145] However, when read with Article 212, it is clear that the protection of the marine environment under Part XII is also concerned with greenhouse gas emissions, since Article 212 extends to pollution "from or through the atmosphere."[146]

In all, climate change triggers State obligations under Part XII of UNCLOS, which may be breached if climate action in a particular State is insufficient. If ITLOS renders an advisory opinion pursuant to COSIS's request, the opinion will also provide more guidance on the specific obligations

141. Article 207 states that:

> 1. States shall adopt laws and regulations to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipelines and outfall structures, taking into account internationally agreed rules, standards and recommended practices and procedures.
>
> 2. States shall take other measures as may be necessary to prevent, reduce and control such pollution.
>
> . . .
>
> 4. States, acting especially through competent international organizations or diplomatic conference, shall endeavour to establish global and regional rules, standards and recommended practices and procedures to prevent, reduce and control pollution of the marine environment from land-based sources, taking into account characteristic regional features, the economic capacity of developing States and their need for economic development. Such rules, standards and recommended practices and procedures shall be re-examined from time to time as necessary.
>
> 5. Laws, regulations, measures, rules, standards and recommended practices and procedures referred to in paragraphs 1, 2 and 4 shall include those designed to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substances, especially those which are persistent, into the marine environment.

UNCLOS, *supra* note 86, at art. 207.

For more discussion on Article 207 and the obligations that it imposes relating to climate change, *see* Boyle, *supra* note 101, at 465–469.

142. Alan Boyle, *Law of the Sea Perspectives on Climate Change*, 27 Int'l J. Marine & Coastal L. 831, 832 (2012).

143. *Pulp Mills, supra* note 139.

144. Jesse Cameron Glickenhaus, *Potential ICJ Advisory Opinion: Duties to Prevent Transboundary Harm from GHG Emissions*, 22 NYU Env't L. J. 117, 143 (2015).

145. UNCLOS, *supra* note 86, at art. 207.

146. *Id.* at art. 212.

that climate change may trigger under Part XII of UNCLOS. This would then inform the relevant breaches of obligations.

C. *Procedural Considerations*

The legal argument in Subsection B above may be grounds for litigation under UNCLOS. This Subsection addresses the procedural issues that litigants must overcome to bring their claims.

The claimant State bringing a dispute must first attempt to peacefully settle the dispute.[147] It is only upon failure of such peaceful settlement that the claimant may escalate the dispute to ITLOS, the ICJ, or an arbitral tribunal under UNCLOS.[148] Article 279 of UNCLOS refers to the UN Charter in defining the peaceful settlement of the dispute, with the latter defining peaceful settlement as "such manner that international peace and security, and justice are not endangered."[149] This may entail "negotiation, enquiry, mediation, conciliation, arbitration, judicial settlement, resort to regional agencies or arrangements, or other peaceful means of [the parties'] own choice."[150]

The threshold requirement, however, is that there must be a dispute between the parties. One illustrative example is the *Marshall Islands* case brought by the Marshall Islands against nine nuclear nations concerning relating to the cessation of the nuclear arms race and to nuclear disarmament.[151] As international environmental law professor Alan Boyle points out, the *Marshall Islands* case failed because there was no live dispute.[152] To prove that there was a dispute, the two sides must "hold clearly opposite views concerning the question of the performance or non-performance of certain' international obligations," which may be evidenced by prior negotiations, formal diplomatic protests, statements and documents exchanged between the parties and in multilateral settings, as well as the conduct of the parties.[153] It has been previously held in another ICJ case that "the existence of a dispute may be inferred from the failure of a State to respond to a claim in circumstances where a response is called for," which appears to be an easy bar to meet in the context of climate change, particularly if the respondent State has insufficient climate change mitigation measures.[154]

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147. *Id.* at art. 279.

148. *Id.* at art. 287(1).

149. U.N. Charter art. 2 ¶ 3.

150. *Id.* at art. 33 ¶ 1.

