Climate Change Mitigation as an Obligation under Customary International Law

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ABSTRACT

Climate treaties impose few substantive obligations on the mitigation of climate change. This article explores customary law as an alternative source of such obligations. The task faces considerable methodological difficulties due to the tension between ascending and descending reasoning in the identification of customary law. The methodology that international courts tend to follow, this article argues, would likely lead to the identification of a customary obligation on climate change mitigation, but one that only requires states to comply with the standard of care that most of them generally follow—even if that points to significantly less ambition than what global mitigation objectives suggest. It could be difficult to assess a state's requisite level of mitigation action, but compliance with customary law could be tested by breaking down the customary mitigation obligation into implied duties reflecting the measures that states would generally be expected to take when exercising due diligence.

KEY WORDS

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Climate change mitigation, customary law, ascending and descending reasoning, individuation, due diligence, requisite level of mitigation action, appropriate measures

I. INTRODUCTION

Large quantities of anthropogenic greenhouse gas (GHG) emissions are known to be warming our climate system, with profound, enduring consequences for humankind and the global environment.[2] Climate treaties recognized climate change as "a common concern of humankind."[3] The UN Framework Convention on Climate Change (UNFCCC) formulated an "ultimate objective" of stabilizing atmospheric GHG concentrations "at a level that would prevent dangerous anthropogenic interference with the climate system."[4] The Paris Agreement set the more specific objective of holding global warming "well below 2 °C … and pursuing efforts to limit [it] to 1.5 °C"[5] by reaching a global peak in GHG emissions "as soon as possible" and net-zero global emissions "in the second half of this century."[6]

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[2] Rajendra K. Pachauri, Leo Meyer & The Core Writing Team, IPCC, CLIMATE CHANGE 2014: SYNTHESIS REPORT, at 4, 6–8 (2014).

[3] UN Framework Convention on Climate Change, pmbl. para. 2, May 9, 1992, 1771 UNTS 107; Paris Agreement, pmbl. para. 12, Dec. 12, 2015, 55 ILM 740 (2016).

[4] UNFCCC, *supra* note 3, art. 2.

[5] Paris Agreement, *supra* note 3, art. 2(1)(a). The same objective was accepted under the UNFCCC. *See* Dec. 10/CP.21, para. 4, FCCC/CP/2015/10/Add.2 (Jan. 29, 2016).

[6] Paris Agreement, *supra* note 3, art. 4(1). Net emissions account for emissions by sources (e.g., from the combustion of fossil fuels) and removals by sinks (e.g., from the planting of trees).

A major limitation of climate treaties, however, is that they leave it for each party to determine its own level of ambition. For instance, the main commitment under the UNFCCC is to "[f]ormulate [and] implement … national … programmes containing measures to mitigate climate change";[7] the developed country parties listed in Annex I further undertake to "adopt national … policies and take corresponding measures on the mitigation of climate change."[8] Similarly, the Paris Agreement calls on each party to communicate its successive "nationally determined contributions to the global response to climate change"[9] (NDCs) and to take the necessary measures to achieve the mitigation objectives of these NDCs.[10] The Kyoto Protocol was perhaps an exception—it imposed negotiated, quantified commitments on Annex I parties—but its substantive commitments expired in 2020.[11] National commitments that are nationally determined may not add up to a sufficient level of ambition for the realization of global objectives. Thus, states and observers have generally found that

[7] UNFCCC, *supra* note 3, art. 4(1)(b).

[8] *Id.*, art. 4(2)(a).

[9] Paris Agreement, *supra* note 3, art. 3.

[10] *Id.*, art. 4(2). *See also* Benoit Mayer, *International Law Obligations Arising in Relation to Nationally Determined Contributions*, 7 TRANSNAT'L ENV'T L. 251 (2018).

[11] Kyoto Protocol to the United Nations Framework Convention on Climate Change, art. 3(1), annex B, Dec. 11, 1997, 2303 UNTS 162 (defining a "first" commitment period 2008–2012); Doha Amendment to the Kyoto Protocol, Art. 1(A), Dec. 8, 2012, in Dec. 1/CMP.12, FCCC/KP/CMP/2016/8/Add.1 (Feb. 28, 2013) (defining a second commitment period 2013–2020).

NDCs and other pledges of mitigation action, in aggregate, fall short of what is necessary to achieve the mitigation objectives of the Paris Agreement.[12]

The shortfall of climate treaties led to an increasing attention to other sources of obligations on climate change mitigation. In various jurisdictions, plaintiffs have attempted to construe statutory law,[13] tort law,[14] public law,[15] and human rights law (from domestic or international

[12] *See infra* note 260.

[13] *E.g.*, Massachusetts v. E.P.A., 549 U.S. 497, 532 (2007) (applying Clean Air Act); Earthlife Africa Johannesburg v. Minister of Env't Aff., [2017] ZAGPPHC 58, 2 All S.A. 519 (2017) (S. Afr.) (applying National Environmental Management Act); CE Sect., July 1, 2021, ECLI:FR:CECHR:2021:427301.20210701 (Grande-Synthe/Fr.) (applying the Energy Code).

[14] *E.g.*, Rb Den Haag (District Court, The Hague), June 24, 2015, ECLI:NL:RBDHA:2015:7145 (Urgenda/Staat der Nederlanden) [hereinafter *Urgenda I*]; Sharma v. Minister for the Env't, 391 A.L.R. 1 (2021) (Austl.); Civ. [Tribunal of First Instance] Brussels (4th ch.), June 17, 2021, 2015/4585/A, AB 2021/242 (Klimaatzaak/Belg.); Smith v. Fonterra Coop. Grp. Ltd., [2021] NZCA 552 (N.Z.). *See also* Karen C. Sokol, *Seeking (Some) Climate Justice in State Tort Law*, 95 WASH. L. REV. 1382 (2020).

[15] *E.g.*, Shrestha v. Prime Minister, Order 074-WO-0283, decision 10210, NKP61(3) (S.C. Dec. 25, 25 December 2018) (Nepal) (constitutional human rights and environmental obligations); Juliana v. U.S., 947 F.3d 1159 (9th Cir, 2020) (public trust doctrine).

sources),[16] as requiring states (or sometimes corporations)[17] to mitigate climate change. Some cases were dismissed on procedural grounds,[18] and many are yet to be decided, but in the few decisions they have been made on the merits, courts have generally accepted that domestic or international law may require more than compliance with climate treaties. In particular, the Supreme Court in *Urgenda* interpreted the state's international obligation to protect human rights as requiring the Netherlands to reduce its emissions by 25 percent by 2020, compared with 1990.[19] Courts in three other European countries found that national governments had failed to take sufficient mitigation action in light of their duty of care and human rights

[16] *E.g.*, HR Nederlanden (Supreme Court of the Netherlands) Dec. 20, 2019, ECLI:NL:2019:2006 (Urgenda/Staat der Nederlanden), unofficial English translation 59 ILM 814 (2020) (Neth.) [hereinafter *Urgenda III*]; HR-2020-2472-P, Dec. 22, 2020, Case No. 20-051052SIV-HRET (Natur og Ungdom/Norway) (Nor.); Conseil constitutionnel [Constitutional Court] decision 2021-825DC, Aug. 13, 2021 (Fr.).

[17] *E.g.*, Am. Elec. Power Co. Inc. v. Connecticut, 564 U.S. 410, 424, 429 (2011) (finding that the Clean Air Act displaces federal tort law); Milieudefensie v. Royal Dutch Shell, ECLI:NL:RBDHA:2021:5337 (D.C. Hague, May 26, 2021) (Neth.) (identifying a duty of care).

[18] *E.g.*, *Juliana*, *supra* note 15 (redressability); Bundesgericht [Federal Supreme Court], May 5, 2020, 146 BGE I-145 (Verein Klimaseniorinnen Schweiz/Switz.) (standing); Case T-330/18, Carvalho v. Parliament, ECLI:EU:T:2019:324 (May 8, 2019) (standing).

[19] *Urgenda III*, *supra* note 16. *See also Milieudefensie*, *supra* note 17.

obligations.[20] Other national courts, from New Zealand to the United States, identified procedural obligations that can be construed as corollaries of general mitigation obligations.[21] On the international plane, similar arguments are now being made before human rights institutions;[22] several treaty bodies have already lent support to this line of argument through ad hoc statements and observations on national periodic reports.[23] The prospects for

[20] BVerfG, 1 BvR 2656/18, Mar. 24, 2021, http://www.bverfg.de/e/rs20210324_1bvr265618.html (Neubauer/Ger.); *Grande-Synthe*, *supra* note 13; *Klimaatzaak*, *supra* note 14.

[21] *E.g.*, Mid States Coal. for Progress v. Surface Transp. Bd., 345 F.3d 520, 550 (8th Cir, 2003); Thomson v. Minister for Climate Change Issues, [2017] NZHC 733; *Shrestha*, *supra* note 15; Friends of the Irish Env't v. Ir., 2 ILRM 233 (2020).

[22] *See* Petition of Torres Strait Islanders to the UN Hum. Rts. Comm. (petition filed May 13, 2019); Duarte Agostinho v. Portugal, Communicated Case No 39371/20 (Eur. Ct. Hum. Rts., 13 November 2020) <http://hudoc.echr.coe.int/eng?i=001-206535>; Verein Klimaseniorinnen Schweiz v. Switzerland, Communicated Case No 53600/20 (Eur. Ct. Hum. Rts., 17 March 2021) <http://hudoc.echr.coe.int/eng?i=001-209313>; Complaint by Mex M. against Austria (Eur. Ct. Hum. Rts., 25 March 2021) <https://perma.cc/MRR6-KK4W>; Complaint against Norway (Eur. Ct. Hum. Rts., 15 June 2021) <https://perma.cc/AN8Y-GXRY>. *See also* Decision adopted by the UN Comm. on the Rts of the Child (CRC) on Commc'n No. 105/2019, Sept. 22, 2021, CRC/C/88/D/105/2019 (Sacchi/Arg.) (inadmissible for failure to exhaust domestic remedies).

[23] *E.g.*, UN Comm. on Econ., Soc. & Cult. Rts., Concluding Observations, 2nd Periodic Rep. Lat., para. 11, E/C.12/LVA/CO/2 (Mar. 30, 2021); UN Comm. on the Elim. of Discriminations against Women et al., Joint Statement on "Human Rights and Climate

international litigation were boosted, in 2021, as Vanuatu started a campaign for the UN General Assembly to request an advisory opinion of the International Court of Justice (ICJ),[24] while Tuvalu entered a treaty with Antigua and Barbuda to create an organization with the express mandate of requesting a similar opinion from the International Tribunal for the Law of the Sea (ITLOS).[25]

Several sources of international law could be invoked as a source of a general mitigation obligation. Human rights treaties can be construed as requiring states to mitigate climate change on the ground that the impacts of climate change hinder the enjoyment of human rights, which would enable various procedural avenues. However, this argument is only convincing insofar as the benefits of mitigation action can be framed within the scope of treaty obligation—that is, insofar as mitigation action can be justified for its benefits for the protection of treaty rights within the geographical (i.e., mainly territorial) scope of the

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Change" (Sept. 16, 2019), at https://perma.cc/6VXT-LAD4; CRC, Concluding Observations, Combined 5th–6th Period. Rep. Austl., paras. 40–41, CRC/C/AUS/CO/5-6 (Nov. 1, 2019).

[24] *See* Bernadette Carreon, *Vanuatu to Seek International Court Opinion on Climate Change Rights*, THE GUARDIAN, Sept. 26, 2021.

[25] *See* Agreement for the Establishment of the Commission of Small Island States on Climate Change and International Law, art. 2(2), Ant. & Barb./Tuvalu, Oct. 31, 2021, https://perma.cc/D688-7R93. *See generally* ITLOS Statute art. 21; ITLOS Rules of Procedure, art. 138, ITLOS/8 (Mar. 17, 2009); Sub-Regional Fisheries Commission, Advisory Opinion of Apr. 2, 2015, ITLOS Rep. 4, paras. 52–60.

treaty.[26] As such, a human rights treaty may only open a "narrow window" on the need for mitigation action.[27] Multilateral environmental agreements (including Part XII of the UN Convention on the Law of the Sea) may also be invoked in international litigation,[28] but they have some of the same limitations: if they may imply an obligation for states to mitigate climate change,[29] it is only insofar as justified by the obligation they define in relation to conservation of particular environmental resources. By contrast, customary law offers a more holistic perspective on the rationale for climate change mitigation: it protects the rights of states to the protection of their citizens *and* to the conservation of their environmental resources, along with their rights to survival or territorial integrity, among other rights.[30] As customary international law allows for a more comprehensive appraisal of the benefits of climate change mitigation than any human rights or environmental treaty, it could justify more extensive mitigation action than any treaty on human rights or environmental protection.

[26] *See* Benoit Mayer, *Climate Change Mitigation as an Obligation under Human Rights Treaties?*, 115 AJIL 409 (2021).

[27] *Id.*

[28] *See* COSIS Agreement, *supra* note 25, art. 2(2) (authorizing the Commission to request an advisory opinion on the interpretation of UNCLOS).

[29] *See, e.g.,* Philippe Sands, *Climate Change and the Rule of Law: Adjudicating the Future in International Law*, 28 J. ENV'T L. 19, 25 (2016) (UNCLOS).

[30] *See infra* notes 141–144 and corresponding text.

As such, customary international law is expected to play a central role in international proceedings on climate change mitigation,[31] as it has been in past cases on international environmental law, notwithstanding the applicability of specific treaties.[32] And even when customary law cannot be applied directly, it could shed light on the interpretation of other norms.[33] Thus, human rights institutions have at times interpreted states' obligations in light of international environmental law, including custom.[34] Customary law could often be influential in domestic proceedings, even in jurisdictions where it has no direct effect, through the technique of consistent interpretation—as a normative context in light of which

[31] *E.g.*, Sands, *supra* note 29, at 19–35, 30–31, 33. *See also infra* note 76.

[32] *E.g.*, Gabčíkovo-Nagymaros Project (Hung./Slovk.), 1997 ICJ Rep. 7, para. 140; MOX Plant (Ir. v. UK), Order on Provisional Measures, Dec. 3, 2001, ITLOS Rep. 95, para. 82; Pulp Mills on the River Uruguay (Arg. v. Uru.), 2010 ICJ Rep. 14, para. 101; Responsibilities and Obligations of States with Respect to Activities in the Area, Advisory Opinion of Feb. 1, 2011, ITLOS Rep. 10, para. 145. *See also* Trail Smelter (US/Canada), 3 RIAA 1938, 1965 (1941); Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicar.) and Construction of a Road in Costa Rica along the San Juan River (Nicar. v. Costa Rica), Merits, 2015 ICJ Rep. 665, para. 104.

[33] *See* Vienna Convention on the Law of Treaties, Art. 31(3)(c), May 23, 1969, 1155 UNTS 331.

[34] *See, e.g.*, Demír v. Turkey, 2008-V Eur. Ct. H.R. 333, paras. 85–86; The Environment and Human Rights, Advisory Opinion OC-23/17, Inter-Am. Ct. H.R. (ser. A) No. 2, para. 125 and *passim* (Nov. 15, 2017); *Sacchi/Argentina*, *supra* note 22, ¶10.5.

domestic law is to be interpreted.[35] In fact, as no state can effectively mitigate climate change on its own, and mitigation is thus essentially a matter of international cooperation, it is doubtful that general mitigation obligations arising from domestic law could ever be interpreted in complete isolation from its international context.[36] Already, the Supreme Court in *Urgenda* relied largely on customary law to determine the content of international human rights law, whereas the District Court had invoked it to interpret tort law.[37] Since then, customary law has frequently been discussed, in domestic and regional litigation, as a referential norm to interpret mitigation obligations from other sources.[38]

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[35] *See* ANDRE NOLLKAEMPER, NATIONAL COURTS AND THE INTERNATIONAL RULE OF LAW 117–65 (2011).

[36] Some domestic judicial decisions have relied exclusively on treaty law, rather than customary law. *See, e.g.*, R. (Friends of the Earth) v. Heathrow Airport [2020] UKSC 52, para. 70 and passim; TA Paris, Feb. 3, 2021, No. 1904967, paras. 18–19 (Notre Affaire à Tous/Fr., first decision). If customary law contains more demanding mitigation obligations—as this article contends—relying exclusively on treaty law provides national courts with only a partial reflection of relevant standards.

[37] *See Urgenda III*, *supra* note 16, para. 5.7.5; *Urgenda I*, *supra* note 14, para. 4.42–43. *See generally* Mayer, *Human Rights Treaties?*, *supra* note 26, at 439–441.

[38] Reply memorandum in *Notre Affaire à tous*, Sept. 3, 2020, https://perma.cc/PKD5-G44N, §55 (last para.); Plaintiffs' Memorandum in *Klimaatzaak*, June 28, 2019, https://perma.cc/44PG-GJJC, paras. 360, 385–389; Plaintiffs' memorandum in *Neubauer*, Feb. 6, 2020, https://perma.cc/E9HA-TYDD, 82, 111; Writ of summons in *Natur og Ungdom*, Oct. 18, 2016, https://perma.cc/AAS7-L346, §§9.2.3–2.4; Application

In light of these preliminary remarks, it is unclear why legal scholarship on climate change has focused so much more on climate treaties[39] than on customary law.[40] Some might think

memorandum in *Carvalho*, May 23, 2018, https://perma.cc/25TL-M84A, paras. 206–207; Petition in *Sacchi*, Sept. 23, 2019, https://perma.cc/9C3Y-TNTK, para. 179.

[39] Thus, the prevailing account of climate law is a tale of successive climate treaties. *See, e.g.*, DANIEL BODANSKY, JUTTA BRUNNÉE & LAVANYA RAJAMANI, INTERNATIONAL CLIMATE CHANGE LAW (2017); PHILIPPE SANDS & JACQUELINE PEEL, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW 297–334 (4th ed 2018); ALAN BOYLE & CATHERINE REDGWELL, INTERNATIONAL LAW AND THE ENVIRONMENT 378–403 (4th ed 2021).

