Impunity for Burning the Earth's Lungs: The Legality of Deforestation Under International Law and the Quest to Preserve the World's Biodiversity

In 2019, the Amazon, Sumatra, and Borneo rainforests suffered devastating fires as a result of slash-and-burn land clearing for the production of beef, soy beans, and palm oil. The difficulty of using international environmental law to provide accountability for this devastation demonstrates a conflict between two important goals of international environmental law—preserving permanent sovereignty over natural resources and advancing global environmental protection. This Note examines whether and to what extent international law provides redress for deforestation and biodiversity loss, using Brazil and Indonesia as case studies. First, it examines the development of four applicable legal frameworks: (1) the transboundary harm principle, (2) international criminal law, (3) sustainable development principle, and (4) the human right to a healthy environment. Second, the Note argues that these legal frameworks are instructive but ultimately ill-equipped to address deforestation and protect against biodiversity loss. Finally, the Note underscores the importance of developing a legal regime to hold corporate actors accountable for their role in deforesting the Amazon, Sumatra, and Borneo rainforests.

INTRODUCTION

Uncontrollable fires burned nearly two million acres of the Amazon rainforest in Brazil in 2019.[1] In that year alone, the Amazon saw a thirty percent increase in deforestation and an eighty percent increase in the number of wildfires.[2] Indonesia also suffered devastating

1. Alexandria Symonds, *Amazon Rainforest Fires: Here's What's Really Happening*, N.Y. TIMES (Aug. 23, 2019), https://www nytimes.com/2019/08/23/world/americas/amazon-fire-brazil-bolsonaro html [https://perma.cc/S2LR-KRYH]; Jon Emont, *'Fire Begets More Fires': Rainforests Slip Into Cycle of Destruction*, WALL ST. J. (Oct. 15, 2019), https://www.wsj.com/articles/fire-begets-more-fires-rainforests-slip-into-cycle-of-destruction-11571153534 [https://perma.cc/PE7T-SHFC]; Jeff Turrentine, *Jair Bolsonaro to a Horrified World Community: "The Amazon Is Brazil's, Not Yours"*, NAT. RES. DEF. COUNCIL (Aug. 30, 2019), https://www.nrdc.org/onearth/jair-bolsonaro-horrified-world-community-amazon-brazils-not-yours [https://perma.cc/KP3F-5TA7].

2. Colin Dwyer, *Amazon Rainforest Sees Biggest Spike in Deforestation in Over a Decade*, NPR (Nov. 18, 2019), https://www.npr.org/2019/11/18/780408594/amazon-rainforest-sees-biggest-spike-in-deforestation-in-over-a-decade?utm_term=nprnews&utm_campaign=npr&utm_source=facebook.com&utm_medium=social&fbclid=IwAR1VEePO5-f3aKe1kVpeVgBjx3ocR_dIVaeXvI14iP4OtJKhXuo2k6diibA [https://perma.cc/V2S2-ZUZB].

fires that scorched just over two million acres of the Borneo and Sumatra rainforests.[3] The fires in both countries were primarily the result of slash-and-burn land clearing to develop beef, palm oil, soy bean, and pulp plantations.[4] These land clearing practices have persisted for years, and are responsible for eighty percent of deforestation in the Amazon and sixty percent of deforestation in Indonesia.[5]

The costs of the fires in the Amazon, Sumatra, and Borneo rainforests are borne by the broader international community. They produce dangerous health conditions for nearby countries. For example, the Indonesia fires created a regional air pollution crisis that extended to neighboring countries, such as Malaysia and Singapore.[6] Additionally, the fires cause devastating climate consequences, because rainforests act as critical global carbon sinks. The Amazon stores a decade's worth of carbon dioxide emissions, which are released into the atmosphere as the rainforest burns.[7] Indeed, rainforest fires are doubly harmful: The burning of forestland not only releases emissions, but also decreases the forest's capacity to absorb future emissions.[8] In 2015, rainforest and peatland fires caused a three-fold increase in Indonesia's carbon emissions.[9] Moreover, the fires destroy the

3. Bernadette Christina Munthe & Fransiska Nangoy, *Area Burned in 2019 Forest Fires in Indonesia Exceeds 2018—Official*, REUTERS (Oct. 21, 2019), https://www reuters.com/article/us-southeast-asia-haze/area-burned-in-2019-forest-fires-in-indonesia-exceeds-2018-official-idUSKBN1X00VU [https://perma.cc/7LQP-JCFP].

4. David Fogarty & Sunanda Creagh, *Indonesia Facing Crisis Over Loss of Species—Scientists*, REUTERS (July 20, 2010), https://in reuters.com/article/idINIndia-50265920100720 [https://perma.cc/7LQP-JCFP]; Henry Fountain, *A Season of Fire Tests Indonesia's Efforts to Curb Deforestation*, N.Y. TIMES (Oct. 11, 2019), https://www nytimes.com/2019/10/11/climate/indonesia-wildfires-season html [https://perma.cc/YQ62-WDPY].

5. Ben Otto, *Smoky Haze Costing Southeast Asia Billions of Dollars*, WALL ST. J. (Oct. 9, 2015), https://www.wsj.com/articles/smoky-haze-envelops-southeast-asia-1444389741?mod=article_inline [https://perma.cc/BP4K-CPU7]; Richard C. Paddock & Muktita Suhartono, *As Amazon Smolders, Indonesia Fires Choke the Other Side of the World*, N.Y. TIMES (Sept. 17, 2019), https://www nytimes.com/2019/09/17/world/asia/indonesia-fires-photos.html [https://perma.cc/6C93-KVER]; Zoë Schlanger, *The Global Demand for Palm Oil Is Driving the Fires in Indonesia*, QUARTZ (Sep. 18, 2019), https://qz.com/1711172/the-global-demand-for-palm-oil-is-driving-the-fires-in-indonesia/ [https://perma.cc/RKW3-NDUK].

6. Otto, *supra* note 5.

7. Andrew Freedman, *Amazon Fires Could Accelerate Global Warming and Cause Lasting Harm to a Cradle of Biodiversity*, WASH. POST (Aug. 22, 2019), https://www.washingtonpost.com/weather/2019/08/21/amazonian-rainforest-is-ablaze-turning-day-into-night-brazils-capital-city/ [https://perma.cc/2QVF-UDGT].

8. *Id.*

9. Sarah Ruiz & Andika Putraditama, *Will the Start of Forest Fires Season Hamper Indonesia's Progress in Reducing Deforestation?*, WORLD RES. INST. (July 10, 2019),

ecological integrity of the rainforests, and thereby contribute to the precipitous rate of biodiversity loss.[10]

Indeed, the Amazon Rainforest is a "biodiversity hotspot," home to one in ten of all known species on Earth.[11] Of these species, seventy-five percent are unique to the Amazon ecosystem.[12] Indonesia is similarly a biodiversity hotspot. While home to only one percent of Earth's land, Indonesia boasts ten percent of plant species and twelve percent of mammal species.[13] Biodiversity loss is devastating in and of itself. Indeed, in economic terms, the cost of species extinction and ecosystem destruction just in the period between 1997 and 2011 was estimated between four and twenty trillion dollars annually.[14] Biodiversity loss also impacts human health and well-being, though, as it harms ecosystem services, such as water and air purification, food security, and the provision of natural resources.[15] Critical to global society, ecosystem services are valued at over $125 trillion annually.[16]

The fires in the Amazonian and Indonesian rainforests demonstrate the central tension in international environmental law—the need

---

https://www.wri.org/blog/2019/07/will-start-forest-fires-season-hamper-indonesia-s-progress-reducing-deforestation [https://perma.cc/9UUT-KKU2].

10. Intergovernmental Sci.-Pol'y Platform on Biodiversity & Ecosystem Servs., Rep. of the Plenary on the Work of Its Seventh Session Addendum, U.N. Doc. IPBES/7/10/Add.1, at 5 (2019) (noting that land-use change for agricultural production, particularly in tropical rainforests, is one of the five 'direct drivers' of biodiversity loss).

11. *Amazon Deforestation*, WORLD WILDLIFE FUND, https://wwf.panda.org/our_work/forests/deforestation_fronts2/deforestation_in_the_amazon/ [https://perma.cc/42UU-RAAL] (last visited Oct. 18, 2019).

12. *Id*.

13. *Indonesia's Rainforests: Biodiversity and Endangered Species*, RAINFOREST ACTION NETWORK, https://www ran.org/indonesia_s_rainforests_biodiversity_and_endangered_species/ [https://perma.cc/CQ6X-9BNF] (last visited Jan. 14, 2020).

14. *See, e.g.*, OECD, *Biodiversity: Finance and the Economic and Business Case for Action*, Report Prepared for the G7 Environment Ministers' Meeting, 5–6 May 2019, at 9 (May 2019). *See also* Rudolf de Groot et al., *Integrating the Ecological and Economic Dimensions in Biodiversity and Ecosystem Service Valuation*, *in* THE ECONOMICS OF ECOSYSTEMS AND BIODIVERSITY: ECOLOGICAL AND ECONOMIC FOUNDATIONS 9, 13–15 (Pushpam Kumar ed., 2010). To quantify the cost of biodiversity loss, experts include valuations of the loss of ecosystem services, impacts on tourism and recreation, and loss of natural resources for direct use. *Id.* These categories are somewhat broad, but seek to incorporate both the direct—food, water, fuel, and raw materials—and indirect benefits—natural hazard protection, pollution buffering, and water quality—provided by biodiverse and healthy ecosystems. *Id.*

15. For more on the impacts of biodiversity loss on human health, see WORLD RES. INST., A GUIDE TO WORLD RESOURCES 2000–2001: PEOPLE AND ECOSYSTEMS: THE FRAYING WEB OF LIFE 14–15 (2000).

16. UNEP, GLOBAL ENVIRONMENTAL OUTLOOK—GEO-6: HEALTHY PLANET, HEALTHY PEOPLE, at xxix (Paul Ekins et al. eds., 2019) [hereinafter GEO-6].

to reconcile the right of states to administer their own territory, including the use of recourses and economic growth thereon,[17] with the reality that environmental damage has transnational consequences.[18] International environmental law began with the proposition that states exercise complete, inviolable sovereignty over their natural resources.[19] However, over time, the body of international environmental law has come to regulate, at least indirectly, the use of natural resources.[20] Nowadays, there are some limits on sovereignty depending on the type of resource at issue; limits exist for resources shared by two states,[21] regional natural resources,[22] and common property falling

17. *See* S.S. Lotus (Fr. v. Turk.), Judgment, 1927 P.C.I.J. (ser. A) No. 10 (Sept. 1927) (demonstrating the positivist nature of international law by holding that restrictions upon states cannot be presumed, and thus, all that is not explicitly prohibited in international law is permitted).

18. GEO-6, *supra* note 16, at 4. Humanity's ecological footprint has outpaced the Earth's carrying capacity, or its ability to provide biological functions and support, when measured by every metric of planetary boundaries. DONELLA MEADOWS ET AL., LIMITS TO GROWTH: THE 30-YEAR UPDATE 8–9 (2004). The global consequences of domestic decisions with respect to natural resource use and management call into question whether these determinations should be entirely within the purview of state sovereignty, as the costs of such decisions are shared by some or all states. *Id.*

19. The principle of absolute sovereignty over natural resources developed after 1951, largely at the behest of developing states who wanted protection from foreign ownership of their mineral and oil resources. *See* NICO SCHRIJVER, SOVEREIGNTY OVER NATURAL RESOURCES 49–56 (1997). In 1962, the U.N. adopted Resolution 1803 XVII, affirming absolute sovereignty over natural resources, or "[t]he right of peoples and nations to permanent sovereignty over their natural wealth and resources." G.A. Res. 1803 (XVII), ¶ 1 (Dec. 14, 1962). The General Assembly later reasserted this principle, adopting two further resolutions declaring permanent sovereignty over natural resources and the right to nationalize them. *See* G.A. Res. 3201 (S-VI) (1974); G.A. Res. 3281 (XXIX) (1974). The United States and several other Western states voted against these resolutions, reflecting the "North-South" tension in international environmental law. *See* Stephen M. Schwebel, *The Story of the U.N.'s Declaration on Permanent Sovereignty Over Natural Resources*, 49 A.B.A. J. 463, 463 (1963).

20. *See, e.g.*, Daniel Bodansky et al., *International Environmental Law: Mapping the Field*, *in* THE OXFORD HANDBOOK OF INTERNATIONAL ENVIRONMENTAL LAW 1, 9 (Daniel Bodansky et al. eds., 2007) [hereinafter INT'L ENV'T L. HANDBOOK]; Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, ¶ 85 (Sept. 25) (holding that Czechoslovakia could not unilaterally assume control of a shared resource because it violated Hungary's "right to an equitable and reasonable share of the natural resources" of the Danube River.).

21. As an example of such a natural resource dispute, *see* Fisheries (U.K. v. Nor.), Judgment, 1951 I.C.J. 74 (Dec. 18) (finding Norway's designation of separate fishing zones for exclusive use by either Norwegian or British vessels respectively to be consistent with international law); Maritime Delimitation in the Area Between Greenland and Jan Mayen (Den. v. Nor.), Judgment, 1993 I.C.J. 635 (June 14) (establishing the delimitation of the continental shelf and fishery zones to ensure equitable utilization of marine resources).

22. This is an intermediate category of natural resources, typically shared by a group of contiguous states. Some examples are migratory species, international watercourses, and shared forests or distinct ecosystems. The U.N. has recognized limited sovereignty with

outside the control of any one state.[23] However, despite the expansion of international environmental law, sovereignty remains a central tenet of all multilateral environmental agreements and customary international law.[24] Brazilian President Jair Bolsonaro invoked this foundational principle when he rejected $22 million in foreign aid to help Brazil fight the fires in its portion of the Amazon.[25] He called the aid a violation of Brazil's sovereignty and an attempt to assert foreign control—evocative of colonialism—over the Amazon.[26]

Because there are no direct legal obligations imposed on either Brazil or Indonesia with respect to deforestation prevention,[27] international legal liability for either state regarding its destruction of the rainforest will depend on existing environmental obligations with less direct application. While the continued emphasis on state sovereignty within international environmental law is a major barrier to securing

---

respect to the use and management of shared resources. *See* G.A. Res. 3129 (XXVIII), ¶ 1 (Dec. 13, 1973) (calling for the development of international standards for the conservation and sustainable use of shared resources, including duties of cooperation and consultation between states); G.A. Res. 3281 (XXIX), Charter of Economic Rights and Duties of States, art. 3 (Dec. 12, 1974) (requiring consultation and information sharing between states regarding the use of shared natural resources).

23. For an example of a dispute over the common property of many states, see Behring Sea Fur Seals (U.S. v. U.K.), 28 R.I.A.A. 263 (1893). The controversy arose out of a fishery dispute between the United Kingdom and the United States concerning the fishing of fur seals. The United States sought to claim exclusive jurisdiction over the fishing of fur seals. *Id.* Both states arbitrated the dispute, allowing the tribunal to establish seal fisheries to ensure equitable utilization of the common resource. *Id. See also* Whaling in the Antarctic (Austl. v. Japan; N.Z. intervening), Judgment, 2014 I.C.J. 1062, ¶¶ 56, 245 (Mar. 31) (ordering Japan to revoke the whaling licenses granted to JARPA II, its national whale research program, to preserve the species and uphold its obligations under the Whaling Convention). The Whaling dispute demonstrates willingness of tribunals to enforce equitable and sustainable natural resource utilization in areas beyond the territorial control of any one state.

24. Peter H. Sand, *The Evolution of International Environmental Law*, *in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 29, 31 (noting that a foundational principle articulated in all multilateral environmental agreements is state sovereignty, particularly regarding the use of natural resources).

25. Bill Chappell, *Brazil Rejects G-7's Offer of $22 Million to Fight Amazon Fires*, NPR (Aug. 27, 2019), https://www npr.org/2019/08/27/754687137/brazil-rejects-g-7s-offer-of-22-million-to-fight-amazon-fires [https://perma.cc/WP6K-EEWK].

