

# Temperature Targets and State Obligations on the Mitigation of Climate Change

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## Abstract

The Supreme Court of the Netherlands in *Urgenda* held that States had a customary obligation to implement their ‘fair share’ in achieving the 2 °C temperature limitation target they had agreed upon. Yet, this article argues, the notion that States must adopt or implement mitigation action in line with temperature targets finds no support in treaty or customary law. States’ acceptance of temperature targets as a collective objective is relevant to interpreting the standard of due diligence applicable to mitigation obligations only inasmuch as this objective is actually reflected in consistent State practice. At present, temperature targets represent essentially an agreement on a direction of travel: the need for more mitigation action. Over time, the acceptance of this objective could facilitate further legal developments as States agree on particular implications of temperature targets and on a requirement that each of them acts consistently with its interpretation of these targets.

## Key words

Temperature targets, climate change mitigation, fair share, Paris Agreement, obligation, differentiation, requisite level of mitigation action

## 1. Introduction

States have long recognized climate change and its adverse effects as ‘a common concern of humankind’<sup>1</sup> and called for ‘the widest possible cooperation’<sup>2</sup> to address it. The 1992 UN

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<sup>1</sup> UN Framework Convention on Climate Change (9 May 1992) 1771 UNTS 107 (hereinafter UNFCCC) Preamble ([2]); Paris Agreement (12 December 2015) (2016) 55 ILM 740, Preamble ([12]).

<sup>2</sup> UNFCCC (n 1) Preamble ([7]); Dec 1/CP.21 (12 December 2015) Preamble ([6]). The decisions adopted by the Parties to the UNFCCC, to the Kyoto Protocol and to the Paris Agreement are all available at <<http://unfccc.int/decisions>>.

Framework Convention on Climate Change (UNFCCC) creates an obligation for each of its Parties to ‘[f]ormulate, implement ... and regularly update national ... programmes containing measures to mitigate climate change’<sup>3</sup> by limiting greenhouse gas (GHG) emissions. More specifically, the developed country Parties listed in Annex I must ‘adopt ... policies and take corresponding measures on the mitigation of climate change’.<sup>4</sup> Further, each Party to the 2015 Paris Agreement is to adopt successive nationally determined contributions (NDCs) and ‘pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions’.<sup>5</sup> Arguably, State obligations on climate change mitigation may arise not only from the UNFCCC and Paris Agreement but also from these NDCs as unilateral declarations,<sup>6</sup> as well as from customary international law<sup>7</sup> and human rights treaties.<sup>8</sup>

A singularly vexing question regards the assessment of a State’s requisite level of mitigation action. The question has become particularly topical as plaintiffs and civil society organizations have claimed that States are required to do more than they have expressly committed to through their NDCs.<sup>9</sup> While the Paris Agreement leaves it for each Party to determine its contribution to global efforts on climate change mitigation, it nevertheless endorses an objective of ‘[h]olding the increase in global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels’.<sup>10</sup> These temperature goals have frequently been invoked as a touchstone to assess States’ ambitions on climate change mitigation.<sup>11</sup> Their political and social significance is beyond question—temperature targets may for instance signal to the corporate world that certain long-term investments are unlikely to be viable, and to civil societies what they can

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<sup>3</sup> UNFCCC (n 1) art 4(1)(b).

<sup>4</sup> *ibid* art 4(2)(a). See also Kyoto Protocol to the UNFCCC (11 December 1997) 2303 UNTS 162, art 3; Doha Amendment to the Kyoto Protocol (8 December 2012) in Dec 1/CMP.8.

<sup>5</sup> Paris Agreement (n 1) art 4(2).

<sup>6</sup> Benoit Mayer, ‘International Law Obligations Arising in Relation to Nationally Determined Contributions’ (2018) 7 TEL 251.

<sup>7</sup> Benoit Mayer, ‘The Relevance of the No-Harm Principle to Climate Change Law and Politics’ (2016) 19 APJEL 79; Christina Voigt, ‘State Responsibility for Climate Change Damages’ (2008) 77 Nordic JIL 1.

<sup>8</sup> John Knox, Special Rapporteur on human rights relating to the enjoyment of a safe, clean, healthy and sustainable environment, Report on Human Rights and Climate Change (1 February 2016) A/HRC/31/52.

<sup>9</sup> For a review of the cases, see Benoit Mayer, ‘Interpreting States’ General Obligations on Climate Change Mitigation: A Methodological Review’ (2019) 28 RECIEL 107.

<sup>10</sup> Paris Agreement (n 1) art 2(1)(a).

<sup>11</sup> See eg Climate Action Tracker, ‘Countries’, <<https://climateactiontracker.org/countries/>>.

expect from their governments. By contrast, the legal significance of these temperature targets is all but obvious. While legal scholarship on the Paris Agreement has often suggested that these targets establish a ‘collective obligation’,<sup>12</sup> it is uncertain what this expression means: the Paris Agreement neither creates a legal person capable of holding an obligation on behalf of the Parties as a whole nor determines how its Parties are to share the burden of achieving either temperature target.

In recent years, two apex national courts have expressed contrasting views about the legal significance of temperature targets. In *Urgenda*, the Supreme Court of the Netherlands found that the State’s obligation to protect the right to life and to family life under the European Convention on Human Rights, interpreted in light of customary international law, implied an obligation for the State to do its fair share in achieving a 2 °C target, which, in the Court’s assessment, required a minimum 25 percent reduction in GHG emissions by 2020 compared with 1990.<sup>13</sup> Just about a year later, the Supreme Court of the United Kingdom in *Friends of the Earth* found that the Airport National Policy Statement had validly been adopted following consultations on the basis of documents that made no mention of the temperature targets of the Paris Agreement. In the Court’s assessment, ‘the Paris Agreement did not impose an obligation on any state to adopt a binding domestic target to ensure that [its mitigation] objectives were met’.<sup>14</sup> Party submissions in several other cases currently pending before national courts and supra-national human rights institutions refer to temperature targets as a touchstone to assess States’ alleged lack of ambition on climate change mitigation.<sup>15</sup>

This article assesses the nature, legal force and normative implications of 1.5 and 2 °C targets. It refutes the frequent assumption, instrumental in *Urgenda*, that States have accepted an obligation to adopt and implement mitigation action consistent with temperature targets. The lack of express treaty provision or consistent State practice prevents the identification of an obligation on States to adopt or implement mitigation action consistent with this objective.

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<sup>12</sup> See references below n 89.

<sup>13</sup> *The Netherlands v Urgenda* (Supreme Court, 20 December 2019), (2020) 59 ILM 811.

<sup>14</sup> *R (Friends of the Earth) v Heathrow* [2020] UKSC 52 [71].

<sup>15</sup> Cases are currently pending before the UN Committee on the Rights of the Child (‘*Sacchi v Argentina*’), the UN Human Rights Committee (‘*Torres Strait Islanders v Australia*’), the European Court of Human Rights (*Agostinho v Portugal*), the European court of Justice (*Carvalho v Parliament*) and multiple national courts. See generally Climate Change Litigation Databases, <<http://climatecasechart.com/>>.

Nevertheless, the article suggests, the objective is relevant to the interpretation of the standard of due diligence applicable in relation to various existing treaty and customary obligations on climate change mitigation, so far as this interpretation is in line with State practice. At present, these targets essentially reflect an agreement among States about the direction of travel—the need for more mitigation action—and about the urgency of travelling in this direction. Going forward, agreement by States on this mitigation objective could facilitate new normative developments, in particular the emergence of benchmarks to assess States’ mitigation action based either on States’ shared understanding of particular implications of temperature targets (eg time-specific milestones) or on each State’s own understanding of such implications.

