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The judicial assessment of states' action on climate change mitigation

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Abstract

The Supreme Court of the Netherlands construed the state's positive human rights obligations as requiring a 25 per cent reduction of its greenhouse gas emissions by 2020 compared with 1990 levels. This article explores how judges can decide the level of state effort required to mitigate climate change. To date, judges have predominantly approached this issue by seeking to identify an elusive benchmark, either by deduction from global objectives or induction from state conduct. This article shows that the judicial assessment of a state's requisite efforts inevitably relies on equity *infra legem*. Acknowledging this, judges could learn from the international courts' experience with establishing clarity in the midst of vague legal rules.

Keywords: climate change mitigation; climate litigation; due diligence; equity; requisite level of mitigation action

1. Introduction

States have unanimously identified climate change as a 'common concern of humankind'¹ and are committed to regulate their greenhouse gas (GHG) emissions to mitigate climate change.² In particular, the Parties to the Paris Agreement have committed to pursue specific objectives on climate change mitigation in the 2020s as communicated in their 'nationally determined contribution' (NDC),³ and some parties have also communicated their long-term low GHG emission development strategies.⁴

Yet, three decades of international negotiations have not prevented GHG emissions from rising, and from doing so at an increasing rate,⁵ save only for brief respites due to a major pandemic and financial crisis.⁶ The success of agreements on climate change mitigation can be assessed against their own objectives of preventing 'dangerous' interference with the climate system⁷ and holding global warming 'well below' 2°C and as close as possible to 1.5°C.⁸

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¹In particular 1992 United Nations Framework Convention on Climate Change (UNFCCC), 1771 UNTS 107, Preamble para. 2; 2015 Paris Agreement, 55 ILM 740 (2016), Preamble para. 12.

²E.g., UNFCCC, *ibid.*, Art. 4(1)(b).

³Paris Agreement, *supra* note 1, Art. 4(2).

⁴*Ibid.*, Art. 4(19).

⁵IPCC, *Climate Change 2014: Synthesis Report* (2014), 5.

⁶See J. M. Reilly, Y.-H. H. Chen and H. D. Jacoby, 'The COVID-19 Effect on the Paris Agreement', (2021) 8 *Humanities and Social Sciences Communications* 16.

⁷UNFCCC, *supra* note 1, Art. 2.

⁸Paris Agreement, *supra* note 1, Art. 2(1)(a); Dec. 10/CP.21 (13 December 2015) FCCC/CP/2015/10/Add.2, para. 4.

The Intergovernmental Panel on Climate Change (IPCC), an expert body aimed at assessing the science related to climate change, found that current pledges and commitments differ significantly from the likely emission reduction pathways that would achieve this objective: NDCs, for instance, are in line with a global warming of around 2.7°C by 2100.⁹ Considering these conclusions, the parties to the UN Framework Convention on Climate Change (UNFCCC) emphasized ‘with serious concern the urgent need to address the significant gap’ between their collective objective and the aggregate effect of their individual commitments.¹⁰ States, in their own admission, are failing to adopt and implement the necessary measures to prevent dangerous interference with the climate system.

In a global response to this shortfall in national ambition, plaintiffs have argued that states, while possibly fulfilling specific commitments under the UNFCCC regime, are failing to comply with their general obligation to mitigate climate change. Many recent or pending cases before national courts invoke a general mitigation obligation inferred from various sources of international or domestic law, referring for instance to human rights treaties,¹¹ constitutional law (on the protection of fundamental rights¹² and the environment),¹³ administrative law,¹⁴ or tort law.¹⁵ The Supreme Court in *Urgenda v. the Netherlands* upheld an interpretation of the European Convention on Human Rights (ECHR) as requiring the state to decrease its GHG emissions by at least 25 per cent by 2020 compared to 1990 to protect the rights to life and to family life within its territory.¹⁶ Similar claims were partly successful in *Klimaatzaak v. Belgium*, where a court of first instance held that Belgium’s mitigation action fell short of its obligation under tort and human rights law,¹⁷ and in *Grande-Synthe v. France* where the State Council ordered the French government to devise more ambitious measures on climate change mitigation within ten months to comply with the state’s own long-term objectives.¹⁸

Beyond national courts, comparable claims are pending before the European Court of Human Rights¹⁹ and the UN Human Rights Committee.²⁰ Several treaty bodies have adopted concluding observations interpreting states’ human rights obligations as an obligation to mitigate climate

⁹UNEP, *The Heat Is On: Emissions Gap Report 2021* (2021), xxiv.

¹⁰Decs. 1/CP.21 (12 December 2015) FCCC/CP/2015/10/Add.1, preamble paras. 10,17; 1/CP.25 (15 December 2019) FCCC/CP/2019/13/Add.1, para. 8.

¹¹See, e.g., complaints by Plan B Earth against the UK (filed 1 May 2021), available at www.perma.cc/TC45-QMXX; by Malgorzata Górska against Poland (filed 7 June 2021), available at www.perma.cc/XF9Z-K4CC; by Klimatická žaloba against Czech Republic (filed 21 April 2021), available at www.perma.cc/NWF6-NMQ2. See, generally, the climate change litigation databases developed by the Sabin Center for Climate Change, available at www.climatecasechart.com/.

¹²See, e.g., *Natur og Ungdom v. Norway*, 20-051052SIV-HRET (Supreme Court of Norway, 22 December 2020), available at www.perma.cc/5PCS-A8YH; *Neubauer v. Germany*, 1 BvR 2656/18 (Federal Constitutional Court of Germany, 24 March 2021), available at www.perma.cc/UJM6-QCCY.

¹³See, e.g., *Juliana v. US*, 947 F.3d 1159 (9th Cir., 2020); Constitutional Council of France, Dec. 2021-825 DC (13 August 2021), para. 2, both dismissed on procedural grounds.

¹⁴See the complaint by Lawyers for Climate Action NZ against New Zealand (filed 1 July 2021), available at www.perma.cc/HU98-RB84.

¹⁵On a duty of care of the state to mitigate climate change see *Urgenda v. the Netherlands*, ECLI:NL:RBDHA:2015:7145 (District Court of the Hague, 24 June 2015) (*Urgenda I*); *Minister for the Environment v. Sharma* [2022] FCAFC 35, BC202201738. See also *Milieudefensie v. Royal Dutch Shell*, ECLI:NL:RBDHA:2021:5337 (District Court of the Hague, 26 May 2021), available at www.perma.cc/VKG6-TZ4A, applying a similar analysis to a corporation.

¹⁶*Urgenda v. the Netherlands*, ECLI:NL:HR:2019:2007 (Supreme Court, 20 December 2019), 59 ILM 811 (2020) (*Urgenda III*).

¹⁷*Klimaatzaak v. Belgium*, 2015/4585/A (TPI-F Bruxelles, 17 June 2021), available at www.perma.cc/68ZJ-2F96.

¹⁸*Grande-Synthe v. France* (Conseil d’Etat, 1 July 2021), ECLI:FR:CECHR:2021:427301.20210701.

¹⁹*Duarte Agostinho v. Portugal*, 39371/20 (communicated 13 November 2020), available at www.hudoc.echr.coe.int/eng?i=001-206535; Verein Klimasenioreninnen Schweiz v. Switzerland, 53600/20 (communicated 17 March 2021), available at www.hudoc.echr.coe.int/eng?i=001-209313; Mex M against Austria, (filed 25 March 2021), available at www.perma.cc/MRR6-KK4W; complaint against Norway (filed 15 June 2021), available at www.perma.cc/AN8Y-GXRY.

²⁰Petition to the Human Rights Committee, ‘Torres Strait Islanders/Australia’, (filed 13 May 2019).

change.²¹ The possibility of inter-state judicial proceedings has attracted academic and state interest; such proceedings, whether contentious or advisory, could centre on customary law, human rights treaties, or international environmental agreements, and could feature substantive arguments similar to those presented before domestic courts.²²

A state's general mitigation obligation is generally understood as an obligation of conduct: it requires the state to exercise due diligence and to take 'all appropriate measures' to mitigate climate change.²³ Yet, it is difficult to determine precisely what this obligation entails. In some (relatively) simple cases, courts are merely tasked with assessing whether the state has taken some of the necessary measures implied by due diligence, such as the adoption of a national mitigation strategy²⁴ that is scientifically sound,²⁵ sufficiently specific,²⁶ and does not unreasonably burden future generations.²⁷ In the other, more 'holistic' cases that are the focus of this article, courts are asked to determine the overall level of effort a state must make on climate change mitigation, typically in the form of an emission reduction percentage to be achieved by a given time.²⁸ This article contributes to a reflection on the methodology that a judge could use in such 'holistic' cases when she accepts to determine a state's requisite level of mitigation action.

The methodological question addressed in this article arises in comparable ways before national or international courts. While the diversity of legal systems has obvious implications on many aspects of climate litigation (e.g., standing,²⁹ applicability of relevant legal norms,³⁰ and remedies),³¹ it is less directly relevant when it comes to the specific question of determining a state's requisite level of mitigation action. A judge's legal training, tradition, and personality may affect her way of looking at these methodological issues,³² but these factors do not justify different methodological choices.

The norms from which a general mitigation obligation can be identified also do not point to different methodological choices. The District Court in *Urgenda* identified a general mitigation obligation from tort law, whereas the Supreme Court in the same case relied on the ECHR; yet, both courts ordered the same rate of emission reduction.³³ One could question whether

²¹E.g., Committee on the Elimination of Discrimination against Women, 9th Period Report of Norway, CEDAW/C/NOR/CO/9 (2017), para. 15; Committee on the Rights of the Child, 4th–5th Periodic Reports of Japan, CRC/C/JPN/CO/4–5 (2019), para. 37(d).

²²E.g., A. Boyle, 'Law of the Sea Perspectives on Climate Change', in D. Freestone (ed.), *The 1982 Law of the Sea Convention at 30: Successes, Challenges and New Agenda* (2013), 157; P. Sands, 'Climate Change and the Rule of Law: Adjudicating the Future in International Law', (2016) 28 JEL 19; B. Mayer, 'International Advisory Proceedings on Climate Change', (2023) 44 *Michigan JIL* (forthcoming).

²³B. Mayer, 'Obligations of conduct in the international law on climate change: A defence', (2018) 27 *RECIEL* 130.

²⁴Committee on the Rights of the Child, Concluding Observations 5th–6th Reports of Belgium, CRC/C/BEL/CO/5–6 (2019), para. 35.

²⁵*Thomson v. Minister for Climate Change Issues* [2017] NZHC 733, [2018] 2 NZLR 160, para. 91.

²⁶*Friends of the Irish Environment v. Ireland* [2020] IESC 49, [2020] 2 ILRM 233 (*FIE II*); Committee on Economic, Social and Cultural Rights, Concluding Observations 6th Periodic Report of Russia, E/C.12/RUS/CO/6 (2017), para. 43; 6th Periodic Report of Germany, E/C.12/DEU/CO/6 (2018) paras. 18–19; 4th Periodic Report of Argentina, E/C.12/ARG/CO/4 (2018), para. 14; 4th Periodic Report of Ecuador, E/C.12/ECU/CO/4 (2019), para. 12.

²⁷*Neubauer*, *supra* note 12.

²⁸See, e.g., *Urgenda III*, *supra* note 16; *Klimaatzaak*, *supra* note 17; *Grande-Synthe*, *supra* note 18.

²⁹E.g., C-565/19 P, *Carvalho v. Parliament*, ECLI:EU:C:2021:252 (25 March 2021), dismissed for lack of standing; *Urgenda III*, *ibid.*, section 5.9.3, noting *Urgenda's* standing before domestic courts despite its lack of standing before ECtHR.

³⁰E.g., *American Electric Power Co v. Connecticut*, (2011) 546 US 410, 423; B. Mayer, 'Climate Change Mitigation as an Obligation under Human Rights Treaties?', (2021) 115 *AJIL* 409, at 444–51.

³¹E.g., *Shrestha v. Prime Minister*, 074-WO-0283, NKP61(3) (Supreme Court of Nepal, 25 December 2018), available at www.perma.cc/YM27-HH73, ordering the adoption of a statutory framework; *Urgenda III*, *supra* note 16, imposing a mitigation target; *Juliana* (9th Cir.), *supra* note 13, dismissed for lack of available remedy; *Klimaatzaak*, *supra* note 17, finding that the current target is insufficient; *Grande-Synthe*, *supra* note 18, ordering the adoption of 'appropriate measures'.