151. The nine states were China, Democratic People's Republic of Korea, France, India, Israel, Pakistan, Russia, the United Kingdom and the United States. *Obligations Concerning Negotiations Relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament* (*Marshall Islands v. United Kingdom*), Preliminary Objections, Judgment, 2016 I.C.J. Rep. 833, (Oct. 5).

152. Boyle, *supra* note 101, at 478.

153. *Id*. at 849–851.

154. *Application of the International Convention on the Elimination of All Forms of Racial Discrimination* (*Georgia v. Russian Federation*), Preliminary Objections, Judgment,

Issues may arise as to who should bring a claim, and who the claim should be brought against. First, any State Party to UNCLOS which has suffered marine pollution as a result of greenhouse gas emissions by another State is entitled to bring a claim under UNCLOS. Standing could also extend beyond the injured State to any State under UNCLOS, if an argument is made that there has been marine pollution in the Area (*i.e.*, areas beyond national jurisdiction). This is because "[t]he Area and its resources are the common heritage of mankind,"[155] with the "common heritage of mankind" referring to community interests beyond national jurisdiction, over which the international community has a shared obligation to act as trustees.[156] Thus, obligations that exist in the area are *erga omnes*, meaning they are owed to the international community as a whole.[157] *Erga omnes* obligations may be enforced by any State Party or the International Seabed Authority, as long as either is acting on behalf of the international community.[158] Thus, standing is unlikely to be an issue when it comes to claims for marine pollution under UNCLOS.

Next, the claim may be brought against any State Party with greenhouse gas emissions. While this would effectively include all countries, the list of respondent States may be narrowed by determining the States that the claimant State has an existing dispute with. Additionally, it would be strategic to choose States with high greenhouse gas emissions as compared to other countries, since their emissions are more likely to have caused marine pollution. The claim would also be easier to prove on a scientific basis. Finally, if the remedy sought is cooperation and contribution to a loss and damage fund, the claim should be brought against States which have consistently refused to cooperate and contribute to such funds. This would allow claimant States to more easily prove that the respondent State has not fulfilled its duty to cooperate and compensate for loss and damage.

D. *Remedies under Part XII of UNCLOS*

Having gone through the legal obligations of States and procedural requirements for bringing a claim, the question then arises as to what remedies are available under Part XII of UNCLOS. Generally, the scope of orders that

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2011 I.C.J. Rep. 84, ¶ 30 (Apr. 1).

155. UNCLOS, *supra* note 86, at art. 136.

156. Maria José Alarcon & Maria Antonia Tigre, *Navigating the Intersection of Climate Change and the Law of the Sea: Exploring the ITLOS Advisory Opinion's Substantive Content*, Climate Law: A Sabin Center blog (Apr. 24, 2023), https://blogs.law.columbia.edu/climatechange/2023/04/24/navigating-the-intersection-of-climate-change-and-the-law-of-the-sea-exploring-the-itlos-advisory-opinions-substantive-content [https://perma.cc/TA6Z-GNFV].

157. *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion of 1 February 2011, 17 ITLOS Rep. 10, ¶ 180.

158. *Id.* For more on *erga omnes* obligations, *see* Eirini-Erasmia Fasia, *No Provision Left Behind – Law of the Sea Convention's Dispute Settlement System and Obligations Erga Omnes*, 20 The L. & Prac. of Int'l Courts & Tribunals 519 (2021).

UNCLOS authorities may award is broad. For example, orders under the ICJ can range from declarations of a breach to restitution, the award of damages, and performance.[159] Public international lawyer Sir Ian Brownlie has detailed that despite the lack of express guidance in the Statute of the International Court of Justice, the ICJ has provided declaratory judgments, specific performance, and injunctive relief.[160] ITLOS has similarly provided such relief.[161]

This Article argues that UNCLOS authorities may mandate States to cooperate in developing and contributing to a loss and damage fund. This order would be based on Article 235 of UNCLOS, which covers responsibility and liability:

> 1. States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment. . . .
> 2. States shall ensure that recourse is available in accordance with their legal systems for *prompt and adequate compensation or other relief* in respect of damage caused by pollution of the marine environment by natural or juridical persons under their jurisdiction.
> 3. With the objective of assuring prompt and adequate compensation in respect of all damage caused by pollution of the marine environment, *States shall cooperate in the implementation of existing international law and the further development of international law* relating to responsibility and liability for the assessment of and compensation for damage and the settlement of related disputes, as well as, where appropriate, *development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds*.[162]

An UNCLOS authority may make an order pursuant to Article 235 stating that a State must provide "prompt and adequate compensation" through cooperating in the "development of criteria and procedures for payment of adequate compensation, such as compulsory insurance or compensation funds."[163] This does not necessarily mean that the court or tribunal must instruct the State to create a new institution to provide for such funds. Doing so would also be unnecessary since the recent COP28 has operationalized a loss and damage fund. Moreover, doing so might be beyond the ambit of a court's or tribunal's authority as it is not supported in the plain text of Article 235. Rather, the court or tribunal may order a State to contribute to the Fund and to cooperate in developing the manner in which the Fund operates, such as through the proposal that is later set out in Section IV of this Article. While an order

159. Rosalyn Higgins, *Remedies and the International Court of Justice: An Introduction*, *in* Themes and Theories 893, 901 (Rosalyn Higgins ed., 2009).

160. Ian Brownlie, *Remedies in the International Court of Justice*, *in* Fifty Years of the Int'l Ct. of Just.: Essays in Honour of Sir Robert Jennings 557, 558 (Malgosia Fitzmaurice & Vaughan Lowe eds., 1996).

161. *See* Philippe Gautier, *The ITLOS Experience in Dispute Resolution*, *in* The Future of Ocean Governance and Capacity Development 181 (2019).

162. UNCLOS, *supra* note 86, at art. 235 (emphasis added).

163. *Id.* at art. 235(2)(3).

under Article 235 has never been made, there is persuasive case law regarding cooperation and compensation, and relevant provisions throughout UNCLOS, that would be instructive for an UNCLOS court or tribunal. These persuasive authorities are discussed below.

First, ITLOS has mandated cooperation between States to rectify marine pollution. For example, the *Land Reclamation* case involved reclamation works by Singapore which allegedly caused sedimentation, seabed level changes and coastal erosion in the seas surrounding Singapore and Malaysia. In the case, ITLOS ruled that Singapore and Malaysia were to cooperate by exchanging information on the risks and effects of Singapore's land reclamation works. Singapore was also ordered to cease conduct that might cause serious harm to the marine environment.[164] Similarly, in the *MOX Plant* case where Ireland argued that the United Kingdom ("UK") discharged radioactive waste discharge into the Irish Sea, ITLOS ruled that both Ireland and the UK shall cooperate and update ITLOS with reports on such cooperation.[165] For the purpose of cooperation, both countries were to "(a) exchange further information with regard to possible consequences for the Irish Sea arising out of the commissioning of the MOX plant; (b) monitor risks or the effects of the operation of the MOX plant for the Irish Sea; [and] (c) devise, as appropriate, measures to prevent pollution of the marine environment which might result from the operation of the MOX plant."[166]

The duty to cooperate is also enshrined in Part XII under Articles 197 and 199. Article 197 requires States to "cooperate on a global basis and, as appropriate, on a regional basis, directly or through competent international organizations, in formulating and elaborating international rules, standards and recommended practices and procedures consistent with this Convention, for the protection and preservation of the marine environment, taking into account characteristic regional features."[167] Further, when a State becomes "aware of cases in which the marine environment is in imminent danger of being damaged or has been damaged by pollution,"[168] Article 199 provides that "States in the area affected . . . shall cooperate, to the extent possible, in eliminating the effects of pollution and preventing or minimizing the damage. To this end, States shall jointly develop and promote contingency plans for responding to pollution incidents in the marine environment."[169]

The duty to cooperate effectively requires States to cooperate by developing "contingency plans" under Article 199.[170] In the context of climate

164. *E.g.*, *Land Reclamation In and Around the Straits of Johor* (*Malaysia v. Singapore*), Provisional Measures, Order of 8 October 2003, 12 ITLOS Rep. 10.