The next section characterizes the 1.5 and 2 °C temperature targets as a vague political understanding from which one cannot infer any precise global or a fortiori national ‘budget’ of GHG emissions. Section 3 shows that States have not accepted any immediate obligation to adopt or implement mitigation action consistent with these temperature targets. Section 4 explores how temperature targets may assist in interpreting existing obligations on climate change mitigation, in particular the standard of due diligence associated with these obligations. Section 5 envisages the potential of temperature targets to facilitate the emergence of additional norms that would help to assess whether a State’s mitigation action is sufficiently ambitious.

The exclusive focus of this article is on the significance of the temperature targets for States’ primary obligations under public international law. However, there is no obvious reason why the significance of the temperature targets should be radically different when interpreting the domestic mitigation obligations that could be derived, for instance, from constitutional human rights provisions,<sup>16</sup> the public trust doctrine<sup>17</sup> or the duty of care,<sup>18</sup> perhaps even in situations where such obligations could be applied to non-State actors, insofar as the domestic legal order allows courts to take international law into account. This article does not discuss the potential implications of the temperature targets for secondary obligations under the law of State

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<sup>16</sup> Corte Suprema de Justicia, abril 5, 2018, MP: LA Tolosa Villabona, STC4360-2018 (Colombia).

<sup>17</sup> *Juliana v US*, 947 F 3d 1159 (9th Cir 2019).

<sup>18</sup> *Urgenda v the Netherlands*, C/09/456689, HA ZA 13-1396, 24 June 2015 (District Court of The Hague).

responsibility as this raises complex and as yet largely unexplored questions about the legal responsibility of States for the impacts of climate change affecting other States.<sup>19</sup>

In contrast to some of the literature on climate law, this article follows a legal positivist approach to international law, in line with prevalent doctrine and judicial practice on the sources of international law.<sup>20</sup> In particular, the analysis is informed by the premise that the existence of a rule of international law depends on its acceptance by States, not on its consistency with (the interpreter's view on) the public good. This methodology thus opposes trends in climate and environmental law scholarship to blur the line between what is law and what is not,<sup>21</sup> or to interpret international law 'pro natura'.<sup>22</sup> This article does not seek to expand the obligations of States beyond what they have consented to because it is based on the understanding that judges and scholars have no more (and probably far less) legitimacy in developing international law than national governments.<sup>23</sup>

## 2. The temperature targets

This preliminary section explores the origin and nature of temperature targets by way of background for the analysis in the following sections. It shows that these targets are not determined by science in a vacuum but emerge from a political process. The decisions adopting these targets do not define them in a way permitting a precise, objective calculation of a global budget of GHG emissions. Furthermore, the absence of comprehensive agreements on the timing of mitigation action and on the sharing of efforts among States makes it impossible to determine precisely what achieving these targets would require from an individual State at a given time.

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<sup>19</sup> Benoit Mayer, 'Climate Change Reparations and the Law and Practice of State Responsibility' (2017) 7 Asian JIL 185.

<sup>20</sup> See eg Hugh Thirlway, *The Sources of International Law* (2nd edn, OUP 2019) 14; *SS Lotus*, PCIJ (ser A), No 10 (1927), 18.

<sup>21</sup> See generally Prosper Weil, 'Towards Relative Normativity in International Law?' (1983) 77 AJIL 413, 415.

<sup>22</sup> IUCN World Congress on Environmental Law, 'IUCN World Declaration on the Environmental Rule of Law' (April 2016), <[https://www.iucn.org/sites/dev/files/content/documents/english\\_world\\_declaration\\_on\\_the\\_environmental\\_rule\\_of\\_law\\_final.pdf](https://www.iucn.org/sites/dev/files/content/documents/english_world_declaration_on_the_environmental_rule_of_law_final.pdf)>, principle 5.

<sup>23</sup> See eg Benoit Mayer, 'Realizing Whose Utopia? The Structure of Normative International Law Arguments' (2014) 27 LJIL 537, 549.

## 2.1. Origins

The UNFCCC defined the climate regime's 'ultimate objective' as achieving stabilization of GHG concentrations in the atmosphere 'at a level that would prevent dangerous anthropogenic interference with the climate system'.<sup>24</sup> Besides the implicit recognition that 'some climate change is inevitable',<sup>25</sup> this provision left many questions unanswered. In particular, what constitutes 'dangerous' climate change is a question of value that does not admit an entirely objective examination: answers depend on what level of risk one considers acceptable.<sup>26</sup> This question relates closely to the necessary political arbitrage between environmental protection and other priorities (eg economic development and human welfare) that the concept of sustainable development calls for.

The objective of holding the increase in global average temperature to below 2 °C above pre-industrial temperatures ('2 °C target') had already been discussed by European advisory bodies in the late 1980s, was actively promoted by the EU from 1996 onwards as a way to specify the UNFCCC's ultimate objective,<sup>27</sup> and gained broader international traction in the 2000s.<sup>28</sup> It was mentioned in the 2009 Copenhagen Accord,<sup>29</sup> which also called for further 'consideration of strengthening' this goal 'in relation to temperature rises of 1.5 degrees Celsius'.<sup>30</sup> With the 2010 Cancun Agreements, the Conference of the Parties to the UNFCCC (COP) endorsed the 2 °C target as a long-term goal under the Convention and established a periodic process to

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<sup>24</sup> UNFCCC (n 1) art 2.

<sup>25</sup> Philippe Sands, 'The United Nations Framework Convention on Climate Change' (1992) 1 RECIEL 270, 272.

<sup>26</sup> Ottmar Edenhofer and others, 'Technical Summary' in Ottmar Edenhofer and others (eds), *Climate Change 2014: Mitigation of Climate Change: Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2014), 37 (box TS.1). See also David G Victor, *Global Warming Gridlock: Creating More Effective Strategies for Protecting the Planet* (CUP 2012), 5–6, 46–48, denouncing the 'scientist's myth' that science can determine the requisite level of mitigation action.

<sup>27</sup> Samuel Randalls, 'History of the 2°C Climate Target' (2010) 1 WIREs Climate Change 598; Piero Morseletto, Frank Biermann and Philipp Pattberg, 'Governing by Targets: Reductio Ad Unum and Evolution of the Two-Degree Climate Target' (2017) 17 International Environmental Agreements: Politics, Law and Economics 655.

<sup>28</sup> Declaration of the Leaders: The Major Economies Forum on Energy and Climate (9 July 2009).

<sup>29</sup> Copenhagen Accord, [1], in Annex to UNFCCC Dec 2/CP.15 (2009). See also *ibid* [2].

<sup>30</sup> *ibid* [12].

review the adequacy of this goal, ‘including in relation to’ a 1.5 °C target.<sup>31</sup> The 1.5 °C target was promoted in particular by small island developing States, which deemed it essential to avoiding ‘severe implications for our national interests’.<sup>32</sup>

The 2015 Paris Agreement built on the outcome of the first periodic review<sup>33</sup> by defining a mitigation objective consisting of holding global warming ‘well below’ 2 °C and ‘pursuing efforts to limit’ it to 1.5 °C.<sup>34</sup> Furthermore, the Paris Agreement suggested that Parties should collectively ‘reach global peaking of [GHG] emissions as soon as possible ... and ... undertake rapid reduction thereafter’ so as to achieve net zero emissions ‘in the second half of this century’.<sup>35</sup> Beyond the Paris Agreement, States have reaffirmed the 1.5 and 2 °C targets in multiple resolutions and decisions adopted by the UN General Assembly,<sup>36</sup> the UN Human Rights Council,<sup>37</sup> and Conferences of the Parties to other multilateral environmental agreements.<sup>38</sup>

At times, States and observers have suggested that the temperature targets were not only informed by science but fully *determined* by it. Thus, the Copenhagen Accord claimed to be ‘recognizing the scientific view’ that global warming should be held below 2 °C;<sup>39</sup> the COP suggested that deep cuts in GHG emissions consistent with the 2 °C target were ‘required according to science’;<sup>40</sup> and the Committee on Economic, Social and Cultural Rights (CESCR) asserted that a report by the Intergovernmental Panel on Climate Change (IPCC) had shown

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<sup>31</sup> Dec 1/CP.16 (10–11 December 2010) [4]. See also *ibid* [138–40]; UNFCCC Decs 2/CP.17 (11 December 2011) third recital before [5] and second recital before [32]; 1/CP.18 (8 December 2012) second recital before [79]; 9/CP.20 (13 December 2014) Annex ([80]); 10/CP.21 (13 December 2015) [4].