26. *Id*.

27. There are no treaties that impose legal obligations on states with respect to forest management. The U.N. Forum on Forests has continuously postponed treaty negotiations, but did adopt the Non-Legally Binding Instrument on All Types of Forests, a voluntary framework for nations to act towards achieving the shared Global Objectives on Forests. *See* U.N. Conf. on Env't and Dev., Non-Legally Binding Authoritative Statement of Principles for Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, U.N. Doc. 1992b.A/CONF.151.26 (Vol. III) (Jun. 14, 1992). *See also* C.P. Mackenzie, *Future Prospects for International Forest Law*, 14 INT'L FORESTRY REV. 249, 250 (2012).

environmental protections around the world, domestic choices regarding the conservation of natural resources and ecosystems has increasingly become an area of concern, because domestic decisions impose global costs.

This Note considers whether Brazil and Indonesia can be held accountable for their destruction of large parts of the Amazon, Sumatra, and Borneo rainforests under (i) the transboundary harm principle, (ii) international criminal law, (iii) the sustainable development principle, and (iv) the emerging human right to a healthy environment. Part I of this Note explores the development and articulation of these legal frameworks. Part II applies these four frameworks to the specific facts of the Brazil and Indonesia fires, using them as case studies in assessing the efficacy of such frameworks in providing redress for deforestation and biodiversity loss. Finally, Part III addresses the shortcomings of the frameworks in preventing deforestation and biodiversity loss and examines their ability to regulate the conduct of private actors.

I. THE EXISTING LEGAL FRAMEWORK FOR ENVIRONMENTAL PROTECTION

Part I analyzes the development and content of four existing legal frameworks in international environmental law that may have potential relevance to the question of the liability of Brazil and Indonesia. First, the Note examines both the development of the transboundary harm principle ("TBH") and jurisprudence articulating its accordant obligations. Second, the expansion of international criminal law to include environmental damage is explored, particularly as applied to crimes against humanity and the crime of genocide. Third, the Note analyzes the status of sustainable development in international law through examination of its limited jurisprudence. Fourth and finally, the Note explores the human right to a healthy environment within both international and regional human rights systems.

A. The Transboundary Harm Principle

The TBH principle is one of the oldest principles of international law, derived from the foundational maxim of property law, *sic utere tuo ut alienum non laedas*.[28] Its origins are somewhat disputed.

28. This is the maxim that one must use one's property in such a manner as not to injure that of another. It is the canonical concept of "good neighbourship law", or *bon voisinage*, to ensure friendly relations between states. *See* Sand, *supra* note 24, at 31.

Many trace its roots to the Permanent Court of International Justice ("PCIJ"), a League of Nations-era institution. Under this account, a dissenting opinion by the "PCIJ" articulated the principle by arguing that transboundary harm and due diligence obligations are a natural corollary to state sovereignty and the exclusive jurisdiction of a State in its own territory "is attended with a corresponding responsibility for what takes place within the national territory" of another State.[29] The post-World War II successor of the PCIJ, the International Court of Justice ("ICJ"), then applied the TBH principle in the context of damage to warships and the placement of mines.[30]

Other accounts trace the TBH principle to the *Trail Smelter* arbitration—a Great Depression-era dispute between the United States and Canada, regarding emissions from a private smelting operation in British Columbia, Canada that emitted air pollution causing damage to farms in northern Washington.[31] The arbitral tribunal in the case identified a customary obligation prohibiting states from using or permitting the use of territory within their jurisdiction to cause harm to the environment of another state. But some scholars have critiqued the legal reasoning of the *Trail Smelter* tribunal as having "invented" the principle without foundation in international law.[32]

Regardless of its exact origins, the TBH principle has become the oldest and most widely applied legal obligation with respect to the environment under international law.[33] In the *Legality of the Threat or Use of Nuclear Weapons* Advisory Opinion, the ICJ confirmed extension of the TBH principle to environmental harm, stating: "The general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or areas beyond national control is now part of the corpus of international law relating to the environment."[34]

---

29. S.S. Lotus (Fr. v. Turk.), Judgment, Dissenting Opinion J. Moore, 1927 P.C.I.J. (ser. A) No. 10, 68 (Sep. 7) (dissenting opinion by Moore, J.).

30. Corfu Channel Case (U.K. & N. Ir. v. Alb.), Judgment, 1949 I.C.J. 15, 22 (Apr. 9) (holding Albania liable for failing to notify the U.K. about mines in their territorial sea that exploded).

31. Trail Smelter Case (U.S. v. Can.), 3 R.I.A.A. Vol. II, 1905-1982 (1938/1941).

32. Russell A. Miller & Rebecca M. Bratspies, *Introduction* to TRANSBOUNDARY HARM IN INTERNATIONAL LAW: LESSONS FROM THE TRAIL SMELTER ARBITRATION 1, 3 (Russell A. Miller & Rebecca M. Bratspies eds., 2012).

33. Günter Handl, *Transboundary Impacts*, *in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 532, 533 (noting that the prohibition on transboundary harm is a foundational principal of international law, predating the evolution of international environmental law).

34. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 679, ¶ 29 (July 8). For more jurisprudence on the transboundary harm principle, *see* Pulp Mills on the River Uruguay (Arg. v. Para.), Judgment, 2010 I.C.J. 977, ¶ 101 (April 20)

The TBH principle has both procedural and substantive requirements. With respect to procedural obligations, states must notify and consult potentially affected states *before* engaging in or permitting conduct that poses a risk of transboundary harm.[35] States are then obligated to take "all reasonable or necessary measures to prevent"[36] such harm.[37] Such measures may include enacting policies, legislation, or administrative controls applicable to both public and private conduct with the potential to cause transboundary harm.[38] However, these obligations are triggered only by foreseeable and sufficiently severe risks to the environment of another state.[39] This reflects the balance between the opposing goals of environmental protection and respecting the right of sovereign states to exploit their own natural resources. As stated in the *Trail Smelter* and *Corfu Channel* cases, the duty to prevent environmental harm arises where (i) the harm is actual and serious, (ii) it is likely to reoccur, or (iii) there is a known risk to another state.[40] Increasing recognition of the need to protect the environment has influenced a trend in the jurisprudence towards lowering the severity and

(holding that "[a] State is thus obligated to use all the means at its disposal in order to avoid activities which take place in its territory, or in any area under its jurisdiction, causing significant damage to the environment of another State.").

35. *See* Pulp Mills on the River Uruguay, 2010 I.C.J., ¶ 115; Gabčíkovo-Nagymaros Project (Hung, v. Slovk.), Judgment, 1977 I.C.J. 692, ¶ 7 (Sept. 25); Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica), Judgment, 2015 I.C.J. 1088, ¶ 104 (Dec. 16); MOX Plant (Ir. v. U.K.), Provisional Measures, ITLOS Rep. No. 10 (Perm. Ct. Arb. 2003); Land Reclamation (Malay. v. Sing.), Provisional Measures, ITLOS No. 12. (2003).

36. Int'l L. Comm'n, Rep. on the Work of Its Fifty-Third Session, *Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries*, U.N. Doc. A/56/10, at 62 (2001) [hereinafter *Draft Articles on State Responsibility*].

37. However, the due diligence obligation is one of conduct, not one of result. *See* Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosn. &. Herz. v. Serb. and Montenegro), Judgment, 2007 I.C.J. 680 ¶ 430 (July 11) ("A State does not incur responsibility simply because the desired result is not achieved; responsibility is however incurred if the State manifestly failed to take all measures to prevent genocide which were within its power and which might have contributed to preventing genocide.").

38. Int'l L. Comm'n, Rep. on the Work of Its Fifty-Third Session, *Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, with Commentaries*, U.N. Doc. A/56/10, at 154 (2001) [hereinafter *Draft Articles on Transboundary Harm*].

39. XUE HANQIN, TRANSBOUNDARY DAMAGE IN INTERNATIONAL LAW 7–8 (2003).

40. Trail Smelter Case (U.S. v. Can.), 3 R.I.A.A. 1905, 1965 (1941) (requiring injury of "serious consequences"); Corfu Channel Case (U.K. & N. Ir. v. Alb.), Judgment, 1949 I.C.J. Rep. 15, 18-22 (Apr. 9); Lac Lanoux (Fr. v. Spain), 12 R.I.A.A. 281, 298 (1957) (requiring "serious injury").

foreseeability threshold from "serious" to "significant" or "appreciable."[41]

Some scholars have suggested that applying the precautionary principle can further lower the burden of foreseeability.[42] As expressed in the 1992 Rio Declaration, the precautionary principle provides that a "lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" when there are "threats of serious or irreversible damage."[43] However, the legal status of the precautionary principle is ambiguous.[44] While some international tribunals have applied it,[45] the ICJ has rejected the precautionary approach as a burden-shifting mechanism.[46]

The ICJ's ruling does not entirely nullify the principle's legal effect, though, as it can still alter the standard of proof necessary to prevail on a TBH claim. The jurisprudence of the ICJ requires plaintiffs to meet a standard of "convincing"[47] or "clear"[48] evidence for a TBH case. But according to the European Commission, the precautionary principle can lower this threshold for plaintiffs trying to demonstrate sufficient risk of the harm:

---

41. XUE, *supra* note 39, at 8; *Draft Articles on Transboundary Harm*, *supra* note 38, at 149. (articulating the threshold as "significant," which requires "something more than 'detectable' but need not be at the level of 'serious' or 'substantial'").

42. *See, e.g.*, Johnathan B. Weiner, *Precaution*, *in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 598, 604; James Cameron & Julie Abouchar, *The Status of the Precautionary Principle in International Law*, *in* THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION (David Freestone & Ellen Hey eds., 1997).

43. *See* U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), annex I, princ. 15 (Aug. 12, 1992) [hereinafter *Rio Declaration*].

44. Arie Trouwborst, *The Precautionary Principle in General International Law: Combating the Babylonian Confusion*, 16 REV. EUR. COMP. & INT'L ENV'T L. 185, 185 (2007).

45. *See Case T-13/99, Pfizer Animal Health v. Council of the EU*, (2002) II ECR II-3318, ¶ 143; MOX Plant, (Ir. v. U.K.), Case No. 10, Provisional Measures, Order of Dec. 3, 2001, ITLOS Rep. 95, ¶¶ 71–81; Southern Bluefin Tuna Cases (N.Z. v. Japan; Austl. v. Japan), Case Nos. 3 & 4, Provisional Measures, Order of Aug. 27, 1999, ITLOS Rep. No. 3 &4, 280, ¶¶ 79–80 (1999); Land Reclamation (Malay. v. Sing.), Case No. 12, Provisional Measures, Order of Oct. 8, 2003, ITLOS 10, ¶¶ 96–97. For examples of the application of the precautionary principle in international instruments, see F.A.O., *The Precautionary Approach to Fisheries with Reference to Straddling Fish Stocks and Highly Migratory Stocks*, UN Doc.A/Conf164/INF/8 (Jan. 26, 1994).

46. Pulp Mills on the River Uruguay (Arg. v. Para.), Judgment, 2010 I.C.J. 977, ¶ 164 (Apr. 20).

47. *Id.* ¶ 228; Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica), Judgment, 2015 I.C.J. 665, ¶ 119 (Dec. 16).

48. Pulp Mills, 2010 I.C.J. ¶ 225.

> Recourse to the precautionary principle presupposes that potentially dangerous effects deriving from a phenomenon, product or process have been identified, and that scientific evaluation does not allow the risk to be determined with sufficient certainty.[49]

This still requires a minimum level of scientific evidence of a risk that is more than hypothetical or speculative harm. Indeed, the World Trade Organization interprets the precautionary principle to require "reasonable grounds for concern."[50] But, in essence, the precautionary principle mandates that the environment be given the benefit of the doubt—especially in light of the often-irrevocable nature of environmental harm and the unpredictability of ecosystem tipping points.[51] Therefore, while the precautionary principle cannot serve as a burden-shifting mechanism before the ICJ, it does help lower the threhold for the required standard of proof.

Provided the transboundary harm in question has the requisite level of severity and foreseeability—that is, meets the standard of proof—the tribunal then looks to whether the procedural obligations have been fulfilled. This includes notification, consultation, and co-operation[52] with the affected state.[53] While the would-be polluting country is not required to obtain the consent of the affected state, it does have an obligation to engage in "inter-state consultations,"[54] which encompasses an assessment of risks posed by the activity and

---

49. *Communication from the Commission on the Precautionary Principle*, ¶ 4, COM (2000) 1 final (Feb. 2, 2000).

50. *See* Appellate Body Report, *European Communities—Measures Concerning Meat and Meat Products (Hormones)*, ¶¶ 120–25, WTO Doc. WT/DS26/AB/R (adopted Jan. 16, 1998) [hereinafter *EC—Hormones*]. This interpretation is consistent with the application of the precautionary principle in international instruments. *See, e.g.*, Convention for the Protection of the Marine Environment of the North-East Atlantic, art. 2(2), Sept. 22, 1992, 2354 U.N.T.S. 67 ("reasonable grounds for concern"); Convention on the Protection of the Marine Environment of the Baltic Sea Area, art. 3(2), Apr. 9, 1992, 1507 U.N.T.S. 166 ("reason to assume").

51. *See* Appellate Body Report, *EC—Hormones*, ¶ 194; Vasilis Dakos et al., *Ecosystem Tipping Points in an Evolving World*, 3 NATURE ECOLOGY & EVOLUTION 355, 355 (2019).

52. These obligations are derived from the Lake Lanoux (Fr. v. Spain), 12 R.I.A.A. 281, 317 (1957); Nuclear Tests (Austl. v. Fr.), Judgment, 1974 I.C.J. 253, ¶ 27 (Dec. 20); Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, ¶¶ 140–47 (Sep. 25).

53. These procedural obligations are also articulated in the Rio Declaration, which obligates states to "provide prior and timely notification and relevant information to potentially affected states on activities that may have significant adverse transboundary environmental effect and shall consult with those states at an early stage and in good faith." *See Rio Declaration*, *supra* note 43, princ. 19.

54. Lake Lanoux, 12 R.I.A.A. 281, 317 (1957).

"negotiat[ion] in good faith" to minimize those risks.[55] These obligations continue throughout the lifespan of the activity presenting a risk of transboundary harm.[56]

If the procedural obligations are met but harm nonetheless occurs, the substantive obligation not to cause transboundary harm may be triggered. However, such substantive obligation only come into play where (i) the state's own conduct caused the environmental damage, or (ii) the conduct of a private actor is imputable to the state.[57] Evaluating this claim requires an inquiry into the causal link between the physical act and resulting harm. To find causation, (i) the harm must be the result of human activity, (ii) the harm must be a physical consequence of that activity, and (iii) there must be some transboundary impact.[58] Many scholars have reaffirmed the requirement for a "physical link."[59] As a result, the affected state bring a TBH claim may be required to provide evidence ruling out alternative causes.[60]

B. International Criminal Law

Another potential avenue for redress against Brazil and Indonesia is international criminal law. This section will explore the limited incorporation of environmental damage into international criminal law, specifically focusing on how environmental damage can be included in the elements satisfying crimes against humanity and the crime of genocide.

There is a growing movement seeking to extend the reach of the International Criminal Court ("ICC") to address environmental damage, reflecting an increasing recognition of the severe impacts that

55. Gabčíkovo-Nagymaros Project, 1997 I.C.J. ¶ 155; North Sea Continental Shelf (Ger. v. Den.; Ger. v. Neth.), Judgment, 1969 I.C.J. 3, ¶ 85 (Feb. 20).

56. Int'l Law Comm'n, *supra* note 38, arts. 11, 12. The articles further require that the information be made publicly available, as opposed to provided only to the governments of the potentially affected states. *See also*, Pulp Mills on the River Uruguay (Arg. v. Para.), Judgment, 2010 I.C.J. 14, ¶¶ 197, 266 (Apr. 20); Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica), Judgment, 2015 I.C.J. 665, ¶ 161 (Dec. 16); Gabčíkovo-Nagymaros Project, 1997 I.C.J. ¶ 112.