³²E.g., R. J. Cahill-O'Callaghan, 'The Influence of Personal Values on Legal Judgments', (2013) 40 *Journal of Law & Society* 596.

³³*Urgenda I*, *supra* note 15; *III*, *supra* note 16. See also *Klimaatzaak*, *supra* note 17, relying on tort law and the ECHR.

human rights law permits the full application of the general mitigation obligation,³⁴ but this does not affect the judge's analysis. Since domestic law does not typically contain standards to determine a state's requisite level of mitigation action,³⁵ judges have accepted the contextual relevance of international developments (e.g., temperature targets and related burden-sharing principles) when interpreting domestic mitigation obligations – including in some dualist jurisdiction.³⁶

Notwithstanding where they work and how they identify a general mitigation obligation, judges seeking to establish the standard face the same issues: the relative indeterminacy of temperature targets and the lack of specific agreement on burden-sharing among states. Contrary to what courts and plaintiffs often suggest, states have not reached a comprehensive consensus on a formula to assess states' requisite level of mitigation action. Yet, if the court finds the case fulfils all conditions of jurisdiction and admissibility, it must set the standard.³⁷

Instead of looking for a predetermined benchmark, this article suggests a judge should seek a fair and reasonable solution through a methodical review of the applicable principles and careful consideration of all relevant circumstances. The matter may never be decided with mathematical precision, but judicial decisions may become more predictable and consistent if they were explicitly based on careful consideration of what is fair and reasonable in the application of the law in the case at issue – that is, on equity.³⁸ In this respect, judges (whether national or international) could interpret states' general mitigation obligations with inspiration from the sophisticated practice of international courts engaging with equity *infra legem*. In maritime delimitation cases, for instance, international courts have had to compromise opposite claims in the absence of clear and specific rules – and they managed to do so in ways that have generally satisfied states and observers. This judicial experience of international courts could be useful inspiration to a court seeking to determine a state's requisite level of mitigation action, even though the latter process is admittedly far more complex.

Section 2 identifies in greater details the problem on which this article focuses, namely the judicial application of a general obligation on climate change mitigation without the benefits of specific benchmarks. Section 3 refutes the frequent assertion that scientific studies or state practice can identify specific benchmarks. Section 4 suggests that judges should strive for an equitable rather than exact solution, building on decisions where international courts decided on states' conflicting claims without the benefit of predetermined benchmarks.

2. The problem with states' general mitigation obligation

This section introduces this article's main focus: that states have a general obligation to mitigate climate change whose content is largely indeterminate, but which courts may nevertheless have to apply.

³⁴Mayer, *supra* note 30, at 445.

³⁵On policy objectives, see Section 3.1.1.

³⁶See, e.g., *Earthlife Africa Johannesburg v. Minister of Environmental Affairs*, [2017] ZAGPPHC 58, [2017] 2 All SA 519; *Thomson*, *supra* note 25; *Gloucester Resources v. Minister for Planning* [2019] NSWLEC 7; *FIE II*, *supra* note 26, section 3.4; *R (Friends of the Earth) v. Heathrow* [2020] UKSC 52, [2021] 2 All ER 967. One can hardly think of climate change mitigation without international co-operation: as such, a court unprepared to interpret domestic law in light of relevant international developments would probably not recognize a general mitigation obligation at the first place.

³⁷See Section 2.3.

³⁸I use the term 'equity' in a broad meaning, referring to judicial considerations about what is fair and reasonable in the administration of justice, in particular when judges 'fill' legal 'gaps' left by the absence of clear and specific rules – what international lawyers refer to as 'equity *infra legem*', the equity that is inherent to the application of the law, which necessarily plays some role (whether or not expressly recognized) in any legal system, although more so in international law due to the relative paucity of clear and specific legal rules. See F. Francioni, 'Equity in International Law', in R. Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law* (online edition, 2020), para. 1.

2.1 States' general mitigation obligation

A distinction can be made between states' specific and general obligations on climate change mitigation.³⁹ Specific obligations are those where content is defined in written documents such as treaties or statutes. For instance, the Kyoto Protocol established quantified emission limitation and reduction commitments (QELRCs) for developed country parties in a 'first' commitment period from 2008 to 2012;⁴⁰ its Doha Amendment required some of these parties to achieve another QELRC in a second commitment period from 2013 to 2020.⁴¹ Likewise, every party to the Paris Agreement is bound by an obligation of conduct: to take appropriate measures to achieve the mitigation objectives of its successive NDCs;⁴² and some NDCs may also constitute unilateral declarations capable of creating legal obligations, including obligations of result.⁴³ These international commitments are increasingly reflected in statutory law.⁴⁴ While these obligations may come with clear and specific standards, they only reflect what states are willing to commit to; as such, they often lack ambition. By states' own admission, these commitments fall short of what is needed to achieve the collective objectives states agreed upon.⁴⁵

Besides these specific obligations, states have also a general obligation to mitigate climate change implied from general legal principles in international and, often, domestic law. On the international plane, this general mitigation obligation – partially reflected in the UNFCCC⁴⁶ – is inferred from the general premises of the international legal order. The principle of sovereign equality⁴⁷ implies that every state has a due diligence obligation to respect the rights of others,⁴⁸ in particular 'to protect within [its] territory the rights of other states',⁴⁹ and 'not to allow knowingly its territory to be used for acts contrary to the rights of other states'.⁵⁰ More specifically, every state must 'ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction'.⁵¹ International courts have applied this obligation to transboundary environmental harm,⁵² including harm affecting areas beyond national jurisdiction.⁵³ This obligation may also

³⁹B. Mayer, *The International Law on Climate Change* (2018), 66.

⁴⁰1997 Kyoto Protocol to the UNFCCC, 2303 UNTS 162, Art. 3(1).

⁴¹2012 Doha Amendment to the Kyoto Protocol, C.N.718.2012.TREATIES-XXVII.7.c, Art. 1.C.

⁴²Paris Agreement, *supra* note 1, Art. 4(2).

⁴³B. Mayer, 'International Law Obligations Arising in Relation to Nationally Determined Contributions', (2018) 7 TEL 251, at 262–70. See also *Nuclear Tests (Australia v. France)*, [1974] ICJ Rep. 253, para. 43.

⁴⁴See, e.g., Climate Change Act 2008, c 27, amended (UK), s 4(1); Bundesgesetz über die Reduktion der CO₂-Emissionen 2011, AS 2012/6989, amended (Germany), art. 40; Climate Action and Low Carbon Development Act 2015, 46/2015, amended (Ireland), s. 4; Klimatlag, SFS 2017:720 (Sweden), ss 4–5; Environmental Code, 2 January 2021, 400-VI (Kazakhstan), art. 283(4); EU Reg. 2021/1119, [2021] OJ-L243/1, art. 4; Ley general de cambio climático, DOF 6 January 2012, amended (Mexico), ss. 98–105.

⁴⁵See *supra* note 10.

⁴⁶UNFCCC, *supra* note 1, Arts. 4(1)(b), 4(2)(a). See, e.g., F. Yamin and J. Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures* (2004), 95; M. Meguro, 'Litigating Climate Change through International Law: Obligations Strategy and Rights Strategy', (2020) 33 LJIL 933, at 942.

⁴⁷1945 UN Charter, Art. 2(1).

⁴⁸See J. Brunnée, 'Sic Utere Tuo Ut Alienum Non Laedas', in R. Wolfrum (ed.), *Max Planck Encyclopedia of Public International Law* (online edition, 2010).

⁴⁹*Island of Palmas (Netherlands v. US)*, (1928) 2 RIAA 829, at 839.

⁵⁰*Corfu Channel (UK v. Albania)*, [1949] ICJ Rep. 4, at 22.

⁵¹Stockholm Declaration on the Human Environment, (1972) 11 ILM 1416, principle 2. See also *Legality of the Threat or Use of Nuclear Weapons*, [1996] ICJ Rep. 226, para. 29.

⁵²See *Trail Smelter (US v. Canada)*, (1941) 3 RIAA 1938, 1965; *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, [2010] ICJ Rep. 14, para. 101; *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua)* and *Construction of a Road in Costa Rica along the San Juan River (Nicaragua v. Costa Rica)*, [2015] ICJ Rep. 665, para. 104.

⁵³*Responsibilities and Obligations of States with Respect to Activities in the Area*, [2011] ITLOS Rep. 10, paras. 115–16.

apply to global environmental harm,⁵⁴ such as climate change,⁵⁵ with foreseeable impacts on territories and areas beyond national jurisdiction.⁵⁶ One state cannot solve climate change alone. States have long accepted their obligation to co-operate in addressing international problems,⁵⁷ including those of an environmental nature,⁵⁸ and they recognize climate change as a problem whose ‘global nature . . . calls for the widest possible cooperation by all countries’.⁵⁹

Other arguments infer a state’s general mitigation obligation from its duty of care, environmental protection obligations, or human rights obligations.⁶⁰ In practice, plaintiffs rely predominantly on domestic or international human rights instruments, as these instruments often allow standing before national courts and regional human rights courts, or access to treaty bodies; they submit that a state’s general mitigation obligation is implied by its obligation to protect human rights from the far-reaching impacts of climate change.⁶¹ This argument, however, is not easy to make:⁶² the causal link between state conduct and the impact on an individual’s rights is tenuous and, while human rights obligations are primarily territorial in nature, most impact from climate change unfolds beyond any given state’s territory. Questions – beyond the scope of this article – must be asked about the risk of overreaching human rights law, which would allow human rights institutions to review virtually any policy judgment on the ground of its inevitable, albeit far-fetched, impact on human rights.⁶³

The application of states’ general mitigation obligation is not necessarily displaced by the adoption of specified commitments (especially when these commitments are determined nationally): as climate treaties create legal obligations, not rights,⁶⁴ they do not prevent the application of other obligations of the same nature.⁶⁵ Likewise, under domestic law, precise statutory rules do not necessarily displace mitigation obligations inferred from general legal principles.⁶⁶ On the other hand, one would expect that states’ specified mitigation commitments would *generally* be consistent with norms defined by prevailing trends, such as customary international law (as the latter presupposes a general state practice), human rights treaties (interpreted in light of state practice, for instance following the ‘common ground’ method),⁶⁷ or the duty of care (construed partially by reference to common practice).⁶⁸ A judge could even be inclined to defer to a state’s own position

⁵⁴See ILC, ‘Draft Guidelines on the Protection of the Atmosphere’ in ILC Report, 72nd session, A/76/10 (advanced unofficial version, 18 August 2021), 16, guideline 3.

⁵⁵See UNFCCC, *supra* note 1, preamble para. 9, Arts. 4(1)(b), 4(2)(a); ILA Res. 2/2014, ‘Declaration of Legal Principles Relating to Climate Change’, (2014) 76 ILA Rep. 21, 23 (draft article 5); B. Mayer, ‘Climate Change Mitigation as an Obligation under Customary International Law’, (2023) 48 *Yale JIL* (forthcoming). But see A. Zahar, ‘Methodological Issues in Climate Law’, (2015) 5 *Climate Law* 25.

⁵⁶The clearest example may be the impact of sea-level rise on the territory of low-lying island states.

⁵⁷UN Charter, *supra* note 47, Arts. 55, 56.

⁵⁸1992 Rio Declaration on Environment and Development, A/CONF.151/26 (Vol. I), principle 7.

⁵⁹UNFCCC, *supra* note 1, preamble para. 7.

⁶⁰See *supra* notes 11–18.

⁶¹See, e.g., *Urgenda III*, *supra* note 16, section 5.8; Committee on the Elimination of Discrimination against Women et al., ‘Human Rights and Climate Change’, Joint Statement (2019), available at www.perma.cc/6VXT-LAD4; M. Wewerinke-Singh, *State Responsibility, Climate Change and Human Rights under International Law* (2019).

⁶²See A. Boyle, ‘Human Rights and the Environment: Where Next?’, (2012) 23 *EJIL* 613, 633–41; E. A. Posner, ‘Climate Change and International Human Rights Litigation: A Critical Appraisal’, (2007) 155 *U Penn LR* 1925; Committee on the Rights of the Child, List of Issues on 5th–6th Reports of Australia, Addendum: Replies, CRC/C/AUS/Q/5-6/Add.1 (2019), para. 58.

⁶³See Mayer, *supra* note 30, at 419–23.