[40] Notable exceptions tend to focus on responsibility (or liability) rather than on the content of primary obligations. *See* RODA VERHEYEN, CLIMATE CHANGE DAMAGE AND INTERNATIONAL LAW: PREVENTION DUTIES AND STATE RESPONSIBILITY 145–192 (2005); Christina Voigt, *State Responsibility for Climate Change Damages*, 77 NORDIC J. INT'L L. 1 (2008); René Lefeber, *Climate Change and State Responsibility*, *in* INTERNATIONAL LAW IN THE ERA OF CLIMATE CHANGE 321 (Rosemary Rayfuse & Shirley V. Scott eds., 2012); ELENA KOSOLOPOVA, INTERSTATE LIABILITY FOR CLIMATE CHANGE-RELATED DAMAGE 145–161 (2013); Benoit Mayer, *Climate Change Reparations and the Law and Practice of State Responsibility*, 7 ASIAN J. INT'L L. 185 (2017); MARGARETHA WEWERINKE-SINGH, STATE RESPONSIBILITY, CLIMATE CHANGE AND HUMAN RIGHTS UNDER INTERNATIONAL LAW (2019). *See also* BODANSKY, BRUNNÉE & RAJAMANI, *supra* note 39, at 40–44 (presenting a list of unanswered questions on the customary law applicable to climate change); Michael Mehling, Harro van Asselt, Kati Kulovesi & Elisa Morgera, *Teaching Climate Law: Trends, Methods and Outlook*, 32 J. ENV'T L. 417, 430 (2020) (noting the focus on "black letter law" in the

that climate treaties preclude the application of customary law,[41] or that the content of customary law cannot differ markedly from climate treaties, but these hypotheses do not withstand closer scrutiny.[42] Admittedly, climate treaties define clearer and more precise rules, which might be more effective on the political plane[43]—but this only underscores the need for thorough doctrinal research on customary law to help clarify states' obligations and, thus, make them more politically effective. Ultimately, the oversight of custom in climate law scholarship might have to do with a deeply entrenched suspicion toward arguments on the identification of custom law, in a context where customary law has variously been derided as a "matter of taste"[44] or "assertion."[45] Yet, custom remains undeniably a source of

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teaching of climate law). *But see* Int'l L. Ass'n (ILA), Resol. 2/2014, *Declaration of Legal Principles Relating to Climate Change*, 76 INT'L L. ASS'N REP. CONF. 21, 24–25 (2014); Int'l L. Comm'n (ILC), Draft Guidelines on Protection of the Atmosphere, *in* ILC Rep., 72nd Sess., 9, A/76/10 (2021).

[41] *See, e.g.,* Alexander Zahar, *Mediated versus Cumulative Environmental Damage and the International Law Association's Legal Principles on Climate Change,* 4 CLIMATE L. 217, 230 (2014).

[42] *See* below, §II.A.

[43] *See* Kenneth W. Abbott, Robert O. Keohane, Andrew Moravcsik, Anne-Marie Slaughter & Duncan Snidal, *The concept of Legalization*, 54 INT'L ORGANIZATION 401 (2000).

[44] J. Patrick Kelly, *The Twilight of Customary International Law*, 40 VA. J. INT'L L. 449, 451 (1999).

[45] Stefan Talmon, *Determining Customary International Law: The ICJ's Methodology between Induction, Deduction and Assertion,* 26 EJIL 417 (2015). *See also* Michael Akehurst, *Custom as a Source of International Law*, 47 BYBIL 1 (1976); László Blutman,

international law routinely applied by international courts:[46] as such, the observation that some arguments warrant skepticism calls for methodological rigor, not for leaving a source of international law entirely unaccounted for.

This article carries out a dispassionate doctrinal analysis of the customary international law applicable to climate change mitigation. It is grounded in a methodological reflection on the way one can identify and determine the content of customary norms. The conclusions that it reaches are, perhaps unsurprisingly, more nuanced than previous interpretations of customary law, in particular in *Urgenda*. On the one hand, this article confirms the existence and applicability of a customary obligation on climate change mitigation and shows how the level of mitigation action required under customary international law could exceed states' treaty commitments. On the other hand, it denounces an interpretation of customary international law that is directly at odds with the general practice of states—one cannot argue that a standard is "customary" when most states are acting inconsistently with it. The customary obligation that this article identifies is insufficient to prevent dangerous climate change, but it

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Conceptual Confusion and Methodological Deficiencies: Some Ways That Theories on Customary International Law Fail, 25 EJIL 529 (2014).

[46] *See* Statute of the Int'l Ct. Just., art. 38(1)(b); Brian D. Lepard, Customary, *Introduction: Why Does Customary International Law Need Reexamining?*, *in* REEXAMINING CUSTOMARY INTERNATIONAL LAW 1, 3–8 (Brian D. Lepard ed., 2017); Omri Sender & Michael Wood, *Custom's Bright Future: The Continuing Importance of Customary International Law*, *in* CUSTOM'S FUTURE: INTERNATIONAL LAW IN A CHANGING WORLD 360, 365 (Curtis A. Bradley ed., 2016) (noting that "the theoretical torment that accompanies custom in the books simply does not impede it in action").

is not entirely ineffective either: this obligation holds every state to account on the basis of standards that most states follow most of the time.

Part II addresses two preliminary issues. First, it justifies the relevance of customary law despite the existence of climate treaties. Climate treaties and customary law are not in a relationship of conflict because climate treaties are not incompatible with customary law and do not reflect an intention of the parties to displace it. Although climate treaties may influence the development of customary law, the latter imposes separate and distinct obligations.

Second, this Part acknowledges two methodological difficulties that hinder the identification of the customary law on climate change mitigation. The first difficulty relates to the tension between ascending and descending approaches to the identification of customary law. Following the prevailing doctrine and international judicial practice, this article refrains from deductive reasoning whose conclusions are at odds with empirical evidence of state practice and acceptance as law. The second difficulty is that, when one employs an ascending reasoning, the way one "individuates" a candidate customary norm determines the scope of relevant empirical evidence. For instance, one may arrive at different conclusions depending on whether one seeks empirical evidence of a broad obligation of due diligence and prevention applicable to climate change mitigation, or of a distinct obligation on climate change mitigation. To ensure its robustness, the analysis follows a syncretic method that weighs empirical evidence of the existence of both obligations.

Part III identifies a customary obligation on climate change mitigation. It does so by identifying two norms of customary law: a general obligation of due diligence and

prevention, and a more specific obligation on climate change mitigation. Deductive reasoning suggests the existence of a general obligation of due diligence and prevention: international law would not really protect a state's sovereign rights (e.g., to territorial integrity, to permanent sovereignty over its natural resources, or to the protection of their citizens) if it did not require other states to respect and protect these rights. Empirical evidence of state practice and acceptance as law confirm the existence of an obligation to take appropriate measures to prevent transboundary environmental harm.

In turn, deductive reasoning suggests that this general obligation of prevention implies a specific obligation of mitigation: although climate change differs from typical cases of transboundary environmental harm, this distinction is immaterial to the application of the general obligation of due diligence and prevention. Overall, there is ample evidence of state practice and acceptance as law to confirm the existence of a customary obligation on climate change mitigation.

Lastly, Part VI seeks to determine how the customary mitigation obligation could be applied in concrete cases. It first considers a holistic method to determine the requisite level of mitigation action that a state is required to implement or achieve. A discussion of *Urgenda* shows that this holistic assessment method tends to rely excessively on descending reasoning: it assumes that a state must act consistently with an extraneous interpretation of the global mitigation objectives, despite general acceptance that this is not general state practice.

The article proposes an alternative method to apply the customary mitigation obligation, namely by breaking it down into elementary duties (which may or may not exist as independent legal obligations), each of which reflects an appropriate step that—in light of

logical inferences confirmed by state practice—one can expect a state to take when complying with its general mitigation obligation. Five such duties are identified as illustrations: the duties to negotiate in good faith, to monitor and report GHG emissions, to plan mitigation strategies, to conduct environmental assessments, and to act in an internally consistent manner.

II. PRELIMINARY ISSUES

This Part addresses two sets of preliminary issues. First, it justifies the applicability of customary law to climate change mitigation despite the existence of climate treaties. Second, it flags two major methodological issues that hinder—but do not prevent—a doctrinal analysis aimed at assessing the content of the customary law applicable to climate change mitigation.

A. The Relationship Between Climate Treaties and Customary Law

This section explores the relationship between climate treaties and customary law to dismiss objections to the relevance and applicability of customary law to climate change mitigation. Such objections have been voiced, for instance, by Alexander Zahar, who asserted that the Paris Agreement "could hardly be effective if it did not cover the field," and that, "[i]f it covers the field, it displaces everything that was there before."[47] Likewise, a Rapporteur at France's State Council assumed that two obligations from different sources could not be

[47] Alexander Zahar, *The Contested Core of Climate Law*, 8 CLIMATE L. 244, 255–56 (2018).

concurrently applicable to climate change mitigation.[48] With more nuance, Daniel Bodansky submitted that "[t]he growing importance of treaties suggests a diminished role for customary international law."[49]

To be clear, these objections do not question the applicability of customary law to states (or, conceivably, other persons)[50] not parties to climate treaties. And, by contrast to Zahar, Bodansky justly accepts that climate treaties do not necessarily cover the entire subject-matter: what does not fall within the scope of climate treaties remains unquestionably governed by customary law.[51] This latter caveat is of considerable practical importance given climate treaties' many material, temporal, and geographical limitations.[52] The quantified

[48] *See* Stéphane Hoynck, Rapporteur Public of the Conseil d'Etat, Opinion on *Grande-Synthe*, Nov. 19, 2020, English translation <https://perma.cc/9Y88-VY5T> 5.

[49] Daniel Bodansky, *Customary (and Not So Customary) International Environmental Law*, 3 IND. J. GLOB. LEGAL STUD. 105, 106 (1995).

[50] *See* Kristina Daugirdas, *How and Why International Law Binds International Organizations*, 57 HARV. INT'L L. J. 325 (2016); Benoit Mayer, *Climate Change Mitigation in the Hong Kong Special Administrative Region*, 7 CLIMATE L. 65 (2017).

[51] *See* Rosa M. Fernández Egea, *State Responsibility for Environmental Harm, "Revisited" within the Climate Change Regime*, *in* IMPLEMENTATION OF INTERNATIONAL ENVIRONMENTAL LAW 375, 391 (Sandrine Maljean-Dubois & Lavanya Rajamani eds., 2011).

[52] Thus, if one were to concede to Bodansky that the Paris Agreement "does not create an individual obligation on each Party to implement … its NDC," there would be little terrain that the Paris Agreement could take away from customary law. *See* Daniel Bodansky, *The*

commitments under the Kyoto Protocol applied only to some developed country parties with regard to emissions of some GHGs from specific activities taking place within the parties' territory during the two commitment periods.[53] The commitments under the UNFCCC and the Paris Agreement are also limited to certain timeframes, areas, sectors, gases, and activities.[54]

More fundamentally, however, this section demonstrates that customary law can apply concurrently with climate treaties. It first shows that climate treaties cannot be deemed to displace customary law unless there is a conflict between these two sources. Then, it demonstrates that there is no conflict between these two sources. Finally, it explores the relationship of interpretation between customary law and climate treaties.

1. The principle of harmonization

Legal Character of the Paris Agreement, 25 REV. EUR. COMP. & INT'L ENV'T L. 142, 146 (2016).

[53] Kyoto Protocol, *supra* note 11, art. 3(1).

[54] While developed states are required to undertake "economy-wide" NDCs, the phrase is to be read in light of the IPCC guidelines for national emission inventories: economy-wide commitments are not expected to regulate, for instance, emissions from national companies operating overseas or emissions related to the consumption of imported good or the combustion of exported fossil fuels. *See* Paris Agreement, *supra* note 3, art. 4(4); 2006 IPCC GUIDELINES FOR NATIONAL GREENHOUSE GAS INVENTORIES (Simon Eggleston, Leandro Buendia, Kuoko Miwa, Todd Ngara &Kiyoto Tanabe eds, 2006). *See also* Dec. 4/CMA.1, annex I, para. 3(b), FCCC/PA/CMA/2018/3/Add.1 (Mar. 19, 2019).

Questions have long been raised regarding the relationship between specific and general norms on climate change mitigation.[55] In public international law, this question is to be approached in light of what the International Law Commission (ILC)'s Study Group on the fragmentation of international law called a "principle of harmonization," according to which, "when several norms bear on a single issue, they should, to the extent possible, be interpreted so as to give rise to a single set of compatible obligations."[56] The ICJ in the *Right of Passage* case identified "a rule of interpretation that a text emanating from a Government must, in principle, be interpreted as … intended to produce effects in accordance with existing law and not in violation of it."[57] Consistently, Robert Jennings and Arthur Watts identified a "presumption that the parties [to a treaty] intend something not inconsistent with generally

[55] *See, e.g.*, *Am. Elec. Power*, *supra* note 17.

[56] ILC, Conclusions of the Work of the Study Group on the Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, para. 4, A/CN.4/L.682/Add.1 (May 2, 2006).

[57] *See* Right of Passage over Indian Territory (Port. v. India), Preliminary Objections, 1957 ICJ Rep. 125, 142. *See also* Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 ICJ Rep. 226, paras. 25–64; Panel Rep., *Turkey–Restrictions on Imports of Textile and Clothing Products*, para. 9.92, WT/DS34/R (Nov. 19, 1999); Lawfulness of the Recall of the Privately Held Shares, Partial Award, 23 RIAA 183, para. 170 (2002); *Indus Waters Kishenganga (Pakistan/India)*, Partial Award, 31 RIAA 55, para. 452 (2013).

recognized principles of international law, or with previous treaty obligations towards third States."[58]

More specifically, the ILC Study Group characterized the relationship between two norms bearing to the same situation as either a "relationship of interpretation" or a "relationship of conflict."[59] When two norms are in a relationship of interpretation, "one norm assists in the interpretation of another," so that "both norms are applied in conjunction."[60] By contrast, a relationship of conflict is one where the two norms "point to incompatible decisions so that a choice *must* be made between them."[61] The Study Group thus endorsed Wilfred Jenks's narrow definition of a "conflict" of norms, which Jenks distinguished from a mere *divergence* between two norms that are not incompatible even though their content differ.[62] When two norms diverge without conflicting, they co-exist in a relationship of interpretation. When a

[58] OPPENHEIM'S INTERNATIONAL LAW 1275 (Robert Jennings & Arthur Watts eds., 9th ed. 1992). *See also* Quincy Wright, *Conflicts between International Law and Treaties*, 11 AJIL 566, 575 (1917); Charles Rousseau, *De la compatibilité des normes juridiques contradictoires dans l'ordre international*, 39 RGDIP 153, 153 (1932); Joost Pauwelyn, *Conflict of Norms in Public International Law: How WTO Law Relates to Other Rules of International Law* 240–244 (2003).

[59] ILC, Conclusions on Fragmentation, *supra* note 56, para. 2.

[60] *Id*.

[61] *Id*. (emphasis added).

[62] C. Wilfred Jenks, *The Conflict of Law-Making Treaties*, 30 BYBIL 401, 426 (1953). *See also* ILC, Report of the Study Group on the Fragmentation of International Law, para. 24, A/CN.4/L.682 (Apr. 13, 2006).

conflict does occur, it can be resolved, for instance, by reference to the maxim *lex specialis derogate legi generali*—that is, by giving priority to the norm that is more specific.[63]

2. The absence of conflict

This subsection demonstrates that there is no relationship of conflict between climate treaties and customary international law regarding climate change mitigation: the application of climate treaties, in particular, does not prevent the application of customary law. The ILC's Commentary on the Articles on State Responsibility notes that, for the *lex specialis* principle to apply as a way to resolve a normative conflict, "it is not enough that the same subject matter is dealt with by two provisions; there must be some actual inconsistency between them, or else a discernible intention that one provision is to exclude the other."[64] These appear to be the only conditions in which the "strong presumption against normative conflict"[65] identified by the ILC Study Group could be rebutted. The following shows that

[63] *See* ILC, Conclusions on Fragmentation, *supra* note 56, paras. 5, 9 (noting that "[t]he application of the special law does not normally extinguish the relevant general law").

[64] ILC, Draft Articles on the Responsibility of States for Internationally Wrongful Acts, comment. Art. 55, para. 4, *in* ILC Rep. 53rd Sess., at 31, A/56/10 (2001) [hereinafter DARSIWA]. *See also* ILC, Report on Fragmentation, *supra* note 62, para. 89; Hans Kelsen, *Derogation*, *in Essays in Jurisprudence in Honor of Roscoe Pound*, 349 (Ralph A. Newman ed. 1962).

[65] ILC, Report on Fragmentation, *supra* note 62, para. 37. *See also* ILC, Conclusions on Fragmentation, *supra* note 56, para. 31.

there is neither any "actual inconsistency" between climate treaties and customary law, nor any "discernable intention that one provision is to exclude the other."

Climate treaties require states to mitigate climate change; so, further Parts of this article argue, does custom. Yet, this observation does not demonstrate any actual inconsistency between these two sources: a state can comply with two mitigation obligations at the same time without having to make a choice between them.[66] A relationship of conflict would certainly exist between customary law and a treaty creating an obligation for states *not* to regulate GHG emissions (or an obligation to emit GHGs); but no climate treaty creates any such obligations. Customary and treaty obligations may impose different (e.g., higher or lower) standards, but this divergence does not constitute a conflict.[67]

It has been suggested that there could be a conflict between customary law and certain provisions of climate treaties that purportedly *authorize* states to emit GHGs.[68] One could question whether this would constitute a relationship of conflict: an obligation can limit the scope of a right without denying its existence.[69] In any case, the factual premise is erroneous: no climate treaty creates any emission entitlement applicable beyond the scope of the climate regime. In particular, the "assigned amounts" of GHG emissions mentioned in the Kyoto

[66] *Cf.* Juliana v. U.S., 217 F.Supp.3d 1224, 1240 (2016).