165. *MOX Plant*, *supra* note 96, at 110–111.

166. *Id.*

167. UNCLOS, *supra* note 86, at art. 197.

168. *Id.* at art. 198.

169. *Id.* at art. 199.

170. *Id.*

change loss and damage, these contingency plans may involve schemes to compensate countries for losses suffered from climate change, such as the Fund. Based on Articles 197 and 199, the UNCLOS authority hearing the case may mandate a State to cooperate in international efforts to protect and preserve the marine environment, eliminate the effects of pollution, and prevent or minimize damage. Such cooperation in the climate loss and damage context would likely involve active participation in the various UNFCCC arrangements for loss and damage, such as the Fund, the Warsaw Mechanism, the Santiago Network, and the Fiji Clearing House.

Second, there is precedent for an international court to order environmental compensation for loss and damage, which would be instructive for a court or tribunal ruling under UNCLOS. Here, it must be noted that the precedent case, *Costa Rica v. Nicaragua*, is not a Part XII UNCLOS case. Instead, the case involved environmental damage caused by Nicaragua's construction of a canal on Costa Rican territory, which then affected Costa Rica's Colorado River, along with its wetlands and wildlife protected areas.[171] *Costa Rica v. Nicaragua* nonetheless remains persuasive as case law, as it established that "it is consistent with the principles of international law governing the consequences of internationally wrongful acts, including the principle of full reparation, to hold that compensation is due for damage caused to the environment."[172] In the case, the ICJ also held that:

> damage to the environment, and the consequent impairment or loss of the ability of the environment to provide goods and services, is compensable under international law. Such compensation may include indemnification for the impairment or loss of environmental goods and services in the period prior to recovery and payment for the restoration of the damaged environment.[173]

Although the facts of *Costa Rica v. Nicaragua* are very different from climate change and marine pollution, the ICJ's judgment on environmental compensation nonetheless revolved around whether environmental damage in general is compensable. Additionally, both parties in the case agreed that environmental damage is compensable under international law—Costa Rica supported this argument by citing UNCC's environmental compensation.[174] Thus, while the facts of *Costa Rica v. Nicaragua* differ from what a claimant State might bring under UNCLOS, the international legal principle set forth in the case is nonetheless highly persuasive, particularly when read together with Article 235 of UNCLOS which directly provides for "prompt and adequate compensation . . . of damage caused by pollution of the marine environment."

171. *Certain Activities Carried Out by Nicaragua in the Border Area* (*Costa Rica v. Nicar.*), Judgment, 2015 I.C.J. Rep. 667 (Dec. 16) [hereinafter *Costa Rica v. Nicaragua*].

172. *Id.* at ¶ 41.

173. *Id.* at ¶ 42.

174. *See* Section II.B for a discussion on UNCC's regime for environmental compensation.

There have also been awards for compensation in the more specific context of UNCLOS. For example, in *Saint Vincent and the Grenadines v. Guinea*, which concerned the arrest and detention of a ship, ITLOS awarded Saint Vincent and the Grenadines a total compensation of US$2,123,357.[175] Even though the case did not concern marine pollution, it remains persuasive as ITLOS applied UNCLOS provisions on compensation, which is similarly provided for in the Part XII context under Article 253. Article 235(1) sets out that "States are responsible for the fulfilment of their international obligations concerning the protection and preservation of the marine environment," and "shall be liable in accordance with international law."[176]

Taken together, *Costa Rica v. Nicaragua* and *Saint Vincent and the Grenadines v. Guinea* stand for the proposition that an UNCLOS court may order a State to compensate for losses, including environmental loss and damage. Further, Article 235, in establishing State responsibility and liability, encodes the "polluter pays" principle under international environmental law, where polluters should bear the costs of damage that they have caused to the environment.[177]