⁶⁴See Dec. 15/CP.7 (10 November 2001) FCCC/CP/2001/13/Add.2, preamble para. 6.

⁶⁵ILC, Report of the Study Group on Fragmentation of International Law, A/CN.4/L.682 (2006), para. 2.

⁶⁶But see *American Electric Power*, *supra* note 30.

⁶⁷See *Demir v. Turkey*, 34503/97, 2008-V ECHR 333, para. 86, interpreting the ECHR in light of ‘the norms and principles applied in international law or in the domestic law or of the majority of member States’.

⁶⁸See J. Limpens, R. M. Kruihof and A. Meinertzhagen-Limpens, ‘The Notion of Tort’, in K. Zweigert and U. Drobnig (eds.), *International Encyclopedia of Comparative Law* (1983), vol XI, section 2.24; B. Mayer, ‘The Duty of Care of Fossil-Fuel Producers for Climate Change Mitigation: *Milieudefensie v. Royal Dutch Shell*, District Court of The Hague

on the matter.⁶⁹ Yet, to apply the law in an effective and impartial way, judges should also be prepared to find a state's specific commitment insufficient with its general obligation. States' admission of the existence of an ambition gap suggests that some states' commitments fall short of their general mitigation obligation requirements.

2.2 The indeterminacy of a state's requisite level of mitigation action

States' general mitigation obligation is an obligation of conduct, like the international or domestic law obligation from which it is inferred:⁷⁰ every state must exercise due diligence,⁷¹ using 'all the means at its disposal',⁷² and taking 'all appropriate measures',⁷³ to reduce GHG emissions within its jurisdiction. Surely, however, 'all the means at its disposal' must not be understood literally: no state can be expected to invest *all* its resources in the pursuance of the sole goal of preventing transboundary environmental harm or to protect human rights (if only because allocating all its resources to the pursuance of one goal would inevitably divert them from others). Rather than pursuing climate change mitigation *at all costs*, states are required to exercise *reasonable care*.⁷⁴

State practice unveils some principles that may help to interpret this standard. In particular, treaties, resolutions, and declarations suggest that states must co-operate on the prevention of global environmental harm, including climate change, in light of their common but differentiated responsibilities and respective capabilities (CBDRRC).⁷⁵ Accordingly, developed states have accepted that they should bear additional obligations⁷⁶ while also recognizing the need to promote 'equitable access to sustainable development'.⁷⁷ Overall, states have acknowledged the relevance of 'national circumstances'⁷⁸ and, more generally, 'equity'.⁷⁹ The parties to the UNFCCC highlighted 'the need for equitable and appropriate contributions' by developed country parties, taking into account their 'starting points and approaches' to climate change mitigation, 'economic structures and resource bases', economic and technological capacities, 'and other individual circumstances'.⁸⁰ NDCs have frequently emphasized the relevance of a state's capacity to reduce its GHG emissions without disproportionately affecting its economic development or its efforts to adapt to the impacts of climate change.⁸¹ The EU member states shared their efforts for the

(The Netherlands)', (2022) 11(2) TEL (forthcoming); L. Burgers, 'An Apology Leading to Dystopia: Or, Why Fuelling Climate Change Is Tortious', (2022) 11(2) TEL (forthcoming); B. Mayer, 'Judicial Interpretation of Tort Law in *Milieudefensie v. Shell: A Rejoinder*', (2022) 11(2) TEL (forthcoming).

⁶⁹See *Fisheries case (UK v. Norway)*, [1951] ICJ Rep. 116, at 142.

⁷⁰B. Mayer, 'Obligations of Conduct in the International Law on Climate Change: A Defence', (2018) 27 RECIEL 130, at 132–4.

⁷¹See generally *Activities in the Area*, *supra* note 53, paras. 107–20. Regarding human rights obligations, see Human Rights Committee, General Comment No 31, CCPR/C/21/Rev.1/Add.13 (2004), para. 8; *Velásquez-Rodríguez v. Honduras*, Merits, (1988) IACTHR Series C No 4, para. 172.

⁷²*Pulp Mills*, *supra* note 52, para. 101. See also Committee on Economic, Social and Cultural Rights, 'Climate Change and the International Covenant on Economic, Social and Cultural Rights', Statement, E/C.12/2018/1 (2018) para. 6, para. 8.

⁷³*Certain Activities*, *supra* note 52, para. 104.

⁷⁴D. French and T. Stephens, 'Second Report on Due Diligence', (2016) 77 ILA Rep. 1062, at 1063. See generally *Activities in the Area*, *supra* note 53, para. 117.

⁷⁵UNFCCC, *supra* note 1, Art. 3(1); Paris Agreement, *supra* note 1, Art. 2(2); Rio Declaration, *supra* note 58, principle 7.

⁷⁶UNFCCC, *ibid.*, Art. 4(2)(a); Kyoto Protocol, *supra* note 40, Art. 3(1); Paris Agreement, *ibid.*, Art. 4(4); Rio Declaration, *ibid.*, principle 7.

⁷⁷Paris Agreement, *ibid.*, preamble para. 9; Decs. 1/CP.16 (10–11 December 2010) FCCC/CP/2010/7/Add.1, para. 6; 2/CP.17 (11 December 2011) FCCC/CP/2011/9/Add.1, para. 2. See also UNFCCC, *supra* note 1, Art. 3(4).

⁷⁸Paris Agreement, *ibid.*, Art. 2(2). See also UNFCCC, *supra* note 1, Art. 3(2).

⁷⁹UNFCCC, *ibid.*, Art. 3(1); Paris Agreement, *ibid.*, Art. 2(2).

⁸⁰UNFCCC, *ibid.*, Art. 4(2)(a).

⁸¹See generally C. Swingle, 'Climate Justice after the Paris Agreement: Understanding Equity through Nationally Determined Contributions', in G. P. Harris (ed.), *A Research Agenda for Climate Justice* (2019), 143.

fulfilment of joint commitments based on ‘the need for sustainable economic growth across the Community, taking into account the relative per capita GDP of member states’.⁸²

These principles, however, are far from defining a clear and specific standard to assess a state’s requisite level of mitigation action. Fundamental disagreement regarding the meaning of ‘equity’ and CBDRRC – what ought to be common or differentiated, on what grounds, and to what extent – have plagued international negotiations from the outset.⁸³ There is no easy way for a judge to determine a solution, which state representatives failed to achieve over three decades of intense negotiations. As Daniel Bodansky notes, determining a state’s requisite mitigation action ‘involves tremendously complex trade-offs between different values’⁸⁴ – a formidable task for any court.

2.3 The duty of courts to decide

Having determined that a state has a general obligation to mitigate climate change, a judge will not find a readily available benchmark to assess the state compliance with this obligation or the appropriate remedy. The judge would then be placed in the uncomfortable position of having to apply a legal obligation with an undetermined content. Yet, the judge generally cannot escape deciding an admissible case.

National courts have different approaches to the justiciability of a state’s mitigation action. It has been suggested that the controversial⁸⁵ US political question doctrine could exclude the justiciability of disputes that cannot be decided on the basis of ‘judicially discoverable and manageable standards’.⁸⁶ Alternatively, the Court of Appeal in *Juliana v. US* held that the doctrine of the separation of powers precluded the Judiciary from passing judgment on the sufficiency of the state’s mitigation action since it could not provide effective remedies.⁸⁷ Yet, as Judge Staton noted in her dissenting opinion, such finding of non-justiciability is particularly problematic in cases concerning human rights and other fundamental principles where judges have a ‘constitutional mandate to intervene’.⁸⁸ Difficulty in determining the applicable standard does not justify a denial of justice.⁸⁹

Most national courts have adopted a more nuanced approach, whereby they accept to review the legality of states’ mitigation action while allowing some discretion to the political branches of the government. Thus, the High Court in *Friends of the Irish Environment v. Ireland* noted that the state should enjoy ‘considerable discretion’, but not *carte blanche*, when adopting a national mitigation action plan;⁹⁰ as the Supreme Court noted, this discretion must ‘be exercised in a constitutional manner’.⁹¹ Similarly, the Administrative Court of Berlin found that the separation of powers was best protected by allowing a high level of judicial deference to the government’s determination of the state’s mitigation action.⁹² Unlike the political question doctrine, judicial deference does not obviate the need for judges to assess the state’s mitigation action. The Supreme

⁸²Commission Dec. 406/2009 of 23 April 2009, [2009] OJ-L140/136, preamble para. 8. See also Conclusions, Environment Council (16–17 June 1998) Doc 9702/98; Reg. 2018/842, [2018] OJ-L156/26, preamble para. 2.

⁸³See, e.g., L. Rajamani, ‘Differentiation in the Emerging Climate Regime’, (2013) 14 *Theo Inq L* 151.

⁸⁴D. Bodansky, ‘Introduction: Climate Change and Human Rights: Unpacking the Issues’, (2010) 38 *Georgia JICL* 511, at 524.

⁸⁵See, e.g., M. Cohn, ‘Form, Formula and Constitutional Ethos: The Political Question/Justiciability Doctrine in Three Common Law Systems’, (2011) 59 *AJCL* 675, at 678.

⁸⁶*Baker v. Carr* (1962) 369 US 186, at 217.

⁸⁷*Juliana* (9th Cir.), *supra* note 13, at 1172.

⁸⁸*Ibid.*, at 1184.

⁸⁹See generally A. Chayes, ‘The Role of the Judge in Public Law Litigation’, (1976) 89 *HLR* 1281, at 1307–16.

⁹⁰*Friends of the Irish Environment v. Ireland*, [2019] IEHC 747, para. 112.

⁹¹*FIE II*, *supra* note 26, section 6.28.

⁹²Verwaltungsgericht Berlin (31 October 2019) ECLI:DE:VGBE:2019:1031.VG10K412.18.00, paras. 47–49. See also *Juliana* (9th Cir.), *supra* note 13, at 1184–5 (Staton, dissenting); *Juliana v. US*, (D. Oregon, 2016) 217 F.Supp.3d 1224, at 1238–9.

Court in *Urgenda* recognized a measure of discretion to the government but nevertheless found that its policy lacked ambition.⁹³

A judge might also consider avoiding an assessment of a state's mitigation action on the ground that the applicable law is unclear (*non liquet*). Yet, most domestic legal systems prevent a judge from 'evad[ing] his basic duty, that of adjudicating'.⁹⁴ Codes, in jurisdictions of civil law tradition, expressly prohibit findings of *non liquet*⁹⁵ or command judges to fall back on subsidiary sources.⁹⁶ Judges in common law jurisdictions have had no difficulty in resolving cases of first impression through precedent-setting decisions.⁹⁷ Yet, as modern domestic legal systems are generally characterized by rules accreted through decades or centuries of statutory developments and judicial practice which form relatively comprehensive systems of clear rules, the debate on the possibility of findings of *non liquet* has primarily occurred in relation to international law.

Even in international law, however, the prevailing view among scholars and judges is that 'there is no room for *non liquet* in international adjudication'.⁹⁸ Admittedly, there are circumstances where the content of international law is difficult to assess, whether in relation to vague norms of customary law or elusive treaty provisions. The question was revived with the Advisory Opinion on the *Threat or Use of Nuclear Weapons*, where the ICJ decided, by its President's casting vote, that it could not 'conclude definitely whether the threat or use of nuclear weapons would be lawful or unlawful in an extreme circumstance of self-defence, in which the very survival of a state would be at stake'.⁹⁹ Yet, what the Court found to be unclear was arguably not the law, but the circumstances to which it might apply – the possibility of extraordinary circumstances that might justify the threat or use of nuclear weapons. Nothing in the Advisory Opinion suggests that the Court would be unable to apply the law *to a given set of facts* in a contentious case. In fact, no international court has refused to decide the merits of a contentious case on the ground that the law was unclear.

3. The search for predetermined benchmarks

Judges, plaintiffs, and scholars have sought to identify objective standards to assess a state's requisite mitigation obligation in two ways:¹⁰⁰ (i) the top-down method, which evaluates a state's mitigation action in light of a global objective on climate change mitigation and burden-sharing criteria, and (ii) the bottom-up method, which determines the state's action based on its consistency with the state's own promises or with international trends. These methods identify relevant considerations but, as this section shows, the quest for a predetermined benchmark is doomed to fail. Denying the indeterminacy of states' general mitigation obligation, these methods wrongly assume a state's requisite mitigation action can 'be established by scientific evidence'¹⁰¹ or determined on the basis of elusive rules 'without any consideration of competing interests'.¹⁰² In reality, a state's requisite mitigation action cannot be assessed without value-based judgments regarding

⁹³*Urgenda III*, *supra* note 16, secs 8.3.2–8.3.5.