[67] *See* text at note 62.

[68] *See* Stephen Humphreys, *Introduction: Human Rights and Climate Change*, *in* HUMAN RIGHTS AND CLIMATE CHANGE 1, 15 (Stephen Humphreys ed., 2009); Zahar, *Contested Core*, *supra* note 47, at 256–257.

[69] *See* Jenks, *Conflict*, *supra* note 62, at 426–427.

Protocol[70] are not intended to create a right to emit GHGs: interpreted in light of the object and purpose of the treaty, this phrase merely refers to a benchmark used to assess a party's compliance with its Kyoto commitment. The Parties expressly confirmed that the Protocol "has not created or bestowed any right, title or entitlement to emissions of any kind" on Annex I parties.[71] The idea that climate treaties entitle states to emit GHGs is even less convincing in relation to the Paris Agreement, under which each party determines its own "contribution" to global mitigation action,[72] but certainly not (in light of the treaty's object and purpose) its right to emit GHGs. As the Procurator General suggested in *Urgenda*, commitments on climate change mitigation establish only "minimum standards": they "do not relieve states of their general obligations under international law."[73]

On the other hand, nothing in any climate treaties suggests a "discernible intention" to exclude the application of customary law. To the contrary, the preamble to the UNFCCC

[70] Kyoto Protocol, *supra* note 11, art. 3(1).

[71] Dec. 15/CP.7, pmbl. para. 6, FCCC/CP/2001/13/Add.2 (Jan. 21, 2002); Dec. 2/CMP.1, pmbl. 6, FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006). On the (controversial) possibility of carrying over certified emission reductions from the Kyoto Protocol to the Paris Agreement, *see* Dec. -/CMA.3, annex, para. 75 (Proposal by the President, FCCC/CMA/2021/L.19, adopted Nov. 14, 2021). *But see* San Jose Principles for High Ambition and Integrity in International Carbon Markets (2019) https://cambioclimatico.go.cr/sanjoseprinciples/ (backed by 32 states), third principle.

[72] Paris Agreement, *supra* note 3, art. 3, 4(2).

[73] Conclusions of the Procurator General in *Urgenda III*, para. 2.77, ECLI:NL:PHR:2019:102 (Oct. 8, 2019).

"recall[s] the pertinent provisions" of the Stockholm Declaration,[74] in particular the obligation of prevention,[75] thus situating treaty commitments within the context of customary law. Any remaining doubt about the intention of the parties is dispelled by the declarations that several developing states made when signing and ratifying climate treaties to the effect that nothing in these treaties could "be interpreted as derogating from … principles of general international law"[76]—and the absence of objections or protests to these declarations.

3. Separate and distinct obligations

It is far from exceptional for two or more norms of international law to apply concurrently to the same situation.[77] These norms, standing in a relationship of interpretation, remain in principle "separate and distinct."[78] As such, a state's compliance with its commitments under

[74] UNFCCC, *supra* note 3, pmbl. para. 8.

[75] Id., pmbl. para. 9.

[76] Declarations by Fiji, Kiribati, Nauru, Papua New Guinea, and Tuvalu, upon their signature or ratification of the UNFCCC; declarations of the Cook Islands, Kiribati, Nauru, and Niue upon their signature or ratification of the Kyoto Protocol; declarations of Belize, the Marshall Islands, Micronesia, Nauru, the Solomon Islands, St. Lucia, and Venezuela upon acceptance of the Doha Amendment; declarations of the Cook Islands, Micronesia, Nauru, Niue, the Solomon Islands, and Tuvalu, upon their ratification of the Paris Agreement.

[77] *See, e.g.*, Southern Bluefin Tuna (Austl. & N.Z. v. Japan), 23 RIAA 1, para. 52 (2000).

[78] Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Croat. v. Serb.), 2015 ICJ Rep. 3, para. 88. *See also* Military and Paramilitary Activities in and against Nicaragua (Nicar. v. U.S.), Merits, 1986 ICJ Rep. 132, para. 179; Amoco

climate treaties does not necessarily demonstrate compliance with its customary obligation on climate change mitigation, and *vice versa*. On the other hand, these obligations may interact, as each of them forms part of the normative context in light of which the other is to be interpreted.[79]

Both treaty and customary norms originate essentially from the "free will" of states,[80] but their content can differ because they are created in different ways. There are three reasons to think that customary law could impose more demanding obligations on climate change mitigation than climate treaties. First, while the text of a treaty records what states agreed at a point in the past,[81] customary law reflects their evolving acceptance of legal norms. In a field that develops as rapidly as climate law, significant discrepancies can appear within a few years.

International Finance v. Iran, Partial Award (24 July 1987), (1988) 27 ILM 1314, para. 112; *MOX Plant*, *supra* note 32, para. 50; Proceedings Pursuant to the OSPAR Convention (Ir./U.K.), Final Award (July 2, 2003), 23 RIAA 59, para. 141.

[79] *See* VCLT, *supra* note 33, art. 31(3)(c).

[80] S.S. Lotus (Fr./Turk.), 1927 PCIJ ser. A no. 10, at 18.

[81] Treaty interpretation takes account of subsequent state practice "in the application of the treaty"—that is, subsequent practice that indicates "the meaning to be attached to the treaty". *See* VCLT, *supra* note 33, art. 31(3)(b); Waldock, 3rd Rep. law of treaties, [1964] II-2 Y.B. ILC 60, para. 25. Norms that emerge subsequently to the adoption of the treaty, and have no textual basis in the treaty, cannot be incorporated in it by means of interpretation. *See* ICJ, Land, Island and Maritime Frontier Dispute (El Sal. v. Hond.), 1992 ICJ Rep. 351, para. 380.

Second, the texts of climate treaties have always been adopted by consensus of virtually every state,[82] a condition that can be more constraining than the general acceptance from which customary norms emerge[83] (sometimes described as a "weighted majority").[84] Thus, a

[82] The COP has relied exclusively on consensus for substantive decisions because it could not agree on a rule of procedure that would allow a majority vote. *See* UNFCCC, Draft Rules of Procedure of the Conference of the Parties and its Subsidiary Bodies, FCCC/CP/1996/2 (May 22, 1996), draft rule 42; UNFCCC COP25, Rep. Conf., FCCC/CP/2019/13 (Mar. 16, 2020) paras. 4–5. The UNFCCC was also adopted by consensus, albeit the *ad hoc* procedural rules under which it was negotiated would have permitted a vote. *See* Intergov't Negotiating Comm. for a Framework Conv. on Climate Change (INC), Rep. Fifth Session, A/AC.237/18 (Part II) (Oct. 16, 1992), paras. 28, 33; INC, Rules of Procedure, r. 27, A/AC.237/5 (Feb. 11, 1991).

[83] *See* ILC, Draft Conclusions on Identification of Customary International Law, conclusion 8(1), *in* ILC Rep., 70th Sess., 117, A/73/10 (2018) (defining general state practice as practice that "must be sufficiently widespread and representative, as well as consistent").

[84] *See* Jonathan I. Charney, *The Persistent Objector Rule and the Development of Customary International Law*, 56 BYBIL 1, 19 (1986).

single state can in principle[85] oppose the insertion of a provision in any new climate treaty by objecting to it, but it cannot block the emergence of a customary norm of the same effect.[86]

Third, customary and treaty law may attach different consequences to the absence of agreement. Climate treaties aim to define mitigation commitments, not emission rights. As such, the default position from which climate treaties seek to depart is one under which states are free to emit GHGs—as far as these treaties are concerned, states are free to emit unless they agree to restrict this freedom. By contrast, in the absence of general state practice accepted as law from which a specific norm arises, there is no reason to assume the same default norm under customary law. One could suggest that the default customary norm is one that allows sovereign states to emit GHGs, but one could just as well suggest that the default customary norm is one that allows them not to be affected by the GHG emissions of others.[87]

At this point, one could question why states go through all the trouble of negotiating treaty commitments if they are already bound by more stringent customary norms. This phenomenon is not specific to climate law—it is far from exceptional that states adopt treaties on matters already covered by customary law. A complete explanation is beyond the scope of

[85] *See* Farhana Yamin & Joanna Depledge, THE INTERNATIONAL CLIMATE CHANGE REGIME: A GUIDE TO RULES, INSTITUTIONS AND PROCEDURES 443–445 (2004); Antto Vihma, *Climate of Consensus: Managing Decision Making in the UN Climate Change Negotiations*, 24 REV. EUR. COMP. & INT'L ENV'T L. 58, 62 (2015).

[86] A persistent objector could prevent the application of a norm of customary law to itself, without precluding the emergence of a norm applicable to all other states.

[87] *See* text at note 126.

this article,[88] but a few likely reasons can be briefly outlined. In some cases, treaty commitments were adopted before the emergence of customary law: the UNFCCC, for instance, was adopted at a time when very few states were taking any mitigation action at all. In other cases, climate treaties may seek to clarify the content of general norms of customary law,[89] or to alert states and their constituencies about issues of compliance,[90] thus promoting the effective implementation of customary law.[91] Overall, the inclusion of norms within climate treaties bring them potentially within the ambit of treaty mechanisms, for instance on transparency, compliance, and dispute settlement, designed to increase the political and legal costs of non-compliance.[92]

B. Methodological Difficulties Relating to the Identification of Customary Law

Two methodological issues face any attempt at identifying the customary law applicable to climate change mitigation. The first issue relates to the coexistence of two alternative approaches to the identification of customary international law—an "ascending," mainly

[88] *See* Benoit Mayer, *Construing International Climate Change Law as a Compliance Regime*, 7 TRANSNAT'L ENV'T L. 115 (2018).

[89] *See generally* ILC, Report on Fragmentation, *supra* note 62, paras. 56, 88.

[90] *E.g.*, Kyoto Protocol, *supra* note 11, art. 10. *Cf.* Frédéric Mégret, *The Disabilities Convention: Human Rights of Persons with Disabilities or Disability Rights?*, 30 HUM. RTS. Q. 494, 496 (2008).

[91] *See* Abbott et al., *supra* note 43.

[92] *See* UNFCCC, *supra* note 3, arts. 7(2), 12, 13, 14; Kyoto Protocol, *supra* note 11, arts. 8, 13(4), 18, 19; Paris Agreement, *supra* note 3, arts. 13, 14, 15, 24.

inductive approach, and a "descending," mainly deductive approach. As state practice falls short of what states accept as the necessary level of mitigation action, these two approaches could point to markedly different conclusions. The second issue relates to the individuation of customary law—namely the process of carving out individual norms from the body of custom. One could arrive at different interpretations of the customary law applicable to climate change mitigation depending on whether one views it as the application of a broad obligation of due diligence, or a separate obligation whose existence and content are to be assessed in isolation. Without claiming to provide definitive solutions to these complex issues, this section devises a working method to be used in the rest of the article.

1. Ascending and Descending Approaches

Martti Koskenniemi distinguishes two ways of interpreting international law. On the one hand, "descending" arguments identify legal norms by inference from "justice, common interests, progress, nature of the world community or other similar ideas to which it is common that they are anterior, or superior, to State behaviour, will or interest."[93] On the other hand, "ascending" arguments consist in "attempts to construct a normative order on the basis of the 'factual' State behaviour, will and interests."[94] This distinction is particularly relevant to the identification of customary international law: customary law could be identified ascendingly—by induction from evidence of state practice and acceptance as law—

[93] MARTTI KOSKENNIEMI, FROM APOLOGY TO UTOPIA: THE STRUCTURE OF INTERNATIONAL LEGAL ARGUMENT 59 (2006).

[94] *Id*.

or descendingly—by deduction from other norms of customary law or premises of the international legal order.[95]

The issue is that these two approaches can lead to very different conclusions—particularly so concerning the mitigation of climate change. A descending reasoning suggests that a state must do whatever is necessary to prevent dangerous climate change. This can be determined based on what states themselves have recognized as necessary, interpreted in light of science. Crucially, states do not always recognize as a legal obligation what they recognize as necessary (e.g., a mere objective). Thus, a descending reasoning could build on states' recognition of climate change as a "common concern" which requires them to take appropriate measures,[96] and more specifically on their acceptance of global mitigation objectives such as the 1.5/2°C targets,[97] even though states have not expressly committed to

[95] *See id.* 388–473; Talmon, *supra* note 45. A distinction between "traditional" and "modern" approaches is sometimes understood as corresponding to, respectively, ascending and descending reasoning, but it is also sometimes presented as a distinction between two ascending approaches: a "traditional" one emphasizing state practice and a "modern" one focusing on acceptance as law. *See, e.g.*, Anthea Elizabeth Roberts, *Traditional and Modern Approaches to Customary International Law: A Reconciliation*, 95 AJIL 757 (2001); William Thomas Worster, *The Inductive and Deductive Methods in Customary International Law Analysis: Traditional and Modern Approaches*, 45 GEO. J. INT'L L. 445 (2013).

[96] *See* references note 3. *See also, e.g.*, G.A. Res. 43/53, para. 1 (Dec. 6, 1988); G.A. Res. 57/258, pmbl. para. 2 (Dec. 23, 2016); Dec. -/CP.26, Glasgow Climate Pact, pmbl. para. 7 (Advance unedited version, Nov. 14, 2021).

[97] *See* note 5. *See generally Urgenda III*, *supra* note 16, para. 7.2.1.

acting upon these temperature targets.[98] While scientists acknowledge that a "considerable range" of emission reduction pathways could achieve these targets,[99] they find that the most likely (least-cost) scenarios involve the achievement of "marked emissions reductions" by 2030,[100] ranging between 25 and 45 percent emission reduction compared from 2010 levels.[101]

By contrast, an ascending approach relies on empirical evidence of general state practice accepted as law. This points to a far lower standard than the descending reasoning. States themselves have recognized that, in aggregate, their pledges, commitments, and action on climate change mitigation are short of the level of ambition necessary to achieve their collective objectives.[102] Although the measures that states have taken so far could realize a global emission peak before 2030, they will not achieve "marked" emission reductions.[103]

[98] *See* note 160 and corresponding text.

[99] Leon Clarke et al., *Assessing Transformation Pathways*, *in* CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE 413, 433 (Ottmar Edenhofer et al. eds., 2014).

[100] Myles R. Allen et al., *Technical Summary*, *in* GLOBAL WARMING OF 1.5°C, at 27, 32 (Valérie Masson-Delmotte et al. eds, 2018).

[101] *Id.* 33.

[102] *See* note 260–261 and corresponding text.

[103] *See, e.g.*, UN ENVIRONMENT, EMISSIONS GAP REPORT 2021, at xvii–xviii (2021) https://www.unep.org/resources/emissions-gap-report-2021; UNFCCC Executive Secretary, Message to Parties and Observers (Nov. 4, 2021) https://perma.cc/2DDL-42MZ.

Therefore, there is a wide gap, with regard to climate change mitigation, between what Koskenniemi characterizes as "apology" and "utopia"[104]—that is, between what states do and what (in states' own recognition) should be done. In light of this gap, the choice between these two approaches would be instrumental to a court's interpretation of the customary law on climate change mitigation.

The ascending reasoning receives considerable support—from the very definition of custom in the ICJ Statute as "general practice accepted as law,"[105] to the common view that "customary law is empirical"[106]—in spite of well-known practical difficulties in ascertaining general state practice and (even more) acceptance as law.[107] On the other hand, even the most fervent proponents of empiricism, as Stefan Talmon notes, are "not advocating a complete renunciation of the deductive method."[108] Deductive reasoning is an integral part of any reasoning (legal or otherwise),[109] including arguments about the identification of customary

[104] KOSKENNIEMI, *supra* note 93.

[105] ICJ Statute, *supra* note 46, art. 38(1)(b).

[106] Kelly, *supra* note 44, at 453.

[107] *See, e.g.*, B.S. Chimni, *Customary International Law: A Third World Perspective*, 112 AJIL 1, 20–36 (2018) (showing a prevailing focus on practice and acceptance by Western states).

[108] Talmon, *supra* note 45, at 423.

[109] *See* Georg Schwarzenberger, *The Inductive Approach to International Law*, 60 HARV. L. REV. 539, 566 (1947) (noting that "[e]ven the most experimental of sciences use the deductive method," while being "usually aware of the fact that, unless and until verified, such deductions are but provisional").

law, even though one should be warry of exceedingly "abstract" deductive arguments that, relying on simplistic premises, gloss over the law's many contradictions and lacunae to arrive at unlikely conclusions.[110] Among other issues, descending reasoning could contribute to the fragmentation of international law, as there are tensions, perhaps contradictions, between what different objectives (e.g., objectives relating to climate change mitigation and economic development).[111] Thus, while the ILC's conclusions on the identification of customary international law prescribe a mainly ascending approach,[112] they do not exclude "a measure of deduction as an aid, to be employed with caution."[113]

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[110] Robert Kolb, *Selected Problems in the Theory of Customary International Law*, 50 NETH. INT'L L. REV. 119, 126 (2003). *See also* Christian Tomuschat, *Obligations Arising for States Without or Against Their Will*, 241 RECUEIL DES COURS 195, 293–294 (1993) (observing that the prohibition of the use of force could be viewed as a logical implication of sovereign equality, but that it had not always been recognized as a positive legal norm; and noting that "care must be taken to avoid abstract reasoning that does not take into account the overall political context").

[111] *See, e.g.*, Benoit Mayer and Zhuoqi Ding, *Climate Change Mitigation in the Aviation Sector: A Critical Overview of National and International Initiatives*, TRANSNAT'L ENV'T L. (forthcoming), suggesting an incompatibility between the long-term mitigation objectives of the Paris Agreement and the objective of the "growth of the international civil aviation" defined by the Chicago Convention on International Civil Aviation.

[112] ILC, Identification of Customary Law, *supra* note 83, conclusions 2, 3(2).