<sup>32</sup> See the declarations by Belize, the Marshall Islands, Micronesia, Nauru, Solomon Island and St Lucia on their acceptance of the Doha Amendment to the Kyoto Protocol.

<sup>33</sup> Dec 10/CP.21 (13 December 2015) [4].

<sup>34</sup> Paris Agreement (n 1) art 2(1)(a).

<sup>35</sup> *ibid* art 4(1).

<sup>36</sup> General Assembly Res 70/205 (22 December 2015) [5]; 71/228 (21 December 2016) [4]; 72/219 (20 December 2017) [4]; 73/232 (20 December 2018) [4]; 74/219 (10 December 2019) [3]; 75/217 (21 December 2020) [4].

<sup>37</sup> HRC Res 38/4 (5 July 2018) Preamble ([9]); 41/21 (12 July 2019) Preamble ([10]); 44/7 (16 July 2020) Preamble ([10]); 45/30 (7 October 2020) [14].

<sup>38</sup> CBD decision 14/5 (17–29 November 2018) Preamble ([7]); Ramsar Convention on Wetlands Resolution XIII.13 (21–29 October 2018) [12]; World Heritage Committee decision 42 COM 7 (24 June–4 July 2018) [29].

<sup>39</sup> Copenhagen Accord (n 29) [1]. See also *ibid* [2].

<sup>40</sup> Dec 1/CP.16 (10–11 December 2010) [4].

that achieving a 1.5 °C target ‘is imperative’.<sup>41</sup> None of these statements specifies what discipline of ‘science’ they were referring to. Science is a method to advance human knowledge—to determine what *is*—not to make value-based judgements about what *ought to be*.<sup>42</sup> The IPCC reports, which are ‘neutral with respect to policy’,<sup>43</sup> have never recommended any temperature target or mitigation pathway.<sup>44</sup> Some scientists may of course have expressed their take on a desirable level of mitigation action, but those are inevitably scientists’ personal views rather than the scientific view.

## 2.2. Vagueness

Although the mitigation goal of the Paris Agreement is less evasive than the UNFCCC’s ultimate objective, it remains very vague. It is often assumed that this goal implies a precise global budget of GHG emissions<sup>45</sup> but, for the three reasons presented below, this assumption needs at least some nuancing. Temperature targets indicate a direction of travel—they clearly imply that more mitigation action is needed—but not a destination point for international action on climate change mitigation.

First, there is no obvious way to make sense of a mitigation objective that is made up of two different targets—and, as the global average temperature has already increased by an estimated

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<sup>41</sup> CESCR, Climate Change and the International Covenant on Economic, Social and Cultural Rights, E/C.12/2018/1 (31 October 2018) [2].

<sup>42</sup> David Hume famously demonstrated that factual statements about what *is* cannot lead to conclusions about what *ought to be* without the intervention of normative premises (values). See David Hume, *A Treatise of Human Nature* (Clarendon Press 1896) book III, part I, section I.

<sup>43</sup> IPCC, ‘Principles Governing IPCC Work’ (1–3 October 1998, last revised on 14–18 October 2013) [2].

<sup>44</sup> See Edenhofer and others, ‘Technical Summary’ (n 26) 37 (box TS.1) and 51–64; and generally Reto Knutti and others, ‘A Scientific Critique of the Two-Degree Climate Change Target’ (2016) 9 *Nature Geoscience* 13, 16.

<sup>45</sup> Jutta Brunnée, ‘Procedure and Substance in International Environmental Law’ (2019) 450 *RdC* 75, 198; Lavanya Rajamani and Jacob Werksman, ‘The Legal Character and Operational Relevance of the Paris Agreement’s Temperature Goal’ (2018) 376 *Philosophical Transactions of the Royal Society A* 2119, 5.

1.0 °C above pre-industrial levels,<sup>46</sup> the difference between 1.5 and 2 °C is substantial.<sup>47</sup> It is a tenet of treaty interpretation that treaty provisions are to be read ‘in a way that gives meaning to all of them, harmoniously’<sup>48</sup>—a principle often referred to as the doctrine of effectiveness (*effet utile*) or by reference to the maxim *Ut res magis valeat quam pereat*.<sup>49</sup> Yet, it is unclear how an interpretation of the Paris Agreement’s mitigation objective could make sense of both targets. Rajamani and Werksman have suggested that the objective is to achieve both targets,<sup>50</sup> but this would deprive the 2 °C target from its meaning as the achievement of the 2 °C target is necessarily implied by the achievement of the 1.5 °C target. An interpretation discarding the 1.5 °C target is no more convincing. The nuanced phrasing of the Paris Agreement seems to suggest a distinction between an endeavour (‘pursuing efforts’ towards 1.5 °C) and a result (2 °C), but while such distinction between conduct and result can be made with regard to individual obligations,<sup>51</sup> it does not readily make sense when applied to a collective objective that States, at any rate, will only endeavour to achieve.

Second, States have not agreed on the definition of certain technical modalities that are essential for making sense of either temperature target. For instance, States have not specified the time horizon to which these targets apply: they discussed a 2100 horizon when negotiating the Paris Agreement<sup>52</sup> (in no small part because of the paucity of multi-centennial climate

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<sup>46</sup> Myles R Allen and others, ‘Summary for Policymakers’ in Valérie Masson-Delmotte and others (eds), *Global Warming of 1.5°C: An IPCC Special Report* (IPCC 2019) 4 ([A1]).

<sup>47</sup> *ibid* 12 ([C.1]), noting that ‘model pathways’ consistent with the 2 °C target would require 25% emission reduction by 2030, while those consistent with the 1.5 °C target (with no or limited overshoot) would require 45% emission reduction.

<sup>48</sup> *Argentina—Safeguard Measures on Imports of Footwear*, AB-1999-7, WT/DS121/AB/R, p. 27 ([81]) (1999) (emphasis removed from the original).

<sup>49</sup> Richard Gardiner, *Treaty Interpretation* (OUP 2015) 66. See also *Korea—Definitive Safeguard Measures on Imports of Certain Dairy Products*, AB-1999-8, WT/DS98/AB/R, p. 24, paras 81–81 (1999); *Territorial Disputes (Libyan Arab Jamahiriya/Chad)*, Merits, 1994 ICJ Rep 6, [47]; ILC, ‘Commentary on Draft Articles on the Law of Treaties’, [1966] II Yearbook of the International Law Commission 219, [6].

<sup>50</sup> Rajamani and Werksman (n 45) 11.

<sup>51</sup> Pierre-Marie Dupuy, ‘Reviewing the Difficulties of Codification: On Ago’s Classification of Obligations of Means and Obligations of Result in Relation to State Responsibility’ (1999) 10 EJIL 371.