⁹⁴A. M. Rabello, 'Non Lique: From Modern Law to Roman Law', (1974) 9 *Israel LR* 63, 63; R. David, 'Academic Works, Reason, Equity', in Zweigert et al., *supra* note 68, vol II (1981), secs 260–9.

⁹⁵E.g., *Code Civil des Français* (1804), art. 4

⁹⁶E.g., *Il Codice Civile Italiano* (1942), art. 12(2); *Code Civil Suisse* (1907), art. 1(2); *Louisiana Civil Code* (1987), art. 4.

⁹⁷E.g., *Vaughan v. Menlove*, (1837) 132 ER 490 (CP). See generally Pollock's note in Maine, *Ancient Law* (1912) 46, noting that judges 'are bound to find a decision for every case, however novel it may be'.

⁹⁸P. Weil, 'The Court Cannot Conclude Definitely . . . ' *Non Lique Revisited*', (1998) *Columbia J. Transnat'l L.* 109, at 110. See also H. Lauterpacht, *Function of Law in the International Community* (1933) 64; D. Bodansky, 'Non Lique', (2006), in *Max Planck Encyclopedia*, *supra* note 48.

⁹⁹*Nuclear Weapons*, *supra* note 51, para. 97, para. 105(E).

¹⁰⁰See B. Mayer, 'Interpreting States' General Obligations on Climate Change Mitigation: A Methodological Review', (2019) 28 *RECIEL* 107.

¹⁰¹*Juliana* (9th Cir.), *supra* note 13, 1187 (Staton, dissenting).

¹⁰²*Juliana* (D. Oregon), *supra* note 92, at 1239.

the level of acceptable interference with the climate system and the criteria that should guide burden-sharing among states.

3.1 The top-down method

The top-down method seeks to assess a state's mitigation action by inference from global objectives. The judge first needs to identify a global, long-term objective on climate change mitigation, often by reference to the temperature targets endorsed in the Paris Agreement. Then, the judge needs to infer the state's requisite contribution to achieving this objective based on burden-sharing criteria. Decisions in *Urgenda* and party submissions in other cases illustrate the flaws of this method, in particular its excessive reliance on scientists' working assumptions and its fleeting attention to relevant national circumstances.

3.1.1 Global mitigation objective

The top-down method starts with the identification of a global objective on climate change mitigation, often in the form of a temperature target, such as the objective of holding global warming (well) below 2°C, or around 1.5°C, above pre-industrial temperatures. Sometimes wrongly attributed to science,¹⁰³ these targets are the outcome of political decisions: scientific analysis is not equipped to make value-based judgments on what constitutes a 'dangerous' level of anthropogenic interference with the climate system and how current needs for economic development are to be balanced with the long-term preservation of planetary systems.¹⁰⁴ The 2°C target emerged from EU proposals in the 1990s and was gradually recognized in international negotiations.¹⁰⁵ The Paris Agreement endorsed the objective of holding global warming 'well below 2°C above pre-industrial levels while pursuing efforts to limit [it] to 1.5°C'.¹⁰⁶

An overlooked yet fundamental question relates to the legal force of these temperature targets. While the literature often refers to them as a 'collective obligation',¹⁰⁷ the Paris Agreement does not require its Parties to communicate or implement NDCs that are consistent with these targets.¹⁰⁸ For lack of consistent state practice,¹⁰⁹ an obligation of communicating or implementing goals consistent with the 1.5 or 2°C temperature targets cannot be identified as customary law or subsequent treaty practice.¹¹⁰ At most, the temperature targets indicate a standard of due diligence states must *seek* to reflect when implementing their general mitigation obligation, for instance by *considering* whether they can adopt consistent NDCs, rather than a firm yardstick against which a state's mitigation action could be assessed.¹¹¹

At any rate, these temperature targets do not point to a precise objective which could be expressed in terms of a total amount of cumulative carbon dioxide emissions ('carbon budget'). First, the objective is ambivalent because it is defined by *two* targets – and the difference between 1.5 and 2°C is substantial. Second, it is unclear how much additional warming either of these

¹⁰³E.g., Copenhagen Accord, in Ann. of Dec. 2/CP.15 (18–19 December 2009) FCCC/CP/2009/11/Add.1, para. 1.

¹⁰⁴R. Knutti et al., 'A Scientific Critique of the Two-Degree Climate Change Target', (2016) 9 *Nature Geoscience* 13, at 13.

¹⁰⁵S. Randalls, 'History of the 2°C Climate Target', (2010) 1 *WIREs Climate Change* 598, at 601–2.

¹⁰⁶Paris Agreement, *supra* note 1, Art. 2(1)(a).

¹⁰⁷E.g., L. Rajamani, 'Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics', (2016) 65 *ICLQ* 493, at 503; D. Bodansky, 'The Legal Character of the Paris Agreement', (2016) 25 *RECIEL* 142, at 145–7.

¹⁰⁸E.g., Paris Agreement, *supra* note 1, Art. 4(3), requiring each Party to communicate NDCs that 'reflect its highest possible ambition', without reference to the Agreement's mitigation objective. See also *Friends of the Earth*, *supra* note 36, para. 71; A. Zahar, 'Collective Obligation and Individual Ambition in the Paris Agreement', (2020) 9 *TEL* 165.

¹⁰⁹See *supra* note 10.

¹¹⁰B. Mayer, 'Temperature Targets and State Obligations on the Mitigation of Climate Change', (2021) 33 *JEL* 585, at 598–600.

¹¹¹*Ibid.*, at 604–8.

targets permits because it is unclear how much warming has already occurred. The best estimate is that global warming has reached about 1.1°C,¹¹² but this estimate comes with a significant range of uncertainty (0.95–1.20°C for a 90 per cent likelihood).¹¹³ Third, the Paris Agreement does not define any technical modalities scientists would need for understanding these temperature targets, such as the time horizon to which these targets apply,¹¹⁴ the permissibility of a temporary overshoot, the precise meaning of ‘pre-industrial levels’ (which were affected by natural climate variability), or the way ‘global average temperature’ is defined and calculated.¹¹⁵ Fourth, no emission budget would *guarantee* the achievement of any temperature target because scientists cannot fully predict the reaction of planetary systems to GHG emissions and the concurrent influence of extraneous factors such as solar and volcanic activities.¹¹⁶

Accordingly, a wide range of global emission limitation and reduction objectives are likely to achieve certain interpretations of these temperature targets. For instance, the IPCC’s Sixth Assessment Report (AR6, published in 2021–2022) estimates that, as of 2020, a 66 per cent chance of achieving a 1.5°C target would imply a remaining total carbon budget of 400 gigatons of carbon dioxide (GtCO₂), while a 50 per cent chance of achieving a 2°C target would allow up to 1,350 GtCO₂.¹¹⁷

Urgenda is the most prominent judicial assessment of a state’s mitigation action so far, and it illustrates the difficulties courts face when trying to identify a global mitigation objective. The Court of Appeal’s judgment discarded the projections contained in the IPCC’s Fifth Assessment Report (AR5, published in 2013–2014) on the ground that the report had not categorically excluded the possibility of relying on the future deployment of negative emission technologies.¹¹⁸ The Court thus brushed away the careful assessment by one of the most authoritative scientific bodies of the likelihood of this development.¹¹⁹ Instead of AR5, the Court of Appeal and the Supreme Court relied on the obsolete scientific estimates of the IPCC’s Fourth Assessment Report (AR4, published in 2007).¹²⁰ Accordingly, the courts considered that the GHG concentrations in the atmosphere should not exceed 450 parts per million (ppm) carbon dioxide equivalent (CO₂eq) in 2100 (‘450 ppm scenario’) in accordance with AR4’s projection for a 50 per cent chance of holding temperature within 2°C,¹²¹ even though AR5 suggested that a 500 ppm scenario would be consistent with the same likelihood of reaching that objective.¹²² With contemporary atmospheric concentrations estimated at 454 ppm CO₂eq,¹²³ the difference between the two scenarios can hardly be overstated.

¹¹²R. P. Allan et al., ‘Summary for Policymakers’, in V. Masson-Delmotte et al. (eds.), *Climate Change 2021: The Physical Science Basis: Contribution of the Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (forthcoming).

¹¹³*Ibid.*

¹¹⁴It is often assumed that the temperature targets only apply to the twenty-first century, but the Paris Agreement contains no explicit mention of this horizon.

¹¹⁵See M. Allen et al., ‘Framing and Context’, in V. Masson-Delmotte et al. (eds.), *Global Warming of 1.5°C* (2019), 49, at 56–7.

¹¹⁶See *ibid.*, at 60; M. Hulme, ‘On the “Two Degrees” Climate Policy Target’, in O. Edenhofer et al. (eds.), *Climate Change, Justice and Sustainability: Linking Climate Change and Development Policy* (2012), 122, at 123–4.

¹¹⁷R. P. Allan et al., ‘Summary for Policymakers’, in V. Masson-Delmotte et al., *Climate Change 2021: The Physical Science Basis* (2021), table SPM.2.

¹¹⁸*Urgenda v. the Netherlands*, ECLI:NL:GHDHA:2018:2591 (Court of Appeal of the Hague, 9 October 2018), 67 NILR 342 (2020) (*Urgenda II*), para. 49. The Supreme Court did not discuss this aspect of the judgment.

¹¹⁹O. Edenhofer et al., ‘Technical Summary’, in O. Edenhofer et al. (eds.), *Climate Change 2014: Mitigation of Climate Change* (2014), 33, at 70–2.

¹²⁰D. G. Victor et al., ‘Introductory Chapter’, in Edenhofer et al., *ibid.*, 111, at 115–25.

¹²¹*Urgenda II*, *supra* note 118, paras. 12, 49; *Urgenda III*, *supra* note 16, section 4.3. See B. Fisher et al., ‘Issues Related to Mitigation in the Long-term Context’, in B. Metz et al. (eds.), *Climate Change 2007: Mitigation of Climate Change* (2007), 169, at 227.

¹²²O. Edenhofer et al., ‘Summary for Policymakers’, in Edenhofer et al., *supra* note 119, 1, at 10.

¹²³European Environment Agency, ‘Atmospheric Greenhouse Gas Concentrations’ (2019), estimates for 2017. See also Edenhofer et al., *ibid.*, at 8.

Submissions by plaintiffs in other cases illustrate the possibility of starkly different interpretations of the temperature targets. The applicants in *ENVironnement JEUnesse v. Canada* also picked a 450 ppm scenario, but for different reasons: whereas *Urgenda* relied on the AR4's projection for a 50 per cent chance of achieving the 2°C target, *ENVironnement JEUnesse v. Canada* relied on the AR5's projection for a 66 per cent chance of achieving the same target.¹²⁴ An individual complaint to the Committee on the Rights of the Child suggested a more stringent carbon budget, drawn from the IPCC's Special Report on Global Warming of 1.5°C (SR1.5°C, published in 2019)'s projection for a 50 per cent chance of achieving a 1.5°C target with limited to no temperature overshoot.¹²⁵ The applicant memorandum in *Notre Affaire à tous v. France* also built on SR1.5°C's projection for a 50 per cent chance of achieving a 1.5°C target to suggest that global GHG emissions should be reduced by 45 per cent from 2010 to 2030.¹²⁶ This would imply that global emissions should not exceed 33 GtCO₂eq by 2030,¹²⁷ but they then referred to a 2030 target of 40 GtCO₂eq,¹²⁸ citing a UN Environment report based (like *ENVironnement JEUnesse's* memorandum) on the IPCC's AR5 projection for a 66 per cent chance of achieving a 2°C target.¹²⁹

3.1.2 Burden sharing

Having adopted a global mitigation objective, a judge needs to define a state's requisite contribution to its achievement. Thirty years of international negotiations have failed to achieve a comprehensive agreement on burden-sharing on climate change mitigation. To elude this political stalemate, courts and plaintiffs have generally attempted to fall back on scientific authority – but determining how a state *ought* to contribute to global mitigation efforts is not a question scientific analysis can answer.