57. Pulp Mills, 2010 I.C.J. ¶ 78 (noting that procedural and substantive obligations of transboundary harm are distinct in that a state's own conduct is determinative of whether they breach a substantive obligation).

58. XUE, *supra* note 39, 3–8.

59. For example, see Julio Barboza, *The Environment, Risk and Liability in International Law*, *in* LEGAL ASPECTS OF SUSTAINABLE DEVELOPMENT 7, 11 (David Freestone ed., vol. 14 2012) ("Causality" refers to the causal chain occurring in a *physical* environment, and for that reason, "physical link" is preferable to "material link").

60. Construction of a Road, 2015 I.C.J. ¶¶ 204–05 (Dec. 16).

environmental destruction can have upon all of human society.[61] Environmental crimes are the fourth largest form of transnational crimes, delivering perpetrators an estimated profit of between 91 and 259 billion US dollars annually.[62]

In 2016, the Chief Prosecutor of the ICC, Fatou Bensouda, published a Policy Paper on Case Selection and Prioritization declaring a new focus on crimes that result in "the destruction of the environment or of protected objects."[63] The Prosecutor's Office now gives "particular consideration to prosecuting Rome Statute crimes that are committed by means of, or that result in, *inter alia*, the destruction of the environment, the illegal exploitation of natural resources or the illegal dispossession of land."[64] Importantly, however, this articulation limits the Prosecutor's remit to only environmental destruction that adversely and severely impacts a specific community; it does not add a free-standing environmental crime to the four core crimes within the ICC's jurisdiction.[65] Therefore, the environmental destruction in question

61. Apart from the costs borne by the international community as a whole, there are also more severe and localized externalities of exploitative business practices by multinational extractive corporations. *See, e.g.*, Lucinda Saunders, *Rich and Rare Are the Gems They War: Holding De Beers Accountable for Trading Conflict Diamonds*, 24 FORDHAM INT'L. L. J. 1402, 1410–11 (2001) (exploring the case study of conflict diamonds, which are both unsustainably mined and have severe human rights impacts on communities in Sierra Leone); John Vidal & Owen Bowcott, *ICC Widens Remit to Include Environmental Destruction Cases*, GUARDIAN (Sept. 15, 2016), https://www.theguardian.com/global/2016/sep/15/hague-court-widens-remit-to-include-environmental-destruction-cases [https://perma.cc/K2X7-973T] (noting that the ICC's change in policy reflects recognition of exploitative land-grabbing from vulnerable or indigenous communities).

62. UNEP, THE STATE OF KNOWLEDGE OF CRIMES THAT HAVE SERIOUS IMPACTS ON THE ENVIRONMENT, at viii (2018); UNEP, ENVIRONMENTAL CRIMES ARE ON THE RISE, SO ARE EFFORTS TO PREVENT THEM (2018), https://www.unenvironment.org/news-and-stories/story/environmental-crimes-are-rise-so-are-efforts-prevent-them [https://perma.cc/VG6C-FN4U] (noting that environmental crimes are the fourth largest form of transnational criminal activity).

63. OFF. OF THE PROSECUTOR, INT'L CRIM. COURT, POLICY PAPER ON CASE SELECTION AND PRIORITISATION ¶ 40 (2016) https://www.icc-cpi.int/itemsDocuments/20160915_OTP-Policy_Case-Selection_Eng.pdf [https://perma.cc/7UXW-FMYJ].

64. *Id.* ¶ 41.

65. *Id.* ¶ 3. The paper itself "does not give rise to legal rights." *Id.* Thus, the subject-matter jurisdiction of the Court remains limited to (i) the crime of genocide, (ii) crimes against humanity, (iii) war crimes, and (iv) the crime of aggression. Rome Statute of the International Criminal Court, art. 5, Jul. 17, 1998, T.I.A.S. 11081, 2187 U.N.T.S. 90. The creation of a free-standing environmental crime would require amendment of the Rome Statute by states parties and it is unlikely that a sufficient majority of state parties would support such an amendment. Prospects are dimmed by the larger geopolitical context of increasing isolationism and reticence by global leaders to engage with and support the ICC. *See* Polly Higgins et al., *Protecting the Planet: A Proposal for a Law of Ecocide*, 59 CRIME L. & SOC. CHANGE 251, 257 (2013); Anastacia Greene, *The Campaign to Make Ecocide an International Crime: Quixotic Quest or Moral Imperative?*, 30 FORDHAM ENV'T L. REV. 1, 13 (2019).

must satisfy the elements of an existing core crime within the ICC's jurisdiction.

However, the ICC only has subject-matter jurisdiction over the "most serious crimes of concern to the international community as a whole,"[66]—specifically (i) war crimes, (ii) crimes against humanity, (iii) genocide, and (iv) the crime of aggression.[67] War crimes and the crime of aggression both require a larger context of armed conflict in order to apply.[68] Therefore, within international criminal law, the crime of genocide and crimes against humanity are most suited to addressing environmental damage.

Crimes against humanity is defined as any of the acts enumerated in Article 7 of the Rome Statute "when committed as part of a widespread or systematic attack directed against any civilian population, with knowledge of the attack."[69] Three of Article 7's enumerated acts are relevant in the context of environmental damage—persecution, extermination, and deportation or forcible transfer of a population.[70] These three mechanisms of perpetrating a crime against humanity are applicable in the context of environmental harm because they best address instances of systematic or concerted environmental destruction with the purpose of forcibly relocating or exterminating a specific group, often where a specific group is particularly tied to an ecosystem or localized environment.

To establish the case, the ICC Prosecutor would have to satisfy both the *actus reus* (the physical aspect of the crime) and the *mens rea* (mental state) elements of crimes against humanity. First, the *mens rea* for crimes against humanity requires that the act in question be

66. Rome Statute of the International Criminal Court, *supra* note 65, art. 5.

67. *Id.* art. 5.

68. Article 8 of the Rome Statute provides the Court's definition of war crimes, covering grave breaches of the Geneva Conventions of 12 August 1949 or other rules of international humanitarian law. *Id.* art. 8. Thus, it requires a context of armed conflict unless international humanitarian law, or the law of armed conflict, would not apply. Article 8 *bis* defines the crime of aggression, which requires "exercis[ing] control over the military action of a State." *Id.* art. 8 *bis*. Thus, these crimes are not applicable to the expansion of environmental protection into international criminal law apart from environmental damage resulting from armed conflict. *See also* G.A. Res. 3314 (XXIX), The Definition of Aggression, U.N. Doc. A/RES/3314 (Dec. 14, 1974); Knut Dörmann, *War Crimes Under the Rome Statute of the International Criminal Court, with a Special Focus on the Negotiations on the Elements of Crimes*, 7 MAX PLANCK Y.B. U.N. L. 341, 345 (2003).

69. Rome Statute, *supra* note 65, art. 7.

70. *Id.* art. 7(2)(b), (d), (g). Persecution is defined as "intentional and severe deprivation of fundamental rights . . . by reason of the identity of the group or collectivity[,]" extermination as "intentional infliction of conditions of life . . . calculated to bring about the destruction of part of a population[,]" and deportation or forcible transfer as the unlawful "forced displacement of the persons concerned by expulsion or other coercive acts from the area." *Id.*

"directed against any civilian population, with *knowledge* of the attack."[71] The Special Rapporteur states that crimes against humanity must be motivated by "ideological, political, racial, religious or cultural intolerance and strike at a person's innermost being, i.e. his convictions, beliefs or dignity."[72] Second, the *actus reus*—"widespread attack"—is defined as "a course of conduct involving the multiple commission of acts . . . pursuant to or in furtherance of a State or organizational policy to commit such attack."[73]

Much like crimes against humanity, genocide also has definitional difficulties. It criminalizes acts "committed with intent to destroy, in whole or in part, a national, ethnic, racial or religious group,"[74] including "deliberat[e] inflict[ion] on the group conditions of life calculated to bring about its physical destruction in whole or in part."[75] Again, the Prosecutor must establish both the mens rea and the actus reus. And as with crimes against humanity, the *mens rea* requirement presents a high threshold, in that the Prosecutor must show an "intent to destroy" an identifiable group.[76] Therefore, to establish a case for genocide in the context of environmental damage, the Prosecutor must: (i) identify a people closely connected to the natural environment and (ii) meet a demanding showing of intent—higher than the threshold of knowledge for crimes against humanity—to engage in a widespread attack or to exterminate the identifiable group.

C. The Sustainable Development Principle

The next legal principle with possible relevance to the destruction of the Amazon, Sumatra, and Borneo rainforests is that of sustainable development.[77] This section will examine whether sustainable development has attained the status of customary international law and, if so, how it can be operationalized as a distinct legal obligation.

Sustainable development is commonly known as the mandate that the present generation use the environment and its natural

71. *Id.* art. 7(2) (emphasis added).

72. Matthew Lippman, *Crimes Against Humanity*, 17 B.C. THIRD WORLD L.J. 171, 262 (1997).

73. Rome Statute, *supra* note 65, art. 7(2)(a).

74. Rome Statute, *supra* note 65, art. 6.

75. *Id*. art. 6(c).

76. *Id.*

77. Discussion of sustainable development here refers to the legal principle, a state's obligation to use resources sustainably, rather than to sustainable development as a matter of international policy.

resources in such a way that ensures it can be passed on to future generations in no worse condition than it was received.[78] This understanding comports with the internationally-recognized definition of sustainable development,[79] as put forward by the Brundtland Commission, which defines it as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs."[80]

Here, the threshold question is whether sustainable development has attained the status of customary international law. This requires widespread and uniform State practice and *opinio juris* (or a state's sense of legal obligation).[81] Sustainable development is a well-established foundational tenet of international environmental policy; however, some doubt whether there is sufficient State practice to affirm the assertion that sustainable development is a rule of customary law.[82]

The concept of sustainable development was first articulated at the 1972 U.N. Conference on the Human Environment and was

78. BRUNDTLAND COMMISSION, THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT: OUR COMMON FUTURE 43 (1987). Sustainable development appears in many international instruments and treaties, which demonstrates that, as a matter of international policy, sustainable development has been quite significant since the initial conceptualization of international environmental law. *See, e.g.*, African Convention on the Conservation of Nature and Natural Resources, pmbl., Sept. 15, 1968, 1976 U.N.T.S. 4; United Nations Framework Convention on Climate Change, art. 3(1), June 3, 1994, T.I.A.S. 16-1104, 1771 U.N.T.S. 107; U.N. Conference on the Human Environment, *Stockholm Declaration on the Human Environment*, U.N. Doc. A/CON.48/PC.13, princs. 1–2 (1972) [hereinafter *Stockholm Declaration*].

79. The Brundtland Commission's definition of sustainable development is endorsed in a wide variety of international instruments. *See, e.g.*, *Rio Declaration*, *supra* note 43, princ. 3; U.N. Conference on Sustainable Development, *Report of the United Nations Conference on Sustainable Development*, U.N. Doc. A/CONF.216/16 (Sept. 28, 2012); *Stockholm Declaration*, *supra* note 78, princ. 2. *See generally* PATRICIA BIRNIE ET AL., INTERNATIONAL LAW AND THE ENVIRONMENT (2009).

80. BRUNDTLAND COMMISSION, *supra* note 78, at 43.

81. North Sea Continental Shelf (Ger. v. Den.; Ger. v. Neth.), Judgment, 1969 I.C.J. 3, ¶ 74 (Feb. 20); *see also* Statute of the International Court of Justice, art. 38(1)(b), Oct. 24, 1945, 59 Stat. 1060, 17 U.N.T.S. 111 [hereinafter ICJ Statute].

82. *See, e.g.*, Bruno Simma, *Foreword* to INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT, at vi (Nico Schrijver & Friedl Weiss eds., 2004). Simma writes:

> [P]erhaps it is inevitable that . . . an integrative concept such as that of sustainable development which was endorsed as such by the world community as a whole, lacks the kind of clarity . . . . [O]ne might be accustomed to in a more limited homogenous group of states… that need not necessarily be considered a disadvantage. Indeed, it may well have been the very lack of conceptual rigor which permitted the entire world community to embrace it.

reaffirmed in the 1982 World Charter for Nature,[83] the 1992 Rio Conference on Environment and Development,[84] the 2002 Johannesburg World Summit on Sustainable Development,[85] and the 2012 U.N. Conference on Sustainable Development.[86] Further, sustainable development has been the principal objective in many voluntary political commitments, partnerships between the private sector and states, and nonbinding international standards.[87] However, despite sustainable development's prominence as a matter of international policy, in the *Gabčíkovo-Nagymaros* case, the ICJ declined to recognize sustainable development, or obligations to future generations regarding the environment, as a legal principle of international law.[88] That said, in a Separate Opinion, then-ICJ Judge Christopher Weeramantry did argue for the existence of such an obligation as grounded not only in modern state practice, but inherent in the very nature of the global environment:

> Natural resources are not individually, but collectively, owned, and a principle of their use is that they should be used for the maximum service of people. There should be no waste, and there should be a maximization of the use of plant and animal species, while preserving their regenerative powers. The purpose of development is the betterment of the condition of the people . . . . Sustainable development is thus not merely a principle of modern international law. It is one of the most ancient of ideas in the human heritage.[89]

---

83. Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, 88, 92 (separate opinion by Weeramantry, J.) (Sept. 25); G.A. Res. 37/7, World Charter for Nature, art. 10 (Oct. 28, 1982).

84. *Rio Declaration*, *supra* note 43, princ. 3.

85. World Summit on Sustainable Development, *Johannesburg Declaration on Sustainable Development*, annex, U.N. Doc. A/CONF.199/20 (Sept. 4, 2002) [hereinafter *Johannesburg Declaration*].

86. G.A. Res. 66/288, (July 27, 2012).

87. Marie-Claire Cordonier Segger & H.E. Judge C.G. Weeramantry, *Introduction* to SUSTAINABLE DEVELOPMENT PRINCIPLES IN THE DECISIONS OF INTERNATIONAL COURTS AND TRIBUNALS: 1992–2012, at 1, 7–10, (Marie-Claire Cordonier Segger & H.E. Judge C.G. Weeramantry eds., 2017) [hereinafter SUSTAINABLE DEVELOPMENT 1992–2012]; UNEP, TOWARDS A GREEN ECONOMY: PATHWAYS TO SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION (2011); *What We* Do, WORLD BUSINESS SUSTAINABLE DEVELOPMENT COUNCIL, https://www.wbcsd.org/Overview/Our-approach [https://perma.cc/42PF-RL7R] (last visited Feb. 8, 2020). The WBSCD was formed in partnership with the U.N. as a platform for multinational enterprises to share expertise and partner to achieve the U.N.'s Sustainable Development Goals.

88. Gabčíkovo-Nagymaros Project, 1997 I.C.J., ¶¶ 140–41.

89. *Id*. at 88, 107 (separate opinion by Weeramantry, J.).

Through reflected in only a Separate Opinion, Judge Weeramantry's argument in favor of sustainable development is supported by state practice[90] and legal academic scholarship.[91]

The precise contours of the legal obligation of sustainable development remain unclear, leading some scholars to argue that it is better suited as an interpretive principle rather than a free-standing legal obligation.[92] Indeed, the ICJ and other tribunals have chosen to apply sustainable development as an interpretive norm that does not change the content of the underlying or primary obligation, but rather, helps determine the contours of that obligation.[93] For instance, the ICJ, in effect, applied sustainable development as an interpretive principle when deciding whether riparian states along the Uruguay River were equitably utilizing the shared resources of the river.[94]

---

90. *See, e.g.*, Dublin Declaration by the European Council on the Environmental Imperative, No. 6/1990 Annex II, 18 (1990) ("As Heads of State or Government of the European Community, . . . [w]e intend that action by the Community and its Member States will be well developed . . . on the principles of sustainable development and preventive and precautionary action."); Minors Oposa v. Sec't of the Dept. of Env't & Nat. Res., 33 ILM 173, 181 (1994); Gabčíkovo-Nagymaros Project, 1997 I.C.J. at 88, 107 (separate opinion by Weeramantry, J.) (surveying the historically and geographically representative nature of state practice to substantiate his argument that sustainable development is properly considered customary law).