<sup>52</sup> Dec 1/CP.20 (14 December 2014) Annex.

models),<sup>53</sup> but they never formally agreed on this or any other horizon.<sup>54</sup> Nor have States decided whether the objective is that global temperatures should *continuously* remain below 1.5 or 2.0 °C, or whether a temporary overshoot is permissible as long as temperatures then stabilize below the target by the time horizon. Significant implications also follow from necessary choices between alternative definitions of ‘global average temperature’<sup>55</sup> and (in light of natural climatic variability) ‘pre-industrial levels’.<sup>56</sup>

Third, there remains significant scientific uncertainty regarding both the current level of warming and its future evolution. On the one hand, the estimate that the global average temperature has already increased by 1.0 °C above pre-industrial levels is associated with an uncertainty of  $\pm 0.2$  °C for a 66 percent likelihood<sup>57</sup>—a considerable level of uncertainty, particularly given the proximity of the 1.5 °C target. On the other hand, scientists do not know everything about how the climate system will react to increased atmospheric concentrations in GHGs (eg given non-linear feedbacks, in particular ‘tipping points’)<sup>58</sup> and how it will be influenced by natural factors (eg volcanic activities and variation in solar activity)<sup>59</sup> in the coming decades. As such, an emission budget could only be associated with an estimated

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<sup>53</sup> Matthew Collins and others, ‘Long-term Climate Change: Projections, Commitments and Irreversibility’ in Thomas F Stocker and others (eds), *Climate Change 2013: The Physical Science Basis. Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2013) 1029.

<sup>54</sup> An alternative hypothesis is that the temperature targets apply to the level at which global warming will stabilize in the long term, with regard to which there is greater uncertainty. See *ibid.*

<sup>55</sup> Widely used definitions include near-surface air temperature as well as land and sea surface temperature, which evolve differently. See Myles R Allen and others, ‘Framing and Context’ in Masson-Delmotte and others (n 46) 56, noting that ‘[f]or ambitious mitigation goals, and under conditions of rapid warming or declining sea ice ..., the difference can be significant’. See also Katarzyna B Tokarska and others, ‘Recommended Temperature Metrics for Carbon Budget Estimates, Model Evaluation and Climate Policy’ (2019) 12 *Nature Geoscience* 964.

<sup>56</sup> See Allen and others, ‘Framing’ (n 55) 57–59.

<sup>57</sup> Allen and others, ‘Summary’ (n 46) 4.

<sup>58</sup> Joeri Rogelj and others, ‘Mitigation Pathways Compatible with 1.5°C in the Context of Sustainable Development’ in Masson-Delmotte and others (n 46) 104–08.

<sup>59</sup> Allen and others, ‘Framing’ (n 55) 59; Katarzyna B Tokarska and others, ‘Uncertainty in Carbon Budget Estimates Due to Internal Climate Variability’ (2020) 15 *Environmental Research Letters* 104064.

probability of achieving a temperature target.<sup>60</sup> The COP<sup>61</sup> and the General Assembly<sup>62</sup> once suggested that the emission pathway ought to have ‘a likely chance’ (referring to the IPCC’s language for a 66 percent probability) of achieving both targets, but States have decided not to include this indication in the Paris Agreement.<sup>63</sup>

The combination of these three difficulties makes it especially challenging to translate temperature targets into an emission budget with any degree of precision. The IPCC’s Special Report on Global Warming of 1.5°C (SR1.5) estimates that a 66 percent probability of holding global warming below 1.5 °C by the end of the century implies a remaining budget (as of 2018) of 420 gigatons of carbon dioxide (GtCO<sub>2</sub>), whereas a 50 percent chance of holding it below 2 °C allows up to 1,500 GtCO<sub>2</sub> emissions.<sup>64</sup> Not only do these estimates differ substantially, but each of them is associated with high levels of uncertainty, of particular significance with regard to the 1.5 °C target,<sup>65</sup> and considerable differences can also be noticed between scientific studies.<sup>66</sup>

While the temperature targets do not define a specific destination, they do point to the need to enhance global mitigation action. The IPCC noted a ‘medium agreement’ among scientists that the current trajectory of global GHG emissions ‘is inconsistent with’ the 1.5 and 2 °C targets.<sup>67</sup> Projections based on current NDCs suggest that States would use most or all of their remaining emission budgets consistent with either temperature target in the 2020s alone.<sup>68</sup> States themselves have repeatedly acknowledged that the aggregate effect of their current

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<sup>60</sup> Allen and others, ‘Framing’ (n 55) 77; Mike Hulme, ‘On the “Two Degrees” Climate Policy Target’ in Ottmar Edenhofer and others (eds), *Climate Change, Justice and Sustainability: Linking Climate Change and Development Policy* (Springer 2012) 123–24.

<sup>61</sup> Decs 1/CP.17 (11 December 2011) Preamble ([3]); 1/CP.18 (8 December 2012) second recital before [4] and third recital before [14]; 2/CP.18 (8 December 2012) Preamble ([4]); 1/CP.19 (23 November 2013) Preamble ([4]); 1/CP.20 (14 December 2014) Preamble ([7]).

<sup>62</sup> Res 70/205 (n 36) Preamble ([5]).

<sup>63</sup> On proposals to include this phrase in the Agreement, see Dec 1/CP.20 (14 December 2014) Annex.

<sup>64</sup> Rogelj and others (n 58) 108.

<sup>65</sup> *ibid.*

<sup>66</sup> Glen P Peters, ‘Beyond Carbon Budgets’ (2018) 11 *Nature Geoscience* 378.

<sup>67</sup> David G Victor and others, ‘Introductory Chapter’ in Edenhofer and others (n 26) 113.

<sup>68</sup> UNFCCC Secretariat, ‘Aggregate Effect of the Intended Nationally Determined Contributions: An Update’, FCCC/CP/2016/2 (2 May 2016) [222].

commitments falls short of what is needed to achieve the mitigation goal defined by the Paris Agreement.<sup>69</sup>

### 2.3. Defining consistency

Achieving any temperature target requires efforts by many States over many years. Yet, a given State's contribution at a given time is rarely, if ever, strictly 'necessary' to achieve a global target. Determining the consistency of a State's mitigation action with temperature targets requires various normative assumptions about the timing and sharing of the necessary efforts. States are yet to fully agree on these assumptions.

Determining the timing of mitigation action implies a balance between the interests of present and future generations.<sup>70</sup> It is often assumed that States should strive to follow the 'least-cost' mitigation pathway to achieve temperature targets and, consequently, that the timing of mitigation action is a technical question for scientists (economists, presumably) to decide.<sup>71</sup> Yet, if the 'cost' to be assessed is limited to economic cost, this assumption begs questions about the fairness of excluding any consideration for non-market welfare value.<sup>72</sup> On the other hand, if 'cost' is understood more broadly as referring to any drawback, the assertion of the need to follow a 'least-cost' mitigation pathway provides no indication of the way to define such pathways, referring instead, inevitably, to value-based questions that science alone cannot answer.<sup>73</sup> More specific value-related questions about the discount rate applicable to future costs<sup>74</sup> or about the way to approach deep uncertainty around future technological development<sup>75</sup> also have considerable implications for the projection of any 'least-cost' mitigation pathway consistent with temperature targets.

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<sup>69</sup> See below n 106.

<sup>70</sup> For a review of the moral philosophical scholarship on the topic, see Charles Kolstad and others, 'Social, Economic, and Ethical Concepts and Methods' in Edenhofer and others (n 26), 216–17.

<sup>71</sup> See eg Dec 1/CP.21 (12 December 2015) [17], referring to the IPCC the question of the 2030 mitigation target consistent with a 1.5 °C target.

<sup>72</sup> Edenhofer and others, 'Technical Summary' (n 26) 59 (box TS.9).

<sup>73</sup> See above n 42.