Urgenda again provides an interesting case study. The courts decided that differentiation should follow the working assumptions embedded in the IPCC's AR4 450 ppm scenario:¹³⁰ developed states would reduce their GHG emissions by 25 to 40 per cent by 2020 compared with 1990 levels.¹³¹ The judgments suggest that this target was prescribed by the Conference of the Parties to the UNFCCC (COP).¹³² Yet, the COP itself only ever alluded to a broader target of reducing emissions by 10 to 40 per cent by 2020,¹³³ while the Meeting of the Parties to the Kyoto Protocol (CMP) referred to the 25 to 40 per cent target only in decisions adopted from 2010 to 2012.¹³⁴ In 2012, the CMP adopted the Doha Amendment to the Kyoto Protocol, which imposed commitments on developed countries 'with a view to reducing their overall emissions of

¹²⁴Applicant memorandum in *Environnement Jeunesse v. Canada* (filed 26 November 2018), available at www.perma.cc/4BCS-CYQW, section 2.38.

¹²⁵Petition to the Committee on the Rights of the Child, *Sacchi v. Argentina* (filed 23 September 2019), available at www.perma.cc/G44B-6EAP, para. 69. The complaint was dismissed for failure to exhaust national remedies. See generally Allan, *supra* note 112, at 12.

¹²⁶Complementary applicant memorandum in *Notre Affaire à Tous v. France*, 14 March 2019, available at www.perma.cc/4QRM-CSGD, 9.

¹²⁷B. Allen et al., 'Technical Summary', in Masson-Delmotte, *supra* note 115, at 33.

¹²⁸*Notre affaire à tous*, *supra* note 126, at 57.

¹²⁹UNEP, *Emissions Gap Report* (2018), xix.

¹³⁰See *Urgenda I*, *supra* note 15, section 4.23; *Urgenda II*, *supra* note 118, para. 48; *Urgenda III*, *supra* note 16, section 7.1.

¹³¹Gupta et al., 'Policies, Instruments and Co-Operative Arrangements', in Metz et al., *supra* note 121, at 776.

¹³²*Urgenda III*, *supra* note 16, section 7.2.3.

¹³³Dec. 1/CP.13 (14–15 December 2007) FCCC/CP/2007/6/Add.1, preamble ¶5 (fn 1), citing T. Barker et al., 'Technical Summary', in Metz et al., *supra* note 121, at 90.

¹³⁴Decs. 1/CMP.6 (10–11 December 2010) FCCC/KP/CMP/2010/12/Add.1, preamble para. 6; 1/CMP.7 (11 December 2011) FCCC/KP/CMP/2011/10/Add.1, preamble para. 10; 1/CMP.8 (8 December 2012) FCCC/KP/CMP/2012/13/Add.1, para. 7. While the judgments mention other decisions, those do not mention the 25–40% emission reduction target.

[GHG] by at least 18 per cent below 1990 levels in the commitment period 2013 to 2020'.¹³⁵ No developed state used its option to revise their Doha commitments by 2014 in order to ensure their consistency with the 25 to 40 per cent emission reduction target.¹³⁶ As such, the tentative political endorsement of the target in the early 2010s had already become obsolete in 2015, when *Urgenda* was decided.

The courts in *Urgenda* also approached the 25 to 40 per cent emission reduction target as 'scientifically proven'.¹³⁷ This assessment, however, mischaracterized the IPCC's mitigation scenarios, which do not intend to promote any course of action, but only aim to provide '[a] plausible description of how the future may develop'.¹³⁸ While these scenarios inevitably involve 'equity interpretations'¹³⁹ relating to developed states' share of global responsibilities, the IPCC – which 'should be neutral with respect to policy'¹⁴⁰ – has never recommended or 'proven' any burden-sharing arrangement.¹⁴¹

In this already precarious position, the courts in *Urgenda* asserted that the 25 to 40 per cent emission reduction target, which was considered applicable to developed states as a group, should also apply to the Netherlands. The Supreme Court upheld that, 'in principle, the target . . . also applies to the individual states within the group'.¹⁴² It saw no 'obvious' reason to impose a different rate to the Netherlands.¹⁴³

Yet, state practice provides no support to a 'principle' that every individual developed state must achieve the same mitigation target. To the contrary, national targets tend to differ substantially to reflect national circumstances. QELRCs under the Kyoto Protocol's first commitment period vary within a range of 18 per cent of the baseline; those applicable to the second commitment period vary by 23.5 per cent.¹⁴⁴ NDCs include absolute emission reduction targets ranging from 9.8 to 75 per cent.¹⁴⁵ The EU member states agreed internally on national targets (for the emissions not covered by the EU's emission trading scheme) which vary up to 53 per cent from the baseline.¹⁴⁶ Thus, substantial variations in national targets, even among developed states, is the rule rather than the exception.

Remarkably, the courts in *Urgenda* did not question the state's capacity to achieve additional mitigation outcomes within just a few years. Implementing effective measures to mitigate climate change takes time: a 2020 milestone the IPCC posited in 2007 may be far less feasible in 2015 (when the District Court first decided the case) if the necessary measures have not already been adopted and implemented. In 2015, the Netherlands estimated that it had achieved 11 per cent emission reduction and that the measures it had taken would achieve a total of 18 per cent

¹³⁵Doha Amendment, *supra* note 41, Art. 1C. See also M. G. J. den Elzen, A. F. Hof and M. Roelfsema, 'Analysing the Greenhouse Gas Emission Reductions of the Mitigation Action Plans by Non-Annex I Countries by 2020', (2013) 56 *Energy Policy* 633.

¹³⁶Dec. 1/CMP.8, *supra* note 134, para. 7; UNFCCC CMP10, 'Report on the High-Level Ministerial Round Table on Increased Ambition of Kyoto Protocol Commitments', FCCC/KP/CMP/2014/3 (2014).

¹³⁷*Urgenda I*, *supra* note 15, section 4.85. See also *Urgenda III*, *supra* note 16, section 7.2.8 ('a high degree of consensus . . . in the climate science community').

¹³⁸A. Verbruggen (ed.), 'Glossary', in Metz et al., *supra* note 121, at 820.

¹³⁹Barker, *supra* note 133, at 90.

¹⁴⁰'Principles Governing IPCC Work', 1998, last amended 2013, para. 2.

¹⁴¹To the contrary, see L. Clarke et al., 'Assessing Transformation Pathways', in Edenhofer et al., *supra* note 119, at 433, noting that 'a considerable range of 2020 and 2030 emissions can be consistent with specific long-term goals'.

¹⁴²*Urgenda III*, *supra* note 16, section 7.3.2 (emphasis added).

¹⁴³*Ibid.*, section 7.3.4.

¹⁴⁴Kyoto Protocol, *supra* note 40, Ann. B (from 92% to 110%); Doha Amendment, *supra* note 41, Art. 1.A (from 76% to 99.5%).

¹⁴⁵UNFCCC Secretariat, 'Synthesis Report on the Aggregate Effect of INDCs: An Update', FCCC/CP/2016/2, (2016), para. 9. These targets apply to different base years, scopes, and assumptions, which only allows for a very rough comparison.

¹⁴⁶Council Dec. 2002/358/CE, [2002] OJ-L130/1, Ann. II (53% variation); Dec. 406/2009, *supra* note 82, Ann. II (40%); Reg. 2018/842, *supra* note 82, Ann. I (40%).

emission reduction by 2020, compared with 1990.¹⁴⁷ At that point, a 25 per cent emission reduction target appeared feasible, but the Netherlands could have hardly achieved *up to 40 per cent* emission reduction, as the courts' analysis suggested.

It was thus apparently by luck, rather than design, that the courts in *Urgenda* imposed a realistic target on the state. Had the courts singled out a different collective target discussed in the course of international negotiations,¹⁴⁸ selected the most recent IPCC report, or assumed that the Netherlands had to achieve the same level of emission reduction as the average developed country, they may have pointed to an entirely different target – possibly one virtually unachievable.

3.2 The bottom-up method

The bottom-up method seeks to assess a state's mitigation action by reference to its own policies or to emerging international trends. This method identifies important considerations but typically overstates its legal force to suggest the existence of a binding standard, in the same way as the top-down method overstates the authority of scientific reports.

3.2.1 Policy statements

Policy statements do not normally create legal obligations. Even a putative principle of non-regression in international environmental law would apply to what is 'guaranteed by current law', not to mere policies.¹⁴⁹ Nevertheless, a policy statement on climate change mitigation may reflect what the state itself once assessed as feasible and equitable as its fair share in global co-operation on climate change mitigation. A policy shift toward less stringent mitigation objectives could suggest that the state is not co-operating in good faith if this shift lacks justification. Such policy statements ought to be considered by a judge assessing a state's requisite level of mitigation action, not as definitive evidence of a state's requisite mitigation action, but rather as part of a set of indicia.

Yet, court decisions and treaty body recommendations have not always differentiated between recognizing the relative evidentiary value of policy statements and giving them force of law. The Supreme Court of Colombia held that, for the state to comply with its obligation to protect human rights, it *had to* stop deforestation, on the ground that the state had announced a plan to do so.¹⁵⁰ Similarly, the Committee on Economic, Social and Cultural Rights recommended that Germany 'intensify its efforts to reach its greenhouse gas emission targets for 2020'.¹⁵¹ These decisions and recommendations did not provide any legal analysis to suggest that these policies created legal obligations per se, but nonetheless interpreted states' general mitigation obligation as *requiring* their implementation.

In contrast to the top-down approach, the relative simplicity of this reasoning is seductive. Beside NDCs, the Paris Agreement encourages states to communicate long-term mitigation strategies¹⁵² which, over time, could provide fodder for litigation. Parties have no treaty obligation to pursue these strategies, but it will become more difficult for a state to claim that it is

¹⁴⁷Second Biennial Report of the Netherlands under the UNFCCC (2015), available at www.unfccc.int/documents/198934, 54.

¹⁴⁸E.g., Dec. 1/CP.13, *supra* note 133, preamble para. 5 (fn. 1) (10–40% emission reduction by 2020); Doha Amendment, *supra* note 41, Art. 1C (18% emission reduction during 2013–2020 commitment period).

¹⁴⁹Preliminary Draft of a Global Pact of the Environment (2017), available at www.perma.cc/SNE3-228U, Art. 17. See also *supra* note 43.

¹⁵⁰Corte Suprema de Justicia (Supreme Court, Colombia), 5 April 2018, STC4360-2018, ('*Future Generations v. Ministry of the Environment*'), para. 10. See also applicant memorandum in *Pandey v. India* (25 March 2017), available at www.perma.cc/HQL8-XC3A, para. 12.

¹⁵¹Committee on Economic, Social and Cultural Rights, Germany, *supra* note 26, paras. 18–19. See also Committee on Economic, Social and Cultural Rights, Argentina, *supra* note 26, para. 14.

¹⁵²See *supra* note 4.

implementing sufficient mitigation action when it is acting inconsistently with its own long-term strategy.

It remains, however, that a state's own policy does not automatically create a mandatory standard for the state's mitigation action. National policies are often insufficiently ambitious,¹⁵³ but they may sometimes reveal overambition. As such, there could be legitimate reasons for a state to change its policy, even when this means reducing its ambition.¹⁵⁴ Preventing policy changes could have an unintended chilling impact on the adoption of new policies, thus hindering negotiations aimed at enhancing national ambition.¹⁵⁵

3.2.2 International trends

Alternatively, a state's requisite mitigation action could be assessed in light of the conduct of other states. Thus, the Committee on the Elimination of Discrimination against Women recommended that Qatar 'strengthen efforts' on mitigation on the ground that its per capita emissions 'are among the highest in the world'.¹⁵⁶ Similarly, the High Court of New Zealand in *Thomson v. Minister for Climate Change* found that the state's objective of achieving 30 per cent emission reduction by 2030 compared with 2005 appeared as a 'fair' contribution to global efforts when compared with five other developed country targets ranging from 25 to 36 per cent emission reduction by the same time.¹⁵⁷ Yet, the latter comparison is incomplete¹⁵⁸ and, like the former, it is somewhat rudimentary as it fails to consider other relevant national circumstances. The technological and economic potential for emission reduction could differ, for instance, between sheep-farming New Zealand and coal-burning Australia.