Here, it should be noted that one potential issue for making a compensation order under Article 235 is that Article 235(2) provides that compensation is only available for damage caused by an accused State. This emphasis on causation was also highlighted in the 2001 ILC Articles on Responsibility of States for Internationally Wrongful Acts, which stated that "[t]he responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act."[178] This means that a causal link must be established between a State's failure to fulfill its Part XII obligations and the damage caused to another State.[179] Such a causal link may be difficult to draw in the context of climate damage, since both the causes and effects of climate change are diffused. It is thus hard to prove that a particular harm, such as the loss of coastal environment due to sea level rise, was caused specifically by a particular country's greenhouse gas emissions. Related to this is the idea that remote damages should not be the subject of reparation.[180]

However, given the lack of precedent, this requirement of direct causation is arguably too high a bar for claims relating to climate change.[181]

175. *E.g. M/V 'Saiga' Case* (*Saint Vincent and the Grenadines v. Guinea*), Case No. 1, Order of Dec. 4, 1997, 1 ITLOS Rep. 334; *M/V Saiga (No. 2)*, *supra* note 35.

176. UNCLOS, *supra* note 86, at art. 235(1).

177. Rio Declaration, *supra* note 29, at Principle 16.

178. Responsibility of States for Internationally Wrongful Acts, G.A. Res. 56/83, art. 31(1) U.N. Doc. A/RES/56/83 (Jan. 28, 2002).

179. Robert Beckman, *supra* note 97, at 5; International Law Commission, Draft Articles on Responsibility of States for Internationally Wrongful Acts, with commentaries, at 92 (2001), https://legal.un.org/ilc/texts/instruments/english/commentaries/9_6_2001.pdf [hereinafter ILC commentary].

180. *Id.* at 93.

181. The ILC commentary notes the case of UNCC, where Iraq's liability under international law was assessed "for any direct loss, damage—including environmental

Instead, a country's contributions to overall greenhouse gas emissions should constitute sufficient proof that it in part caused climate damage, especially if the contributions are significant relative to global greenhouse gas emissions.[182] In the remoteness inquiry, other criterion such as proximity or foreseeability should be adopted instead of a direct causation analysis.[183] Assuming that such causation can be proven, the country will then be legally responsible to provide financial compensation for climate change damages insofar as these damages relate to the marine environment.

IV. Restructuring the Loss and Damage Fund to Ensure Adequate Funding

Having addressed the issue of the loss and damage regime being voluntary, this Article now turns to how the existing loss and damage fund operationalized under COP28 ("the Fund") may be restructured to ensure adequate funding. Currently, the Fund functions as a pool of money that developed nations voluntarily contribute to.[184] The Fund provides two kinds of financing: first, fast finance for rehabilitation, recovery and reconstruction following extreme weather or climate-related disaster events; and second, financing for countries to address the negative impacts of slow-onset climate events such as sea level rise.[185] The COP28 decision also established that "[d]eveloping countries that are particularly vulnerable to the adverse effects of climate change are eligible to receive resources from the Fund."[186]

However, as discussed in Section II of this Article, the current contributions to the Fund are insufficient even in the light of other international and regional loss and damage arrangements. Given the urgency of climate change, there is a strong need for the international community to set up an effective and adequate fund to help climate-vulnerable countries deal with the effects of climate change.

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damage and the depletion of natural resources . . . as a result of its unlawful invasion and occupation of Kuwait." *Id.* at 101. However, the UNCC example can be distinguished from Article 235, since the UNCC mentions "direct loss," while there is no such mention of "direct" causation under Article 235.

182. *See e.g.*, the petitioner's complaint in United Nations Human Rights Committee, *Views adopted by the Committee under article 5 (4) of the Optional Protocol, concerning communication No. 3624/2019*, CCPR/C/135/D/3624/2019 (Sept. 22) (also known as the Torres Strait Islanders Petition).

183. The ILC commentary stated that "[t]he notion of a sufficient causal link which is not too remote is embodied in the general requirement in article 31 that the injury should be in consequence of the wrongful act, but without the addition of any particular qualifying phrase," and that this "sufficient causal link" has been determined with varying criteria, such as "directness," "foreseeability," or "proximity." *Id.* at 93.