<sup>74</sup> Kolstad and others (n 70) 228–32. See also William D Nordhaus, 'A Review of the Stern Review on the Economics of Climate Change' (2007) 45 J Econ Literature 686.

<sup>75</sup> Minh Ha-Duong and Nicolas Treich, 'Risk Aversion, Intergenerational Equity and Climate Change' (2004) 28 Environmental and Resource Econ 195. With regard to negative emissions technology, see Allen and others, 'Summary' (n 46) 14.

The determination of burden-sharing among States is even more problematic, and this has been the object of protracted argument among States. States have adopted broad principles on differentiation, recognizing the relevance of their ‘common but differentiated responsibilities and respective capabilities’ (CBDRRC), ‘equity’, the need to take ‘national circumstances’ ‘into account’ and the fact that ‘developed country Parties’—which may or may not be limited to those listed in Annex I to the UNFCCC—should ‘take the lead in combating climate change’.<sup>76</sup> These principles, however, are little more than constructive ambiguities aimed at allowing negotiations to continue despite the persistence of disagreement on the substance. While Parties acknowledged the need to ‘tak[e] into full consideration [their] different circumstances’,<sup>77</sup> they could not agree on a comprehensive list of such circumstances, and even less on a unique formula to account for them. This inability to agree on a burden-sharing formula led to the adoption of a bottom-up approach to differentiation, whereby each Party determines its own contribution,<sup>78</sup> despite the obvious risk that this would not lead to sufficient action.

States representatives have long aligned their interpretation of CBDRRC+ with some of the theories that best fit their national interests.<sup>79</sup> From the outset of international negotiations, a sharp disagreement appeared regarding the relevance of historical emissions.<sup>80</sup> Developing States insisted that developed States were *responsible* for climate change, as GHG emissions resulted mostly from activities that were permitted by and benefited developed States.<sup>81</sup> By

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<sup>76</sup> UNFCCC (n 1) art 3(1). See also Paris Agreement (n 1) art 2(2).

<sup>77</sup> Dec 1/CP.16 (10–11 December 2010) [1]. See also Dec 1/CP.20 (14 December 2014) [3] (‘in light of different national circumstances’); Paris Agreement (n 1) arts 2(2), 4(3) and 4(4).

<sup>78</sup> Copenhagen Accord (n 29) paras 4–5; Dec 1/CP.16 (10–11 December 2010) paras 36–37 and 48–50; Paris Agreement (n 1) art 4(2).

<sup>79</sup> Andreas Lange and others, ‘On the Self-Interested Use of Equity in International Climate Negotiations’ (2010) 54 *Eur Econ Rev* 359.

<sup>80</sup> Duncan French, ‘Developing States and International Environmental Law: The Importance of Differentiated Responsibilities’ (2000) 49 *ICLQ* 35; Mario Prost and Alejandra Torres Camprubi, ‘Against Fairness: International Environmental Law, Disciplinary Bias, and Pareto Justice International Law and Practice: Symposium: Fairness in International Environmental Law’ (2012) 25 *LJIL* 379, 387–88. While some States have softened their position over time, the two diametrically opposed arguments remain influential to date.

<sup>81</sup> Caracas Declaration of the Ministers of Foreign Affairs of the Group of 77 on the Occasion of the Twenty-Fifth Anniversary of the Group (21–23 June 1989), reproduced in doc A/44/361, [II–34]. See also Beijing Ministerial Declaration on Environment and Development (14–19 June 1991), reproduced in (1992) 1 *Chinese Journal of Population Resources and Environment* 54, [12].

contrast, developed States promoted alternative grounds for differentiation, such as financial and technical capacity, which could justify a lesser degree of differentiation while also imposing a greater share of the burden on emerging economies.<sup>82</sup> As time eroded the dichotomy between developed and developing States, representatives on both sides moderated their position and showed a willingness to compromise, but national approaches to equity have remained largely irreconcilable.<sup>83</sup>

Thus, NDCs reflect the diversity of criteria that States rely on to assess what constitutes their fair share in global mitigation action. The UNFCCC Secretariat noted that Parties identified the following criteria as relevant for evaluating fairness and ambition: ‘responsibility and capability; share of emissions; development and/or technological capacity; mitigation potential; cost of mitigation actions; the degree of progression or stretching beyond the current level of effort; and the link to objectives and global goals’.<sup>84</sup> While most Parties accept the relevance of most of these criteria, they disagree regarding their relative importance,<sup>85</sup> and different approaches to equity lead to substantial differences in the assessment of a State’s fair share in global mitigation action.<sup>86</sup> Third-party assessments of the consistency of individual NDCs with temperature targets often come to different conclusions.<sup>87</sup>

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<sup>82</sup> Written statement of the United States on Principle 7 of the Rio Declaration, in *Report of the United Nations Conference on Environment and Development*, A/CONF.151/26 (vol IV) (28 September 1992) [16].

<sup>83</sup> Martin Kesternich, Andreas Löschel and Andreas Ziegler, ‘Negotiating Weights for Burden Sharing Rules in International Climate Negotiations: An Empirical Analysis’ [2020] *Env Econ & Pol Studies*, doi.org/10.1007/s10018-020-00289-0.

<sup>84</sup> UNFCCC Secretariat (n 68) [172]. See discussion in N Chan, ‘Climate Contributions and the Paris Agreement: Fairness and Equity in a Bottom-Up Architecture’ (2016) 30 *Ethics & Intl Affairs* 291, 295–96.

<sup>85</sup> Megan Mills-Novoa and Diana M Liverman, ‘Nationally Determined Contributions: Material Climate Commitments and Discursive Positioning in the NDCs’ (2019) 10 *WIREs Climate Change* e589; Claire Swingle, ‘Climate Justice after the Paris Agreement: Understanding Equity through Nationally Determined Contributions’ in Paul G Harris (ed), *A Research Agenda for Climate Justice* (Edward Elgar 2019).

<sup>86</sup> Xunzhang Pan and others, ‘Exploring Fair and Ambitious Mitigation Contributions under the Paris Agreement Goals’ (2017) 74 *Environmental Science & Policy* 49; Niklas Höhne and others, ‘Assessing the Ambition of Post-2020 Climate Targets: A Comprehensive Framework’ (2018) 18 *Climate Policy* 425.

<sup>87</sup> For two contradictory assessments of the EU’s NDC, see Climate Action Tracker (n 11); and Ge Gao and others, ‘Sufficient or Insufficient: Assessment of the Intended Nationally Determined Contributions (INDCs) of the World’s Major Greenhouse Gas Emitters’ (2019) 6 *Frontiers of Engineering Management* 19. For two contradictory assessments of India’s NDC, see Yann Robiou du Pont and others, ‘Equitable Mitigation to Achieve the Paris Agreement Goals’ (2017) 7 *Nature Climate Change* 38; and Panagiotis Fragkos and Nikos Kouvaritakis,

### 3. The absence of an obligation to adopt and implement consistent mitigation action

It is often assumed that the adoption of temperature targets implies an obligation for each State to adopt and implement mitigation action that represent its fair share of the global efforts required to meet these targets.<sup>88</sup> The following shows that no such obligation can be found under climate treaties, customary law or human rights treaties.

#### 3.1. Climate treaties

Legal scholarship on the Paris Agreement has repeatedly characterized the temperature targets as the source of a ‘collective obligation’,<sup>89</sup> an unusual concept in international law.<sup>90</sup> Both Rajamani and Voigt, for instance, have suggested a dichotomy between the obligations that apply to States individually and those that they hold collectively, contrasting any such

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‘Model-Based Analysis of Intended Nationally Determined Contributions and 2 °C Pathways for Major Economies’ (2018) 160 Energy 965. For two contradictory assessments of the US’s NDC, see Climate Action Tracker (n 11); and Fragkos and Kouvaritakis (n 87). See also Pan and others (n 86) 55.