Human rights treaty bodies have commented on the specific steps that states have taken or could have taken. Thus, the Committee on the Rights of the Child urged Australia 'to phase out the domestic use and export of coal and to accelerate the transition to renewable energy'.¹⁵⁹ The Committee on Economic, Social and Cultural Rights recommended that Argentina 'reconsider the large-scale exploitation of unconventional fossil fuels' while encouraging it 'to promote alternative an renewable energy sources'.¹⁶⁰ A joint statement of five treaty bodies suggested that states should phase out fossil fuels, promote renewable energy, address land-based emissions, and discontinue financial incentives to fossil fuels.¹⁶¹ These recommendations reflect growing expectations arising from international trends and initiatives towards phasing out fossil-fuel subsidies,¹⁶²

¹⁵³On the ambition gap see *supra* note 10.

¹⁵⁴This may not be permitted when a party to the Paris Agreement has communicated its mitigation objective as its NDC. See Paris Agreement, *supra* note 1, Art. 4(11); L. Rajamani and J. Brunnée, 'The Legality of Downgrading Nationally Determined Contributions under the Paris Agreement: Lessons from the US Disengagement', (2017) 29 JEL 537. No such rule seems to exist regarding long-term strategies.

¹⁵⁵See Paris Agreement, *ibid.*, Art. 14.

¹⁵⁶Committee on the Elimination of Discrimination against Women, Concluding Observations 2nd Periodic Report of Qatar, CEDAW/C/QAT/CO/2 (2019), paras. 43–4.

¹⁵⁷*Thomson*, *supra* note 25, para. 166. See also applicant memorandum in *Klimaatzaak v. Belgium* (1 June 2015), available at www.perma.cc/G3CT-4F5G, para. 94.

¹⁵⁸Norway and Switzerland had committed in their NDCs to reduce their 2030 emissions to a level equivalent to, respectively, around 48 and 52% of their 2005 emission levels.

¹⁵⁹Committee on the Rights of the Child, Concluding Observations 5th–6th Periodic Reports of Australia, CRC/C/AUS/CO/5-6 (2019), para. 41(b).

¹⁶⁰Committee on Economic, Social and Cultural Rights, Argentina, *supra* note 26, para. 14. See also Committee on Economic, Social and Cultural Rights, Concluding Observations 6th Periodic Report of Canada, E/C.12/CAN/CO/6 (2016), para. 54.

¹⁶¹Committee on the Elimination of Discrimination against Women et al., *supra* note 61, 'States' Human Rights Obligations', para. 3.

¹⁶²See, e.g., Dec. 1/CP.26, 'Glasgow Climate Pact', (13 November 2021) para. 20; G20, Leaders' Statement, 2009, available at www.perma.cc/U7HW-YJEG, para. 29.

phasing down the use of coal for power generation,¹⁶³ and stopping deforestation.¹⁶⁴ Yet, these trends do not automatically create legal rules. In principle, states are free to decide policy tools to reduce their GHG emissions,¹⁶⁵ and a single sectorial policy does not necessarily provide a fair representation of the state's overall mitigation effort. Rather than a definitive benchmark, comparisons with international trends should only be used within a set of indicia to assess whether the state *appears* to be exercising reasonable care – thus, at most, only creating a rebuttable presumption.

In conclusion, neither the top-down nor the bottom-up method provides any definitive formula to assess a state's mitigation action. The top-down method looks into scientific reports for what scientific analysis alone cannot provide; the bottom-up method relies on policy statements and international trends from which legal rules seldom arise. Both methods point to relevant yet insufficient elements to assess a state's mitigation action yet neither consistently identifies a predetermined benchmark against which judges could 'mechanically' assess the state's mitigation action.

4. Equitable solutions

Rather than seeking the mechanical application of an elusive benchmark, a judge could identify and weigh various relevant considerations to arrive at an equitable solution. This section recounts the theoretical bases for applying equity *infra legem* in domestic and international adjudication. It also highlights the experience of international judges in applying equity in relation to maritime delimitation. Finally, it outlines a method that allows for a relatively predictable and consistent judicial assessment of a state's mitigation action.

4.1 The equity embedded in the law

Judges are sometimes expected to be 'no more than the mouth that pronounces the words of the law'¹⁶⁶ – 'to apply the law as [they] find . . . it, not to make it'.¹⁶⁷ Yet, to decide a case, they cannot always rely on clear and specific rules: '[e]quity inevitably plays a large part in the application of the law' as 'a margin of discretion is necessarily left to those who have to apply [it] in the factual circumstances of a case'.¹⁶⁸ Vaughan Lowe noted that international judges must have 'recourse to principles and techniques often brought under the heading of "equity"'.¹⁶⁹ Likewise, Alfredo Mordechai Rabello's global comparative survey of the ways national judges avoid findings of *non liquet* showed that such techniques are at play behind various open-ended concepts such as God's judgment, local custom, Roman law, or the judge's conscience.¹⁷⁰ Ralph Newman noted the 'striking similarity' in the 'equitable content' of various legal systems – 'a similarity probably to be explained by the origin of equity in a sense of justice which is innate in human nature'.¹⁷¹

The degree of appreciation left to the judge varies in inverse proportion to the level of granularity of the law. Thus, equity plays its most prominent role in cases of first impression, a role that diminishes as a more comprehensive set of rules are discovered. While English legal tradition contrasts 'common law' and 'equity', equity (*lato sensu*) was also central in the genesis of

¹⁶³Dec. 1/CP.26, *supra* note 162, para. 20. See also the Powering Past Coal Alliance, available at www.poweringpastcoal.org, has 97 members, including 33 national governments.

¹⁶⁴UNGA Res 70/1 (25 September 2015), Goal 15(2).

¹⁶⁵See UNFCCC, *supra* note 1, preamble para. 10.

¹⁶⁶Monstesquieu, *The Spirit of Laws* (translated by T. Nugent 1752) (1748), 180.

¹⁶⁷*South West Africa (Ethiopia and Liberia v. South Africa)*, Second Phase, [1966] ICJ Rep. 6, para. 89.

¹⁶⁸David, *supra* note 94, section 289.

¹⁶⁹V. Lowe, 'The Role of Equity in International Law', (1992) 12 *Aus YBIL* 54, at 55.

¹⁷⁰Rabello, *supra* note 94, 64–6.

¹⁷¹R. A. Newman, 'Equity in Comparative Law', (1968) 17 *ICLQ* 807, at 810.

common law,¹⁷² ‘common law’ and later ‘equity’ gradually crystalized into a more comprehensive sets of rules (as Roman law once did) in a process which reduced (but never fully eliminated) reliance on the judge’s appreciation. Likewise, codification in countries of civil law tradition helped reduce the appreciation left to judges but has never removed it entirely.¹⁷³

Modern jurisprudence proposes two ways to conceive this judicial appreciation and, more broadly, the role of equity in the application of the law. On the one hand, H. L. A. Hart asserts that the ‘open texture of law’¹⁷⁴ leaves some ‘discretion’ for judges to strike ‘a reasonable compromise between many conflicting interests’.¹⁷⁵ This ‘discretion’, Joseph Raz concedes, must be exercised within legal limits¹⁷⁶ and is usually ‘guided by principles’¹⁷⁷ that incorporate equitable considerations. On the other hand, Ronald Dworkin contends that the judge has no genuine ‘discretion’: when a case does not fall within the ambit of a clear and specific rule, her decision should be *determined* by the application of legal principles.¹⁷⁸ Dworkin contrasts rules – which apply ‘in an all-or-nothing fashion’ – and principles – which merely ‘incline a decision one way, though not conclusively’.¹⁷⁹ As several principles may apply concurrently to the same question, the judge must ‘take into account the relative weight of each’.¹⁸⁰ Dworkin recognizes that actual judges are likely to arrive at different conclusions, but he suggests that there is only one ‘right answer’ which a hypothetical judge with unlimited skill, learning, patience, and acumen (‘Hercules’) would find.¹⁸¹ Whether judges have discretion or whether there is only one right answer can remain undecided: either way, Raz and Dworkin agree that judges, in the absence of clear and specific rules, must do their best to apply the law as equitably as possible.¹⁸²

In contemporary judicial practice, equity plays a more prominent role on the international plane.¹⁸³ In contrast with most domestic legal regimes, international law is characterized by a paucity of clear and specific rules, the ambivalence of many hard-fought treaty provisions, and fundamental yet persistent uncertainties regarding secondary rules on the identification of the law.¹⁸⁴ In addition, the limited practice of international litigation means that many cases are of first impression in at least some respects. Hersch Lauterpacht recognized that the prohibition of *non liquet* implies ‘the necessity for creative activity on the part of international judges’,¹⁸⁵ who should rely – in the absence of clear legal rules – on ‘general principles . . . in regard to which there exists a certain measure of agreement’.¹⁸⁶ As the next subsection shows, the experience of international judges demonstrates the

¹⁷²See S. F. C. Milsom, *Historical Foundations of the Common Law* (2014), 77; T. F. T. Plucknett, *A Concise History of the Common Law* (2001), 158.

¹⁷³David, *supra* note 94, section 289. See also references note 96.

¹⁷⁴H. L. A. Hart, *The Concept of Law* (2012), 128, noting that legal standards will inevitably, ‘at some point . . . prove indeterminate’.

¹⁷⁵*Ibid.*, at 132.

¹⁷⁶J. Raz, *The Authority of Law: Essays on Law and Morality* (1979), 194.

¹⁷⁷J. Raz, ‘Legal Principles and the Limits of Law’, (1972) 81 *Yale LJ* 823, 846 (emphasis added). See R. Dworkin, *Taking Rights Seriously* (2013), 39, defining ‘principles’ in relation to ‘a requirement of justice or fairness or some other dimension of morality’.

¹⁷⁸*Ibid.*, at 54.

¹⁷⁹*Ibid.*, at 40, 53.

¹⁸⁰*Ibid.*, at 43.

¹⁸¹*Ibid.*, Ch. 4.

¹⁸²See R. Dworkin, *A Matter of Principle* (1985), 4, noting that, once the law is seen as a matter of interpretation, ‘there is little point in either asserting or denying an “objective” truth for legal claims’.

¹⁸³E.g., Individual Opinion by Judge Hudson in *Diversion of Water from the Meuse (The Netherlands v. Belgium)*, [1937] PCIJ Series A/B, No 70, 76; Institut de droit international, ‘La compétence du juge international en équité’, (1937) 40 *Ann Inst Droit Intl* 271, para. 1; W. Friedmann, *The Changing Structure of International Law* (1964), 197. This article is interested in decisions applying the law, to the exclusion of judicial decisions *ex aequo et bono*.

¹⁸⁴See, e.g., S. Talmon, ‘Determining Customary International Law: The ICJ’s Methodology between Induction, Deduction and Assertion’, (2015) 26 *EJIL* 417.

¹⁸⁵Lauterpacht, *supra* note 98, at 100.

¹⁸⁶*Ibid.*, at 78. See generally ILC, First Report on General Principles of Law (Vásquez-Bermúdez), A/CN.4/732 (2019), para. 25.

ability of judicial decisions based on careful consideration of equity to develop relatively predictable and consistent approaches to adjudication.

4.2 International judicial experience in applying equity

Equity plays an instrumental role in various aspects of international litigation such as the determination of equitable compensation when an accurate assessment of the damage is impossible,¹⁸⁷ the delimitation of maritime areas¹⁸⁸ and land or maritime territories,¹⁸⁹ and the apportionment of natural resources.¹⁹⁰ In these situations, judges (including arbitrators) emphasized that they were not pursuing ‘merely personal predilections’,¹⁹¹ but rather applying ‘equitable principles as part of international law’,¹⁹² that is, *infra legem*.¹⁹³ As the ICJ noted, it was ‘not a matter of finding simply an equitable solution, but an equitable solution derived from the applicable law’.¹⁹⁴

The use of equity *infra legem* has alarmed positivists such as Michael Akehurst, who, reacting to the first decisions applying equitable considerations to maritime delimitation, speculated that ‘the number of cases submitted to international tribunals will vary in inverse proportion to the reliance on equity by judges and arbitrators’.¹⁹⁵ Yet, this prediction did not actualize – far from it. Since the ICJ’s 1969 *North Sea Continental Shelf* decision, the dockets of international courts filled with over two dozen cases on delimitation of continental shelves and exclusive economic zones (EEZs), about half of which were introduced by special agreements.¹⁹⁶

These successive cases allowed international courts to demonstrate the possibility of a relatively objective and systematic interpretation of equity. Decisions on maritime delimitation rely on two main stages – the assessment of a provisional line and its adjustment to reflect relevant circumstances – followed by a final check of proportionality.¹⁹⁷ The first stage of judicial decisions on maritime delimitation reflects the tenet that formal equality is relevant to equity.¹⁹⁸ Whenever possible, the provisional delimitation is based on equidistance: each point of the area is attributed to the closest coastal state.¹⁹⁹ Equidistance was generally preferred to simpler methods (e.g., dividing the relevant area equally between the parties) because of its ‘combination of practical convenience and certainty of application’.²⁰⁰

¹⁸⁷E.g., *Starrett Housing Corp v. Iran*, (1987) 16 Iran-US Claims 112, 221; *Judgment of the Administrative Tribunal of the ILO upon Complaints Made against the UNESCO*, [1956] ICJ Rep. 77, 100; *Loan Agreement (Italy/Costa Rica)*, (1988) 25 RIAA 21, 72–3; *Ahmadou Sadio Diallo (Guinea v. DRC)*, Compensation, [2012] ICJ Rep. 324, para. 36; *Responsabilité de l’Allemagne à raison des dommages causés dans les colonies portugaises du Sud de l’Afrique (Portugal/Germany)*, (1928) 2 RIAA 1013, 1031.