184. COP28 Decision, *supra* note 68.

185. UNFCCC Conference of the Parties, November 11–23, 2013, Decision 2/CP.19, U.N. Doc. FCCC/CP/2013/10/Add.1 (Jan. 31, 2014); COP28 Decision, *supra* note 68.

186. COP28 Decision, *supra* note 68.

This Section draws on the law of the sea and proposes a two-tiered loss and damage fund with contributions first from industries with high greenhouse gas emissions, and second from countries, based on their emissions and capacity to contribute. Such a tiered structure would substantially expand the scope of the Fund. While the structuring of an effective loss and damage fund might seem to be an elusive goal, international law is no stranger to loss and damage. A wide range of such regimes exist in international law, ranging from the transport of hazardous waste,[187] to nuclear accident liability,[188] damage caused by space objects,[189] industrial accidents on transboundary waters,[190] and war-related damages.[191] This Section looks specifically at the International Maritime Organization's ("IMO") oil spill compensation regime to find inspiration for how a climate loss and damage fund can be effectively structured.

The oil spill compensation regime is a good model given its established history, wide coverage of countries, and tiered system that allocates responsibility between industry and countries. Although the concept of environmental compensation may appear to laypersons as a relatively new concept, the oil spill compensation regime, which was set up by the IMO, proves otherwise. The IMO was established in 1948 to regulate international shipping, before UNCLOS was even adopted.[192] The IMO regulates the safety and efficiency of international shipping, as well as environmental pollution from ships.[193] In 1969, the IMO established the oil spill loss and damage regime with the signing of the 1969 International Convention on Civil Liability for Oil Pollution Damage ("the CLC"). The regime was later supplemented by the 1992 International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage ("the 1992 Fund Convention"). It is of particular note that the oil spill compensation regime has broad coverage.

187. Basel Protocol, *supra* note 43. The Basel Protocol has not entered into force due to a lack of signatories.

188. Convention on Third Party Liability in the Field of Nuclear Energy, *supra* note 43.

189. Convention on the International Liability for Damage Caused by Space Objects, *supra* note 43. The Convention establishes absolute strict liability on States for damages caused by its space objects, whether the damage is on the surface of the earth or to aircraft.

190. *E.g.*, Protocol on Civil Liability and Compensation for Damage Caused by the Transboundary Effects of Industrial Accidents on Transboundary Waters, May 21, 2003, U.N. Doc. ECE/MP.WAT/11-ECE/CP.TEIA/9. It has not entered into force due to a lack of signatories.

191. For example, the United Nations Compensation Commission paid compensation for loss and damage suffered during Iraq's invasion and occupation of Kuwait from 1990 to 1991.

192. UNCLOS thus refers extensively to a "competent international organization" in its provisions, allowing the law of the sea regime to incorporate the rules that IMO had already set up. *See* Robert Beckman, *supra* note 97.

193. *UNCLOS and IMO - 40 Years of Cooperation*, Int'l Mar. Org. (Nov. 30, 2022), https://www.imo.org/en/MediaCentre/Pages/WhatsNew-1796.aspx [https://perma.cc/F8JW-KFJB].

As of 2018, the CLC was ratified by 115 countries which account for almost 95 percent of global merchant fleet tonnage.[194]

The oil spill compensation regime is also innovative in its tiered structure, which allocates responsibility between private industry and governments. The CLC sets up a first tier of private liability, where tanker owners are strictly liable for their oil spills and are required to maintain insurance or financial guarantees to cover a prescribed limit of liability. Such strict liability is tempered by a financial limit of 2,000 francs for each ton of the ship's tonnage, which shall not exceed 210 million francs.[195] The limit, however, does not apply if the oil spill "occurred as a result of the actual fault or privity of the owner."[196] There are also exceptions to liability, such as an act of war, an act or omission by a third party done with intent to cause damage, and negligence or wrongful act due to the maintenance of lights or other navigational aids.[197] The CLC applies to pollution damage caused on the territory and territorial sea of a Contracting State,[198] with pollution damage defined as "loss or damage caused outside the ship carrying oil by contamination resulting from the escape or discharge of oil from the ship, wherever such escape or discharge may occur, and includes the costs of preventive measures and further loss or damage caused by preventive measures."[199] While the financial burden lies on private owners, Contracting States are responsible for enforcing the compensation scheme. Contracting States shall not permit a ship under its flag to trade unless it has a certificate proving that it has the requisite insurance or financial security, or is owned by a State which covers its liability.[200]