<sup>88</sup> *Urgenda* (SC) (n 13) [5.7.1] (‘the Netherlands is obliged to do “its part” in order to prevent dangerous climate change’); *Gloucester Resources Ltd v Minister for Planning* (8 February 2019) 2019 NSWLEC 7, [440] (‘Under the Paris Agreement, each party commits to make its contribution to keeping the global average temperature rise to the 1.5–2 °C range by reducing their GHG emissions through their Nationally Determined Contributions’).

<sup>89</sup> Lavanya Rajamani, ‘Ambition and Differentiation in the 2015 Paris Agreement: Interpretative Possibilities and Underlying Politics’ (2016) 65 ICLQ 493, 503; Daniel Bodansky, ‘The Legal Character of the Paris Agreement’ (2016) 25 RECIEL 142, 145–7; Jacqueline Peel, ‘Climate Change’ in André Nollkaemper and Ilias Plakokefalos (eds), *The Practice of Shared Responsibility in International Law* (CUP 2017), 1024; Anna Huggins, ‘The Evolution of Differential Treatment in International Climate Law: Innovation, Experimentation, and “Hot” Law’ (2018) 8 Climate Law 195, 204. The concept was also used with regard to the Kyoto Protocol: see Cinnamon P Carlarne and Mohamed S Helal, ‘A Conversation about Climate Change Law and the “International Community”’ (2018) 8 Climate Law 229, 240; Lavanya Rajamani, ‘Innovation and Experimentation in the International Climate Change Regime’ (2020) 404 RdC 9, 35. See generally Alexander Zahar, ‘Collective Obligation and Individual Ambition in the Paris Agreement’ (2020) 9 TEL 165.

<sup>90</sup> The concept is mostly unheard of in the public international law literature, except as a synonym for obligations *erga omnes* (ie obligations owed to each member of a collective): see Malgosia A Fitzmaurice, ‘International Protection of the Environment’ (2001) 293 RdC 9, 218–19; James R Crawford, ‘State Responsibility’ in *Max Planck Encyclopedia of Public International Law* (online edn, OUP 2006) [49]. Any obligation on climate change mitigation is owed to the international community as a whole rather than to any individual beneficiary.

individual or collective obligations with non-binding ‘goals, values and expectations’.<sup>91</sup> If ‘collective obligation’ is to be understood as an obligation held single-handedly by a collective, it is arguably a contradiction in terms: a collective cannot hold an obligation and be held responsible if it breaches this obligation unless it has a legal personality,<sup>92</sup> in which case it is in fact holding the obligation ‘individually’. Neither Rajamani nor Voigt appears to claim that the Paris Agreement created an international organization or any other type of international legal person. The ‘collective obligation’ to which Rajamani, Voigt and other scholars refer is, in fact, merely an objective.<sup>93</sup>

Admittedly, this objective could have certain implications for State obligations. In particular, States could conceivably have consented to an individual obligation to adopt or implement mitigation action consistent with these temperature targets. Yet, no evidence of any such obligation can be found in any climate treaty. The general commitment of the Parties to the UNFCCC to implement ‘programmes containing measures to mitigate climate change’<sup>94</sup> does not mention any objective, nor do subsequent COP decisions relate this obligation to the long-term goal they adopted. And the Paris Agreement—as the UK Supreme Court noted—does not ‘impose an obligation on any state to adopt a binding domestic target to ensure that those objectives were met’.<sup>95</sup>

Each Party to the Paris Agreement must adopt and seek to achieve NDCs<sup>96</sup> that reflect its ‘highest possible ambition’,<sup>97</sup> but the treaty abstains from drawing any line between individual ambition and collective objective. A provision of the Paris Agreement notes that, with their

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<sup>91</sup> Christina Voigt, ‘The Paris Agreement: What Is the Standard of Conduct for Parties?’ (2016) 18 QIL 17, 17. See also Rajamani, ‘Innovation’ (n 89) 108; Lavanya Rajamani, ‘The 2015 Paris Agreement: Interplay Between Hard, Soft and Non-Obligations’ (2016) 28 JEL 337, 343; Gu Zihua, Christina Voigt and Jacob Werksman, ‘Facilitating Implementation and Promoting Compliance with the Paris Agreement Under Article 15: Conceptual Challenges and Pragmatic Choices’ (2019) 9 Climate Law 65, 86 (fn 68).

<sup>92</sup> *Reparation for Injuries Suffered in the Service of the United Nations*, Advisory Opinion, 1949 ICJ Rep 171, 179.

<sup>93</sup> Maiko Meguro, ‘Litigating Climate Change through International Law: Obligations Strategy and Rights Strategy’ (2020) 33 LJIL 933, 949, noting that a ‘collective obligation’ would be ‘detached from the quality of lawfulness for the individual conduct’.

<sup>94</sup> UNFCCC (n 1) art 4(1)(b). See also art 4(2)(a).

<sup>95</sup> *Friends of the Earth* (n 14) [71].

<sup>96</sup> Paris Agreement (n 1) art 4(2). See also Benoit Mayer, ‘Article 4: Mitigation’ in Geert van Calster and Leonie Reins (eds), *The Paris Agreement on Climate Change* (Edward Elgar 2021).

<sup>97</sup> Paris Agreement (n 1) art 4(3).

NDCs, Parties ‘are to undertake and communicate ambitious efforts ... with the view to achieving the purpose’<sup>98</sup> of the treaty, but the phrasing of this provision—the aggregative plural and the use of the phrase ‘are to’ rather than ‘shall’—does not indicate the creation of a new obligation.<sup>99</sup> The Paris Agreement further establishes a global stocktake mechanism to assess ‘the collective progress towards achieving’ the temperature targets and notes that ‘[t]he outcome of the global stocktake shall inform Parties in updating and enhancing’ their mitigation action.<sup>100</sup> This betrays at most an expectation that Parties would be interested in achieving the targets, without imposing on them a legal obligation to do so. Another provision of the Paris Agreement establishes an ‘enhanced transparency framework’,<sup>101</sup> but neither this treaty provision nor the related decision of the Meeting of the Parties to the Paris Agreement (CMA) contains any direct mention of the temperature targets defined in the Paris Agreement,<sup>102</sup> let alone anything to suggest that the Parties must act consistently with this objective. Rather than setting the scope of any obligation, the mention of temperature targets in the Paris Agreement can only help to identify the treaty’s object and purpose.<sup>103</sup> The object and purpose can assist in the interpretation of a treaty, but it cannot make up for the absence of specific provision.<sup>104</sup>

Subsequent State practice does not suggest that climate treaties are to be interpreted as requiring States to act consistently with temperature targets.<sup>105</sup> To the contrary: the Parties to the UNFCCC and to the Paris Agreement have repeatedly recognized the existence of a ‘significant gap’ between the aggregate effect of their mitigation efforts and what the

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<sup>98</sup> *ibid* art 3.

<sup>99</sup> Likewise, neither the French version (‘il incombe’, expressing an expectation) nor the Chinese version (‘将’, expression of the future tense in a purely descriptive way) suggests an obligation.

<sup>100</sup> Paris Agreement (n 1) art 14(1), (3).

<sup>101</sup> Paris Agreement (n 1) art 13(1).

<sup>102</sup> For references to the UNFCCC’s objective, see Paris Agreement (n 1) art 13(5); Dec 18/CMA.2 (15 December 2018) Preamble ([2]).

<sup>103</sup> Rajamani and Werksman (n 45) 3.