91. ICJ Statute, *supra* note 81, art. 38(1)(d) (providing that the ICJ may consider the work of 'highly-qualified publicists' as a subsidiary means of determining the international rule of law); *see also* Phillippe Sands, *International Law in the Field of Sustainable Development*, 65 BRIT. Y.B. INT'L. L. 303 (1994); DIRE TLADI, SUSTAINABLE DEVELOPMENT IN INTERNATIONAL LAW: AN ANALYSIS OF KEY ENVIRO-ECONOMIC INSTRUMENTS (2007); Virginie Barral, *Sustainable Development in International Law: Nature and Operation of an Evolutive Legal Norm*, 23 EUR. J. INT'L. L. 377 (2012); Rosalyn Higgins, *Natural Resources in the Case Law of the International Court*, *in* INTERNATIONAL LAW AND SUSTAINABLE DEVELOPMENT: PAST ACHIEVEMENTS AND FUTURE CHALLENGES 87 (Alan Boyle & David Freestone eds., 1999) [hereinafter INT'L L. & SUSTAINABLE DEV.].

92. *See, e.g.*, Vaughan Lowe, *The Politics of Law-Making: Are the Method and Character of Norm Creation Changing?*, *in* THE ROLE OF LAW IN INTERNATIONAL POLITICS: ESSAYS IN INTERNATIONAL RELATIONS AND INTERNATIONAL LAW 207, 214–15 (Michael Byers ed., 2001) (noting that sustainable development is better conceptualized as a norm to resolve conflicting claims of economic development and environmental preservation); INT'L L. & SUSTAINABLE DEV., *supra* note 91, at 1, 7.

93. *See, e.g.*, Indus Waters Kishenganga (Pak. v. India), Partial Award, PCA Case Repository 2011-01, ¶ 454 (Feb. 18, 2013); Iron Rhine Railway (Belg. v. Neth.), Award, PCA Case Repository 2003-02, ¶¶ 58–59 (May 24, 2005); Gabčíkovo-Nagymaros Project, 1997 I.C.J., ¶ 140; Pulp Mills on the River Uruguay (Arg. v. Uru.), Judgment, 2010 I.C.J. 14 ¶¶ 75–78 (Apr. 20, 2010). For further discussion, see generally Jorge E. Viñuales, *Sustainable Development in International Law,* 3–23 (Cambridge Ctr. for Env't, Energy, & Nat. Res. Governance, Working Paper No. 2018-3, 2018).

94. Pulp Mills, 2010 I.C.J. ¶ 177. In determining what use-allocation between riparian states would satisfy the international obligation for equitable utilization of a shared resource,

As a free-standing obligation, the mandate to preserve the environment to ensure it is passed on to future generations in the same condition presents difficult qualitative questions.[95] What are the criteria that determine if the environment or its natural resources are being used sustainably? How can a tribunal adjudicating a claim of a violation of the sustainable development principle determine whether the environment is in an impermissibly worse condition for future generations? However, the flexible nature of the sustainable development principle may also bolster its utility as a legal obligation. For example, balancing the rights of present and future generations with respect to the environment would be a fact-specific inquiry to accommodate the "creative tension" inherent in weighing competing rights.[96] Admittedly, identifying a level of environmental damage acceptable to meet the needs of the current generation, while remaining mindful of the rights of the future generations may prove difficult in some cases. However, other instances involving manifestly unsustainable resource extraction will present a relatively easy balancing of rights between generations.[97]

To that end, the International Law Association ("ILA") developed the New Delhi Principles of International Law Relating to Sustainable Development, the product of a long-term study of sustainable development as a legal obligation.[98] The ILA articulated the obligation of sustainable development as follows:

> The present generation has the right to use and enjoy the resources of the Earth but is under an obligation to

---

the Court found that sustainable development, or the balance between economic development and environmental protection, was inherently bound up in this obligation:

> The Court wishes to add that such utilization could not be considered to be equitable and reasonable if the interests of the other riparian State in the shared resource and the environmental protection of the latter were not taken into account. Consequently, it is the opinion of the Court that [the relevant treaty provision] embodies this interconnectedness between equitable and reasonable utilization of a shared resource and the balance between economic development and environmental protection that is the essence of sustainable development.

Id.

95. For an economic analysis for determining sustainable use of natural capital, see DAVID PEARCE ET AL., BLUEPRINT FOR A GREEN ECONOMY 28 (1989); DIETER HELM, NATURAL CAPITAL: VALUING OUR PLANET 79 (2015).

96. Seventy-Third Conference of the International Law Association, *International Law on Sustainable Development*, 73 INT'L L. ASS'N REP. CONF. 895, 900–02 (2008).

97. Vaughan Lowe, *Sustainable Development and Unsustainable Arguments*, *in* INT'L L. & SUSTAINABLE DEV., *supra* note 91, at 19, 21.

98. Seventieth Conference of the International Law Association, *New Delhi Declaration of Principles of International Law Relating to Sustainable Development* (2002), *reprinted in* 2 INT'L ENV'T AGREEMENTS 211 (2002).

> take into account the long-term impact of its activities and to sustain the resource base and the global environment for the benefit of future generations of humankind. 'Benefit' in this context is to be understood in its broadest meaning as including, *inter alia*, economic, environmental, social, and intrinsic benefit.[99]

This obligation is broadly defined, but, like other doctrines of international environmental law, could be narrowed and refined as the jurisprudence surrounding sustainable development evolves.[100] As with TBH being limited by thresholds of severity and causation,[101] sustainable development can be operationalized by international tribunals through an iterative articulation of its thresholds.[102]

D. Human Right to a Healthy Environment

The final legal doctrine with potential relevance to the destruction of the rainforests is the human right to a healthy environment. This section will explore its status within international and regional human rights systems—both as a free-standing right and as read into existing rights. Further, to the extent that it is a recognized right, its accordant legal obligations will be examined and compared with those under the transboundary harm principle.

As an internationally-recognized human right, the majority of scholars believe environmental rights are "third generation" rights that are considered *lex ferenda* (what the law should be) rather than *lex lata*

---

99. *Id.* at 213.

100. The ILA, in its Conference to adopt the Sofia Guiding Statements on Sustainable Development Principles, noted that "judicial elaboration of these principles is one element of a comprehensive approach to international law on sustainable development, which also includes treaty development, State practice, the practice of international and regional organizations, as well as reform of domestic law, which itself can be indicative of State practice." Duncan French, *The Sofia Guiding Statements on Sustainable Development Principles in the Decisions of International Tribunals*, *in* SUSTAINABLE DEVELOPMENT 1992–2012, *supra* note 87, at 177, 178.

101. For a discussion of the legal contours of the transboundary harm principle, see discussion *infra* Section II.A.

102. *See, e.g.*, Marie-Claire Cordonier Segger et al., *Judicial Deliberations and Progress on Sustainable Development*, *in* SUSTAINABLE DEVELOPMENT 1992–2012, *supra* note 87, at 811, 812–14. *See generally* DAVID R. BOYD, THE ENVIRONMENTAL RIGHTS REVOLUTION: A GLOBAL STUDY OF CONSTITUTIONS, HUMAN RIGHTS, AND THE ENVIRONMENT 45–77 (2012) (discussing environmental rights enshrined in domestic constitutions and the power of operationalizing or incrementally implementing these broad rights through judicial enforcement and development of case law to define or articulate the rights); Marcelo Buzaglo Dantas, *Implementing Environmental Constitutionalism in Brazil*, *in* GLOBAL ENVIRONMENTAL CONSTITUTIONALISM 129 (Erin Daly & James R. May eds., 2015).

(the law as it exists today).[103] But the human right to a healthy environment may be in the process of crystallizing into customary international law.[104] Principle 1 of the Stockholm Declaration declares a fundamental right to "an environment of a quality that permits a life of dignity and well-being" and responsibility "to protect and improve the environment for present and future generations."[105] This is reaffirmed in Principle 1 of the Rio Declaration.[106] However, the main international human rights treaties do not independently include environmental rights.[107] Rather than creating free-standing environmental rights, these treaties have incorporated environmental protection into requisite action to ensure the effective enjoyment of other human rights.

For example, the Human Rights Committee interpreted the right to life to require protection against threats to life, including threats from environmental degradation, climate change, and unsustainable development.[108] The Committee held that the right to life obligates states to protect and restore the environment for present and future generations:

> States parties should therefore ensure sustainable use of natural resources, develop and implement substantive environmental standards, conduct environmental impact assessments and consult with relevant States about activities likely to have a significant impact on the environment, provide notification to other States concerned about natural disasters and emergencies and cooperate with them, provide access to information on environmental hazards and pay due regard to the precautionary approach.[109]

---

103. *See, e.g.*, John H. Knox (Special Rapporteur on Human Rights and the Environment), *Rep. on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainably Environment*, ¶ 7–10, U.N. Doc. A/HRC/37/59 (Jan. 24, 2018); Francesco Francioni, *International Human Rights in an Environmental Horizon*, 21 EUR. J. INT'L L. 41 (2010).

104. *See* Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, 88, 91 (Sept. 25) (separate opinion by Weeramantry, J.) (arguing that protection of the environment is "the *sine qua non* for numerous human rights such as the right to health and the right to life itself").

105. *Stockholm Declaration*, *supra* note 78, princ. 1.

106. *Rio Declaration*, *supra* note 43, princ. 1.

107. *See generally* the International Covenant on Civil and Political Rights, Dec. 16, 1966, T.I.A.S. 3298, 999 U.N.T.S. 171; G.A. Res. 217 (III) A, Universal Declaration on Human Rights (Dec. 10, 1948).

108. Human Rights Comm., General Comment No. 36 on Article 6: Right to Life, U.N. Doc. CCPR/C/GC/36, ¶ 62 (Oct. 30, 2018) [hereinafter HRC General Comment 36].

109. *Id.*

This definition provides no additional protection for the environment, in that the obligations imposed on states reflect existing obligations under customary international law, specifically requirements to conduct environmental impact assessments, prevent transboundary harm, and notify and consult with affected states.[110] In addition, this definition affords protection against environmental damage only insofar as it impacts the enjoyment of the right to life, as opposed to ensuring a healthy environment independent of anthropogenic concerns.[111] Therefore, for any environmental degradation to come within the remit of the right to life it must be sufficiently severe enough to constitute a threat to the enjoyment of the right to life.

In 2019, the Committee adjudicated an individual complaint regarding whether environmental pollution constituted a threat to the right to life. In a case called *Portillo Cáceres v. Paraguay*, the Committee did find a violation of the right to life, because Paraguay had failed to protect members of an agrarian community from poisoning due to high amounts of pesticides and insecticides discharged from neighboring industrial farms.[112] Therefore, integrating environmental protection into existing human rights does not extend states' obligations to the environment. Rather, it merely serves to provide more enforcement mechanisms or avenues for legal redress.

However, there is stronger progress in recognizing free-standing environmental rights within regional human rights systems.[113] The

110. *See, e.g.,* BIRNIE ET AL., *supra* note 79, at 128.

111. *See, e.g.,* López Ostra v. Spain, App. No. 16798/90, ¶ 50 (Dec. 9, 1994), http://hudoc.echr.coe.int/eng?i=001-57905 [https://perma.cc/D9Q5-QPUJ]; Dubetska v. Ukraine, App. No. 30499/03, ¶ 105 (2011), http://hudoc.echr.coe.int/eng?i=001-103273 [https://perma.cc/V7EQ-QXXU]; Cordella v. Italy, App. No. 54414/13, ¶ 174 (Jan. 24, 2019), http://hudoc.echr.coe.int/eng?i=001-189421 [https://perma.cc/L8CS-HV66]; Fadeyeva v. Russia, App. No. 55723/00, ¶ 68 (June 9, 2005) http://hudoc.echr.coe.int/eng?i=001-69315 [https://perma.cc/R6HR-6NBD]. The European Court of Human Rights jurisprudence exemplifies the limitations of interpreting environmental protection into existing human rights frameworks. In its decisions, the Court has consistently held that these human rights obligations do not include an independent right to environmental conservation or natural preservation.

112. Human Rights Comm., Views Adopted by the Committee Under Article 5(4) of the Optional Protocol, Concerning Communication No. 2751/2016, ¶¶ 7.3–7.5, U.N. Doc. CCPR/C/126/D/2751/2016 (Sept. 20, 2019).

113. Only the African Charter on Human and Peoples' Rights actually recognizes environmental rights. The Charter protects the right of peoples to the "best attainable standard of health" and the right to a "generally satisfactory environment favorable to their development." African Charter on Human and Peoples' Rights arts. 16, 24, June 27, 1981, 1520 U.N.T.S. 217. Notably, even these rights are broad and take an anthropogenic approach to environmental rights in the sense that they are articulated in reference to the needs of development and human society, as opposed to an outright guarantee of a healthy environment. However, when adjudicating claims based on these articles, the Commission

Inter-American system, which has jurisdiction over Brazil, has made considerable headway towards recognizing and enforcing environmental rights. Despite both the American Convention and Declaration failing to include environmental rights, the Inter-American Court of Human Rights has interpreted several rights—including the right to life, health, and property—to require environmental protection and prohibit unsustainable development.[114] In a landmark decision in 2016, the Inter-American Court formally recognized the human right to a healthy environment,[115] which inheres in the fact that "environmental degradation impacts the effective enjoyment of other human rights."[116]

In addressing an alleged violation of the human right to a healthy environment, the Inter-American Court would determine whether the respondent State has discharged three obligations: (1) to prevent environmental damage, (2) to cooperate, and (3) to provide information, justice, and public participation.[117]

Each prong of the inquiry has further subsequent obligations the state must fulfill. These obligations substantially mirror the

held that Article 24 requires states to take reasonable measures "to prevent pollution and ecological degradation, to promote conservation, and to secure ecologically sustainable development and use of natural resources." *See* Social and Economic Rights Action Center and Center for Economic and Social Rights v. Nigeria, Communication No. 155/96, African Commission on Human and Peoples' Rights [Afr. Comm'n H.P.R.], ¶¶ 52–53 (May 27, 2002), https://www.achpr.org/public/Document/file/English/achpr30_155_96_eng.pdf [https://perma.cc/38DS-W6L6].

114. Mayagna (Sumo) Awas Tigni Community v. Nicaragua, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 20 (Aug. 31, 2001); Maya Indigenous Community of the Toledo District v. Belize, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 78 (Oct. 20, 2000); Yanomami Indians v. Brazil, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 88 (July 21, 2011). The European Court of Human Rights has been similarly progressive in reading environmental rights and obligations into the European Convention on Human Rights. In 2005, the Council of Europe drafted a *Manual on Human Rights and the Environment* to summarize the Court's extensive jurisprudence on the environment and to articulate a set of general principles. However, the Court has explicitly rejected the right to a healthy environment, finding that "[t]he Convention is not designed to provide a general protection of the environment as such and does not expressly guarantee a right to a sound, quiet and healthy environment." European Council, Manual on Human Rights and the Environment (2d ed. 2012), 7; *see also* Kyrtatos v. Greece, 41666 Eur. Ct. H.R. 98, ¶ 52 (2003).

115. A Request for an Advisory Opinion from the Inter-American Court of Human Rights Concerning the Interpretation of Article 1(1), 4(1), and 5(1) of the American Convention on Human Rights, Official Summary OC-23/17, Inter-Am. Ct. H.R., 2 (2016).