¹⁸⁸See in particular *North Sea Continental Shelf (Germany/Denmark, Germany/Netherlands)*, [1969] ICJ Rep. 3, paras. 85, 101(C)(1).

¹⁸⁹See *Frontier Dispute (Burkina Faso/Mali)*, [1986] ICJ Rep. 573, paras. 27–8, 149–50; *Land, Island and Maritime Frontier Dispute (El Salvador/Honduras; Nicaragua intervening)*, [1992] ICJ Rep. 350, paras. 262–3, 418; *Grisbadarna (Norway/Sweden)*, (1908) 11 RIAA 147, 160.

¹⁹⁰See *Fisheries Jurisdiction (UK v. Iceland)*, Merits, [1974] ICJ Rep. 3, para. 78. See also *Indus Waters Kishenganga Arbitration (Pakistan v. India)*, Partial Award, (2013) 31 RIAA 55, and Final Award, (2013) 31 RIAA 309, although not explicitly referring to ‘equity’.

¹⁹¹M. O. Hudson, *Permanent Court of International Justice, 1920–1942: A Treatise* (1943), 617.

¹⁹²*Continental Shelf (Tunisia/Libya)*, [1982] ICJ Rep. 18, para. 71.

¹⁹³*Burkina Faso/Mali*, *supra* note 189, para. 27. Applying equity *contra legem* is inconsistent with the judicial duty of applying the law, while equity *praeter legem* is only consistent with this duty if it is required by a secondary rule – in which case it really is *infra legem*.

¹⁹⁴*Fisheries Jurisdiction*, *supra* note 190, para. 78.

¹⁹⁵M. Akehurst, ‘Equity and General Principles of Law’, (1976) 25 ICLQ 801, at 811.

¹⁹⁶See A. G. Oude Elferink, T. Henriksen and S. V. Busch, ‘The Judiciary and the Law of Maritime Delimitation: Setting the Stage’, in A. G. Oude Elferink, T. Henriksen and S.V. Busch (eds.), *Maritime Boundary Delimitation: The Case Law: Is It Consistent and Predictable?* (2018), 1, at 29–32.

¹⁹⁷See S. Fietta and R. Cleverly, *A Practitioner’s Guide to Maritime Boundary Delimitation* (2016), 55–95.

¹⁹⁸E.g., *Burkina Faso/Mali*, *supra* note 189, para. 150.

¹⁹⁹E.g., M. Lando, *Maritime Delimitation as a Judicial Process* (2019), 102.

²⁰⁰*North Sea Continental Shelf*, *supra* note 188, para. 23.

Yet, judges have also acknowledged that equidistance is far from infallible: the slightest geographical feature – the shape of the coast or the presence of a state’s island near another state’s coast – can have disproportional implications on the provisional delimitation.²⁰¹ Noting that ‘[e]quity does not necessarily imply equality’,²⁰² judges found it necessary, in the second stage, to adjust this provisional line to reflect national circumstances in light of other relevant circumstances.

Judges frequently acknowledge that relevant national circumstances are ‘case-specific’²⁰³ and that there is ‘assuredly no closed list’ of these circumstances.²⁰⁴ Nevertheless, decisions have revealed some recurring themes. In particular, judges focus mostly on circumstances relating to the coasts’ geography, thus reflecting the origin of maritime entitlement in application of the adage that ‘the land dominates the sea’.²⁰⁵ They consider departing from the provisional delimitation when the shape of the coast or the presence of islands would have a disproportionate impact on states’ entitlements,²⁰⁶ or otherwise to avoid an excessive disparity between a state’s coastal length and its maritime entitlements.²⁰⁷ On the other hand, judges have persistently refused to consider circumstances unrelated to the origin of maritime entitlements, such as navigation patterns,²⁰⁸ states’ relative prosperity²⁰⁹ or populations,²¹⁰ the geology or geomorphology of the seabed,²¹¹ or even the foreseeable evolution of coastline resulting from the impacts of climate change.²¹² Judges have considered access to natural resources as a relevant circumstance but only to avoid ‘catastrophic repercussions for the livelihood and economic well-being of the population of the countries concerned’.²¹³

Throughout these decisions, judges have been wary to ensure ‘consistency and a degree of predictability’²¹⁴ even while recognizing that maritime delimitation cannot be done simply on the basis of a mathematical equation.²¹⁵ They have sought to rely on relevant objective considerations (e.g., distance from the coast) but, accepting that this is insufficient to ensure a fair and reasonable decision, they have made reasonable adjustments in light of other relevant circumstances that could not be examined in the first stage of their analysis. Although certain aspects of the decision-making process remain unsettled, observers recognize that these decisions have

²⁰¹*Ibid.*, para. 89(a).

²⁰²*Ibid.*, para. 91.

²⁰³*Delimitation of the Exclusive Economic Zone and the Continental Shelf (Barbados v. Trinidad and Tobago)*, (2006) 27 RIAA 147, 242.

²⁰⁴*Continental Shelf (Libya/Malta)*, [1985] ICJ Rep. 13, para. 48.

²⁰⁵E.g., *North Sea Continental Shelf*, *supra* note 188, para. 96. See generally Fietta and Cleverly, *supra* note 197, at 67; B. B. Jia, ‘The Principle of the Domination of the Land over the Sea: A Historical Perspective on the Adaptability of the Law of the Sea to New Challenges’, (2014) 57 GYBIL 1.

²⁰⁶E.g., *Continental Shelf (UK/France)*, (1977) 18 RIAA 3, para. 202.

²⁰⁷*North Sea Continental Shelf*, *supra* note 188, para. 101(D)(3); *Maritime Delimitation in the Black Sea (Romania v. Ukraine)*, [2009] ICJ Rep. 61, paras. 210–16; *Bay of Bengal Maritime Boundary (Bangladesh v. India)*, (2014) 32 RIAA 1, para. 397.

²⁰⁸*Territorial and Maritime Dispute (Nicaragua v. Colombia)*, [2012] ICJ Rep. 624, para. 222. See also UN Convention on the Law of the Sea 1982, 1833 UNTS 3, Art. 58. By contrast, navigation patterns may be relevant to the delimitation of territorial sea: see *Beagle Channel (Argentina/Chile)*, (1977) 21 RIAA 53, para. 110.

²⁰⁹*Tunisia/Libya*, *supra* note 192, para. 107; *Libya/Malta*, *supra* note 204, para. 50 (‘such considerations are totally unrelated to the underlying intention of the applicable rules of international law’); *Barbados v. Trinidad and Tobago*, *supra* note 203, para. 241; *Black Sea*, *supra* note 207, para. 198; *Nicaragua v. Colombia*, *supra* note 208, para. 223; *Delimitation of the Maritime Boundary (Guinea/Guinea-Bissau)*, (1985) 19 RIAA 149, para. 123.

²¹⁰*Maritime Delimitation in the Area between Greenland and Jan Mayen (Denmark v. Norway)*, [1993] ICJ Rep. 38, para. 80.

²¹¹E.g., *Libya/Malta*, *supra* note 204, paras. 39–40; *Delimitation of the maritime boundary in the Bay of Bengal (Bangladesh/Myanmar)*, [2012] ITLOS Rep. 4, para. 322.

²¹²*Bangladesh v. India*, *supra* note 207, para. 399.

²¹³*Jan Mayen*, *supra* note 210, para. 75. See also *Delimitation of the Maritime Boundary in the Gulf of Maine Area (Canada/US)*, [1984] ICJ Rep. 246, para. 237; *Maritime Delimitation (Eritrea/Yemen)*, Second Stage, (1999) 22 RIAA 335, para. 72.

²¹⁴*Libya/Malta*, *supra* note 204, para. 45.

²¹⁵*Barbados v. Trinidad and Tobago*, *supra* note 203, para. 373.

achieved ‘a degree of predictability’,²¹⁶ perhaps even enough to ‘justifiably speak of a common law of maritime delimitation’.²¹⁷

4.3 Application to climate litigation

National and international judges should not rely on any legal rule or scientific authority in isolation as an authoritative benchmark to interpret a state’s general mitigation obligation. Rather, requisite mitigation action should be assessed by consideration of what is fair and reasonable given all circumstances relevant to the nature of this due diligence obligation as accepted by states. In particular, states have recognized the relevance of CBDRRC in light of national circumstances and the need to preserve access to sustainable development.²¹⁸

Applying these principles and determining their relative weight is a delicate task for a court, but it is similar to the judicial process of maritime delimitation. In either case, a judge must apply the law without specific rules, either to set a maritime delimitation within an expanse of water, or to distinguish between lawful and unlawful GHG emissions. The question is clearly not one left to the unfettered discretion of the judge: the judge must apply the law as fairly and reasonably as possible. On the other hand, while the judge will inevitably rely on equity, this is unmistakably equity *embedded* in the law, as opposed to policy considerations about what the law *should be*.²¹⁹

Regrettably, the *Urgenda* decisions make no mention of equity *infra legem*. The judges did not acknowledge, let alone review, the ‘equity interpretations’²²⁰ on which the IPCC’s scenarios were built,²²¹ claiming instead that specific mitigation targets were ‘scientifically proven’.²²² The judges assumed, against all odds, that a 2020 scenario the IPCC found feasible in 2007 remained so in 2015.²²³ Overall, they made a strong assumption against any adjustment of the state’s mitigation target in light of national circumstances,²²⁴ even though state practice systematically involves substantial adjustments whenever collective objectives are translated into national targets.²²⁵ These various flaws in the *Urgenda* decisions presumably have the same origin: the judges’ eagerness to present their decision as the mechanical application of a predetermined rule, rather than a matter of judicial appreciation in the application of vague legal principles. The judges failed to present a consistent and persuasive reasoning because they were not ready to acknowledge and justify the central role that equity was inevitably playing in their decisions.

Rather than concealing equity, a judge ought to embrace it and engage in a careful, nuanced, and systematic assessment of the state’s requisite mitigation action. Notwithstanding whether the decision is made by a national or an international judge, this process of interpretation could build on the experience of international courts in applying equity *infra legem*, especially for maritime delimitation cases. The judicial assessment of a state’s requisite mitigation action could follow a structure similar to that used to decide maritime delimitation cases. Judges should first adopt a provisional assessment based on the most relevant objective considerations, similar to the equidistance line in maritime delimitation cases. Accepting this alone is not sufficient, however,

²¹⁶A. G. Oude Elferink, T. Henriksen and S. Veierud Busch, ‘Conclusions’, in Elferink, Henriksen and Busch, *supra* note 196, 376, at 396.

²¹⁷Lando, *supra* note 199, xvii.

²¹⁸See above, Section 2.2.

²¹⁹On the latter see, e.g., H. Shue, ‘Subsistence Emissions and Luxury Emissions’, (1993) 15 *Law and Policy* 39; S. Caney, ‘Cosmopolitan Justice, Responsibility, and Global Climate Change’, (2005) 18 *LJIL* 747; D. Moellendorf, ‘Climate Change Justice’, (2015) 10 *Philosophy Compass* 173.

²²⁰See *supra* note 139.

²²¹*Urgenda I*, *supra* note 15, section 4.23; *Urgenda II*, *supra* note 118, para. 48; *Urgenda III*, *supra* note 16, section 7.2.1.

²²²See *supra* note 137.

²²³*Urgenda III*, *supra* note 16, section 7.2.1.