<sup>104</sup> *Land, Island and Maritime Frontier Dispute (El Salvador / Honduras; Nicaragua intervening)*, Judgment, Merits, 1992 ICJ Rep 351, paras 375–76; *Arbitral Award of 31 July 1989*, 1991 ICJ Rep 72, [56]; *Federal Reserve Bank v Iran, Bank Markazi*, Case A28 (2000-02) 36 Iran–US Claims Tribunal Rep 5, [58]; Gardiner (n 49) 211; Pul Gragl and Malgosia Fitzmaurice, ‘The Legal Character of Article 18 of the Vienna Convention on the Law of Treaties’ (2019) 68 ICLQ 699, 710.

<sup>105</sup> Vienna Convention on the Law of Treaties (23 May 1969) 1155 UNTS 331 (hereinafter VCLT), art 31(3)(b).

temperature targets would imply.<sup>106</sup> UN Environment estimates that NDCs are ‘seriously inadequate to achieve the climate goals of the Paris Agreement and would lead to a temperature increase of at least 3 °C by the end of the century’.<sup>107</sup> Climate Action Tracker, a tool developed by a consortium of research agencies to assess whether national mitigation action is in line with temperature targets, suggests that only eight of the 33 Parties it assessed (among the largest GHG emitters) have communicated NDCs that are ‘2 °C compatible’, of which only two are, in the same assessment, ‘1.5 °C compatible’.<sup>108</sup> In other words, States do not generally act in a way that is commensurate with an understanding that their pledges must be consistent with achieving either temperature target.

### 3.2. Customary law

Arguably, States have an obligation to mitigate climate change arising from customary international law. The International Court of Justice (ICJ) has recognized that every State has an obligation ‘not to allow knowingly its territory to be used for acts contrary to the rights of other States’<sup>109</sup> and, more specifically, ‘to ensure that activities within their jurisdiction and control respect the environment of other States or of areas beyond national control’.<sup>110</sup> Accordingly, the International Law Commission suggested that ‘States have the obligation to protect the atmosphere by exercising due diligence in taking appropriate measures ... to prevent, reduce or control atmospheric pollution and atmospheric degradation’.<sup>111</sup> The Supreme Court of the Netherlands in *Urgenda* interpreted this customary norm as implying that each State

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<sup>106</sup> See references above n 61; Decs 1/CP.21 (12 December 2015) Preamble ([10]); 1/CP.25 (15 December 2019) [8]; and 1/CMA.2 (15 December 2019) [5].

<sup>107</sup> UN Environment, *Emissions Gap Report 2020* (2020) xxi. See also Victor and others (n 67) 113.

<sup>108</sup> Climate Action Tracker (n 11).

<sup>109</sup> *Corfu Channel (UK v Albania)*, Judgment, 1949 ICJ Rep 4, 22.

<sup>110</sup> *Legality of the Threat or Use of Nuclear Weapons*, Advisory Opinion, 1996 ICJ Rep 226, [29]. See also *Trail Smelter (US/Canada)*, 3 RIAA 1905, 1965; *Pulp Mills on the River Uruguay (Argentina v Uruguay)*, 2010 ICJ Rep 14, [101]; *Costa Rica v Nicaragua*, Judgment, 2015 ICJ Rep 665, [104].

<sup>111</sup> Draft Guidelines on the Protection of the Atmosphere (first reading), in ILC, ‘Report on the Work of the Seventieth Session’ (2018) A/73/10, 159 (guideline 3). See also ILA, ‘Resolution 2/2014: Declaration of Legal Principles Relating to Climate Change’ (2014) 76 ILA Rep 21, Draft Article 7A; Benoit Mayer, ‘A Review of the International Law Commission’s Guidelines on the Protection of the Atmosphere’ (2019) 20 MJIL 453.

must do its fair share in global efforts to achieve collective objectives on climate change mitigation such as the 2 °C target.<sup>112</sup>

Rules of customary international law can conceivably be identified in two ways. A ‘traditional’, inductive method relies on empirical evidence of the two constituent elements of a customary rule: a general practice of States and its acceptance as law.<sup>113</sup> By contrast, a ‘modern’, deductive method infers the existence of a rule as the logical implication of the existence of another, which may itself have been recognized from an inductive method.<sup>114</sup> While the traditional method enjoys greater recognition both in judicial practice and legal doctrine, this does not ‘preclude a measure of deduction as an aid, to be employed with caution’,<sup>115</sup> taking ‘care ... to avoid abstract reasoning that does not take into account the overall political context’.<sup>116</sup> The deductive approach may be able to play a complementary role when State practice is ill-established (eg when there is little practice to assess at the first place), but it does not permit a rule to be identified as ‘customary’ if it is clearly at odds with the general practice of States.

Both inductive and deductive methods appear to support the identification of a customary obligation for States to take at least some measures to mitigate climate change, either as an implication of States’ general obligations of due diligence and prevention or, alternatively, because virtually every State (at least among the largest GHG emitters) has taken some steps to mitigate climate change and thus recognized an obligation to do so. A deductive reasoning may further support the Court’s conclusion in *Urgenda*: although no temperature target is strictly ‘necessary’, States have accepted that global warming beyond 1.5 or 2 °C would be excessively harmful, and this should arguably inform the interpretation of States’ obligations of due diligence and prevention. However, this conclusion is not currently supported by general

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<sup>112</sup> *Urgenda* (SC) (n 13) paras 5.7.1–5, 7.2.1.

<sup>113</sup> Draft Conclusions on Identification of Customary International Law, in ILC, 2018 Report (n 111) 119 (conclusion 2); *North Sea Continental Shelf (Germany/Denmark and Netherlands)*, Judgment, 1969 ICJ Rep 3, [77].

<sup>114</sup> On the distinction between the modern and the traditional approaches to identifying rules of customary international law, see William Thomas Worster, ‘The Inductive and Deductive Methods in Customary International Law Analysis: Traditional and Modern Approaches’ (2014) 45 *Geo JIL* 445.

<sup>115</sup> Identification of Customary International Law (n 113) 126 (commentary on conclusion 2, [5]). See also *Corfu Channel* (n 109) 22; *Pulp Mills* (n 110) [204].

<sup>116</sup> Christian Tomuschat, ‘Obligations Arising for States Without or Against Their Will’ (1993) 241 *RdC* 195, 294.

State practice: States—in their own admission and as assessed by scientific studies, international organizations and civil society organizations alike<sup>117</sup>—have not generally been adopting and implementing mitigation action consistent with either temperature target.<sup>118</sup> The absence of consistent State practice precludes the identification of a rule of customary international law requiring States to act consistently with temperature targets.

### 3.3. Human rights treaties

Human rights treaties require States to take appropriate measures to protect the rights of individuals within their territory or jurisdiction.<sup>119</sup> As climate change affects the enjoyment of human rights, there is at least a plausible argument that, to comply with this obligation, States must take measures to mitigate climate change. Thus, the Court in *Urgenda* relied on the European Convention on Human Rights as the legal basis to grant standing to the applicant and to review the State’s mitigation action.<sup>120</sup> Based on a similar reasoning, human rights treaty bodies have commented on States’ mitigation action during their periodic country review and, at times, referred to the temperature targets as a benchmark for national ambition.<sup>121</sup> For instance, the CESCR noted that Argentina’s ‘plans for large-scale exploitation of unconventional fuels ... would consume a significant percentage of the entire global carbon budget for achieving the 1.5 °C target laid down in the Paris Agreement’ before stating its concern that this plan ‘would have a negative impact ... on the enjoyment of economic and social rights’.<sup>122</sup> John Knox, the then UN Human Rights Council’s Special Rapporteur on human rights and the environment, suggested that, ‘[f]rom a human rights perspective, ... it is

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<sup>117</sup> See above nn 106–108.

<sup>118</sup> The decision in *Urgenda* could itself be considered as an element of State practice. See Identification of Customary International Law (n 113) 132 (conclusion 5). Yet, it remains an exception.