116. *Id.*

117. *Id.* at 4–5. While the Inter-American Court provides eight accordant obligations, for ease of analysis and application, this Note summarizes and combines these obligations into a broader three-pronged analysis.

transboundary harm principle.[118] For the first prong, the state must (i) issue regulations to prevent environmental damage, (ii) establish contingency plans to minimize the risk of environmental accidents, (iii) mitigate significant damage, and (iv) conduct environmental impact assessments.[119] For the second prong, the state must (a) cooperate in good faith, (b) notify, and (c) negotiate in good faith with potentially affected states and individuals.[120] And finally, for the third prong, the state must provide (a) access to environmental information, (b) the opportunity for citizens to participate in the decision-making process, and (c) access to justice through national courts.[121]

II. BRAZIL AND INDONESIA: A CASE STUDY IN BIODIVERSITY AND DEFORESTATION PROTECTION

Part II of this Note analyzes the extent to which the legal doctrines discussed in Part I can provide redress for the deforestation of the Amazon, Sumatra, and Borneo rainforests. First, the transboundary harm principle is applied to the Brazilian and Indonensian case studies with particular attention paid to the severity, foreseeability, and causal requirements of the obligation. Second, the crimes of genocide and crimes against humanity are applied to the facts of the Brazilian fires, since Indonesia manifestly lacks the requisite *mens rea* to be analyzed under international criminal law. Third, the sustainable development principle is applied to the facts of both cases and the question of standing is addressed as a potential procedural bar. Finally, the human right to a healthy environment is considered, particularly for its potential to provide broad and unique remedies for violations.

A. Causation and Framing the Harm: Limited Redress Under Transboundary Harm

Transboundary harm claims against Brazil and Indonesia have considerable strength, with regard to prevailing on a showing of foreseeability, severity, and failure to prevent the harm. Further, there are opportunities to advance the law, depending on how the environmental damage is framed in each claim. However, the principal roadblock to

118. For a discussion of transboundary harm, see *infra* Section III.

119. A Request for an Advisory Opinion from the Inter-American Court of Human Rights Concerning the Interpretation of Article 1(1), 4(1), and 5(1) of the American Convention on Human Rights, Official Summary OC-23/17, Inter-Am. Ct. H.R., 4-5 (Nov. 15, 2017).

120. *Id.*

121. *Id.*

achieving redress via a transboundary harm claim is that, in both cases, the environmental damage was caused by actions taken by private actors. Therefore, substantive claims of transboundary harm against Brazil and Indonesia likely lack a sufficient showing of state attribution.

In claims against Brazil and Indonesia, the foreseeability and severity requirements are likely met. The risks that slash-and-burn land clearing pose to biodiversity were known to both countries, as both countries have historically contended with these crises.[122] The Amazon and Indonesian rainforests have previously suffered widespread fires as a result of illegal slash-and-burn land clearing.[123] Therefore, the environmental impacts of allowing, or insufficiently preventing, such agricultural development were foreseeable to both Brazil and Indonesia.

The severity requirement is similarly straightforward. The fires in Indonesia created a toxic haze over Southeast Asia that the United Nations Children's Fund ("UNICEF") estimated posed severe health risks to approximately ten million children and caused school closures in Malaysia and Singapore.[124] Likewise, the Amazon fires created so much toxic smoke that it was visible from outer space,[125] spreading its hazardous effects to Peru, Bolivia, and Chile.[126] Framing the environmental damage as air pollution is likely a good strategic choice, as previous jurisprudence on transboundary harm has frequently applied the doctrine to protect against air pollution.[127]

However, articulating the harm from the fires as a matter of biodiversity loss or ecosystem degradation would better advance the

122. Munthe & Nangoy, *supra* note 3; Eduardo Simoes, *Fires in Amazon Forest Rose 30% in 2019*, REUTERS (Jan. 8, 2020), https://www.reuters.com/article/us-brazil-amazon-fires/fires-in-amazon-forest-rose-30-in-2019-idUSKBN1Z804V [https://perma.cc/KM9P-XKR4].

123. The fires in Indonesia and Brazil happen nearly annually, although not on the scale seen in recent years. *See* Paddock & Suhartono, *supra* note 5.

124. *Indonesian Forest Fires Putting 10 Million Children at Risk, Says UNICEF*, GUARDIAN (Sept. 24, 2019), https://www.theguardian.com/world/2019/sep/25/indonesian-forest-fires-putting-10-million-children-at-risk-says-unicef [https://perma.cc/5HG3-BT28].

125. Madeleine Gregory, *The Amazon is on Fire and the Smoke Can Be Seen from Space*, VICE (Aug. 20, 2019), https://www.vice.com/en_us/article/d3avvm/the-amazon-is-on-fire-and-the-smoke-can-be-seen-from-space [https://perma.cc/RLT8-MRPP].

126. Aylin Woodward, *The Amazon Is Burning at a Rate Not Seen Since We Started Keeping Track. The Smoke Is Reaching Cities 2,000 Miles Away.*, BUS. INSIDER (Aug. 21, 2019), https://www.businessinsider.com/amazon-rainforest-fires-breaking-records-2019-8 [https://perma.cc/93UP-WXUE].

127. *See, e.g.*, Trail Smelter (U.S. v. Can.), 3 R.I.A.A. 1905, 1913–15 (Perm. Ct. Arb. 1941); *see also* Robert Esposito, *The ICJ and the Future of Transboundary Harm Disputes: A Preliminary Analysis of the Case Concerning Aerial Herbicide Spraying (Ecuador v. Colombia)*, 2 PACE INT'L L. REV. ONLINE COMPANION 4 (2010).

development of the TBH principle as a matter of international environmental law—expanding it to definitively protect against biodiversity loss and deforestation. There is legal legitimacy for this framing, as this type of environmental harm was articulated expansively by the ICJ to include environmental damage "beyond national control."[128] Although initially it "refer[red] to industrial activities, the underlying principle applies generally to proposed activities which may have a significant adverse impact in a transboundary context."[129] Further, the Permanent Court of Arbitration has applied the principle to diversion of river flow, which is, in the abstract, an example of a deprivation of an ecosystem service.[130] But the difficulty here is in satisfying the stringent causal link requirements for a TBH claim, which requires ruling out alternative causes.[131] Biodiversity loss has a multiplicity of causes,[132] and therefore, it would be difficult for a State bringing a claim against either Brazil or Indonesia to both convincingly rule out alternative causes and show a "physical link" between the land-clearing and resulting biodiversity decline.[133]

The responses of both the Indonesian and Brazilian governments to the rainforest fires have significant bearing on the likely success of any TBH claim against them. Brazil and Indonesia have handled the fires in very different ways. The Indonesian government has condemned deforestation and taken measures to protect and restore its forests. President Joko Widodo established the Peatland Restoration Agency to restore more than 2.6 million hectares of peatlands by 2020.[134] In 2018, the Indonesian government instituted a moratorium

128. Nuclear Weapons Advisory Opinion, *supra* note 34, ¶ 29.

129. Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica), Judgment, 2015 I.C.J. 665, ¶ 104.

130. *See, e.g.*, Lac Lanoux (Fr. v. Spain), Award, 12 R.I.A.A. 281, 298 (1957) (The dispute regarded environmental impacts from France's plan to divert water from the River Carol.); Iron Rhine (Belg. v. Neth.), Final Award, ICGJ 373 (Perm. Ct. Arb. 2005) (The dispute was about the environmental ramifications of continued use of the Iron Rhine railway.); *Indus Waters Kishenganga* (Pak. v. India), Final Award, ICGJ 478 (Perm. Ct. Arb. 2013) (The dispute was over the appropriate minimum flow rate for a river through the Kishenganga Hydro-Electric Plant and the resulting environmental impacts in Pakistan).

131. Construction of a Road, 2015 I.C.J., ¶¶ 204–5.

132. Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Report of the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services on the work of its seventh session, at 3–5, U.N. Doc. IPBES/7/10/Add.1 (May 29, 2019).

133. XUE, *supra* note 39, at 4–5.

134. Dennis Normile, *Indonesia's Fires Are Bad, but New Measures Prevented them From Becoming Worse*, SCIENCE (Oct. 1, 2019), https://www.sciencemag.org/news/2019/10/indonesias-fires-are-bad-new-measures-prevented-them-becoming-worse [https://perma.cc/CXS9-DF37].

on new licenses for palm oil plantations and mandated a review of all existing licenses.[135] The government also focused efforts on increasing yields from existing plantations and on more stringently enforcing laws holding palm oil producers responsible for fires, including criminal prosecution.[136]

Further, Indonesia has made strides in holding corporations accountable. The Ministry of Environment fined PT National Sago Prima, a palm oil producer, $81.1 million for rainforest fires.[137] Similarly, a South Sumatra appeals court fined PT Bumi Mekar Hijau, a pulp and paper supplier, $6 million.[138] The Ministry has also imposed sanctions on over thirty corporations, including temporarily revoking their palm oil production licenses.[139]

As a result of these (laudable) efforts on the part of the Indonesian government, a TBH claim against the country is much less likely to be successful. The country can credibly argue that it instituted reasonable measures to prevent slash-and-burn land clearing.

By contrast, a claim against the Brazilian government has a greater chance of success. President Jair Bolsonaro has willfully encouraged, and even actively participated in, deforestation of the Amazon. His administration has decreased enforcement of environmental legislation,[140] made statements encouraging illegal slash-and-burn activities,[141] and campaigned to roll back existing protections for the Amazon.[142] In the first six months of his term, enforcement of environmental regulations dropped by twenty percent and President Bolsonaro dismissed deforestation data from the environmental ministry

135. *Id.*

136. *Id.*

137. Arief Wijaya et al., *After Record-Breaking Fires, Can Indonesia's New Policies Turn Down the Heat?*, WORLD RES. INST. (Sept. 19, 2019), https://www.wri.org/blog/2016/09/after-record-breaking-fires-can-indonesias-new-policies-turn-down-heat [https://perma.cc/Y9KM-T6FZ].

138. *Id.*

139. *Id.*

140. Letícia Casado & Ernesto Londoño, *Under Brazil's Far-Right Leader, Amazon Protections Slashed and Forests Fall*, N.Y. TIMES (July 28, 2019), https://www nytimes.com/2019/07/28/world/americas/brazil-deforestation-amazon-bolsonaro html [https://perma.cc/NNH3-99RJ].

141. David Miranda, *Fires Are Devouring the Amazon. And Jair Bolsonaro Is to Blame*, GUARDIAN (Aug. 26, 2019), https://www.theguardian.com/commentisfree/2019/aug/26/fires-are-devouring-the-amazon-and-jair-bolsonaro-is-to-blame [https://perma.cc/2K8H-UHEK].

142. Somini Sengupta, *What Jair Bolsonaro's Victory Could Mean for the Amazon, and the Planet*, N.Y. TIMES (Oct. 17, 2018), https://www nytimes.com/2018/10/17/climate/brazil-election-amazon-environment.html [https://perma.cc/23BA-63XY].

as "lies."[143] While Indonesia, as stated, has a strong argument that it instituted reasonable measures to prevent slash-and-burn land clearing, Brazil has failed in this duty by encouraging deforestation. As such, a TBH claim against the government of Brazil will likely be more successful than one against Indonesia.

Next, with respect to the extensive procedural obligations required by the TBH principle, plaintiffs can likely successfully argue that both Brazil and Indonesia failed to consult and negotiate in good faith with affected states. There is no evidence that Indonesia cooperated with Malaysia and Singapore, both of which suffered severe air pollution.[144] Likewise, Brazil has failed to consult with states impacted by the smoke produced by rainforest fires or with nearby states that possess portions of the Amazon and are likely affected by the widespread deforestation in Brazil. Bolivia, Peru, Ecuador, Colombia, and Suriname possess sizeable sections of the Amazon, which are threatened by rampant Brazilian deforestation.[145] Specifically, the Amazon rainforest requires a minimum amount of vegetation to produce its own rain and, without sufficient tree cover, the Amazon will face a "dieback" scenario where the current ecosystem collapses and eventually becomes a savannah.[146]

However, even if both countries are found to have violated their procedural obligations, the remedies a tribunal can issue are limited to merely ordering fulfillment of the obligations to consult, notify, and cooperate.[147] Therefore, a claim arguing violation of the substantive requirement not to *cause* transboundary harm would be much more impactful. Of course, this claim is more difficult to satisfy, given that the causal prong of the inquiry requires a physical link between

143. Casado & Londoño, *supra* note 140.

144. Scottie Andrew, *Malaysia, Choked by Smog of Forest Fires in Indonesia, Issues 2 Million Face Masks to Students*, CNN (Sept. 19, 2019), https://www.cnn.com/2019/09/19/asia/malaysia-indonesia-fires-smog-trnd/index.html [https://perma.cc/WYV4-Y7ND].

145. *Amazon: Facts*, WWF, https://www.worldwildlife.org/places/amazon [https://perma.cc/5YG6-9XVJ] (last visited Nov. 29, 2019).

146. Umair Irfan, *Why It's Been So Lucrative to Destroy the Amazon Rainforest*, VOX, (Aug. 30, 2019, 7:00 AM), https://www.vox.com/energy-and-environment/2019/8/30/20835091/amazon-rainforest-fire-wildfire-bolsonaro [https://perma.cc/7TSB-BKTV].

147. Construction of a Road in Costa Rica Along the San Juan River (Nicar. v. Costa Rica), Separate Opinion of Donoghue, J., 2015 I.C.J. 665, ¶¶ 16–20 (Dec. 16) (noting that procedural obligations are obligations of conduct, so the remedy is fulfillment of those obligations, and, in some cases, reparation for damage suffered, but these remedies do not include injunctive relief to prevent or stop the environmentally destructive activity); *see also* JAMES CRAWFORD, STATE RESPONSIBILITY: THE GENERAL PART 219–32 (2013).

the action taken by the State and the resulting harm.[148] And with respect to both Brazil and Indonesia, the rainforest fires are the result of actions taken by private actors—private agricultural corporations or farmers clearing land to develop cattle ranches or soy and palm oil plantations.[149] Therefore, prevailing would require a showing that the conduct of the private entities is imputable to the state under theories of state attribution in international law. The Draft Articles on the Responsibility of States articulates several bases for attribution, each of which require a fact-intensive analysis of the relationship between the government and the private actor.[150] Because of the fact-intensiveness of the required inquiry, this Note will not attempt to examine whether such a claim is likely to be successful. But suffice it to say, only a substantive TBH claim will confer upon a tribunal the broad remedial powers—like ordering complete cessation of the environmentally destructive activity—necessary to hold Indonesia and Brazil accountable for rainforest fires.[151] A procedural TBH claim is insufficient.

B. Mens Rea and Severity Limit Applicability of International Criminal Law

International criminal law may provide redress against President Jair Bolsonaro. However, Indonesia is beyond the remit of the ICC, and thus the ICC is unavailable as an avenue for redress against President Widodo.

The utility of international criminal law in providing redress for these rainforest fires, and more broadly, environmental protection, is substantially limited by the rigorous severity and *mens rea*

148. XUE, *supra* note 39, at 6–7.

149. Clifford Krauss, *In the Amazon, Fires Steal Breath, But Smoke Smells of Money*, N.Y. TIMES (Nov. 2, 2019), https://www nytimes.com/2019/11/02/world/americas/brazil-amazon-fires-cowboys html [https://perma.cc/2ADB-PSCW]; Paddock & Suhartono, *supra* note 5.

150. For further discussion, see generally *Draft Articles on State Responsibility*, *supra* note 36. The Draft Articles are not a binding treaty, but rather have crystallized into customary international law and have been applied by the ICJ on several occasions. *See, e.g.,* Military and Paramilitary Activities in and Against Nicaragua (Nicar. v. U.S.), Judgment, 1986 I.C.J. 14, ¶¶ 103–06 (Jun. 27); Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda), Judgment, 2005 I.C.J. 168, ¶¶ 155–60 (Dec. 19); Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosn. & Herz. v. Yugoslavia), Judgment, 2007 I.C.J. 43, 397–407 (Feb. 26).