[113] *Id.*, comment. conclusion 2, para. 5.

Likewise, international courts recognize both the preeminence of ascending reasoning and the complementary role of descending reasoning. The ICJ in *Gulf of Maine* noted that customary law contains not only norms that "can be tested by induction," but also "a limited set of norms for ensuring the co-existence and vital co-operation of the members of the international community."[114] Descending reasoning has played a remarkable role in the identification of customary law on environmental matters: by deduction from general principles of international law (e.g., sovereign equality),[115] international courts have identified the obligations to exercise due diligence to safeguard the rights of other states,[116] to maintain vigilance in environmental matters,[117] to cooperate,[118] to prevent transboundary environmental harm,[119] to conduct environmental assessments before approving projects liable to cause such harm,[120] and to notify and consult in good faith with the states that may be affected by such harm.[121] Admittedly, such inferences were at times presented with little

[114] Delimitation of the Maritime Boundary in the Gulf of Maine Area (Can./U.S.), 1984 ICJ Rep. 246, para. 111. *See also* Corfu Channel (U.K. v. Alb.), Merits, 1949 ICJ Rep. 4, 35; North Sea Continental Shelf (Ger./Den., Ger. /Neth.), 1969 ICJ Rep. 3, para. 39–56; *Military Activities*, *supra* note 78, para. 202.

[115] UN Charter art. 2(1).

[116] *Corfu Channel*, *supra* note 116, at 22.

[117] *Gabčíkovo-Nagymaros*, *supra* note 32, para. 140.

[118] *MOX Plant*, *supra* note 32, para. 82.

[119] *Pulp Mills*, *supra* note 32, para. 101.

[120] *Id.* para. 204.

[121] *Certain Activities* (Merits), *supra* note 32, para. 104.

(if any) discussion (or even assertion) of state practice,[122] but they never went clearly against settled state practice.[123]

In some circumstances, a purely ascending reasoning would be inconclusive, whether for lack of state practice accepted as law, or for lack of evidence thereof, or when the state practice accepted as law is so divided that no "general" standard emerges from it.[124] Thus, assuming *arguendo* that half of the states act in line with an obligation to reduce their GHG emissions while the other half act in line with an unfettered freedom to emit GHGs, a purely ascending reasoning could not demonstrate either a norm allowing GHG emissions, or one prohibiting these emissions. And yet, assuming that a court cannot find that the law is silent on a legal

[122] *See* Rudolf H. Geiger, *Customary International Law in the Jurisprudence of the International Court of Justice: A Critical Appraisal*, *in* FROM BILATERALISM TO COMMUNITY INTEREST: ESSAYS IN HONOUR OF BRUNO SIMMA 673 (Ulrich Fastenrath ed, 2011); Talmon, *supra* note 45.

[123] *See, e.g.*, *Certain Activities* (Merits), *supra* note 32, at 786, para. 13 (separate opinion by Donoghue, J.). On the limited (but not the absence of) practice on prevention and environmental assessment, see respectively: Jutta Brunnée, *Procedure and Substance in International Environmental Law*, 450 RECUEIL DES COURS 75, 151 (2019); John H. Knox, *The Myth and Reality of Transboundary Environmental Impact Assessment*, 96 AJIL 291 (2002).

[124] Talmon, *supra* note 45, 422–423.

question,[125] and that no general principle of law recognized by civilized nations is particularly pertinent, customary law must have something to say about the legality of GHG emissions.

To overcome this difficulty, it has been argued that international law builds on a default principle of freedom: states—the argument goes—are sovereign, hence free, and therefore they can act as they wish *unless* they have specifically agreed to a norm that restricts their freedom.[126] This argument often refers to a quote of the *Lotus* decision according to which "[r]estrictions upon the independence of States cannot … be presumed."[127] Yet, taking this quote out of context betrays the reasoning of the PCIJ, which clearly accepts that such restrictions can be inferred from the premises of the international legal order.[128] Overall, this

[125] *See* Hersch Lauterpacht, *Some Observations on the Prohibition of "Non Liquet" and the Completeness of the Law*, *in* SYMBOLAE VERZIJL PRÉSENTÉES AU PROFESSOR J.H.W. VERZIJL À L'OCCASION DE SON LXXÈME ANNIVERSAIRE 196, 200 (1958); Ian Brownlie, *Politics and Law in International Adjudication*, 97 ASIL PROC. 282, 285 (2003); OPPENHEIM'S INTERNATIONAL LAW, *supra* note 58, at 13.

[126] *See generally* Prosper Weil, *The Court Cannot Conclude Definitively… Non Liquet Revisited*, 36 COLUM. J. TRANSNAT'L L. 109, 112 (1997).

[127] *Lotus*, *supra* note 80, at 18.

[128] *Id.* (identifying the "restriction imposed by international law upon a State … that—failing the existence of a permissive rule to the contrary—it may not exercise its power in any form in the territory of another State"). *See also* Helen Quane, *Silence in International Law*, 84 BYIL 241, 253–260 (2014); Alain Pellet, *Le droit international à la lumière de la pratique: l'introuvable théorie de la réalité*, 414 RECUEIL DES COURS 9, 130–132 (2021); An Hertogen, *Letting Lotus Bloom*, 26 EJIL 901 (2015).

principle of freedom would be unhelpful when a state's freedom comes at the expense of the freedom of other states.[129] As Koskenniemi notes, "[t]o say that 'freedom' should be given preference fails singularly to indicate which State's freedom is meant."[130] As noted above, one could invoke a principle of freedom not only to suggest that states are free to emit GHGs, but also to argue that states are free to enjoy their territory without interference resulting from the GHG emissions of other states.[131]

Instead of a principle of freedom, the indeterminacy of the ascending approach needs to be overcome by turning to a deductive reasoning as a source of presumptions.[132] One can presume until proven otherwise that the norms that states are accepting form part of a coherent normative system. Absent empirical evidence to the contrary, a standard should have legal force if it is the logical implication of existing legal norms. This principle should guide the interpreter of customary law through state practice and acceptance as law, helping her to put forward hypotheses that can be tested through ascending reasoning. Overall, to the

[129] *See* Alain Pellet, *Lotus que de sottises on profère en ton nom ! Remarques sur le concept de souveraineté dans la jurisprudence de la Cour mondiale*, *in* L'ÉTAT SOUVERAIN DANS LE MONDE D'AUJOURD'HUI: MÉLANGES EN L'HONNEUR DE JEAN-PIERRE PUISSOCHET 221 (2008); Evan J. Criddle & Evan Fox-Decent, *Mandatory Multilateralism*, 113 AJIL 272, 291 (2019).

[130] *See* KOSKENNIEMI, *supra* note 93, at 45.

[131] *See* text at note 87.

[132] *See Certain Activities* (Merits), *supra* note 32, 783, para. 3 (separate opinion by Donoghue, J.) (noting that "the identification of customary international law must take account of the fundamental parameters of the international legal order").

extent that empirical evidence is inconclusive, the interpreter of customary law has little more to rely upon, as a default norm, than this assumption of systemic consistency.

As such, a systematic analysis of the customary law on climate change mitigation needs to involve both descending and ascending reasoning.[133] In the following Parts, deductive reasoning is used mainly as a way to develop initial assumptions to be tested through the ascending approach. When (or to the extent that) the ascending approach is inconclusive, however, the interpreter has to rely more heavily on a descending reasoning. On the other hand, this article assumes that all except perhaps the most direct inferences from the most strongly recognized norms of general international law should systematically be tested against empirical evidence. And while the following accepts that descending reasoning can tilt the balance when state practice is inconclusive, it takes it that the descending approach cannot demonstrate the existence of customary norms that clearly go against general or prevailing state practice.

2. The problem of individuation

A doctrinal analysis of the customary law on climate change mitigation faces another methodological difficulty—the problem of individuation—that the doctrine on customary international law is only beginning to explore. As J.W. Harris noted, "rules are to systems,

[133] *See* C. Wilfred Jenks, THE PROSPECTS OF INTERNATIONAL ADJUDICATION 9 (1964) (noting that "[a]s a practical matter, induction and deduction are complementary to each other at every stage in the development of the law").

not as members are to a club, but as slices are to a cake."[134] Individuation refers to the process of slicing the law into individual norms—or, as Joseph Raz put it, of "carving small and manageable units out of the total legal material in a way which will promote our understanding of the law."[135] There are many alternative ways to individuate customary law.

The issue is that individuation impacts not only the way the law is explained (e.g., the number of chapters of a textbook), but also the way it is understood. With regard to customary law, individuation determines the scope of state practice and acceptance as law that can be used to identify and interpret a relevant norm of customary law.[136] Normative "gerrymandering" may affect the prospects of a candidate norm of customary law by selecting its material, geographical, or temporal scope. Concerning climate change mitigation, for instance, one could seek to identify a broad obligation on the prevention of due diligence applicable to any transboundary environmental harm (including, but not limited to, climate change), or a separate obligation on the mitigation of climate change.

The question of individuation would be immaterial if one was to identify customary norms exclusively from a descending approach: notwithstanding whether one identifies climate

[134] J.W. HARRIS, LAW AND LEGAL SCIENCE: AN INQUIRY INTO THE CONCEPTS LEGAL RULE AND LEGAL SYSTEM 84 (1979). *See also* RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 88 (2013); J.E. PENNER, THE IDEA OF PROPERTY IN LAW 39 (2000).

[135] JOSEPH RAZ, THE CONCEPT OF A LEGAL SYSTEM: AN INTRODUCTION TO THE THEORY OF LEGAL SYSTEM 115 (1980).

[136] Orfeas Chasapis-Tassinis, *Customary International Law: Interpretation from Beginning to End*, 31 EJIL 235, 238 (2020).

change mitigation as the implication of a broad obligation of prevention or as the object of a separate obligation implied from prevention, a mitigation requirement would be inferred by successive deductions from the same general premises of the international legal order. However, when one relies (if only partly) on ascending reasoning, the choice between various approaches to individuation could be consequential, as this choice defines the scope of empirical evidence (state practice and acceptance as law) relevant to the identification of the putative norm.

These two approaches yield different conclusions on the identification and interpretation of customary law when state practice is not entirely homogenous. It may be, for instance, that states are making greater efforts to prevent classical cases of transboundary environmental harm than they are to mitigate climate change.[137] After all, a state may be more directly interested in reducing localized pollution by taking measures that will usually bring meaningful environmental benefits within its own territory, than in contributing incrementally to global efforts on climate change mitigation with far less direct territorial benefits.[138] On the other hand, for what concerns acceptance as law, one might expect stronger condemnation of activities contributing to global, irreversible impacts—possibly affecting the very conditions of life on Earth—than of activities causing localized harm.

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[137] *See generally* Cass R. Sunstein, *On the Divergent American Reactions to Terrorism and Climate Change*, 107 COLUM. L. REV. 503 (2007) (revealing inconsistent levels of efforts in national responses to different issues).

[138] *See* ERIC A. POSNER & DAVID WEISBACH, CLIMATE CHANGE JUSTICE 181–82 (2010) (showing states' interest in free-riding mitigation action by others).

Regrettably, the problem of individuation has rarely been addressed in relation to customary law. This article does not pretend to solve this problem—this would be an entirely different project. Rather, the following proceeds through a syncretic approach, seeking to find common ground between two alternative individuations. Thus, the two sections of next Part examine the argument for the identification of a mitigation obligation from two alternative perspectives: first by application of the broad obligation of due diligence and prevention, then through the identification of a separate obligation on climate change mitigation.

III. IDENTIFICATION OF A CUSTOMARY OBLIGATION

This Part shows that states have a customary obligation on the mitigation of climate change. First, it demonstrates the existence of a general obligation of due diligence involving the prevention of transboundary environmental harm, by relying on both descending and ascending reasoning. Then, it turns to the identification of a requirement on climate change mitigation, which it justifies in two ways: by inference from the general obligation of due diligence and prevention, and through a review of empirical evidence of state practice and acceptance as law.

A. A General Obligation of Due Diligence and Prevention

This section demonstrates that states have a customary obligation to exercise due diligence to prevent activities contrary to the rights of other states, in application of which they must take appropriate measures to prevent activities likely to cause transboundary environmental harm.

While the conclusion is not new,[139] it is essential to clarify the reasoning arriving at it in order to determine, subsequently, how it applies to climate change mitigation. The following shows that the existence of the obligation of due diligence and prevention is suggested by a descending reasoning—as an implication of the principle of sovereign equality—and confirmed by an ascending reasoning. The latter, however, reveals an important caveat: the obligation of prevention that states have accepted is an obligation of conduct rather than an obligation of result.

1. Descending approach

The obligation of due diligence and prevention can be identified, from a descending approach, as the logical implication of some of the most fundamental premises of the international legal order. Under the principle of sovereign equality, states "have equal rights and duties and are equal members of the international community."[140] These sovereign rights

[139] *See generally* SANDS & PEEL, *supra* note 39, at 191 (characterizing the "no-harm" principle as the "cornerstone" of international environmental law); BOYLE & REDGWELL, *supra* note 39, at 159 (noting that the existence of a duty to prevent is "beyond reasonable argument"); LESLIE-ANNE DUVIC-PAOLI, THE PREVENTION PRINCIPLE IN INTERNATIONAL ENVIRONMENTAL LAW (2018).

[140] G.A. Res. 625 (XXV), annex, Friendly Relations Declaration (Oct. 24, 1970). *See also* UN Charter, art. 2(1); Juliane Kokott, *States, Sovereign Equality*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW para. 1(online edn, 2011).

include, among others, the rights of every state to survival,[141] to territorial integrity,[142] to permanent sovereignty over its natural resources,[143] and to the protection of its citizens.[144] These rights necessarily imply corresponding obligations;[145] the latter are imposed on states,

[141] *Nuclear Weapons*, *supra* note 57, para. 96.

[142] *See* UN Charter art. 2(4); *Corfu Channel*, *supra* note 116, at 35; Accordance with International Law of the Unilateral Declaration of Independence in Respect of Kosovo, Advisory Opinion, 2010 ICJ Rep. 403, para. 80.

[143] *See* International Covenant on Economic, Social and Cultural Rights, art. 1(2), Dec. 16, 1966, 993 UNTS 3; International Covenant on Civil and Political Rights, art. 1(2), Dec. 16, 1966, 999 UNTS 171; G.A. Res. 1803 (XVII), Declaration on Permanent Sovereignty over Natural Resources (Dec. 14, 1962); G.A. Res. 3201(S-VI), Declaration on the Establishment of the New International Economic Order, para. 4(e) (May 1, 1974); G.A. Res. 3281 (XXIX), annex, Charter of Economic Rights and Duties of States, art. 2(1) (Dec. 12, 1974); "Stockholm" Declaration of the U.N. Conference on the Human Environment, principle 21 (June 16, 1972), A/Conf.48/14/Rev.1, (1972) 11 ILM 1416; Rio Declaration on Environment and Development, Princ. 2, A/C0NF.151/26/Rev.1 (Vol. l), annex I (Aug. 12, 1992), *reprinted in* 31 ILM 874 (1992); *Armed Activities on the Territory of the Congo (Dem. Rep. Congo v. Uganda)*, Judgment (19 December 2005), [2005] ICJ Rep. 168, para. 244.

[144] *See* Mavrommatis Palestine Concessions (Greece v. U.K.), Judgment, 1924 PCIJ ser. A no. 2, at 12; ILC, Draft Articles on Diplomatic Protection, [2006] II-2 Y.B. ILC 24, art. 2.

[145] *See* Wesley Newcomb Hohfeld, *Some Fundamental Legal Conceptions as Applied in Judicial Reasoning*, 23 Yale L.J. 16, 30–32 (1913).

as the main subjects of international law, and apply on each of them, in principle, in an equal manner.[146]

This reasoning is captured by the Latin maxim *Sic utere tuo ut alienum non laedas* ("Use your own property in such a way that you do not injure other people's").[147] This maxim hints to a logical way of interpreting the law: in a society of equals, one's right implies one's corresponding obligation to safeguard the same right of others.[148] This reasoning may justify not only a negative obligation to refrain from acting in ways that would infringe the rights of others, but also a positive obligation to try to prevent such activities by actors under one's control.

International law has long been analyzed following this reasoning.[149] Judge Max Huber, in his award in *Island of Palmas*, noted that "[t]erritorial sovereignty … has as corollary a duty:

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[146] Naturally, the implications of equal obligations are not uniform; they depend on national circumstances.

[147] Jonathan Law & Elizabeth A. Martin, *A Dictionary of Law* 498 (6th ed. 2006).

[148] *See* ILC, Draft Articles on Prevention of Transboundary Harm from Hazardous Activities, [2001] II(2) Y.B. ILC 146, comment. art. 3, para. 1; Jutta Brunnée, *Sic Utere Tuo Ut Alienum Non Laedas*, *in* MAX PLANCK ENCYCLOPEDIA OF PUBLIC INTERNATIONAL LAW, para. 4 (online edn. 2010).

[149] *See, e.g.*, OPPENHEIM'S INTERNATIONAL LAW, *supra* note 58, at 428; JAMES CRAWFORD, BROWNLIE'S PRINCIPLES OF PUBLIC INTERNATIONAL LAW 359 (8th ed 2012); Samantha Besson, *La due diligence en droit international*, 409 RECUEIL DES COURS 153, 179–205 (2020).

the obligation to protect within the territory the rights of other States."[150] The ICJ's 1949 judgment in *Corfu Channel* identified "every State's obligation not to allow knowingly its territory to be used for acts contrary to the rights of other states."[151] The same year, an initial survey of international law by the ILC underscored "the rule that a State must not permit the use of its territory for purposes injurious to the interests of other States in a manner contrary to international law."[152]

This reasoning could be applied to a wide range of circumstances, from the laying of mines,[153] to the fomentation of armed attacks,[154] and perhaps cyberattacks.[155] An important application for our purpose regards transboundary environmental harm. The 1941 *Trail Smelter* award recognized that, "[u]nder the principles of international law … no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in

[150] Island of Palmas (Neth./U.S.), 2 RIAA 829, 839 (1928).