The second tier of liability was established under the 1992 Fund Convention, which set up the International Oil Pollution Compensation Fund ("IOPC Fund"). The IOPC Fund covers damages that exceed the owner's fixed liability under the first tier.[201] It is funded by levies imposed on persons, companies, or government authorities in a Contracting State that receive more than 150,000 tons of crude or heavy oil each year.[202] Thus, private actors are first

194. Ajay Menon, *What is Fund Convention – 15 Things Everyone Must Know*, Marine Insight (Nov. 6, 2020), https://www.marineinsight.com/maritime-law/what-is-fund-convention-15-things-everyone-must-know [https://perma.cc/Z9CY-M6K3].

195. International Convention on Civil Liability for Oil Pollution Damage, art. 5(1), June 19, 1975, 973 U.N.T.S. 3 [hereinafter CLC].

196. *Id.* at art. 5(2). *See* Nicholas J. Healy, *The International Convention on Civil Liability for Oil Pollution Damage, 1969 Shorter Articles and Comments*, 1 J. Mar. L. & Com. 317 (1969).

197. CLC, *supra* note 195, at art. 3.

198. *Id.* at art. 2.

199. *Id.* at art. 1(6).

200. *Id.* at art. 7(10).

201. International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, art. 4(c), October 16, 1978, 1110 U.N.T.S. 57 [hereinafter 1992 Fund Convention].

202. *Id.* at art. 10.

held responsible for loss and damage caused by their oil spills under the CLC. If such compensation is insufficient, victims can avail themselves of the IOPC Fund constituted by States, which serves as an insurance pool. The IOPC Fund also covers pollution damage not just in the territory and territorial sea of a Contracting State, but also in its exclusive economic zone.[203]

This tiered system of liability may be adapted to the climate context by establishing two separate insurance pools, which would account for the diffused nature of climate change impacts and responsibility. Unlike oil spills, which are usually discrete one-off events that can be traced to a single responsible entity, the impacts of climate change are attributable to various actors and parties. The first tier of private liability thus cannot function exactly like it does in the oil spill liability regime, where liability is imposed on a single actor. Instead, the first tier of private liability may function via a pooled system, which industries with high greenhouse gas emissions contribute to and victims can directly claim funds from. States may establish and operationalize this fund. As alluded to in Section III earlier, States, in doing so, may discharge their responsibility under UNCLOS to regulate and control the risk of marine pollution resulting from the activities of the private sector.[204]

The political feasibility of such private liability may be a significant issue, particularly since the fossil fuel industry is intimately linked to national interests, with the latter often deferring to industry in international negotiations. However, the oil spill regime should inspire hope. Despite being a subset of the fossil fuel industry, the oil industry has not escaped stringent regulation in the shipping context. Private industry liability thus is not impossible in the climate loss and damage context.

Another hurdle to private liability is the potential lack of insurance regimes that may fund compensation. The first tier of the CLC is composed of insurance or financial guarantees from industry, which must cover a prescribed limit of liability. However, unlike oil spills, which remain a risk that may or may not occur in the course of shipping, current science has established the certainty of climate change and its associated impacts. This certainty is likely to reduce the profitability of insurance schemes, and thus may disincentivize insurance companies from insuring the private sector. If there is such lack of insurance, a regime of private liability may require significant upfront cost from industry. However, from the perspective of industry, the establishment of such a compensation regime might also make financial sense, insofar as it might shield itself from external legal claims for loss and damage. For example, the CLC provides that claims under the fund would preclude the exercising of "any right against any other assets of the owner in respect of such claim."[205]

203. *Id.* at art. 2.
204. Boyle, *supra* note 101, at 465.
205. CLC, *supra* note 195, at art. 6(a).