²²⁴*Ibid.*, sections 7.3.1–7.3.6.

²²⁵See *supra* notes 144–6.

as they should then make appropriate (possibly far-reaching) adjustments to reflect other relevant circumstances.

The following section aims to provide a rough sketch of the methodology courts could follow in cases like *Urgenda*. It suggests a structure for a court's judgment rather than a formula to follow mechanically. Two judges following this same method in the same case could arrive at slightly different conclusions, since they may have unique assessments of national circumstances. However, their disagreement might be less problematic compared to how the courts chased pre-determined benchmarks in *Urgenda*.²²⁶

4.3.1 Provisional assessment

The provisional assessment of a state's requisite level of mitigation action should reflect the most relevant objective consideration, thus allowing judicial analysis to proceed on objective grounds as far as possible before turning to adjustments that leave more room to the judge's appreciation. By analogy, judges selected equidistance, among other possible applications of equality, because the location of the closest coast is both highly relevant to maritime delimitation and convenient to assess.²²⁷

Equal absolute levels of GHG emissions might be the most obvious basis for a provisional assessment of a state's requisite level of mitigation action, but it would not adequately reflect the nature of a due diligence obligation: two states of different sizes cannot be expected to have GHG emissions of the same magnitude.

Equal per capita emissions may provide a more attractive basis for a provisional assessment, assuming that a state's lawful level of GHG emissions depends on its population.²²⁸ Yet, state practice does not reflect acceptance of population as *the* most relevant factor to determine the content of a state's mitigation obligation.²²⁹ Absolute or per capita GHG emissions do not adequately reflect the incremental approach of climate change 'mitigation' states have accepted, which is an approach focusing on efforts to depart from current emission levels.

As such, a provisional assessment would best reflect states' general mitigation obligation if it was based on *equal intensity of efforts* (i.e., on an equal level of diligence). However, this assessment would be impractical because there is no simple indicator of a state's intensity of effort. Carbon-pricing measures only apply to some emissions in some sectors in some countries,²³⁰ and often concurrently with traditional regulations.²³¹ Therefore, the 'price' imposed on GHG emissions is neither a comprehensive nor a reliable indication of the intensity of a state's mitigation action. 'Implicit' carbon prices, on the other hand, can only be determined through complex economic analysis with significant margins of uncertainty.²³² Consistently, state practice has not built on any direct indication of intensity of efforts as a basis to assess a state's requisite mitigation action.

Rather, as intuited by the courts in *Urgenda*, an *equal emission reduction rate* provides the best starting point to assess a state's requisite mitigation action in the short- to medium-term. State practice lends support to the use of emission limitation and reduction rates rather than carbon

²²⁶See above, Section 3.1.

²²⁷See *supra* note 200.

²²⁸See applicant memorandum in *Carvalho v. Parliament* (24 May 2018), available at www.perma.cc/8JB4-DMZB, para. 266.

²²⁹See *supra* notes 75–82.

²³⁰See World Bank Group, *State and Trends of Carbon Pricing* (2019).

²³¹Thus, in addition to an emission trading scheme applicable to the power sector, the EU imposes energy efficiency standards that increase the effort that its citizens must make to reduce these GHG emissions. See Directive 2012/27, [2012] OJ-L315/1.

²³²See, e.g., C. Marcantonini and A. D. Ellerman, 'The Implicit Carbon Price of Renewable Energy Incentives in Germany', (2015) 36 *Energy Journal* 205, at 206–7. A limitation of implicit carbon price is the need to determine what measures a state implements with the intention of mitigating climate change, to the exclusion of any other policy objective.

price or per capita emissions, as the metric to measure, report, and compare national mitigation action. For instance, the Kyoto Protocol commitments were expressed as percentage of emission limitation and reduction,²³³ and the Parties to the Paris Agreement were advised (or required, for developed country Parties) to express their mitigation objectives as economy-wide emission reduction targets.²³⁴ Therefore, a court's assessment of a state's requisite mitigation action should start with the provisional assessment of an equal rate of emission reduction applicable to every state (or, at least, every developed state).²³⁵

There is no perfect way to determine the value of this equal emission reduction rate. States and courts accept IPCC reports as a reliable reflection of the best available science, but it remains that IPCC mitigation scenarios do not demonstrate any benchmark states have agreed to follow. At this point, a judge would have to weigh a 'descending' interpretation of a general mitigation obligation in light of temperature targets and other collective objectives, with an 'ascending' interpretation inducing a social norm from what states typically do.²³⁶ A judge solely following a descending reasoning would refer to the IPCC estimates of the emission reduction rate consistent with the temperature targets – although the judge would face difficulties when interpreting these targets.²³⁷ By contrast, a judge following a purely ascending reasoning would refer to IPCC estimates for the emission reduction rate states are likely to achieve based on the measures states have taken or announced, to determine the common practice in light of which a state's obligation should be interpreted. Rather than relying on a purely descending or ascending reasoning, a judge would more convincingly seek a middle way between these two approaches.

4.3.2 Adjustments

In the second stage, this provisional assessment needs to be adjusted to reflect other relevant national circumstances. States have emphatically accepted that a state's requisite mitigation action is contingent on its national circumstances, in light of equity and the CBDDRC principle.²³⁸ The circumstances generally accepted as relevant include the state's capacity to take effective measures on climate change mitigation as reflected by its level of development, its financial and technological capacity, its access to renewable energy sources within its territory, and the foreseeable evolution of its population. States have further recognized the relevance of responsibility-related factors, including their current per capita emissions, historical emissions,²³⁹ and possibly the emissions embedded in international trade.²⁴⁰

Rather than the identification of applicable principles, it is often the weighing of relevant circumstances that constitutes the most delicate aspect of judicial decisions on matters that are not decided by clear and specific rules. This task relies inevitably on the judge's subjective appreciation, although not on her unfettered discretion. International courts have often noted that decisions on maritime delimitation can only be approximate,²⁴¹ and yet this has not prevented them from adopting such decisions, nor has it deterred states from referring disputes to their appreciation. The cause of justice is not advanced when a judge falsely claims her decision is the direct inference of clear scientific findings or the direct implication of specific rules.

²³³See, e.g., Kyoto Protocol, *supra* note 40, Art. 3(1)

²³⁴See Paris Agreement, *supra* note 1, Art. 4(4).

²³⁵The application of the provisional assessment to developing states is more problematic given wider differences in national circumstances, *a fortiori* for subcategories (e.g., least-developed countries) with less demanding obligations.

²³⁶On the distinction between ascending and descending reasoning see M. Koskeniemi, *From Apology to Utopia: The Structure of International Legal Argument* (2009), 59–60; Mayer, 'The Duty of Care', *supra* note 68.

²³⁷See above, Section 3.1.1.

²³⁸See above, Section 2.2.

²³⁹Dec. 1/CP.16, *supra* note 77, second recital before para. 36.

²⁴⁰See L. Rajamani, 'Common but Differentiated Responsibilities', in M. Faure (ed.), *Elgar Encyclopedia of Environmental Law* (2018), 291.

²⁴¹See *Nicaragua v. Colombia*, *supra* note 208, para. 158; *Black Sea*, *supra* note 207, para. 111.

Rather, a judge should fully acknowledge the difficulty of the task and conduct a careful weighing of relevant circumstances with the view of ensuring that, while two judges would most likely have different appreciations of the relative importance of various considerations, their conclusions would not be too far apart.

The experience of international courts suggests that the state's own conduct or even some extraneous developments could assist the judge in finding an equitable solution when other elements with more legal force do not suffice. For instance, an arbitral tribunal relied on France's acceptance of the UK's Eddystone Rock as a base point in technical negotiations on fisheries to hold that the Rock was also relevant to the delimitation of the UK's continental shelf.²⁴² Similarly, the ICJ defined a land border by reference to a line El Salvador and Honduras had envisaged 127 years earlier, noting that this line represented 'a reasonable and fair solution in all the circumstances'.²⁴³ In another frontier dispute, the ICJ relied on a map developed by an independent geographical institute as circumstantial evidence of the delimitation of the border between Burkina Faso and Mali, emphasizing that 'all other evidence [was] lacking'.²⁴⁴ Cases regarding territorial titles have long been decided in favour of the party which has 'a marginally better case'.²⁴⁵

When assessing a state's mitigation action, a judge should similarly attribute some subsidiary evidentiary value to policy statements, international trends, and even the views of independent organizations. These elements should be considered as part of a set of *indicia*, within a comprehensive review of both bottom-up and top-down considerations, allowing the judge to assess the state's requisite mitigation action as fairly and reasonably as possible.

Finally, judicial experience with maritime delimitation demonstrates that, with each successive decision, judges may advance a better collective understanding of the law, thus leading to more predictability and consistency in its application.²⁴⁶ To facilitate this process, it is important that judges not only make an equitable decision in the case at issue, but also seek to identify the underlying principles.²⁴⁷ Judicial assessments of states' mitigation action could learn through trial and error, progressively gaining consistency and predictability. Yet, this process of harmonization will be significantly complicated by the fact that climate litigation takes place before very different jurisdictions (national and international). If they overcome linguistic and other cultural difficulties, judges should be able to relate meaningfully with one another's decision on this particular methodological issue.

There is no denying, however, that the resolution of disputes on climate change mitigation can raise far more difficult issues than cases in which international courts have applied equity, such as cases on maritime delimitation. Determining a state's requisite level of mitigation action involves evidence and value judgments that are vastly more complex. It seems, however, that equity could provide a better starting point for a judge, allowing her to acknowledge limitations of the applicable law and to seek a fair and reasonable solution.

5. Conclusion

National and regional courts and human rights treaty bodies are increasingly tasked to assess states' conduct in light of their general obligation to mitigate climate change. However, party submissions, judicial decisions, and quasi-judicial recommendations are built on shaky

²⁴²UK/France, *supra* note 206, paras. 140–44. See also *Newfoundland and Labrador/Nova Scotia*, Second Phase, (2002) 128 ILR 504, section 4.31.

²⁴³*El Salvador/Honduras*, *supra* note 189, para. 263.

²⁴⁴*Burkina Faso/Mali*, *supra* note 189, para. 62.

²⁴⁵*Maritime Delimitation (Eritrea/Yemen)*, First Stage, (1998) 22 RIAA 209, para. 490. See also *Palmas*, *supra* note 49, at 869.

²⁴⁶See *supra* notes 216–17.

²⁴⁷*Libya/Malta*, *supra* note 204, para. 45; P. Weil, *The Law of Maritime Delimitation: Reflections* (1989), 12.

foundations, relying on scientific analysis or on a demand for consistency with the state's policies or with international trends in a vain quest for predetermined benchmarks. This article has shown that the decisions could be more convincing were judges to engage in a careful weighing of all relevant circumstances in light of equity, building on the experience of international courts. The judicial assessment of a state's requisite mitigation action may never be 'a wholly mechanical activity', but neither is it 'wholly discretionary'.²⁴⁸ Like legal interpretation in general, this judicial assessment can only ever aspire to a relative or 'bounded objectivity'.²⁴⁹

By demonstrating that a state's requisite mitigation action can be assessed by a judge in a relatively satisfactory way, this article does not suggest that litigation is a panacea or that a holistic assessment of a state's requisite level of mitigation action is the most effective litigation strategy. Instead of second-guessing a state's requisite mitigation action, a court may prefer – when procedural rules allow – to call upon the parties to the dispute to carry out consultations, possibly on the basis of principles the court would highlight, in view of reaching promptly an equitable agreement.²⁵⁰ However, negotiations and consultations are more likely to succeed if the judge is ready, as a last resort, to interpret and apply the state's mitigation obligation in admissible disputes before her. When everything else has failed, the judicial assessment of a state's mitigation effort based on equity is the only viable alternative to a denial of justice.

²⁴⁸O. M. Fiss, 'Objectivity and Interpretation', (1928) 34 *Stan LR* 739, at 739.

²⁴⁹*Ibid.*, at 745.

²⁵⁰See, by analogy, *North Sea Continental Shelf*, *supra* note 188, para. 101; *Fisheries Jurisdiction*, *supra* note 190, para. 73; *Land Reclamation in and around the Straits of Johor (Malaysia v. Singapore)*, Order on Provisional Measures, [2003] ITLOS Rep. 10, para. 106(1). See also *Grande-Synthe*, *supra* note 18, ordering the adoption of 'appropriate measures' within ten months.