[151] *Corfu Channel*, *supra* note 116, at 22.

[152] UN Secretary-General, Survey of International Law in Relation to the Work of the ILC, para. 57, A/CN.4/1/Rev.1 (1949).

[153] *Corfu Channel*, *supra* note 116, at 22.

[154] *See Military Activities*, *supra* note 78, para. 115; *United States Diplomatic and Consular Staff in Tehran (US v. Iran)*, Judgment (24 May 1980), [1980] ICJ Rep. 3, para. 61; International Convention for the Suppression of Terrorist Bombings, Dec. 15, 1997, 2149 UNTS 256; International Convention for the Suppression of the Financing of Terrorism, Dec. 9, 1999, 2178 UNTS 197; S.C. Res. 1373, para. 1 (Sept. 28, 2001).

[155] TALLINN MANUAL 2.0 ON THE INTERNATIONAL LAW APPLICABLE TO CYBER OPERATIONS (Michael N. Schmitt ed., 2017).

or to the territory of another."[156] Although the Tribunal provided little explanation, the award has been construed as identifying this obligation as a corollary of the principle of sovereign equality.[157]

Subsequently, three ICJ decisions confirmed the existence of an obligation on the prevention of transboundary environmental harm by relying on a similar reasoning. The Advisory Opinion on *Nuclear Weapons* recognized "the general obligation of States to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control."[158] The Judgment in *Pulp Mills*, referring to the *Corfu Channel* dictum, confirmed that "the principle of prevention, as a customary rule, has its origin in the due diligence that is required of a State in its territory."[159] And the Judgment in *Certain Activities* reiterated this dictum before reaffirming every state's obligation "to exercise due diligence in preventing significant transboundary environmental harm."[160]

2. Ascending approach

[156] *Trail Smelter*, *supra* note 32, 1965. *Cf. Georgia v. Tennessee Copper*, 206 U.S. 230, 238 (1907) (applying a similar reasoning to the relation between federated state).

[157] *See, e.g.*, Secretary-General, *supra* note 152, para. 58; Brunnée, *Sic Utere Tuo*, *supra* note 148, para. 10; Murase, 2nd Rep., Protection of the Atmosphere, para. 52, A/CN.4/681 (Mar. 2, 2015).

[158] *Nuclear Weapons*, *supra* note 57, para. 29.

[159] *Pulp Mills*, *supra* note 32, para. 101.

[160] *Certain Activities* (Merits), *supra* note 32, para. 104. *See also id.* 784, para. 8 (separate opinion by Donoghue, J.).

The ascending approach confirms the existence of an obligation of prevention: there is relatively strong empirical evidence that states are seeking—at least in the most general terms—not to infringe one another's rights, and that they recognize this as their legal obligation. The most obvious body of evidence of both state practice and its acceptance as law is to be found in a series of declarations, resolutions, and treaty provisions which explicitly recognize this obligation, often while also endorsing the descending reasoning presented above.[161]

States have repeatedly affirmed their understanding that their equal sovereign rights imply an obligation for each of them to prevent transboundary environmental harm. In particular, Principle 21 of the 1972 Stockholm Declaration and Principle 2 of the 1992 Rio Declaration proclaim that "States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources," and the corresponding obligation ("responsibility") "to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States."[162] States have reaffirmed

[161] *See generally* ILC, Identification of Customary Law, *supra* note 83, conclusions 6(2), 10(2), 11(1)(c); *Indus Waters*, *supra* note 57, para. 449; R.R. Baxter, *Treaties and Customs*, 129 RECUEIL DES COURS 25, 64 (1970); James Crawford, *Chance, Order, Change: The Course of International Law*, 365 RECUEIL DES COURS 9, 90–112 (2013).

[162] Stockholm Declaration, *supra* note 143, principle 21; Rio Declaration, *supra* note 143, principle 2.

this principle in several UN General Assembly resolutions[163] and in multilateral environmental agreements,[164] including the UNFCCC.[165] This broad obligation is implemented through multiple treaties,[166] including codification treaties (e.g., on the marine environment[167] and international watercourses).[168]

[163] *See, e.g.*, Charter of Economic Rights and Duties, *supra* note 143, art. 30; G.A. Res. 48/192, pmbl. para. 3 (Dec. 21, 1993); Res. 51/240, para. 142 (June 20, 1997); Res. 73/234, pmbl. para. 15 (Dec. 20, 2018); Res. 37/7, World Charter for Nature, para. 21(d) (Oct. 28, 1982).

[164] *See* Convention on Long-Range Transboundary Air Pollution, pmbl. para. 6, Nov. 13, 1979, 1302 UNTS 217; Vienna Convention for the Protection of the Ozone Layer, pmbl. para. 3, Mar. 22, 1985, 1513 UNTS 293; Convention on Biological Diversity, art. 3, June 5, 1992, 1760 UNTS 79; UN Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa, pmbl. para. 16, Oct. 14, 1994, 1954 UNTS 3.

[165] UNFCCC, *supra* note 3, pmbl. para. 9.

[166] For a comprehensive survey, *see* SANDS & PEEL, *supra* note 39, at 214–215.

[167] UN Convention on the Law of the Sea, Dec. 10, 1982, 1833 UNTS 3, arts. 192, 194. *See also* Detlef Czybulka, *Article 192: General Obligation*, *in* UNITED NATIONS CONVENTION ON THE LAW OF THE SEA: A COMMENTARY 1284–1285 (Alexander Proelss ed., 2017).

[168] Convention on the Law of the Non-Navigational Uses of International Watercourses, art. 7(1), May 21, 1997, 2999 UNTS 77. *See generally* Stephen C. McCaffrey, *The Customary Law of International Watercourses*, *in* RESEARCH HANDBOOK ON FRESHWATER LAW AND INTERNATIONAL RELATIONS 147, 161 (Mara Tignino & Christian Bréthaut eds., 2018).

Most states have ratified at least some of these multilateral environmental agreements and most states have been taking measures to limit their environmental impact on other states, for instance by following assessment procedures when contemplating a project likely to have a significant transboundary impact.[169] This conduct does not merely follow "considerations of convenience or simple political expediency":[170] preventing environmental harm in another state's territory brings little direct gain to a state, and even reciprocation is sometimes unlikely (e.g., between upstream and downstream states on a watercourse). Rather, this conduct reflects states' acceptance of prevention as something they must generally pursue by taking appropriate measures, including through treaty participation. Complementary evidence of acceptance as law can be found in the nearly complete absence of contrary statements: as Alan Boyle and Catherine Redgwell note, states have not generally denied the existence of an obligation of prevention, not even when invoked against them in judicial proceedings.[171]

Several scholars have objected to the identification of a customary obligation of prevention by contending that states frequently suffer transboundary harm.[172] This observation could

[169] UN ENVIRONMENT, ASSESSING ENVIRONMENTAL IMPACTS: A GLOBAL REVIEW OF LEGISLATION (2018).

[170] Colombian-Peruvian Asylum (Colom./Peru), 1950 ICJ Rep. 266, 286 (noting that such considerations would generally exclude acceptance as law). *See also Lotus*, *supra* note 80, at 28; *Military Activities*, *supra* note 78, paras. 206–209. *See generally* ILC, Identification of Customary Law, *supra* note 83, comment. conclusion 9, para. 3.

[171] BOYLE & REDGWELL, *supra* note 39, at 159.

[172] *See* Oscar Schachter, *The Emergence of International Environmental Law*, 44 J. INT'L AFF. 457, 463 (1991); Daniel Bodansky, *Customary (and Not So Customary) International*

question the existence an obligation of result, but it does not exclude an obligation of conduct—an obligation merely to take appropriate measures without guaranteeing the achievement of the intended outcome.[173] Consistently, the obligation of due diligence and prevention has generally been understood as an obligation of conduct.[174] It is thus largely accepted that the occurrence of harm is not a condition to invoke a breach of the obligation of prevention,[175] and that states have an obligation to take appropriate measures even when their best efforts may only reduce the risk of harm without avoiding it entirely.[176] A precautionary approach to the obligation of prevention suggests that the absence of scientific certainty does not exempt a state from implementing cost-effective measures to minimize the risk of environmental harm.[177] As Boyle and Redgwell noted, it is therefore "erroneous" and "deeply

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Environmental Law, 3 IND. J. GLOB. LEGAL STUD. 105, 110–111 (1995); John H. Knox, *The Myth and Reality of Transboundary Environmental Impact Assessment*, 96 AJIL 29 (2002).

[173] On the distinction between conduct and result, *see* Pierre-Marie Dupuy, *Reviewing the Difficulties of Codification: On Ago's Classification of Obligations of Means and Obligations of Result in Relation to State Responsibility*, 10 Eur. J. Int'l L. 371 (1999).

[174] *See* Benoit Mayer, *Obligations of Conduct in the International Law on Climate Change: A Defence*, 27 REV. EUR. COMP. & INT'L ENV'T L. 130, 134–35 (2018).

[175] *See* ILC, Prevention, *supra* note 148, art. 3; Jutta Brunnée, *International Environmental Law and Climate Change: Reflections on Structural Challenges in a "Kaleidoscopic" World*, 33 GEO. ENV'T L. REV. 113, 120 (2020).

[176] *See Indus Waters*, *supra* note 57, para. 451; Iron Rhine Railway (Belg. v. Neth.), 27 RIAA 35, para. 59 (2005).

[177] *See* Rio Declaration, *supra* note 143, principle 15; *Bluefin Tuna*, *supra* note 77, paras. 77–80; *Activities in the Area*, *supra* note 32, paras. 125–135. *See also* ILA, *supra* note 40, at 24

confusing" to refer to the obligation of prevention as a "no harm" principle:[178] what is required from states is not to guarantee the absence of transboundary environmental harm, but to take "appropriate measures"[179] to reduce the risk of such harm.

(Article 7B); *Urgenda III*, *supra* note 16, paras. 5.3.2 (suggesting that a distinct "precautionary principle" justifies mitigation action). *But see* BOYLE & REDGWELL, *supra* note 39, at 177–183 (arguing that the precautionary approach is not a principle distinct from the prevention principle). It is unclear what precaution adds to the prevention principle with regard to climate change mitigation, given incontrovertible evidence of the global environmental impact of GHG emissions.

[178] BOYLE & REDGWELL, *supra* note 39, at 153. *Contra Urgenda III*, *supra* note 16, para. 5.7.5; Benoit Mayer, *The Relevance of the No-Harm Principle to Climate Change and Politics*, 19 ASIA PAC. J. ENV'T L. 79 (2016). Authors have suggested various distinctions between prevention and no-harm. *See, e.g.*, DUVIC-PAOLI, *supra* note 139, at 21, suggesting that the "no-harm" principle aims at "the avoidance of a tortious act in a world of sovereign States," whereas "prevention" focuses on "resource management." Yet, resource management can very well be understood in terms of sovereign rights (either exclusive territorial rights or non-exclusive rights on global commons); in fact, in an international law system centered on sovereign states, it is difficult to conceive of resource management in any other way. *See also* SANDS & PEEL, *supra* note 39, at 212.

[179] *See, e.g.*, ILC, Prevention, *supra* note 148, art. 3; *Iron Rhine*, *supra* note 176, para. 59; *Pulp Mills*, *supra* note 32, para. 197; *Activities in the Area*, *supra* note 32, *passim*; *Certain Activities* (Merits), *supra* note 32, paras. 104, 168; South China Sea (Phil. v. China), (2016) 33 RIAA 153, paras. 944, 964; Brunnée, *Procedure and Substance*, *supra* note 123, at 115–162.

B. A Distinct Obligation on Climate Change Mitigation

This section demonstrates that states are required under customary law to mitigate climate change. It first uses a descending approach, building on the analysis in the previous section, to understand the general obligation of due diligence and prevention as implying that states must take appropriate measures on the mitigation of climate change. Then, this section reviews empirical evidence of state practice and acceptance as law to confirm that climate change mitigation can also be identified as a distinct customary obligation.

1. Descending approach

The following interprets the broad obligation of due diligence and prevention, identified in the previous section, as requiring states to mitigate climate change. The main difficulty facing this argument is that climate change differs in some important ways from classic cases of transboundary environmental harm. Classic cases concern an activity conducted within a state's territory that may directly cause concrete harm to another state, when the state of origin could have taken effective measures to prevent or reduce this harm.[180] By contrast, it is rarely if ever possible to demonstrate a direct causal link between a state's failure to take appropriate measures on climate change mitigation and any concrete harm suffered by another state.

[180] *See, e.g.*, *Trail Smelter*, *supra* note 32; *Pulp Mills*, *supra* note 32; *Certain Activities* (Merits), *supra* note 32.

Some have sought a solution to this problem by relying on climate science to present climate change as, essentially, a classic case of transboundary environmental harm.[181] Yet, while scientific studies can show how climate change alters the probability of certain adverse events, they do not generally attribute a given physical event—let alone its social, economic, and ecological consequences—to climate change.[182] Overall, these studies could not attribute any such impacts to the GHG emissions *of a particular state*, even less to that state's failure to take appropriate measures to limit or reduce its GHG emissions. As an illustration, attributing even a substantial increase in the risk of severe typhoons to climate change only points to a vanishingly remote causal relation between the United States' decision not reduce its GHG emissions as it would have been required to under the Kyoto Protocol and the impacts of Typhoon Haiyan on the Philippines in 2013.[183] And to the extent that one would

[181] *See, e.g.*, Rupert F. Stuart-Smith et al., *Filling the Evidentiary Gap in Climate Litigation*, 11 NATURE CLIMATE CHANGE 651 (2021).

[182] *See, e.g.*, Geert Jan van Oldenborgh et al., *Pathways and Pitfalls in Extreme Event Attribution*, 166 CLIMATIC CHANGE 13, 17 (2021). *See generally* Greg Lusk, *The Social Utility of Event Attribution: Liability, Adaptation, and Justice-Based Loss and Damage*, 143 Climatic Change 201 (2017); Mike Hulme, *Attributing Weather Extremes to "Climate Change": A Review*, 38 PROGRESS IN PHYSICAL GEOGRAPHY 499 (2014).

[183] Global GHG emissions would have been about 1.6 percent lower between 2008 and 2012, had the United States participated in the Kyoto Protocol and achieved its quantitative commitment. Our calculation based on data from the World Resources Institute CAIT GHG emissions data. This decrease in global GHG emissions would have translated in a much smaller difference in the GHG concentrations in the atmosphere, and hence, in very little difference in the increased risk of severe typhoon.

attribute some degree of responsibility to a state for such remote consequences of its conduct, one would also need to account for conceivable positive consequences: one cannot blame a GHG-emitting state for making heatwaves more deadly, for instance, without simultaneously considering that it may also be making cold-related deaths less likely.[184] The complexity of the task explains why courts generally avoid considering responsibility for such remote harm.

However, climate change does not need to be presented as a classic case of transboundary environmental harm in order to justify the application of the obligation of due diligence and prevention.[185] As discussed at the beginning of the previous section, this general obligation can be approached as a direct implication of the existence of sovereign rights. Some of these rights are exclusive, as for the right of a state to exploit the natural resources situated within its territory; others are not, in particular in relation to global commons (e.g., the right to fish in the high sea).[186] Among these non-exclusive rights is the right of every state to the protection and preservation of a stable climate system, as a condition for the enjoyment of

[184] *See* Qi Zhao et al., *Global, Regional, and National Burden of Mortality Associated with Non-Optimal Ambient Temperatures from 2000 to 2019: A Three-Stage Modelling Study*, 5 THE LANCET PLANETARY HEALTH e415–e425 (2021) (showing that, when accounting for heat- and cold-related deaths, climate change "might slightly reduce net temperature-related deaths in the short term").

[185] *Contra* Zahar, *Contested Core*, *supra* note 47, at 247–248; Zahar, *Mediated versus Cumulative*, *supra* note 41, at 226–227, 229.

[186] UNCLOS, *supra* note 167, art. 116.

various other sovereign rights (e.g., to survival, to territorial integrity, to the exploitation of natural resources, and to the protection of its citizens).[187]

While classic cases on the prevention of transboundary environmental harm were generally concerned with the protection of exclusive sovereign rights, there is no reason to assume that the obligation of due diligence and prevention aims only at the protection of exclusive rights.[188] To the contrary, the ICJ in *Corfu Channel* applied the obligation of due diligence to protect every state's non-exclusive right of innocent passage through an international strait.[189] The obligation of prevention, likewise, has occasionally been interpreted as protecting non-exclusive rights. In *Nuclear Tests*, New Zealand argued that France's atmospheric tests violated "the rights of all members of the international community" to the preservation of the global environment from radioactive fallout and contamination.[190] A decade later, the Court acknowledged the "widespread" environmental consequences of the use of nuclear

[187] *See* references at notes 141–144.

[188] *See generally* DARSIWA, *supra* note 64, comment. art. 2, para. 8 (noting that international obligations aim at protecting "an international right of another subject or subjects, or even of the totality of the other subjects").

[189] *Corfu Channel*, *supra* note 116, at 28.

[190] Application Instituting Proceedings, Nuclear Tests (N.Z. v. Fr.), [1978] 2 ICJ Pleadings 3, para. 28(a)–(b) (May 9, 1973); Request for the indication of Interim Measures of Protection, Nuclear Tests (N.Z. v. Fr.), [1978] 2 ICJ Pleadings 49, paras. 2(i)–(ii), 30–31 (May 14, 1973); Memorial on Jurisdiction and Admissibility of New Zealand, Nuclear Tests (N.Z. v. Fr.), [1978] 2 ICJ Pleadings 145, para. 190(a)–(b) (Oct. 29, 1973). The case was not decided on the merits.

weapons,[191] an apparent allusion to arguments on the risk of a global "nuclear winter."[192] Two paragraphs further, the court drew no distinction between local and global harm when identifying the obligation of prevention; instead, it affirmed that the obligation of prevention applies notwithstanding whether the harm unfolds within a state's territory or in "areas beyond national control."[193] The ICJ in *Pulp Mills* applied the obligation of prevention to "a shared resource" (the River Uruguay),[194] and ITLOS held that this analysis "may also apply to activities with an impact on the environment in an area beyond the limits of national jurisdiction," such as the Area.[195]

As such, it makes little doubt that the obligation of due diligence and prevention requires states to take appropriate measures aimed at safeguarding both exclusive and non-exclusive rights—including, presumably, the right of states to the preservation of a stable climate system. The obligation of due diligence and prevention requires a state to take appropriate measures against activities likely to cause significant environmental harm, notwithstanding whether the harm unfolds in a transboundary (bilateral), regional or global context.