151. *See, e.g.*, Construction of a Road, 2015 I.C.J. ¶ 226; Pulp Mills on the River Uruguay (Arg. v. Uru.), Judgment, 2010 I.C.J. 14, ¶ 275 (Apr. 20); Whaling in the Antarctic (Austl. v. Japan; N.Z. intervening), Judgment, 2014 I.C.J. 226, ¶ 245 (Mar. 31); Certain Activities carried out by Nicaragua in the Border Area (Costa Rica v. Nicar.), Judgment, 2018 I.C.J. 15, ¶¶ 42–43 (Feb. 2).

requirements of the core crimes of the ICC. The Court has four bases for jurisdiction: (i) the state where the crime was committed is a party to the Rome Statute; (ii) the accused is a national of a state party to the Rome Statute; (iii) the state where the crime was committed or the state of which the accused is a national consents *ad hoc* to the Court's jurisdiction; or (iv) the U.N. Security Council refers the crime to the ICC, even if the states involved have not otherwise consented to the Court's jurisdiction.[152]

The threshold question is whether Brazil and Indonesia are parties to the Rome Statute. Otherwise it is much more difficult for the ICC to exercise jurisdiction over any claim against Presidents Bolsonaro and Widodo. Brazil is a party to the Rome Statute; however, Indonesia is not.[153] Thus, proper jurisdiction is much easier to establish for a claim against President Bolsonaro than against President Widodo.

Given that the destruction of the Amazon is occurring in Brazil and the perpetrator in question, President Bolsonaro, is a Brazilian national, the ICC can properly exercise jurisdiction on either the first or second ground. For any claims against President Widodo, however, it would require basing jurisdiction on some transboundary harm resulting from the rainforest fires against another State that is party to the Rome Statute. However, neither Malaysia nor Singapore are parties to the Rome Statute,[154] so the transnational air pollution caused by the fires does not suffice to establish jurisdiction.

Even where jurisdiction is proper, the ICC will rule a case inadmissible if there is a state with jurisdiction that is willing and able to carry out the investigation or prosecution.[155] Neither country is likely to be willing or able to pursue criminal cases against their respective Presidents, especially in light of the fact that Presidents Bolsonaro and Widodo enjoy personal immunity in their capacities as sitting Heads of State.[156] The principle of complementarity—the necessary

152. Rome Statute, *supra* note 65, art. 12–13; *See also* Antonio Cassese, *The Statute of the International Criminal Court: Some Preliminary Reflections* 10 EUR. J. INT'L L. 144, 160 (1999).

153. *The States Parties to the Rome Statute*, INT'L CRIM. CT., https://asp.icc-cpi.int/en_menus/asp/states%20parties/pages/the%20states%20parties%20to%20the%20rome%20statute.aspx#B [https://perma.cc/3E4Q-ZTP9] (last visited Feb. 8, 2020).

154. *Id.*

155. Rome Statute, *supra* note 65, at arts. 1, 17.

156. Concepción Escobar Hernández (Special Rapporteur on Immunity for of State Officials from Foreign Criminal Jurisdiction), Int'l Law Comm'n, *Seventh Rep. on the Immunity of State Officials from Foreign Criminal Jurisdiction*, U.N. Doc. A/C.N.4/729, at 69 (Apr. 18, 2019); *see also* Int'l Law Comm'n, *The Practice of the United Nations, the Specialized Agencies and the International Atomic Energy Agency Concerning Their Status, Privileges and Immunities*: *Study Prepared by the Secretariat*, ¶ 87, U.N. Doc.A/CN.4/L.118

precondition for exercising jurisdiction—is thus likely to be satisfied.[157] This also highlights a further advantage of expanding the remit of the ICC to address environmental crimes, in that personal immunity is waived before the ICC.[158] Therefore, the Court is able to hold foreign officials accountable for environmentally destructive acts they would otherwise carry out with impunity.

The final question regarding an international criminal claim is satisfaction of the various elements of the crime. Here, a claim against President Widodo is unlikely to succeed because the Indonesian government has taken several material, if ineffective, steps to address deforestation in the Sumatra and Borneo rainforests.[159] The core crimes of the ICC all have *mens rea*, or intent, requirements. Genocide requires "intent to destroy."[160] Crimes against humanity require a "widespread or systematic attack directed" against a population and "knowledge of the attack."[161] President Widodo likely lacks the requisite level of intent.

A claim against President Bolsonaro is stronger because he has willfully encouraged the destruction of the Amazon and made repeated public statements inciting violence against indigenous communities in the Amazon. President Bolsonaro has compared indigenous persons to "animals in zoos", called them "prehistoric" peoples, referred to them as sub-human, and has sought to dismantle the agency tasked with supporting over 300 indigenous tribes.[162] Further, indigenous

(describing the purpose of personal immunity as ensuring "the independent exercise of [their] functions").

157. The principle of complementarity reflects the notion that the ICC is meant to function as a complement to national courts. Thus, the ICC does not have primary jurisdiction over national authorities; the ICC can only act when national authorities fail to take the necessary steps to investigate and prosecute crimes within the ICC's subject-matter jurisdiction. *See* Rome Statute, *supra* note 65, pmbl., ¶ 10; *see also* Markus Benzing, *The Complementarity Regime of the International Criminal Court: International Criminal Justice Between State Sovereignty and the Fight Against Impunity*, 7 MAX PLANCK Y.B. U.N. L. 591 (2003).

158. Arrest Warrant of 11 April 2000 (Dem. Rep. Congo v. Belg.), Judgment, 2002 I.C.J. 3, ¶ 61 (Feb. 14).

159. For discussion of the steps taken by the Indonesia government to address deforestation, see discussion *supra* Section II.A.

160. Rome Statute, *supra* note 65, art. 6.

161. *Id.* art. 7.

162. Dom Phillips, *Bolsonaro Declares 'the Amazon Is Ours' and Calls Deforestation Data 'Lies'*, GUARDIAN (July 19, 2019), https://www.theguardian.com/world/2019/jul/19/jair-bolsonaro-brazil-amazon-rainforest-deforestation [https://perma.cc/3P8F-DS4Z]; Dom Phillips, *Brazil's Indigenous People Outraged as Agency Targeted in Conservative-Led Cuts*, GUARDIAN (July 10, 2017), https://www.theguardian.com/world/2017/jul/10/brazil-funai-indigenous-people-land [https://perma.cc/B44G-SCXA]; Tom Phillips, *Jair Bolsonaro's Racist Comment Sparks Outrage from Indigenous Groups*, GUARDIAN (Jan. 24, 2020),

leaders and activists who spoke out against the deforestation of the Amazon have been murdered.[163] President Bolsonaro has arguably incited such violence against indigenous persons in claiming during a legislative session that he should have followed Colonel George Armstrong Custer's example to deal "efficiently" with indigenous peoples in Brazil.[164] This pattern of prejudice against indigenous communities, combined with his policies to deforest and reduce indigenous lands,[165] may suffice to fulfill the *mens rea* requirements for crimes against humanity or genocide.[166] However, the stringent *mens rea* and severity requirements limit the ability of international criminal law to address biodiversity loss and deforestation. As with Indonesia, there will be many cases of pervasive deforestation that do not meet the ICC's threshold of the "most serious crimes" of international concern.[167] Therefore, applicability of international criminal law is limited to particularized fact patterns of egregious and violent environmental destruction targeted at a specific population.

C. Sustainable Development: The Question of Standing for Future Generations

Conversely, sustainable development has the potential to be a powerful doctrine for legal redress against Brazil and Indonesia. The principal obstacle is the question of asserting standing on behalf of future generations, which remains an unsettled question in international law.

---

https://www.theguardian.com/world/2020/jan/24/jair-bolsonaro-racist-comment-sparks-outrage-indigenous-groups [https://perma.cc/FYR3-W95N].

163. Kate Martyr, *Brazilian Lawyers Implore ICC to Launch Genocide Investigation Against Bolsonaro*, DEUTSCHE WELLE (Nov. 29, 2019), https://www.dw.com/en/brazilian-lawyers-implore-icc-to-launch-genocide-investigation-against-bolsonaro/a-51459855 [https://perma.cc/3R3Z-SQM4].

164. Anthony Boadle, *Brazil's Indigenous to Sue Bolsonaro for Saying They're 'Evolving'*, REUTERS (Jan. 24, 2020), https://www.reuters.com/article/us-brazil-indigenous/brazils-indigenous-to-sue-bolsonaro-for-saying-theyre-evolving-idUSKBN1ZN1TD [https://perma.cc/L9PH-BB3R].

165. Ernesto Londoño, *Jair Bolsonaro, on Day 1, Undermines Indigenous Brazilians' Rights*, N.Y. TIMES (Jan. 2, 2019), https://www.nytimes.com/2019/01/02/world/americas/brazil-bolsonaro-president-indigenous-lands html [https://perma.cc/JW4L-F9KM]; Reuters in Brasília, *Brazil's Bolsonaro Unveils Bill to Allow Commercial Mining on Indigenous Land*, GUARDIAN (Feb. 6, 2020), https://www.theguardian.com/world/2020/feb/06/brazil-bolsonaro-commercial-mining-indigenous-land-bill [https://perma.cc/6V69-YVWZ].

166. Dom Phillips, *Indict Jair Bolsonaro Over Indigenous Rights, International Court Is Urged*, GUARDIAN (Nov. 27, 2019), https://www.theguardian.com/world/2019/nov/27/jair-bolsonaro-international-criminal-court-indigenous-rights [https://perma.cc/3UTH-5MJX].

167. Rome Statute, *supra* note 65, pmbl.

As the injury in a sustainable development claim is suffered by future generations, standing would be difficult to assert before an international tribunal because international law currently lacks a theory of representation for future generations.[168] While the ICJ's jurisprudence has incorporated generational concerns with respect to environmental management, the claims were still brought by present generations regarding past environmental harms.[169] Its strongest legal footing was in *Legality of the Threat of Use of Nuclear Weapons*, in which the ICJ stated that:

> In applying this law to the present case, the Court cannot however fail to take into account certain unique characteristics of nuclear weapons . . . . Further, the use of nuclear weapons would be a serious danger to future generations. Ionizing radiation has the potential to damage the future environment, food and marine ecosystems, and to cause genetic defects and illness in future generations.[170]

The ICJ evaluated the injury to future generations when analyzing the legality of the threat or use of nuclear weapons. This does not confer an individual basis for standing on behalf of future generations, but can be considered recognition by the Court that injury to future generations impacts present legal obligations and liability. However, no international tribunal has formally or explicitly recognized a duty to future generations.[171]

At the national level, there has also been some progress in recognizing the rights of future generations.[172] For example, the Supreme

168. Edith Brown Weiss, *A Reply to Barresi's "Beyond Fairness to Future Generations"*, 11 TUL. ENV'T L.J. 89, 95 (1997).

169. Certain Phosphate Lands in Nauru (Nauru v. Austl.), Preliminary Objections, 1992 I.C.J. 240, ¶¶ 1, 18 (June 26); L.C.B. v. United Kingdom, App. No. 14/1997/798/1001, 27 Eur. Ct. H.R. Rep. at 13 (1998) (finding that the UK owed a duty to protect the offspring, or future generations, of servicemen conducting nuclear testing).

170. Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 266, ¶ 35 (July 8); *see also* Maritime Delimitation in the Area Between Greenland and Jan Mayen (Den. v. Nor.), Separate Opinion of Weeramantry, J., 1993 I.C.J. 38, ¶ 242 (June 14) ("Respect for these elemental constituents of the inheritance of succeeding generations, dictated rules and attitudes based upon a concept of an equitable sharing which was both horizontal in regard to the present generation and vertical for the benefit of generations yet to come.").

171. For example, the ICJ declined to find that sustainable development was a customary obligation in Gabčíkovo-Nagymaros. Gabčíkovo-Nagymaros Project (Hung./Slovk.), Judgment, 1997 I.C.J. 7, ¶ 140 (Sept. 25).

172. *See, e.g.*, Peter K. Waweru v. Kenya (2006), A.H.R.L.R. 149 (Kenya), ¶ 48 ("[T]he need to formulate and maintain ecologically sustainable development that does not interfere with the sustenance, viability and the quality of the water table and the equality of the river

Court of the Philippines held that plaintiffs seeking to challenge timber licenses had standing on behalf of future generations.[173] This progress is mirrored in regional human rights courts, which have found that sustainable development, and by extension, consideration of future generations, is a legal obligation.[174]

There may be alternative bases for standing, like *erga omnes partes* which confers standing to any state to enforce the obligation against an offender in recognition of an interest held by the international community as a whole.[175] This tool is a stretch of the law in that *erga omnes* is not widely accepted beyond grave breaches of international law, such as genocide or other mass violations of human rights.[176] One can argue that protection of the global environment is a duty owed to the international community as a whole and thus, each state possesses the right to enforce breaches of this obligation. Indeed, this position is substantiated in cases where the natural resource or ecosystem in question constitutes a "common concern," which is a special

---

waters . . . give[s] rise to the equally important principle of intergenerational equity because the water table and the river courses affected are held in trust by the present generation for the future generations.").

173. Minors Oposa v. Factoran, 33 I.L.M. 173, 185 (1994) (Phil.). In this landmark case, the Court recognized standing to sue on behalf of future generations as well as the existence of environmental rights that encompassed an obligation to ensure the continued existence of natural resources so as not to prejudice their use and enjoyment by successive generations:

> We find no difficulty in ruling that they can, for themselves, for others of their generation and for the succeeding generations, file a class suit. Their personality to sue in behalf of the succeeding generations can only be based on the concept of intergenerational responsibility insofar as the right to a balanced and healthful ecology is concerned . . . . Such rhythm and harmony indispensably include, *inter alia*, the judicious disposition, utilization, management, renewal and conservation of the country's forest, mineral, land, waters, fisheries, wildlife, off-shore areas and other natural resources to the end that their exploration, development, and utilization be equitably accessible to the present as well as future generations.

Id. But see Farooque v. Bangladesh, 17 B.L.D (A.D.) 1 (1997) (Bangl.) (refusing to find standing for future generations).

174. *See* Social and Economic Rights Action Center and Center for Economic and Social Rights v. Nigeria, Communication No. 155/96, African Commission on Human and Peoples' Rights [Afr. Comm'n H.P.R.], ¶¶ 52–55 (May 27, 2002); Maya Indigenous Cmty. v. Belize, Judgment, Inter-Am. Ct. H.R. (ser. L) No. 40/4, ¶¶ 56 (Oct. 12, 2004).

175. Barcelona Traction, Light and Power Company Limited (Belg. v. Spain), Judgment, 1970 I.C.J. 3, ¶ 33 (Feb. 5); East Timor (Port. v. Austl.), Judgment, 1995 I.C.J. 90, ¶ 29 (June 30); *Draft Articles on State Responsibility*, *supra* note 36, at 126–28.

176. *See, e.g.*, Marco Longobardo, *Genocide, Obligations* Erga Omnes*, and the Responsibility to Protect: Remarks on a Complex Convergence*, 19 INT'L J. HUM. RTS. 1199 (2015); Oddný Mjöll Arnardóttir, Res Interpretata*,* Erga Omnes *Effect and the Role of the Margin of Appreciation in Giving Domestic Effect to the Judgments of the European Court of Human Rights*, 28 EUR. J. INT'L L. 819 (2017).

designation for natural resources or ecosystems that implicate global responsibility.[177] Biodiversity was, in the early drafts of the Convention on Biological Diversity, referred to as "common heritage of all people[,]" but this designation faced opposition by Brazil and others out of fear that it would confer rights to indigenous peoples.[178] Therefore, *erga omnes* likely does not represent a strong basis for establishing standing.

Regardless, assuming standing is satisfied, there are strong claims against both Brazil and Indonesia for violating the obligation to sustainably develop. Neither country is sufficiently preserving its rainforests for future generations—the Sumatra rainforest lost seventy percent of its primary tree cover between 2016 and 2017[179] and the Amazon forest has decreased by thirty percent in the last year alone.[180] The Amazon, Borneo, and Sumatra rainforests are being depleted faster than the forests can regenerate, jeopardizing their use and enjoyment by future generations.