Similar claims against companies with high greenhouse gas emissions are a growing legal risk given the rise of climate change litigation.

The second tier of insurance pooling in the oil spill regime could be adopted in the climate change regime, with contributions from countries. Under the 1992 Fund Convention, the contributions are determined based on a fixed sum for each ton of contributing oil received in a relevant State, weighted based on the total amount of contributing oil received in all Contracting States in the preceding calendar year.[206] In the climate change context, contributions could be based on each State's greenhouse gas emissions in the preceding year. While there are challenges with regard to the calculation of total greenhouse gas emissions, the current state of science and technology will at least enable a rough approximation of total emissions, which can then be used to determine contribution levels. This contrasts the approach adopted in the COP28 decision, where the Fund will be established simply via voluntary financial contributions from developed countries.[207]

However, this funding structure may raise concerns of equity, since not all countries are capable of paying their contributions. To alleviate this concern, the calculation of contributions could factor in each country's gross domestic product per capita or gross national product as a proxy for measuring a country's capacity to contribute to the fund. This in effect would be similar to AOSIS's 1991 proposal for a compensation fund. The fact that only each preceding year's greenhouse gas emissions will be levied will also help to assuage the concerns of developed nations that their historical emissions will be levied against them.[208] With this method of calculation, it is likely that countries that have been deemed "developing countries" but rank among the top greenhouse gas emitters, such as China and India, will have to contribute to the fund as well.[209] Like in the oil spill compensation regime, all countries that emit greenhouse gases will likely have to contribute, although this contribution would likely be minimal for countries with low emissions and low capacity to contribute.

V. Conclusion

Tying everything together, a dispute may be brought under UNCLOS's compulsory dispute resolution mechanism to argue that climate change constitutes marine pollution. The claimant State may further argue that the court or tribunal should make an order under Article 235 requiring the respondent

206. 1992 Fund Convention, *supra* note 201, arts. 12(2)-(3).

207. COP28 Decision, *supra* note 68.

208. This will additionally eliminate the legal difficulty of calculating damages caused by emissions prior to the Paris Agreement, which will likely be incorporated in the Part XII argument elaborated in Section III of this Article.

209. *State of the Climate: Climate Action Note – Data You Need to Know*, UN Environment Programme (Nov. 9, 2021), https://www.unep.org/explore-topics/climate-action/what-we-do/climate-action-note/state-of-climate.html [https://perma.cc/4JSY-NGPR].

State to cooperate and contribute to a climate loss and damage fund, such as the one operationalized at COP28. To ensure adequacy in funding, the Fund could be modelled after the IMO's oil spill compensation fund, which has two tiers of funding: one from private industry, and another from countries themselves. This proposed structure includes funding from private industry which, to date, has been absent from the international law framework. Further, a loss and damage fund like the one proposed in this Article would improve the existing climate loss and damage regime, which has developed over the years, but remains voluntary and inadequate.

The insufficiencies of the current regime on climate loss and damage pose challenges to climate justice. UNCLOS provides a way in which States may be compelled to cooperate in the development of a loss and damage fund, and to contribute to such a fund. Inter-state litigation is one way in which weaker nations that have limited diplomatic leverage can compel settlements from bigger and more powerful opponents.[210] The legal argument in this Article effectively shifts loss and damage from the political agenda of countries to their legal agenda. This is especially the case for State Parties to UNCLOS, which may be held legally responsible for their contributions to climate loss and damage. This focus on legal obligation speaks to the urgency of establishing and operationalizing an effective loss and damage fund. This Article has provided one way in which the Fund could be structured. Now it is time for nations to commit to ensuring that the Fund is operational immediately—before more climate disasters ravage climate-vulnerable countries.

210. Boyle, *supra* note 101.