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[191] *Nuclear Weapons*, *supra* note 57, para. 27.

[192] *See, e.g.*, UN GAOR, 45th Sess., 29th mtg. at 11 (Nov. 7, 1990); UN GAOR 46th Sess., 31st mtg. at 20 (Nov. 7, 1991); Letter of India, Nuclear Weapons, 4 (June 20, 1995); *Nuclear Weapons*, *supra* note 57, at 429, 452–471 (dissenting opinion by Weeramantry, J.).

[193] *Nuclear Weapons*, *supra* note 57, para. 29.

[194] *Pulp Mills*, *supra* note 32, paras. 103 and passim. *See* Statute of the River Uruguay, arts. 27–43, Uru.–Arg., Feb. 26, 1975, 1295 UNTS 340.

[195] *Activities in the Area*, *supra* note 32, paras. 147–148.

Another complication is that GHG emissions are taking place simultaneously in many states. As such, one could object that states (with perhaps the exception of a few of the largest emitters) are generally unable to take *effective* measures on climate change mitigation.[196] Consider for instance Canada, a medium-size economy accounting for about 1.5 percent of global emissions.[197] Even if Canada was to take drastic measures to reduce its emissions by several percentage points—the objection goes—this would achieve only a vanishingly small reduction in global emissions.[198]

Yet, this objection fails to account for the extreme severity of the impacts of even a very small exacerbation of climate change. Assuming an approximately linear relation between GHG concentrations in the atmosphere and the severity of climate change,[199] even very small cuts in global emissions can achieve significant global harm-prevention (or risk-reduction) benefits. In this sense, several states have defined a "social cost of carbon" as a tool to value the diffuse harm caused globally by incremental emissions of GHG, in particular in the

[196] *See* Zahar, *Contested Core*, *supra* note 47, at 249.

[197] Calculated based on data from CAIT 2018 GHG Emissions excluding land-use emissions, www.climatewatchdata.org, accessed on Nov. 12, 2021.

[198] *See* Zahar, *Contested Core*, *supra* note 47, at 253–54.

[199] *See* Josep G. Canadell et al, *Global Carbon and Other Biogeochemical Cycles and Feedback* §5.5, *in* CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS (Valérie Masson-Delmotte et al. eds., accepted version subject to final editing, 2021). Little is known about the risk of reaching a tipping point at any given level of GHG emissions.

context of environmental assessment procedures.[200] Canada's social cost of carbon, for instance, suggests that even a minor, one-percent reduction in the state's carbon-dioxide emissions in 2022 could avoid an incremental global environmental harm valued at Can.$291 million (about U.S.$230 million).[201] This benefit would be achieved notwithstanding the conduct of other states or the realization of global objectives.[202] This sum is not insignificant: it is three orders of magnitude larger than the compensation awarded to Costa Rica for the environmental and economic loss it had suffered in *Certain Activities*.[203]

[200] *See, e.g.*, Interagency Working Group on Social Cost of Greenhouse Gases, Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990 (Feb. 2021, U.S.); Environment and Climate Change Canada, Technical Update to Environment and Climate Change Canada's Social Cost of Greenhouse Gas Estimates (Mar. 2016).

[201] *See* Greenhouse Gas Pollution Pricing Act, S.C. 2018, c. 12, s. 186, sched. 4 (indicating a carbon price of CAD50 per tonne for 2022); Summary of GHG Emissions for Canada, GHG Profiles: Annex I, https://di.unfccc.int/ghg_profile_annex1 (accessed on 12 November 2021) (582 Mt CO_2 emissions excluding land use in 2019).

[202] The social cost of carbon is a valuation of the marginal benefit of reducing emissions, which is constant if one assumes a linear relation between GHG concentrations and the severity of climate change. *See* text at note 199. Substantial cuts in global GHG emissions may theoretically decrease the marginal benefit of reducing emissions, and *vice versa*, but the difference is insignificant in any realistic short- or medium-term mitigation scenario.

[203] Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicar.), Compensation, 2018 ICJ Rep. 15, para. 157(1)-(2) (US$238,860.55).

It remains admittedly that the failure of a state to take appropriate measures on climate change mitigation would not cause any concrete or localized harm. Rather, the harm that it would cause is diffuse and abstract, translating only in a slight change in the risk of many adverse events. Yet, there is no reason to assume that the concreteness of the harm is a condition for the applicability of the obligation of due diligence and prevention. No conclusion can be drawn from the fact that international courts have mostly applied the obligation of prevention in cases involving concrete harm, since these courts have just not had the opportunity to decide cases concerning diffuse and abstract harm yet. Construed as a corollary of sovereign rights, the obligation of prevention should apply whenever an activity is likely to have relatively foreseeable and proximate adverse consequences on the enjoyment of sovereign rights, notwithstanding whether these consequences are localized or more diffuse.

A related objection is that it may never be possible to identify an injury suffered by a state as the result of the failure of another state to mitigate climate change. Yet, the fact that no state could be injured has not prevented the judicial application of the obligation of prevention, for instance to the marine environment in areas beyond national jurisdiction.[204] In contentious proceedings, claims could be considered admissible in light of the *erga omnes* character of the obligation of prevention when applied to shared resources.[205] Problems would not arise at

[204] *See, e.g.*, *Activities in the Area*, *supra* note 32; Whaling in the Antarctic (Austl. v. Japan), 2014 ICJ Rep. 226; *South China Sea*, *supra* note 179, para. 940.

[205] *See* DARSIWA, *supra* note 64, art. 48. *See also Activities in the Area*, *supra* note 32, paras. 142, 180. No challenge has been discussed to the admissibility of contentious cases regarding the protection of the maritime environment beyond national jurisdiction. *See*

the merits stage, since an injury is neither a condition for state responsibility,[206] nor an essential component to demonstrate the breach of the obligation of due diligence and prevention.[207] And, while the absence of injury would surely limit the range of available remedies, it would not necessarily preclude a judicial decision on "reparation … in the interest … of the beneficiaries of the obligation."[208]

2. Ascending approach

There is a large body of evidence that states have accepted an obligation to take appropriate measures to preserve the global environment, in particular by mitigating climate change. States have adopted numerous multilateral agreements aimed at protecting shared resources such as biological diversity,[209] the intangible natural and cultural heritage of humankind,[210]

Whaling, *supra* note 204; *South China Sea*, *supra* note 179. *See generally* Christian J. Tams, *Roads Not Taken, Opportunities Missed: Procedural and Jurisdictional Questions Sidestepped in the Whaling Judgment*, *in* WHALING IN THE ANTARCTIC: SIGNIFICANCE AND IMPLICATIONS OF THE ICJ JUDGMENT 193, 201–211 (Malgosia Fitzmaurice & Dai Tamada eds., 2016).

[206] *See* DARSIWA, *supra* note 64, comment. arts. 2, para. 9, and 31, para. 6.

[207] *See* references *supra* note 175.

[208] DARSIWA, *supra* note 64, art. 48(2)(b). *See also Activities in the Area*, *supra* note 32, para. 180.

[209] *E.g.*, CBD, *supra* note 164.

[210] Convention for the Protection of the World Cultural and Natural Heritage, Nov. 16, 1972, 1037 UNTS 151.

and areas beyond national jurisdiction (e.g., the high seas, the Area,[211] and the Antarctic).[212] They have also adopted treaties for the protection of the atmosphere, for instance to reduce long-range air pollution,[213] to protect the ozone layer,[214] to minimize the long-range atmospheric transport of mercury[215]—and, of course, to mitigate climate change. As a whole, these converging treaty provisions contribute to the development, and reflect the emergence, of a norm of customary international law requiring states to take measures for the preservation of the global environment, in particular the atmosphere.[216] Thus, the ILC Guidelines on the Protection of the Atmosphere, as adopted in second reading in 2021, point out that "States have the obligation to protect the atmosphere by exercising due diligence in taking appropriate measures … to prevent, reduce or control atmospheric pollution and atmospheric degradation."[217]

[211] UNCLOS, *supra* note 167, arts. 117–120, 145, 192.

[212] Protocol on Environmental Protection to the Antarctic Treaty, Oct. 4, 1991, 2941 UNTS 3.

[213] CLRTAP, *supra* note 164.

[214] Vienna Convention on Ozone, *supra* note 164; Montreal Protocol on Ozone-Depleting Substances, Sept. 16, 1987, 1522 UNTS 3.

[215] Minamata Convention on Mercury, Oct. 10, 2013, 55 ILM 582 (2016).

[216] On the ability of converging treaty provisions to contribute to the development of customary law, *see, e.g.*, ILC, Identification of Customary Law, *supra* note 83, conclusion 11; ALEXANDRE HERMET, *LA CONVERGENCE DE DISPOSITIONS CONVENTIONNELLES ET LA DÉTERMINATION DU DROIT INTERNATIONAL COUTUMIER* (2021).

[217] ILC, Protection of the Atmosphere, *supra* note 40, guideline 3. *See also* ILA, *supra* note 40, art. 7B.

As evidence of anthropogenic climate change was emerging, states recognized the relevance of their obligation of prevention. A 1989 General Assembly resolution on the "protection of the global climate" recalled the obligation of prevention, emphasizing states' "responsibility … to *play their due role* in preserving and protecting the global and regional environment in accordance with their capacities and specific responsibilities."[218] Like in the Vienna Convention for the Protection of the Ozone Layer a few years earlier,[219] negotiators included in the preamble to the UNFCCC a provision recalling the relevance of "pertinent provisions" of the Stockholm Declaration,[220] along with a reaffirmation of its Principle 21.[221] This preambular provision, as Matthew Happold noted, "at least suggests" that the obligation of prevention is relevant in the context of climate change.[222] States have also emphatically recognized the need "for the widest possible cooperation by all countries and their

[218] Res. 43/53, *supra* note 96, para. 10(e); Res. 44/207, para. 4 (Dec. 22, 1989) (emphasis added).

[219] Vienna Convention on Ozone, *supra* note 164) pmbl. para. 3.

[220] UNFCCC, *supra* note 3, pmbl. para. 8.

[221] *Id.*, pmbl. para. 9. *See also supra* note 162.

[222] Matthew Happold, *The Relationship between the United Nations Framework Convention on Climate Change and Other Rules of Public International Law, in Particular on States' Responsibility for the Adverse Effects of Climate Change*, 3 (Legal Response Initiative, 2013).

participation in an effective and appropriate international response"[223] to address climate change as "a common concern" of humankind.[224]

In line with their UNFCCC commitments, most states have monitored their emissions, adopted and implemented statutes and policies aimed at limiting or reducing these emissions, and reported on it all. Likewise, almost every state has communicated an NDC under the Paris Agreement,[225] and states have generally appeared to be taking measures that seek to achieve the targets described in their NDCs. Global GHG emissions may have continued to increase, but less so than they would have if states had not taken any measures.[226]

One could question the significance of climate treaties as evidence of customary law. Surely, climate treaties are not codification treaties: they were drafted with little substantive expert

[223] UNFCCC, *supra* note 3, pmbl. para. 7. *See also* Dec. 1/CP.1, para. 1(e), FCCC/CP/1995/7/Add.1 (June 6, 1995); Dec. 5/CP.1, pmbl. para. 4, FCCC/CP/7/Add.1 (June 6, 1995); Dec. 1/CP.11, pmbl. para. 8, FCCC/CP/2005/5/Add.1 (Mar. 30, 2006); Dec. 2/CP.12, pmbl. para. 10, FCCC/CP/2006/5/Add.1 (Jan. 26, 2007); Dec. 1/CP.17, pmbl. para. 2, FCCC/CP/2011/9/Add.1 (Mar. 15, 2012); Dec. 2/CP.18, pmbl. para. 3, FCCC/CP/2012/8/Add.1 (Feb. 28. 2013); Dec. 1/CP.21, pmbl. para. 6, FCCC/CP/2015/10/Add.1 (Jan. 29. 2016).

[224] *See* references *supra* note 96.

[225] *See* UNFCCC Secretariat, NDC Registry (interim) https://www4.unfccc.int/sites/NDCStaging/.

[226] *See* Robert Stavings et al., *International Cooperation: Agreements & Instruments, in* CLIMATE CHANGE 2014: MITIGATION, *supra* note 99, at 1001, 1041–1051.

input[227] and, with perhaps the exception of the Paris Agreement, imposed commitments that had little basis in contemporary state practice. Moreover, R.R. Baxter has famously shown the difficulty of using multilateral agreements as evidence of customary law.[228] Nonetheless, international courts and the ILC did recognize the possibility for treaties to play "an important role in … developing" customary law.[229] This scenario is particularly relevant to climate treaties, for two reasons. First, the general commitments contained in climate treaties—in particular Articles 4(1)(b) and 4(2)(a) of the UNFCCC, requiring states to take measures on climate change mitigation—are more akin to statutory norms than to contractual provisions: they are what the ICJ in *North Sea Continental Shelf* called provisions "of a fundamentally norm-creating character such as could be regarded as forming the basis of a general rule of law."[230] Second, these commitments do not appear in isolation; rather, they confirm a preexisting understanding of customary law consistent with the principles of general international law, repeatedly acknowledged by states, as requiring every state to take some measures to mitigate climate change, rather than granting states a complete freedom to

[227] *See* G.A. Res. 45/212, paras. 1–2 (Dec. 21, 1990).

[228] R.R. Baxter, *Multilateral Treaties as Evidence of Customary International Law*, 41 BYBIL 275, 300 (1965).

[229] Continental Shelf (Libya/Malta), Judgment, 1985 ICJ Rep. 13, para. 27. See also Eri.-Eth. Claims Commission, Partial Award: Prisoners of War, Ethiopia's Claim 4, Jul. 1, 2003, 26 RIAA 73, at para. 31; ILC, Identification of Customary Law, *supra* note 83, conclusion 11.1(c).

[230] *North Sea Continental Shelf*, *supra* note 114, para. 72.

emit GHGs. Rather than a transactional arrangement, these treaties are the expression of a general norm on climate change mitigation that states believe to be applicable to all.[231]

IV. APPLICATIONS

The previous Part has identified a customary obligation for states to mitigate climate change. This last Part explores how a court—in particular an international court—could determine whether a state has acted consistently with this obligation. It identifies two methodological strategies: a quantitative strategy seeking to determine the state's requisite level of mitigation action, and a deconstructive strategy, relying on the identification of some of the appropriate measures implied by the customary mitigation obligation. While the first strategy has attracted most attention so far, the second strategy offers better prospects for meaningful judicial applications of the customary law on climate change mitigation.

A. Assessing a State's Requisite Level of Mitigation Action

It is tempting to approach the customary international law on climate change mitigation as requiring states to achieve a certain level of mitigation action, expressed for instance as a rate of emission reduction.[232] A difficulty, however, is that the law contains no obvious

[231] *See, e.g.*, Criddle & Fox-Decent, *supra* note 129, at 320–21.

[232] The customary mitigation obligation is an obligation of conduct, the most direct implication of which would be a requisite level of efforts (i.e., a standard of care, perhaps best expressed as a carbon price) rather than a requisite level of achievement. *See* notes 173–174. Yet, by taking all relevant circumstances into consideration, one could seek to determine

benchmark to assess this requisite level of action. One surely cannot assume that the pledges and commitments (e.g., NDCs) that each state defines for itself necessarily reflect its requisite level of ambition.[233] And while the Paris Agreement requires each NDC to reflect the Party's "highest possible ambition,"[234] this does not provide any concrete benchmark. The objective of the UNFCCC—to prevent "dangerous anthropogenic interference with the climate system"[235]—is also too vague to be of practical use.

As such, the main touchstone that the interpreter of customary law (or other sources of general mitigation obligations)[236] will likely turn to is the mitigation objective of the Paris Agreement, in particular the 1.5/2°C targets agreed upon by states,[237] and scientific studies

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the mitigation outcomes that would likely result from the implementation of this requisite level of efforts.

[233] *See* declarations of the Cook Islands, Nauru, and Niue upon their signature or ratification of the Kyoto Protocol; declarations of Belize, the Marshall Islands, Micronesia, Nauru, the Solomon Islands and St. Lucia upon acceptance of the Doha Amendment; and declarations by the Cook Islands, the Marshall Islands, Micronesia, Niue, Tuvalu, and Vanuatu upon their ratification of the Paris Agreement (asserting that the mitigation commitments contained in these treaties are "inadequate").

[234] Paris Agreement, *supra* note 3, art. 4(3).

[235] UNFCCC, *supra* note 3, art. 2.

[236] *See* notes 13–16.