A further question is whether sustainable development imposes strict liability, as in whether it is an obligation of conduct or of result. This is an important determination when considering the liability of Indonesia, which has expended considerable effort to reduce deforestation and has seen some success in decreasing annual deforestation rates.[181] But in spite of this success, Indonesia continues to lose its rainforests at an unsustainable rate.[182] The country would, therefore, be in violation of the obligation to sustainably develop, but the question is whether its efforts would serve to lessen, mitigate, or completely insulate the country from liability.

---

177. BIRNIE ET AL., *supra* note 79, at 128–29; Sebastián Green Martínez, *Locus Standi Before the International Court of Justice for Violations of the World Heritage Convention*, 5 TRANSNAT'L DISPUTE MGMT. 1, 8 (2013).

178. UNEP, Report of the Ad Hoc Working Group on the Work of its Second Session in Preparation for a Legal Instrument on Biological Diversity of the Planet, UNEP/Bio.Div.2/3, ¶ 11 (Feb. 23, 1990).

179. Hidayah Harmzah et al., *Indonesia's Deforestation Dropped 60 Percent in 2017, but There's More to Do*, WORLD RES. INST. (Aug. 14, 2018) https://www.wri.org/blog/2018/08/indonesias-deforestation-dropped-60-percent-2017-theres-more-do [https://perma.cc/V285-P2TT].

180. Colin Dwyer, *Tens of Thousands of Fires Ravage Brazilian Amazon, Where Deforestation Has Spiked*, NPR (Aug. 21, 2019), https://www npr.org/2019/08/21/753140642/tens-of-thousands-of-fires-ravage-brazilian-amazon-where-deforestation-has-spike [https://perma.cc/K9ZM-LG6V].

181. Arief Wijaya et al., *Indonesia is Reducing Deforestation, but Problem Areas Remain*, WORLD RES. INST. (July 24, 2019) https://www.wri.org/blog/2019/07/indonesia-reducing-deforestation-problem-areas-remain [https://perma.cc/YEC6-PBM8].

182. *Id.*

D. Human Right to a Healthy Environment and Limited Enforcement Mechanisms

The human right to a healthy environment does not expand protection that is not already provided by the transboundary harm principle. Its utility is in providing another enforcement mechanism, the Inter-American Court, which has broad remedial powers, but only for claims against Brazil. The most significant limitation of the human right to a healthy environment is its lack of recognition in the international law, leaving Indonesia currently exempt from liability.

Brazil, on the other hand, can be held accountable by the Inter-American Court for violating the human right to a healthy environment. Every member state of the Organization of American States ("OAS") is subject to the advisory jurisdiction of the Inter-American Court,[183] and thus, is bound by the Court's recognition of a human right to a healthy environment. As Brazil ratified the American Convention,[184] Brazil is also subject to the jurisdiction of the Court.[185] Therefore, Brazil can be brought before the Inter-American Court on a claim that deforestation of the Amazon violates the human right to a healthy environment. By contrast, Indonesia is not part of any regional human rights system that recognizes environmental rights and, given that the right has not yet been crystallized into customary law at the international level,[186] Indonesia cannot be held accountable for rainforest deforestation as a human rights violation.

The substantive requirements to ensure the human right to a healthy environment are substantially the same as those encompassed within the transboundary harm principle. Thus, the factual analysis would largely be the same as explored above.[187] The main difference is that the human right to a healthy environment has specific requirements to develop contingency plans and promulgate preventative legislation.[188] This could perhaps invite a more searching examination of the actions taken by the Indonesian and Brazilian governments to

183. Organization of American States, American Convention on Human Rights, Nov. 22, 1969, O.A.S.T.S. No. 36, 1144 U.N.T.S. 123.

184. AMERICAN CONVENTION ON HUMAN RIGHTS: SIGNATORIES AND RATIFICATIONS, http://www.oas.org/dil/treaties_B-32_American_Convention_on_Human_Rights_sign.htm (last visited Feb. 8, 2020) [https://perma.cc/H7JH-3QFJ].

185. American Convention on Human Rights, *supra* note 183, art. 64.

186. For an analysis of the status of the human right to a healthy environment in international law, see discussion *supra* Section I.D.

187. *See supra* note 34 and accompanying text.

188. *Id.*

protect their respective rainforests and may impute a higher minimum threshold for protection.

The primary significance, then, of Brazil being subject to the jurisdiction of the Inter-American Court is the available remedies for such a claim. The Inter-American Court has expansive authority to issue broad and significant remedies.[189] The Court's jurisprudence reveals the diversity, variability, and creativity of available remedies.[190] Importantly, these remedies often include imposed legislative, administrative, or policy reforms by the violating State to prevent recurrence of the violation.[191] The Court's power to order legislative and other reforms derives from the Convention requiring party states to ensure the rights guaranteed in the Convention, which imposes positive obligations.[192] Therefore, the Court could require Brazil to institute legislative and policy reforms establishing and enforcing adequate domestic protections for the Amazon. Compliance could then be monitored by the Inter-American Human Rights Commission, which has the power to make site visits to OAS member states and publish reports on their compliance.[193]

189. 63(1) of the American Convention confers broad remedial power to the Inter-American Court of Human, empowering the Court to "rule, if appropriate, that the consequences of the measure or situation that constituted the breach of such right or freedom be remedied and that fair compensation be paid to the injured party." *See* American Convention on Human Rights, art. 63(1), Nov. 22, 1969, T.I.A.S. No. 6847, 1144 U.N.T.S. 143.

190. For example, the Inter-American Court has highlighted the importance of symbolic remedies, requiring the State to name a street, plaza, school, or memorial for a victim. *See, e.g.,* Molina-Theissen v. Guatemala, Reparations and Costs, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 108, ¶ 88 (July 3, 2004).

191. *See* Douglas Cassel, *The Expanding Scope and Impact of Reparations Awarded by the Inter-American Court of Human Rights*, *in* OUT OF THE ASHES: REPARATION FOR VICTIMS OF GROSS AND SYSTEMATIC HUMAN RIGHTS VIOLATIONS 191, 193–94 (Koen De Feyter et al. eds., 2005).

192. For cases involving legislative reform, see, for example, De La Cruz Flores v. Peru, Merits, Reparations, and Costs, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 115, ¶ 10 (Nov. 18, 2004); Plan de Sánchez Massacre v. Guatemala, Reparations, Judgment, Inter-Am. Ct. H.R. (ser. C) No. 105, ¶ 12 (Nov. 19, 2004); Carpio-Nicolle v. Guatemala, Merits, Reparations, and Costs, Judgment, Inter-Am. Ct. H.R. (sec. C) No. 117, ¶ 123(c) (Nov. 22, 2004).

193. For example, the Inter-American Commission on Human Rights conducted site visits and reported on the practice of forced disappearances in Latin American countries. The reports and visits had such impact that it caused the development of a human rights prohibition on the act and compliance by states with such protections. *See, e.g.*, Santiago A. Canton, *The Inter-American Commission on Human Rights: 50 Years of Advances and the New Challenges*, AMERICAS Q. (July 13, 2009), https://www.americasquarterly.org/fulltextarticle/the-inter-american-commission-on-human-rights-50-years-of-advances-and-the-new-challenges/ [https://perma.cc/8CUP-5GFP].

III. DIRECT REGULATION OF PRIVATE CONDUCT

The aforementioned legal doctrines have the potential to provide redress for the Amazon, Borneo, and Sumatra rainforest fires; however, none of these doctrines directly respond to the unique difficulties of protecting biodiversity. Additionally, applying these doctrines to the facts of the Amazon and Indonesian rainforest fires demonstrates a *lacuna* in international environmental law. While international environmental law seeks to hold States accountable for their own actions, the main culprits behind the rainforest fires are actually private corporations—not States. And unfortunately, international environmental law is unable to address the impunity with which private corporations have driven the decline of the global environment.

A. Indirect Regulation: Current Status of Private Actors under International Law

International law is a state-based legal system that developed to regulate the conduct of states,[194] whereas environmental harm is principally driven by the conduct of private actors, specifically corporate entities.[195] The underlying cause of most, if not all, environmental degradation is unsustainable economic activity.[196] This point is underscored by looking to the deforestation of the Amazon, Borneo, and Sumatra rainforests, where deforestation is driven and carried out by private actors for financial gain. In the Amazon, agricultural corporations conduct slash-and-burn land-clearing to produce beef and soy products. Likewise, in Indonesia, deforestation is carried out by agricultural corporations seeking to produce palm oil and pulp products.[197]

194. *See* JAMES CRAWFORD, BROWNLIE'S PRINCIPLES OF PUBLIC INTERNATIONAL LAW 116–17 (8th ed. 2012); Leo Gross, *The Peace of Westphalia, 1648–1948, in* INTERNATIONAL LAW: CLASSIC AND CONTEMPORARY READINGS 55, 62 (Charlotte Ku & Paul F. Diehl eds., 1998); LASSA FRANCIS LAWRENCE OPPENHEIM, INTERNATIONAL LAW: A TREATISE 107, § 63 (2d ed. 1912) ("Sovereign States exclusively are International Persons—i.e. subjects of International Law.").

195. *See* Steven R. Ratner, *Business*, *in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 808, 808; José E. Alvarez, *Are Corporations "Subjects" of International Law?*, 9 SANTA CLARA J. OF INT'L. L. 1, 5 (2011); BIRNIE ET AL., *supra* note 79, at 326.

196. *See, e.g.*, PEARCE ET AL., *supra* note 95, at 4; HELM, *supra* note 95, at vii; GEO-6, *supra* note 16, at xxix; SAMANTHA PUTT DEL PINO ET AL., THE ELEPHANT IN THE BOARDROOM: WHY UNCHECKED CONSUMPTION IS NOT AN OPTION IN TOMORROW'S MARKETS 5 (2017).

197. *See* Rebecca Wright et al., *Borneo Is Burning: How the World's Demand for Palm Oil Is Driving Deforestation in Indonesia*, CNN (Sept. 1, 2019), https://www.cnn.com/interactive/2019/11/asia/borneo-climate-bomb-intl-hnk/ [perma.cc/D239-UH2X].

International environmental obligations, like the transboundary harm principle and sustainable development, regulate the conduct of states as an indirect deterrent to limit unsustainable corporate activity. However, applying these doctrines directly to corporations would avoid difficult questions of state attribution,[198] and create direct legal and market incentives[199] for multinational corporations to internalize the environmental costs of their operations.[200] The efficacy of imposing such legal obligations on corporate entities is evident in the influence corporations exert in undertaking voluntary environmental obligations. For example, on July 9, 2020, the Brazilian government announced a 120-day moratorium on fires in the Amazon rainforest after global investors met with high-level government officials to express their concerns over the destruction of the rainforest.[201] Investors from twenty-nine global firms, managing a total of over $3.7 trillion in assets,[202] threatened to withhold additional investment in Brazil or divestment of current investments if President Bolsonaro failed to act.[203] With one meeting these institutional investors achieved a more tangible—albeit transient—result than the global pressure and

198. *See generally* Malgosia Fitzmaurice, *International Responsibility and Liability, in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 1011. For a discussion of state attribution in the context of transboundary harm, see *supra* Section II.A.

199. The principal market incentive would be forcing, through threat of legal responsibility, corporations to internalize the cost of their environmental damage. For example, unpriced consumption or destruction of natural capital costs $7.3 trillion annually, or thirteen percent of global economic output in 2009. *Natural Capital at Risk: The Top 100 Externalities of Business*, TRUCOST 8–10 (Apr. 2013), https:// www naturalcapitalcoalition.org/wp-content/uploads/2016/07/Trucost-Nat-Cap-at-Risk-Final-Report-web.pdf [https://perma.cc/5QV7-4AMX]. Land use alone incurs an annual cost of $1.8 trillion and agricultural development of cattle ranching in Brazil is particularly costly given the high value of ecosystem services of the virgin Amazon forests. *Id.* This cost is not incurred to the corporations or institutional investors driving unsustainable consumption of natural capital, but rather, is borne by global society at large. Imposing legal liability for these environmental costs would force corporations and, particularly, institutional investors to internalize these costs. Institutional investors would then be incentivized to identify assets most exposed to natural capital risk and incorporate natural capital accounting into asset appraisal and risk portfolio models.

200. *See* ARJUN MAKHIJANI, CLIMATE CHANGE AND TRANSNATIONAL CORPORATIONS: ANALYSIS AND TRENDS 101 (1992).

201. *See* Lisandra Paraguassu & Jake Spring, *Brazil Bans Fires in Amazon Rainforest as Investors Demand Results*, REUTERS (July 9, 2020, 11:18 AM), https://www reuters.com/article/us-brazil-environment/brazil-bans-fires-in-amazon-rainforest-as-investors-demand-results-idUSKBN24A2DV [perma.cc/9RCK-NH7V].

202. *See* Bryan Harris, *Investors Warn Brazil to Stop Amazon Destruction,* FIN. TIMES (June 22, 2020), https://www ft.com/content/ad1d7176-ce6c-4a9b-9bbc-cbdb6691084f [perma.cc/MV86-2FX3].

203. *See* Paraguassu & Spring, *supra* note 201.

demands from the international political community in the aftermath of the 2019 Amazon fires.

Public international law is also evolving to regulate the conduct of non-state actors, specifically in the context of international criminal law,[204] human rights law,[205] and investment law.[206] This evolution is supported by increasing recognition that transnational corporations often function as quasi-governmental entities in failed or fragile states. For example, Firestone Tire responded more effectively than the Liberian government to an Ebola outbreak in the country.[207] Firestone Tire established an Ebola Treatment Unit within the compound of its rubber plantation, implementing screening, isolation, education, and

204. The ICC, for example has, jurisdiction *ratione personae* over individuals, not just states. *See* Rome Statute, *supra* note 65, art. 1; Prosecutor v. William Samoei Ruto and Joshua Arap Sang, ICC-01/09-01/11-373, Decision on the Confirmation of Charges Pursuant to Article 61(7)(a) and (b) of the Rome Statute, 165 (Jan. 23, 2012), https://www.icc-cpi.int/CourtRecords/CR2012_01004.pdf [https://perma.cc/8PHA-LXRN]. *See generally* Per Saland, *International Criminal Law Principles*, *in* THE INTERNATIONAL CRIMINAL COURT: THE MAKING OF THE ROME STATUTE 189 (Roy S. K. Lee ed., 1999); David Scheffer & Caroline Kaeb, *The Five Levels of CSR Compliance: The Resiliency of Corporate Liability under the Alien Tort Statute and the Case for a Counterattack Strategy in Compliance Theory*, 29 BERKELEY J. INT'L L. 334, 334 (2011).

205. *See, e.g.*, HRC General Comment 36, *supra* note 108, ¶¶ 18, 21–22 (asserting that states are obligated to prevent violations of the right to life by private entities, including corporations, bringing such corporations within the ambit of ICCPR protections and responsibilities, though legal liability and obligations created by the treaty still only apply to the states parties); Human Rights Comm., General Comment No. 31, ¶ 8, U.N. Doc. CCPR/C/21/Rev.1/Add.1326, ¶ 8 (Mar. 29, 2004); Convention on the Elimination of All Forms of Discrimination Against Women, art. 2(e), Sept. 3, 1981, 1249 U.N.T.S. 13. (explaining that the treaty requires states to eliminate gender discrimination "by any person, organization or enterprise"). For further discussion, see generally ANDREW CLAPHAM, HUMAN RIGHTS OBLIGATIONS OF NON-STATE ACTORS (2006); OLIVIER DE SCHUTTER, TRANSNATIONAL CORPORATIONS AND HUMAN RIGHTS (2006); PHILIP ALSTON, NON-STATE ACTORS AND HUMAN RIGHTS (2005).