[237] *See* references note 5. *See also* Paris Agreement, *supra* note 3, art. 4(1) (specifying the goal of achieving "global peaking … as soon as possible," followed by "rapid reductions … so as to achieve a balance between anthropogenic emissions … and removals … of [GHGs]

trying to make sense of them. Thus, the Supreme Court in *Urgenda* interpreted customary law as requiring the Netherlands to act consistently with the 2°C target—which the Court construed as implying that the state had to reduce its GHG emissions by 25 percent by 2020, compared with 1990.[238] A similar reasoning has frequently been proposed in subsequent cases.[239] Yet, the following shows that the *Urgenda* method does not withstand scrutiny: the

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in the second half of this century"). Despite its illusive simplicity, even the net-zero goal provides no useful benchmark. First, the requisite timing of this target is unclear. Second, there are very different conceptions of what net-zero emissions means in light of the difficulty of assessing the anthropogenic origin of emissions and sinks, as a number of natural sinks (e.g. ocean and land sinks) are enhanced in response to increased atmospheric GHG concentration. *See* Tom M.L. Wigley, *The Relationship Between Net GHG Emissions and Radiative Forcing with an Application to Article 4.1 of the Paris Agreement*, 169 CLIMATIC CHANGE, no. 13 12 (2021); Sam Frankhauser et al., *The Meaning of Net Zero and How To Get It Right*, NATURE CLIMATE CHANGE (forthcoming). Third, this global net-zero emissions goal faces the same burden-sharing issue as discussed below with regard to the temperature targets, as it could permit some emissions in hard-to-decarbonize sectors (e.g., aviation or meat production) or countries, if those can be balanced by negative emissions (e.g., carbon capture and storage) elsewhere.

[238] *Urgenda III*, *supra* note 16.

[239] *See* Reply memorandum in *Notre Affaire à tous*, *supra* note 38, §66; Plaintiffs' Memorandum in *Klimaatzaak*, *supra* note 38, paras. 66–95, 389; Plaintiffs' memorandum in *Neubauer*, *supra* note 38, at 10–11; Writ of summons in *Natur og Ungdom*, *supra* note 38, §6.4.7 and passim; Application memorandum in *Carvalho*, *supra* note 38, at 210–211; Petition in *Sacchi*, *supra* note 38, para. 21 and passim.

temperature targets are both vague and insufficiently accepted as the object of an obligation. If the temperature targets can be used to determine a state's requisite level of mitigation action, this can only be in light of the state's own interpretation of these targets, that is, as a standard of internal consistency.

1. The problems with the Urgenda *method*

The Court in *Urgenda* invoked the 2°C target to determine the level of mitigation action that the Netherlands must achieve in order to comply with its customary mitigation obligation. This method relies on two questionable assumptions: first, that the temperature targets provide a clear benchmark to determine a state's requisite level of mitigation action; second, that the customary mitigation obligation requires consistency with this benchmark.

The temperature targets originate from and are based on political choices rather than merely on science.[240] Yet, States have not defined them in such a way as to provide a clear benchmark to assess a state's mitigation action. Difficulties include the ambivalence of an objective defined concomitantly by two temperature targets,[241] its unspecified time

[240] *See* Reto Knutti, Joeri Rogelj, Jan Sadláček & Erich M. Rischer, *A Scientific Critique of the Two-Degree Climate Change Target*, 9 NATURE GEOSCIENCE 13 (2016); Samuel Randalls, *History of the 2°C Climate Target*, 1 WIREs CLIMATE CHANGE 598 (2010).

[241] *See* Paris Agreement, *supra* note 3, art. 2(1)(a). By contrast, the *Urgenda* decisions built on previous COP decisions which only mentioned the 2°C target.

horizon,[242] alternative ways of defining "pre-industrial" global temperatures in light of natural climate variability,[243] and uncertainties about the current level of warming[244] and the sensitivity of the climate system to further emissions.[245] Even when using many of the same assumptions and methodologies, scientists suggest that, as of 2018, the remaining global carbon budget consistent with the temperature targets ranged between 420 $GtCO_2$ (for an estimated 66 percent chance of holding global warming below 1.5°C) and 1,500 $GtCO_2$ (for an estimated 50 percent chance of holding global warming below 2°C).[246] As such, the temperature targets indicate little more than a broad direction of travel—that is, the need for *more* mitigation action.[247]

Overall, there is little agreement on the way global efforts consistent with any interpretation of the temperature targets should be allocated among states. States have long recognized the

[242] The Paris Agreement does not specify whether the temperature targets refer to the global average temperature at a time (e.g., 2100) or to a peak temperature within a period. *See* Knutti et al., *supra* note 240, at 16.

[243] Allen et al., *Framing and Context*, *in* GLOBAL WARMING OF 1.5°C, *SUPRA* NOTE 100, at 49, 57–59.

[244] *See* Richard P. Allan et al., *Summary for Policymakers*, *in* CLIMATE CHANGE 2021, *supra* note 199, §A.1.2 (0.95–1.20°C for a 90%-confidence level).

[245] Joeri Rogelj et al., *Mitigation Pathways Compatible with 1.5C in the Context of Sustainable Development*, *in* GLOBAL WARMING OF 1.5°C, *SUPRA* NOTE 100, at 93, at 104–08.

[246] *Id.* 108.

[247] *See* Benoit Mayer, *Temperature Targets and State Obligations on the Mitigation of Climate Change*, 33 J. ENV'T L. (2021).

relevance of "equity and … their common but differentiated responsibilities and respective capabilities,"[248] to which the Paris Agreement added an acknowledgment of "different national circumstances,"[249] but these concepts reflect only limited agreement. States agree on the relevance of some differentiation criteria (e.g., their current emission level and their financial and technological capacity), but not on anything akin to a comprehensive burden-sharing formula.[250]

As a consequence, arguments about the consistency of a state's mitigation action with the temperature targets build on muddy grounds.[251] In *Urgenda*, the court relied on a mitigation scenario developed by the IPCC—a projection aimed merely at describing "[a] plausible description of how the future may develop,"[252] embedding various equity assumptions[253] that

[248] UNFCCC, *supra* note 3, art. 3(1).

[249] Paris Agreement, *supra* note 3, art. 2(2).

[250] *See, e.g.*, Lavanya Rajamani, *Common but Differentiated Responsibilities, in* 6 ELGAR ENCYCLOPEDIA OF ENVIRONMENTAL LAW 291, 293–97 (Michael Faure ed., 2018); Susan Biniaz, *Comma but Differentiated Responsibilities: Punctuation and 30 Other Ways Negotiators Have Resolved Issues in the International Climate Change Regime*, 6 MICH. J. ENV'T & ADMIN. L. 37 (2016).

[251] *See* Benoit Mayer, *Interpreting States' General Obligations on Climate Change Mitigation: A Methodological Review*, 28 REV. EUR. COMP. & INT'L ENV'T L. 107 (2019).

[252] Aviel Verbruggen et al., *Glossary, in* CLIMATE CHANGE 2007: MITIGATION, 809, 820 (Bert Metz et al. eds, 2007).

[253] Terry Barker et al., *Technical Summary, in* CLIMATE CHANGE 2007, *supra* note 252, at 25, 90.

the Court neither acknowledged, nor justified. The mitigation scenario suggested that Annex I parties as a whole would likely achieve 25 to 40 percent emission reduction by 2020, compared with 1990, if they were to follow the least-cost way to achieve a 66 percent chance of holding global warming below 2°C.[254] This scenario was not "scientifically proven" (as the District Court asserted)[255]—scientists had clearly recognized that "a considerable range of 2020 … emissions can be consistent with specific long-term goals";[256] nor could it be read as a policy recommendation, something the IPCC cannot make.[257] At any rate, states' acceptance that mitigation obligations need to reflect national circumstances should have precluded the Court from assuming that, "*in principle*, the target [applicable to Annex I parties as a whole] also applies to the individual states within the group."[258]

These various difficulties have the same origin: the fact that states have not designed the temperature targets as a benchmark against which national mitigation action could be assessed. If such had been states' intent, they would have been particularly ill-advised to adopt two temperature targets (rather than, for instance, a global emission budget) and no

[254] Gupta et al., *Policies, Instruments and Co-Operative Arrangements*, *in* CLIMATE CHANGE 2007, *supra* note 252, at 745, 776. *See also Urgenda III*, *supra* note 16, §7.1.

[255] *Urgenda I*, *supra* note 14, §4.85.

[256] Clarke, *supra* note 99, at 433.

[257] *See* Principles Governing IPCC Work, para. 2 (1998, last amended 2013) (stating that the IPCC "should be neutral with respect to policy").

[258] *Urgenda III*, *supra* note 16, §7.3.2 (emphasis added). *See also* Kyoto Protocol, *supra* note 11, annex B; Parliament and Council Regulation 2018/842, annex I, 2018 O.J. (L 156) 26 (EU) (reflecting significant differentiation among Annex I parties).

burden-sharing formula, or to require each of them to devise its own NDC. No climate treaty requires states to commit to, or implement, mitigation action consistent with the temperature targets; the Paris Agreement and various COP decisions that refer to the temperature targets all present these collective objectives as, precisely, objectives, not obligations.[259]

Could an obligation to act consistently with the temperature targets have nonetheless arisen under customary international law? An affirmative response would have to rely excessively on a descending approach, as it would lack support in state practice. While endorsing the temperature targets, states have not generally acted consistently with this objective. The aggregate mitigation outcome expected from the achievement of NDCs and other mitigation pledges falls short of the mitigation pathways most likely to achieve either temperature target[260]—a gap that states have acknowledged repeatedly and with great concern, but without finding a way to bridge it.[261]

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[259] *See Friends of the Earth*, *supra* note 36, para. 71 (noting that "the Paris Agreement did not impose an obligation on any state to adopt a binding domestic target to ensure that those objectives were met"); Mayer, *Temperature Targets*, *supra* note 247, at 12–13. On the difference between a treaty objective and an obligation, *see* VCLT, *supra* note 33, art. 31(1); *Oil Platforms (Iran v. U.S.)*, Preliminary Objections, 1996 ICJ Rep. 803, para. 31.

[260] *See* UNFCCC Secretariat, Revised synthesis report, FCCC/PA/CMA/2021/8/Rev.1 (Oct. 25, 2021); UNFCCC Executive Secretary, *supra* note 103; UN ENVIRONMENT, EMISSIONS GAP REPORT, *supra* note 103, at xxiii; UN Environment, Addendum to the Emissions Gap Report 2021 (Nov. 4, 2021) https://perma.cc/C276-SCC8.

[261] Dec. 1/CP.17, *supra* note 223, pmbl. para. 3; Dec. 1/CP.18, FCCC/CP2012/8/Add.1 (Feb. 28, 2013) 2nd recital before para. 4, 3rd recital before para. 14; Dec. 2/CP.18, *supra* note 223,

A similar gap can be observed in relation to some of the purported implications of the temperature targets. The Courts in *Urgenda* suggested that states had accepted the 25-percent emission-reduction target by 2020 as an objective for Annex I Parties.[262] Yet, the few, vague, and often indirect allusions to this target that were inserted in decisions of the Parties to the UNFCCC and to the Kyoto Protocol from 2007 to 2012[263] were never accompanied by consistent state practice.[264] This target had entirely fallen into obsolescence by the time the

pmbl. para. 4; Dec. 1/CP.20, FCCC/CP/2014/10/Add.1 (Feb. 2, 2015) pmbl. para. 7; Dec. 1/CP.21, *supra* note 223, pmbl. para. 10, para. 17; Dec. 1/CP.25, FCCC/CP/2019/13/Add.1 (Mar. 16, 2020) para. 8; Dec. 1/CMA.2, FCCC/PA/CMA/2019/6/Add.1 (Mar. 16, 2020) para. 5; Dec. -/CP.26, *supra* note 96, para. 4; Dec. -/CMA.3, Glasgow Climate Pact, para. 25 (Advance unedited version, Nov. 14, 2021).

[262] *See, e.g.*, *Urgenda III*, *supra* note 16, para. 7.2.11 (suggesting "a high degree of international consensus").

[263] *See* Dec. 1/CP.13, FCCC/CP/2007/6/Add.1 (Mar. 15, 2008) pmbl. para. 5 n. 1; Dec. 1/CMP.6, FCCC/KP/CMP/2010/12/Add.1 (Mar. 15, 2011) pmbl. para. 6, para. 4; Dec. 1/CMP.7, FCCC/KP/CMP/2011/10/Add.1 (Mar. 15, 2012) pmbl. para. 10; Dec. 1/CMP.8, FCCC/KP/CMP/2012/13/Add.1 (Feb. 28, 2013) para. 7 ("decid[ing]" that each party would revisit its commitment by 2014 in line with this target).

[264] *See* Dec. 1/CP.17, *supra* note 223, pmbl. para. 3 (noting the inconsistency of states' pledges and commitments with this target).

District Court decided the case in 2015.[265] In a similar pattern, COP26 introduced the goal of "reducing global carbon dioxide emissions 45 per cent by 2030 relative to the 2010 levels," while also recognizing that this goal would require "accelerated action."[266]

The *Urgenda* method was repeatedly invoked in support of legal challenges to national mitigation action, but this actually underlines its shortcoming: a standard cannot really be viewed as "customary" if most states fall short of it. The paradox is perhaps best illustrated by the claims in *Duarte Agostinho*, a case pending before the European Court of Human Rights, where individual applicants contend that all thirty-three high-income member states of the Council of Europe are failing to take sufficient mitigation action to comply with their obligation to protect human rights.[267] Inasmuch as the applicants rely on customary law,[268]

[265] No party revisited its commitments by 2014 as "decided" by dec. 1/CMP.8. *See* Report on the high-level ministerial round table on increased ambition of Kyoto Protocol commitments, para. 46, FCCC/KP/CMP/2014/3 (Sep. 3, 2014).

[266] Dec. -/CP.26, *supra* note 96, paras. 17–18 (Advance unedited version, Nov. 14, 2021); Dec. -/CMA.3, *supra* note 261, paras. 22–23. *See also* references note 103.

[267] *Duarte Agostinho*, *supra* note 22.

[268] The application does not directly refer to customary law, but it invokes the obligation of prevention and draw parallels with cases and authorities that were based on this obligation. *See* Application in *Duarte Agostinho* (Sept. 2, 2020) https://perma.cc/8DW2-LTCB, annex paras. 20(vi), 24, 36–38. It is unclear how the applicants could justify an obligation of states to act consistently with the temperature targets, if not through customary law, or else through other references to doctrines (such as subsequent practice the doctrine of common grounds) that would face similar issues. Several third-party interventions invoke customary law. *See*

their argument is self-defeating: a standard cannot be reflected in the general practice of states—hence, it cannot be customary—if most states are not following it.

It may be that, over time, new commitments will bring states closer to a global mitigation pathway consistent with the temperature targets. A few recent studies already suggest that states' long-term strategies might lead to a 50 percent chance of achieving the 2°C target,[269] although these projections rely on improbable assumptions: the full achievement of conditional pledges, a robust carbon-market able to avoid the type of illusory mitigation outcomes that plagued similar mechanisms under the Kyoto Protocol, and the immediate adjustment of NDCs in line with long-term strategies.[270] But even if this evolution was to lead to the emergence of a customary standard of consistency with the temperature targets,

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Amicus Curiae briefs by Tempere University (Apr. 29, 2021) https://perma.cc/NMZ5-PD7M, 3; by David R. Boyd and Marco A. Orellana (May 4, 2021) https://perma.cc/2HYV-39TQ paras. 19, 30–32; by Save the Children (May 5, 2021) https://perma.cc/R9G7-9U5X, paras. 23–24.

[269] *See* Malte Meinshausen, Jared Lewis, Zebedee Nicholls & Rebecca Burdon, *1.9°C: New COP 26 Pledges Bring Projected Warming to Below 2°C for the First Time in History* (Climate Resource Briefing Paper, 3 November 2021) https://perma.cc/8MXR-KEJN; Fatih Birol, *COP26 Climate Pledges Could Help Limit Global Warming to 1.8°C, But Implementing Them Will Be the Key* (International Energy Agency, Nov. 4, 2021).

[270] Long-term strategies cannot be taken as conclusive evidence of state practice when they are not even properly reflected in the short- to medium-term plans that states communicated through their NDCs. *See* UN ENVIRONMENT, EMISSIONS GAP REPORT, *supra* note 103, at xx–xxiii.

this standard would not provide a useful benchmark to determine which states are not taking sufficiently ambitious action. Absent a comprehensive burden-sharing agreement, it is difficult to see how the temperature targets could provide a test to assess a state's compliance with its general mitigation obligation.

2. An alternative method: internal consistency

State practice may not support a standard of consistency with an objective interpretation of the temperature targets as suggested in *Urgenda*, but it does not entirely exclude the relevance of temperature targets to the interpretation of the customary mitigation obligation. States routinely refer to collective objectives, in particular the temperature targets, when reviewing and communicating their mitigation commitments. The Paris Agreement requires its parties to "be informed by the outcomes of the global stocktake"[271]—a procedure to assess the collective progress towards achieving the temperature targets[272]—when communicating their mitigation action. Each party has also agreed to specify how each new NDC is "fair and ambitious in the light of its national circumstances" and how it "contributes towards achieving" the temperature targets.[273] Beyond the implementation of treaty commitments, national legislations often refer to these targets as an objective that must inform national governments.[274]

[271] Paris Agreement, *supra* note 3, art. 4(9). *See also id.* art. 14(3).

[272] *Id.* art. 14(1).

[273] Dec. 4/CMA.1, *supra* note 54, annex I paras. 6–7.

[274] *See, e.g.*, Parliament and Council Regulation 2021/1119, pmbl. para. 1, art. 1, 2021 O.J. (L 243) 1 (EU); Canadian Net-Zero Emissions Accountability Act, S.C. 2021, c. 22, pmbl. para.

Consistently, national courts have generally assumed the existence of at least a procedural requirement for national authorities to take the temperature targets into consideration when devising mitigation action or assessing development projects. The New Zealand High Court, for instance, held that the government should have considered the need to review its national mitigation strategy following the publication of a scientific report shedding new light on the level of mitigation action required to achieve the temperature targets.[275] Germany's Federal Constitutional Court reviewed the national mitigation strategy in light of the assumption that the government had to have a long-term plan to ensure consistency with the temperature targets.[276] And even though the UK Supreme Court was unwilling to hold the government to a "standard of perfection,"[277] it seemed to uphold the Court of Appeal's finding that, in principle, an environmental assessment on the extension of the Heathrow airport should include a discussion of the temperature targets.[278]

4; Bundes-Klimaschutzgesetz [Federal Climate Change Act], Dec. 12, 2019, BGBl. I at 2513, last amended by Gesetz, Aug. 18, 2021, BGBI. I at 3905, §1 (Ger.); Lov om klima [Climate Act], No. 965, June 26, 2020, §1(2) (Den.); Loi 2021-1104 du 22 août 2021 portant lutte contre le dérèglement climatique et renforcement de la resilience face à ses effets, 196 JORF 1 (Aug. 24, 2021) tit. 1.

[275] *Thomson*, *supra* note 21, para. 94.

[276] *Neubauer*, *supra* note 20, para. 215.

[277] *Friends of the Earth*, *supra* note 36, para. 143.

[278] *Id.* para. 141. *See also* Plan B. Earth v. Secretary of State for Transport, [2020] EWCA Civ 214, para. 216 and passim (Eng.); Parliament and Council Directive 2001/42, art. 5(1) and annex I, para. (e), 2001 O.J. (L 197) 30 (EC).

These observations suggest that, while states do not generally do enough to achieve the temperature targets, they keep trying. In other words, the ambition gap does not result from states' indifference to the temperature targets, but from differences in their interpretations of these targets, in particular with regard to the burden-sharing arrangements pertaining to the global efforts implied by these targets. Several scientific studies suggest that most NDCs are consistent with at least one of a few plausible interpretations of these targets, informed by different approaches to differentiation.[279]

Thus, both ascending and descending reasoning could support the theory that states must follow consistently, over time, a reasonable interpretation of the temperature targets. Admittedly, this is not a particularly demanding obligation: selecting the least demanding interpretation of these targets and the most accommodating burden-sharing criteria allows states to comply with this obligation with limited efforts. Over time, however, this requirement of consistency can act like a noose around the neck of GHG-intensive economies. States are not entirely precluded from altering their interpretation of what constitutes their "fair share" in global efforts consistent with the temperature targets, but their freedom to do so is constrained. On the one hand, treaty provisions require successive NDCs

[279] *See* Yann Robiou du Pont et al., *Equitable Mitigation to Achieve the Paris Agreement Goals*, 7 NATURE CLIMATE CHANGE 38 (2017); Yann Robiou du Pont & Malte Meinshausen, *Warming Assessment of the Bottom-up Paris Agreement Emissions Pledges*, 9 NATURE COMMC'N 4810 (2018); Xunzhang Pan et al., *Exploring Fair and Ambitious Mitigation Contributions under the Paris Agreement Goals*, 74 ENV'T SCI. & POL'Y 49 (2017).

to "represent a progression,"[280] and so do many national laws.[281] On the other hand, the international law doctrines on good faith, estoppel, or abuse of rights, would arguably preclude a state from adjusting the interpretation of its mitigation obligation for purely self-serving purposes. [282]

B. Identifying Appropriate Measures

[280] Paris Agreement, *supra* note 3, art. 4(3). *See also id.* arts. 3, 4(11).

[281] *See*, *e.g.*, Bundes-Klimaschutzgesetz, *supra* note 274, §3(3); Canadian Net-Zero Emissions Accountability Act, *supra* note 274, s. 3; Ley 7/2021, de 20 de mayo, de cambio climático y transición energética [Law 7/2021 on Climate Change and Energy Transition] art. 2(1), 121 B.O.E. 62009 (May 21, 2021) (Spain). *See also* Do-Hyun Kim v. S. Korea (Constitutional Court of South Korea, pending) 2020 Heonma 389 <https://perma.cc/Y57D-5P45>, regarding a downward adjustment of national mitigation action.

[282] *See*, *e.g.*, Temple of Preah Vihear (Cambodia v. Thai.), 1962 ICJ Rep. 39 (Separate Opinion of Alfaro, V.P.); Jurisdiction of the European Commission of the Danube, Advisory Opinion, 1927 PCIJ ser. B no. 14, at 23; Legal Status of Eastern Greenland (Den. v. Nor.), 1933 PCIJ ser. A/B no. 53, at 68–69; Arbitral Award made by the King of Spain on 23 December 1906 (Hond. v. Nicar.), 1960 ICJ Rep. 19, at 213; Frontier (Argentine/Chile), 16 RIAA 109, 164 (1966); Delimitation of the Border (Eritrea/Ethiopia), 25 RIAA 83, para. 3.9 (2002); Robert Kolb, *LA BONNE FOI EN DROIT INTERNATIONAL PUBLIC: CONTRIBUTION À L'ÉTUDE DES PRINCIPES GÉNÉRAUX DE DROIT* 357–358 (2000).

As an obligation of conduct, the customary obligation on climate change mitigation requires states to take appropriate measures.[283] Some measures could be necessary: the failure of a state to adopt such measures would demonstrate ipso facto that the state is in breach of its customary mitigation obligation. Many other appropriate measures are not strictly necessary, but a state is largely expected to take them as part of its good faith effort to mitigate climate change. A pattern of unjustified failures to take such appropriate measures would constitute a set of indicia justifying a presumption that the state is not exercising due diligence. In practical terms, this would at least shift the onus of proof on the state to demonstrate that it is complying with its general mitigation obligation. Either way, the identification of necessary or other appropriate measures permits judicial applications of the customary mitigation obligation without relying on a quantitative assessment of a state's overall level of mitigation action.

The following combines descending and ascending reasoning to identify five measures that appear to be, and to be accepted as, necessary or appropriate components of a state's requisite mitigation action. While some of these measures are partially reflected in express treaty commitments or constitute separate customary norms, understanding a state's failure to implement these measures as also evidence of a breach of its general customary obligation on climate change mitigation could carry different implications, for instance with regard to conditions of jurisdiction and admissibility, or for what concerns the content of remedial

[283] *See* notes 173–179 and corresponding text.

obligations.[284] The aim of the following is not to provide a comprehensive survey of the necessary and appropriate measures related to climate change mitigation, or even a comprehensive discussion of any examples, but merely to outline and illustrate a methodological strategy that could permit various context-specific applications of the customary mitigation obligation.

Beside the identification of appropriate measures, the main difficulty with this methodological strategy is to assess whether a set of indicia is sufficient to conclude that a state has not complied with its customary mitigation obligation. In principle, a judge should seek to assess whether the set of indicia reflects a level of care that falls short of what most states are following under similar circumstances. There is no denial that, in practice, this involves a significant level of judicial appreciation, though perhaps not as wide-ranging as in a judicial assessment of a state's requisite level of mitigation action.

1. Negotiation in good faith

States have long recognized climate change as a "common concern"[285] and acknowledged that "the global nature of climate change calls for the widest possible cooperation by all countries."[286] A logical implication is that states should negotiate in good faith ways to

[284] Material injury may more easily be attributed to the breach of a substantive obligation to mitigate climate change than to a specific treaty commitment of a procedural nature. *See Pulp Mills*, *supra* note 32, para. 275–276; *Certain Activities* (Merits), para. 226.

[285] *See* references *supra* note 96.

[286] *See* references *supra* note 223.

address climate change. A parallel can be drawn with the management of shared resources, the delimitation of maritime areas, or activities liable to causing widespread environmental issues, with regard to which international courts, having identified the need for cooperation, inferred an obligation for the states concerned "to enter into negotiations with a view to arriving at an agreement,"[287] "to undertake negotiations in good faith for the equitable solution of their differences,"[288] and, more substantially, to conduct themselves so "that the negotiations are meaningful, which will not be the case when [a state] insists upon its own position without contemplating any modification of it."[289]

A breach of the duty to negotiate could be found when a state displays "no genuine attempt to negotiate,"[290] for instance by neglecting (for unjustifiable reasons) to send adequate representations to multilateral climate negotiations. Evan Criddle and Evan Fox-Decent suggested that a breach of customary law could be established "if a state arbitrarily breaks off or delays negotiations, declines to follow established procedures for negotiation, or refuses to

[287] *North Sea Continental Shelf*, *supra* note 114, para. 85(a).

[288] Fisheries Jurisdiction (U.K. v. Ice.), Merits, 1974 ICJ Rep. 3, para. 79(3). *See also* Lac Lanoux (Spain v. Fr.), (1957) 12 RIAA 281, para. 11; *Nuclear Weapons*, *supra* note 57, para. 105(2)(F); *Pulp Mills*, *supra* note 32, para. 115; *Certain Activities* (Merits), para. 104; G.A. Res. 53/101, para. 2(e)–(f) (Dec. 8, 1998); ILC, Prevention, *supra* note 148, art. 9.

[289] *North Sea Continental Shelf*, *supra* note 114, para. 85(a). *See also* Railway Traffic between Lithuania and Poland, Advisory Opinion, 1931 PCIJ ser. A/B no. 42, at 116.; *Pulp Mills*, *supra* note 32, para. 146.

[290] Application of the International Convention on the Elimination of All Forms of Racial Discrimination (Geor. v. Russ.), 2011 ICJ Rep. 70, para. 159.

consider counter-proposals or relevant equitable considerations."[291] Three decades of intense international negotiations provide plenty of empirical evidence to confirm the existence and determine the content of this duty in relation to climate change mitigation. States have protested, for instance, when one of them was seeking to obstruct international climate negotiations,[292] to withdraw entirely from multilateral engagement,[293] or otherwise to "free ride" on the efforts of other states.[294]

2. Monitoring and reporting

Understanding the causes of climate change is a prerequisite to designing effective response strategies. Thus, the customary mitigation obligation implies that states should cooperate by monitoring emissions and sinks within its own territory and sharing information with others. Climate treaties impose multiple detailed rules on this matter.[295] A state would presumably

[291] Criddle & Fox-Decent, *supra* note 129, at 309. *See also Lac Lanoux*, *supra* note 288, para. 11; Application of the Interim Accord of 13 September 1995 (Maced. v. Greece), 2011 ICJ Rep. 644, paras. 132–138.

[292] *See* Joanna Depledge, *Striving for No: Saudi Arabia in the Climate Change Regime*, 8 GLOB. ENV'T POL. 9 (2008).

[293] *See* Criddle & Fox-Decent, *supra* note 129, at 277.

[294] *See generally* Thomas W. Merrill, *Golden Rules for Transboundary Pollution*, 46 DUKE L. J. 931, 936 (1996).

[295] *See* UNFCCC, *supra* note 3, arts. 4(1)(a), 12(1); Paris Agreement, *supra* note 3, art. 13(7). *See generally* Benoit Mayer, *Transparency Under the Paris Rulebook: Is the Transparency Framework Truly Enhanced?*, 9 CLIMATE L. 40 (2019).

not be exercising due diligence if it does not comply at least with the gist of these obligations by identifying the main sources and sinks of GHGs on its territory, assessing their evolution, and sharing such information.

3. Planning mitigation action

The customary mitigation obligation implies that states must devise plans of action with the aim of mitigating climate change. Consistently, climate treaties require states to formulate and communicate short- to medium-term mitigation measures, programmes, policies, and other targets (e.g., NDCs);[296] these treaties also impose detailed rules to ensure that these plans are communicated in clear and specific terms.[297] Furthermore, states are increasingly expected to devise and communicate long-term mitigation strategies,[298] and national courts have at times been called to check that these documents were sufficiently clear and

[296] *See, e.g.*, UNFCCC, *supra* note 3, arts. 4(1)(b) ("programmes containing measures to mitigate climate change"), 4(2)(a) ("policies … on the mitigation of climate change"); Paris Agreement, *supra* note 3, art. 4(2) (NDCs).

[297] *See, e.g.*, Paris Agreement, *supra* note 3, art. 4(8); 4/CMA.1, *supra* note 54.

[298] *See* Paris Agreement, *supra* note 3, art. 4(19); 1/CP.21, *supra* note 223, para. 35; Dec. 1/CP.24, para. 21, FCCC/CP/2018/10/Add.1 (Mar. 19, 2019); Dec. 1/CMA.2, *supra* note 261, para. 11. *See also* UNFCCC, *Communication of long-term strategies* (n.d.), https://unfccc.int/process/the-paris-agreement/long-term-strategies (last accessed Nov. 13, 2021) (listing strategies by 45 parties); UNFCCC Executive Secretary, *supra* note 103, at 2 (noting that 74 Parties had "provided information on long-term mitigation visions, strategies and targets", including through their long-term strategies and their NDCs).

specific.[299] A state would be in breach of its customary mitigation obligation if it engaged in no mitigation planning at all,[300] but also arguably if its planning process was systematically defective when compared with general state practice.

4. Project approval

Most states conduct environmental assessment procedures before approving activities likely to have significant environmental impacts,[301] and international courts have identified environmental assessment as a customary requirement in a transboundary context.[302] With regard to climate change mitigation, the procedure is a useful measure for states to regulate investments that may "lock" them into emission-intensive development pathways.[303] Despite the absence of specific treaty commitment, many states have applied environmental assessment procedures as a tool to mitigate climate change, showing their acceptance of this

[299] *Friends of the Irish Env't*, *supra* note 21, paras. 6.46, 9.2.

[300] *See* Duncan French & Tim Stephens, *Study Group on Due Diligence in International Law: Second Report*, 77 INT'L L. ASS'N REP. CONF. 1062, 1073 (2016).

[301] *See, e.g.*, National Environmental Policy Act of 1969 § 102, 42 U.S.C. §4332(C); Parliament and Council Directive 2011/92, 2012 O.J. (L 26) 1 (EU); 环境影响评价法 (Environmental Assessment Act), Oct. 28, 2002. *See also* UN ENVIRONMENT, ASSESSING ENVIRONMENTAL IMPACTS, *supra* note 169.

[302] *See Pulp Mills*, *supra* note 32, para. 204; *Activities in the Area*, *supra* note 32, para. 148; *Certain Activities* (Merits), para. 104; *South China Sea*, *supra* note 179, paras. 987–993.

[303] *See generally* Gregory C. Unruh, *Understanding Carbon Lock-In*, 28 ENERGY POL'Y 817 (2000).

procedure as an appropriate measures on climate change mitigation.[304] More substantially, there is an increasing trend in states pledging to refrain from funding or approving certain emission-intensive projects (e.g., coal plants) within their territory or beyond,[305] in ways that may also be viewed as reflecting acceptance of appropriate measures in light of which the customary mitigation obligation is to be interpreted.

5. Internal consistency

A state would not be exercising due diligence if it departed from its own plans, systematically and without a reason, in a way prejudicial to the mitigation of climate change. A review of state practice would likely show that alterations to national mitigation plans are not entirely exceptional, but that they attract protests when they are purely self-serving. This observation is becoming increasing relevant as many states are communicating long-term mitigation strategies,[306] against which states' future conduct will inevitably be assessed.

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[304] *See* Benoit Mayer, *Climate Assessment as an Emerging Obligation under Customary International Law*, 68 INT'L & COMP. L.Q. 271 (2019). *See also* Gloucester Resources v. Minister for Planning, [2019] NSWLEC 7; *Earthlife Africa Johannesburg*, *supra* note 13; *Center for Biological Diversity v. Bernhardt*, 982 F.3d 723, 740 (9th Cir, 2020); *Natur og Ungdom*, *supra* note 16; ILC, Protection of the Atmosphere, *supra* note 40, guideline 4, comment. on guideline 4, para. 6.

[305] *See, e.g.*, Global Coal to Clean Power Transition Statement (Nov. 4, 2021) https://ukcop26.org/global-coal-to-clean-power-transition-statement/.

[306] *See* note 298 and corresponding text.

National courts have already been called upon to hold states to act consistently with their own plans and assessments. The French State Council relied on findings by two independent national agencies to determine that the national government was yet to adopt measures in line with the ambition it had expressed.[307] The Administrative Tribunal of Paris ordered the same government to take appropriate measures to make up for past emissions in excess of its statutory carbon budget.[308] A Belgian tribunal found that the state had breached its duty of care by failing to take sufficient mitigation action, in particular, on the ground that the state's own projections indicated that the measures it was implementing, or was considering to implement, would not be sufficient to achieve its 2030 target.[309] Likewise, the Court in *Urgenda* considered a past negotiating position of the Netherlands as a complementary argument to justify that the state could have adopted a more stringent mitigation target.[310]

These and other appropriate measures provide the basis for a qualitative assessment of the level of effort that a state is making with regard to climate change mitigation. Admittedly, most states will pass the test, as they comply with most of these measures most of the time. This, however, is an unsurprising conclusion: by nature, customary law is made of standards with which most states comply most of the time.

V. CONCLUSION

[307] *Grande-Synthe*, *supra* note 13, para. 5.

[308] TA Paris, Oct. 14, 2021, No. 1904969, art. 2 (Notre affaire à tous/Fr., second decision).

[309] *Klimaatzaak*, *supra* note 14, paras. 72–73.

[310] *Urgenda III*, *supra* note 16, paras. 7.4.1, 75.3.

It is often suggested that customary law implies an obligation on climate change mitigation, but little rigorous analysis had previously sought to justify the existence of this obligation or to clarify its content. This article has sought to fill the gap. Despite methodological difficulties associated with the identification and application of customary international law, this article has shown the possibility of demonstrating the existence of a customary mitigation obligation by relying on the syncretic approach that international courts have generally followed when identifying customary law. This article has also outlined two methodological strategies for the application of this obligation in concrete cases.

This article avoids two pitfalls. On the one hand, it rejects the idea that climate treaties displace the application of customary law, an idea particularly difficult to entertain when the content of national commitments is nationally determined. On the other hand, this article denounces the purely descending interpretation of customary law proposed in *Urgenda*, which suggests a standard with which most states do not comply. In the analysis proposed here, customary law requires every state to take measures that, in aggregate, are consistent with the standard of due diligence that most states follow most of the time.

This conclusion is consistent with the conservative nature of customary law, which only ever requires a person to do what most persons do most of the time when they are in the same situation. Customary law is not a panacea; it points to a standard that reflects what states are generally doing to mitigate climate change, even when this is significantly less than what states recognize as necessary. As such, no analysis of customary law can solve the structural gap in climate action. This gap needs to be solved, not through doctrinal analysis, but through responsible political leadership.