206. *See, e.g.*, Thomson Newspapers Ltd. v. Canada, [1990] S.C.R. 425, 426 (Can.); Autronic AG v. Switzerland, 178 Eur. Ct. H.R. (ser. A), ¶ 44 (1990); V. V. Veeder, *The* Lena Goldfields *Arbitration: The Historical Roots of Three Ideals*, 47 INT'L. & COMP. L. Q. 747, 752 (1998); Sapphire Int'l Petroleum Ltd. v. Nat'l Iranian Oil Co., Award, 35 ILR 136, 186 (1963) (applying general principles of international law to the dispute between multinational corporations, including that of general principles of justice and unjust enrichment). The rise of bilateral investment treaties between a state and a multinational corporation or foreign investor has catalyzed a vast increase in both the scope and power of corporations in the development of international law. This is exemplified in the battle over whether there is a customary obligation on states to provide adequate, prompt, and effective compensation for the expropriation of alien property. This area of international law is influenced by the practice of corporations in bringing arbitration claims against states, seeking compensation for their expropriated or nationalized property.

207. Jay Butler, *Corporations as Semi-States*, 57 COLUM. J. TRANSNAT'L L. 221, 224 (2019).

reintegration policies to stem the outbreak.[208] If transnational corporations are free to take on a quasi-governmental function in states, an argument can be made that regulation of corporations under public international law is warranted. However, further scholarship would be needed to develop this point and expound upon both its limits and reaches.[209]

Meanwhile, because corporations are not states endowed with sovereign immunity, they are not required, as states are, to consent to international regulations.[210] The international community advocates for and recognizes that international environmental law must regulate the conduct of multinational corporations;[211] however, countries are still reluctant to subject corporations to liability under international law.[212] Such objections reflect a lack of political will, fear that imposition of international obligations would reduce the control of the state over domestic corporations, and concern that cases involving corporations would implicate the home state where the corporation justifies its environmentally destructive behavior as compliant with domestic law.[213] Despite these concerns, it is a necessary development in the law that would allow international courts to hold corporations

208. *Id.*

209. For instance, while transnational corporations may play a quasi-government role in failed or fragile states, they do not necessarily do so in more mature democracies. Therefore, if corporations' quasi-government role in failed or fragile states is the only basis for the application of public international law to their activities, does this mean that such rules apply all the time to all corporations? Or does it only apply to corporations acting in that role? If the answer is the latter, what are the criteria for identifying a country as a failed or fragile state and what are the corporate actions sufficient to trigger quais-governmental status? Further scholarship would be necessary to answer these questions and further develop this point.

210. *See* S.S. Lotus Case (Fr. v. Turk.), Judgment, 1927 P.C.I.J. (ser. A) No. 10, at 68 (Sept. 7) (noting positivist nature of international law derives from public international law regulating sovereigns and sovereigns require consent to restrictions). Of course, this point is undermined somewhat if the basis for subjecting transnational corporations to international law is their activities as quasi-governmental institutions. In that case, perhaps, they likewise have quasi-sovereign immunity.

211. *See, e.g.,* World Summit on Sustainable Development, *Report of the World Summit on Sustainable Development*, at 4, U.N. Doc. A/CONF.199/20 (Sept. 4, 2002) ("[T]here is a need for private sector corporations to enforce corporate accountability, which should take place within a transparent and stable regulatory environment.").

212. *See, e.g.*, Jesner v. Arab Bank, PLC, 138 S. Ct. 1386, 1389 (2018) (holding that corporations could not be sued under the Alien Tort Statute because they were not subject to the 'laws of the nations or a treaty of the United States'); Kiobel v. Royal Dutch Petroleum Co., 569 U.S. 108, 113 (2012).

213. André Nollkaemper, *Responsibility of Transnational Corporations in International Environmental Law: Three Perspectives*, *in* MULTILEVEL GOVERNANCE OF GLOBAL ENVIRONMENTAL CHANGE: PERSPECTIVES FROM SCIENCE, SOCIOLOGY AND THE LAW 179, 194 (Gerd Winter ed., 2006).

responsible for the slash-and-burn agricultural development in the Amazon, Sumatra, and Borneo rainforests. [214]

Further, corporations already participate in and are indirectly regulated by international law. First, international environmental law has helped to develop corporate social responsibility ("CSR") practices.[215] However, these are extralegal, normative frameworks that rely on the corporate entity's ambition to change its own business practices.[216] Second, corporate action is informed by international standards or guidelines for best practices with respect to human rights or the environment.[217] Third, numerous initiatives exist, bringing corporations into compliance with international environmental law through public-private partnerships. For example, the U.N. started the Global Compact in 2000 to partner companies with U.N. agencies,[218] including the U.N. Environment Program, U.N. Development Program and the U.N. Industrial Development Organization to further sustainable development and compliance with international environmental standards. These initiatives are important in facilitating dialogue with the private sector and for promoting compliance; however, they lack the coercive authority of legal liability.

B. Direct Regulation: An International Convention for Liability of

214. *See, e.g.*, Eric Engle, *Corporate Social Responsibility (CSR): Market-Based Remedies for International Human Rights Violations?*, 40 WILLAMETTE L. REV. 103, 108 (2004) (advocating for the application of human rights obligations to corporate actors).

215. *See, e.g.*, John Hall, *The Social Responsibility of Corporations*, 27 ALT. L. J. 12 (2002); David M. Ong, *The Impact of Environmental Law on Corporate Governance: International and Comparative Perspectives*, 12 EUR. J. INT'L. L. 685, 708 (2001); Nollkaemper, *supra* note 213, at 193.

216. *See* Elisa Morgera, *From Stockholm to Johannesburg: From Corporate Responsibility to Corporate Accountability for the Global Protection of the Environment?,* 13 REV. EUR. COMP. & INT'L ENV'T L. 214, 220 (2004); Michael Hopkins, *Criticisms of the Corporate Social Responsibility Movement*, *in* CORPORATE SOCIAL RESPONSIBILITY—THE CORPORATE GOVERNANCE OF THE 21ST CENTURY 543, 548 (Ramon Mullerat ed., 2006); Saleem Sheikh, *Promoting Corporate Social Responsibility within the European Union*, 4 INT'L CO. & COM. L. REV. 123, 149 (2002).

217. *See, e.g.*, OECD, OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES 44–46 (2011).

218. G.A. Res. 58/129, at 2 (Dec. 19, 2003); Tensie Whelan & Carly Fink, *The Comprehensive Business Case for Sustainability*, HARV. BUS. REV. (Oct. 21, 2016), https://hbr.org/2016/10/the-comprehensive-business-case-for-sustainability [https://perma.cc/AY2J-K3BU] (discussing the Global Compact, World Business Council for Sustainable Development, and other public-private partnerships to achieve the U.N.'s Sustainable Development Goals).

Private Actors

It is in the interest of global conservation and international environmental policy to hold multinational corporations that adversely impact the global environment accountable by subjecting them to obligations regarding environmental protection and preservation.[219] For the purposes of this discussion, "multinational corporation" refers to "an economic entity operating in more than one country or a cluster of economic entities operating in two or more countries—whatever their legal form, whatever their home country or country of activity."[220] The term "responsibility" refers to the legal consequences that arise out of a breach of international law.[221]

There are many theories for how to apply public international law to multinational corporations, but the proposition with the greatest weight is drafting international conventions to impose direct obligations on multinational corporations.[222] Corporations could either be granted legal personality to join the treaty, as is the case for international organizations, or signatory countries could consent to allow

219. *See, e.g.*, *Stockholm Declaration*, *supra* note 78, pmbl; *Rio Declaration*, *supra* note 43, princs. 10, 16; U.N. Sub-Comm'n on the Promotion and Prot. of Hum. Rts., *Norms on the Responsibilities of Transnational Corporations and Other Business Enterprises with Regard to Human Rights*, ¶ 14, U.N. Doc. E/CN.4/Sub.2/2003/12/Rev.2 (Aug. 26, 2003) ("Transnational corporations and other business enterprises shall carry out their activities in accordance with national laws, regulations, administrative practices and policies relating to the preservation of the environment of the countries in which they operate, as well as in accordance with relevant international agreements, principles, objectives, responsibilities and standards with regard to the environment as well has human rights, public health and safety, bioethics and the precautionary principle, and shall generally conduct their activities in a manner contributing to the wider goal of sustainable development.").

220. U.N. Sub-Comm'n on the Promotion and Prot. of Hum. Rts., *supra* note 219, ¶ 20.

221. Nollkaemper, *supra* note 213, at 181–82.

222. Peter Hansen & Victoria Aranda, *An Emerging International Framework for Transnational Corporations,* 14 FORDHAM INT'L. L. J. 881, 886–87 (1990) (noting that the growing recognition of the impact of multinational corporations on the environment catalyzed the development of international standard and codes of conduct that, in the absence of legally-binding instruments, seek to encourage, if not impose, environmental obligations on corporations); Johannesburg Plan, *supra* note 85, ¶¶ 18, 49, 140(f); Jem Bendell & David F. Murphy, *Towards Civil Regulation: NGOs and the Politics of Corporate Environmentalism, in* THE GREENING OF BUSINESS IN DEVELOPING COUNTRIES 244, 264 (Peter Utting ed., 2002); THE INTERNATIONAL COUNCIL ON HUMAN RIGHTS POLICY, BEYOND VOLUNTARISM: HUMAN RIGHTS AND THE DEVELOPING INTERNATIONAL LEGAL OBLIGATIONS OF COMPANIES 8 (2002); MICHAEL MASON, THE NEW ACCOUNTABILITY: ENVIRONMENTAL RESPONSIBILITY ACROSS BORDERS 15 (2005). *See generally* Friends of the Earth Int'l, *Towards Binding Corporate Responsibility*, GLOB. POL'Y F. (2002), https://www.globalpolicy.org/component/content/article/225/32223 html [https://perma.cc/5B3F-ET66] (advocating for the creation of an international convention that establishes corporate liability and accountability for the violation of international environmental law obligations).

international law to directly govern their domestic corporations.[223] To be effective, the second option would require widespread ratification of the treaty, as multinational corporations operate in a multiplicity of national contexts. Regardless of the approach taken, the advantage of an international convention is that it would explicitly and unambiguously articulate the specific international environmental obligations that bind corporate actors without requiring a determination of how customary international law would apply to corporations.[224] Such a treaty could conceivably impose environmental obligations, like the transboundary harm principle or sustainable development, on multinational corporations. This would allow international tribunals to hold corporations responsible for burning the Amazon, Sumatra, and Borneo rainforests.

CONCLUSION

The tension between state sovereignty and environmental protection is not a new phenomenon in international law. Nevertheless, the growth in population,[225] scale of economic activity,[226] and demand for natural resources[227] necessitate a more equitable balance of these

223. Nollkaemper, *supra* note 213, at 195.

224. Stavros-Evdokimos Pantazopoulos, *Towards a Coherent Framework of Transnational Corporations' Responsibility in International Environmental Law*, 24 Y.B. INT'L ENV'T L. 131, 146 (2014); U.N. Secretary-General, *Gaps in International Environmental Law and Environment-Related Instruments: Towards a Global Pact for the Environment*, U.N. Doc. A/73/419 (Nov. 30, 2018) (analyzing existing gaps in international environmental law, highlighting the lack of a non-sectoral international convention that articulates general obligations, rights, and duties, and contemplating bringing corporations within the remit of international environmental law). As an example of an international convention addressing multinational corporations, see Int'l Union for Conservation of Nat. [IUCN], *Draft International Covenant on Environment and Development, Fifth Edition: Updated Text*, at 117 (2015).

225. Anthony Clifford & Neil G. Ruiz, *World's Population Is Projected to Nearly Stop Growing by the End of the Century*, PEW RES. (June 17, 2019), https://www.pewresearch.org/fact-tank/2019/06/17/worlds-population-is-projected-to-nearly-stop-growing-by-the-end-of-the-century/ [https://perma.cc/P2XY-MCRV] (noting global population will nearly eleven billion by 2100).

226. Gita Gopinath, *Tentative Stabilization, Sluggish Recovery?*, IMF BLOG (Jan. 20, 2020), https://blogs.imf.org/2020/01/20/tentative-stabilization-sluggish-recovery/ [https://perma.cc/TQ8H-4Y6U].

227. Press Release, UNEP, *With Resource Use Expected to Double by 2050, Better Natural Resource Use Essential for Pollution-Free Planet* (Dec. 3, 2017), https://www.unenvironment.org/news-and-stories/press-release/resource-use-expected-double-2050-better-natural-resource-use [https://perma.cc/4UXC-EAE9] (noting extraction of natural resources reached 88.6 billion tons in 2017 and will double by 2050).

competing objectives. Biodiversity loss and ecosystem degradation are environmental harms with numerous causes and the costs of these types of environmental damage are borne by the larger international community.[228] The fires in the Brazilian and Indonesian rainforests underscore the need for increased international regulation of domestic natural resource management.

This Note should be read as a case study in the ability of existing bodies of international law to protect the world's forests and biodiversity, and as a call for direct regulation of the private conduct that is often the primary driver of global ecological decline. However, regulation of private conduct is not the only manner in which the law must evolve.

Exclusive sovereignty over ecosystem management should be limited to ensure the conservation of representative ecosystems that extend across political boundaries.[229] This can be achieved, for example, through an international convention requiring *in-situ* conservation of biodiversity.[230] Such a shift would rightly challenge the conception in international law that ecosystems are solely within national jurisdictions, a precedent in tension with the reality that domestic failure to protect such ecosystems often has significant transnational consequences.[231]

Recognizing the need for ecosystem-level preservation and regulation of private conduct in international law does not necessarily

228. *See, e.g.*, Dilys Roe, *Biodiversity Loss—More Than an Environmental Emergency*, IIED (Jul. 25, 2019), https://www.iied.org/biodiversity-loss-more-environmental-emergency [https://perma.cc/VW3N-YKY8]; Dan Tarlock, *Ecosystems*, *in* INT'L ENV'T L. HANDBOOK, *supra* note 20, at 575; WORLD RES. INST., *supra* note 15, at 16.

229. The Ramsar Convention on Wetlands provides an illustrative example in that the treaty requires establishment of natural reserves of wetlands, promulgation of legislation for effective preservation, and specifies international monitoring bodies. *See* Convention on Wetlands of International Importance Especially as Waterfowl Habitat, art. 3, 4(1), 8, Feb. 2, 1971, 996 U.N.T.S. 245.

230. The closest example of *in-situ* conservation is the World Heritage Convention, which requires states to protect and preserve any 'natural heritage' in their territory. *See* Convention for the Protection of the World Cultural and Natural Heritage, art. 2, Nov. 16, 1972, 1037 U.N.T.S. 151. Natural heritage includes, for example, Waffen Sea, Canadian Rockies, and the Volcanoes of Kamchatka. The State must take whatever measure is necessary to conserve the site. *See* Intergovernmental Committee for the Protection of the World Cultural and Natural Heritage, *Operational Guidelines for the Implementation of the World Heritage Convention*, ¶ 103, U.N. Doc.WHC/08/01 (July 2012).

231. Tarlock, *supra* note 228, at 595 ("Many of the treaties, customary rules, and soft law instruments that make up international environmental law either directly or indirectly protect ecosystems. However, ecosystems as such remain under-protected. They are generally not recognized as discrete objects of protection by international regimes."); FROUKJE MARIA PLATJOUW, ENVIRONMENTAL LAW AND THE ECOSYSTEM APPROACH: MAINTAINING ECOLOGICAL INTEGRITY THROUGH CONSISTENCY IN LAW 104–05 (2016).

lead to the conclusion that the existing legal frameworks are ineffectual. Indeed, transboundary harm, sustainable development, environmental crimes, and the human right to a healthy environment are all useful and important doctrines for protecting the global environment. However, in an era of increasingly volatile natural disasters and devastating forest fires, international environmental law must expand its repertoire of tools to address the increasingly exigent threat of global deforestation and biodiversity loss.

*Sara Kaufhardt**

* J.D. Candidate, Columbia Law School, 2021. I would like to thank Professor Michael Burger for his guidance in this process. I am also deeply indebted to the Production Team on the *Columbia Journal of Transnational Law* for their superior work editing my Note. Finally, I would like to thank my family, Clark, Mary Kay, and Ben, for their constant support and wisdom, as well as Toni, Logan, and Milan.