<sup>119</sup> International Covenant on Civil and Political Rights (16 December 1966) 999 UNTS 171, art 2(1); and Human Rights Committee, *General Comment No. 31: The Nature of the General Obligation Imposed on States Parties to the Covenant*, CCPR/C/21/Rev.1/Add.13 (26 May 2004) [8].

<sup>120</sup> *Urgenda* (SC) (n 13).

<sup>121</sup> CESCR, Statement on Climate Change and the ICESCR, E/C.12/2018/1 (31 October 2018) [6]; CEDAW and others, Joint Statement on Human Rights and Climate Change (16 September 2019), <<https://perma.cc/6VXT-LAD4>>.

<sup>122</sup> CESCR, Concluding Observations on the Fourth Periodic Report of Argentina, E/C.12/ARG/CO/4 (1 November 2018) [13].

necessary not only to implement the current intended contributions, but also to strengthen those contributions to meet the target set out in article 2 of the Paris Agreement'.<sup>123</sup>

Assuming that States' positive human rights obligations do indeed require them to mitigate climate change,<sup>124</sup> human rights treaties would have to be interpreted in light of 'relevant rules of international law applicable in the relations between the parties',<sup>125</sup> including rules arising from climate treaties and customary international law, as the Court did in *Urgenda*. Yet, as discussed above, neither of these sources require States to act consistently with temperature targets. At times, human rights institutions have followed a more extensive approach to systemic integration, with the European Court of Human Rights, in particular, referring to rules contained in poorly ratified treaties<sup>126</sup> or in texts without any binding force,<sup>127</sup> provided that these documents reflect what the Court calls 'common ground in modern societies'. Here again, however, it is doubtful that consistency with 1.5 or 2 °C can be considered as 'common ground' when State practice does not generally reflect a requirement for such consistency.<sup>128</sup>

As such, human rights law does not provide a more convincing legal basis for requiring States to adopt or implement mitigation action consistent with the temperature targets than treaties or customary law. In whichever way one looks at the question, the interpretation of States' obligations is limited to what States have accepted, and, absent a clear treaty provision, current State practice inevitably dismisses any suggestion that States may have already accepted an obligation to adopt or implement mitigation action consistent with the 1.5 or 2 °C target.

#### **4. Implications for the interpretation of due diligence obligations**

Although States have accepted no obligation to adopt and implement mitigation action consistent with the 1.5 or 2 °C target, their emphatic attachment to these targets may not be entirely inconsequential. At the very least, as noted above, these targets are a component of the

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<sup>123</sup> Knox (n 8) [77].

<sup>124</sup> For a sceptical perspective, see Benoit Mayer, 'Climate Change Mitigation as an Obligation under Human Rights Treaties?' (forthcoming).

<sup>125</sup> VCLT (n 105) art 31(3)(c).

<sup>126</sup> *Demir v Turkey*, 2008-V ECHR 333, [86]; *Marckx v Belgium*, 1979 ECHR 2, [41]; *Mazurek v France*, 2000-II ECHR 1, [49].

<sup>127</sup> *Goodwin v UK*, 2002-VI ECHR 1, [100]; *Sørensen v Denmark*, 2006-I ECHR 1, [74].

<sup>128</sup> Mayer, 'Climate Change Mitigation' (n 124).

object and purpose in light of which the Paris Agreement is to be interpreted.<sup>129</sup> Moreover, agreement by States on temperature targets suggests acceptance as law of any related State practice. The following analysis determines what temperature targets mean in general terms for the standard of due diligence applicable in relation to States' mitigation obligations. More specifically, it points to five potential procedural implications.

#### 4.1. Standard of due diligence

States' general obligations on climate change mitigation under the UNFCCC and customary international law are largely understood as obligations of due diligence<sup>130</sup>—a State must take 'appropriate measures'<sup>131</sup> to reduce GHG emissions. As the International Tribunal on the Law of the Sea has observed, due diligence is a 'variable concept' that 'may change over time' and 'in relation to the risks involved in the activity'.<sup>132</sup>

The requirement applicable to a State under its due diligence obligation depends on the State's circumstances, in particular its economic situation,<sup>133</sup> but it also depends on the interest requiring protection.<sup>134</sup> With regard to the former, States have broadly agreed on the relevance of national circumstances in assessing a State's requisite level of mitigation action in light of the principle of CBDRRC.<sup>135</sup> With regard to the latter, temperature targets are relevant in determining the standard applicable to general mitigation obligations because they indicate a standard of due diligence—albeit a vague one.

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<sup>129</sup> See above n 104.

<sup>130</sup> Lavanya Rajamani, 'Due Diligence in International Climate Change Law' in Heike Krieger, Anne Peters and Leonhard Kreuzer (eds), *Due Diligence in the International Legal Order* (OUP 2020) 164; Benoit Mayer, 'Obligations of Conduct in the International Law on Climate Change: A Defence' (2018) 27 RECIEL 130.

<sup>131</sup> Protection of the Atmosphere (n 111) 159 (guideline 3).

<sup>132</sup> *Responsibilities and Obligations of States with Respect to Activities in the Area*, Advisory Opinion, 2011 ITLOS Rep 10, [117]. See also Neil McDonald, 'The Role of Due Diligence in International Law' (2019) 69 ICLQ 1041.

<sup>133</sup> Draft articles on Prevention of Transboundary Harm from Hazardous Activities, 2001 II-2 YB ILC 148, 155 (commentary on article 3, [13]).

<sup>134</sup> Duncan French and Tim Stephens, 'Study Group on Due Diligence in International Law: Second Report' (2016) 77 ILA Rep 1062, 1082.

<sup>135</sup> See above, section 2.3.

The 2 °C and a fortiori 1.5 °C targets signal that States need to enhance their mitigation action—thus highlighting the need for States to take ‘urgent action’ towards achieving ‘deep cuts in global ... emissions’<sup>136</sup> and to ‘strengthen national policies’.<sup>137</sup> Had the Paris Agreement only indicated a 2 °C target, it would have suggested a less demanding standard of due diligence than it did with the addition of a reference to 1.5 °C; more urgency would have been conveyed if the treaty had only mentioned 1.5 °C. Although States are not required to adopt or implement mitigation action consistent with the temperature targets, the adoption of these targets reveals the seriousness of the issue and the need for every State to consider enhancing its ambition.

#### 4.2. Procedural implications

More concretely, State practice confirms the existence of at least five obligations that can logically be derived from States’ due diligence obligations in light of their adoption of the temperature targets. Though mostly procedural in nature, these implied obligations are of some significance. And while some of these obligations are partly reflected in specific treaty commitments, their content, scope and nature may be better understood when these obligations are also identified as an implication of States’ general mitigation obligations.

First, States must take reasonable steps to monitor the achievement of temperature targets as the objective they decided to pursue. The customary obligation to prevent transboundary environmental harm has been interpreted as requiring the exchange of relevant information.<sup>138</sup> More specifically, the Parties to the UNFCCC and the Paris Agreement have committed to report on their emissions and their action on climate change mitigation.<sup>139</sup> In line with this, States must share relevant information to assess collective progress towards achieving the

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<sup>136</sup> Decs 1/CP.16 (10–11 December 2010) [4]; 2/CP.17 (11 December 2011) third recital before [5] and second recital before [32].

<sup>137</sup> Talanoa Call for Action, by the Presidents of COP23 and COP24, <<https://unfccc.int/sites/default/files/resource/Talanoa%20Call%20for%20Action.pdf>>.

<sup>138</sup> *MOX Plant (Ireland v United Kingdom)*, Provisional Measures Order of 3 December 2001, ITLOS Rep 95, 89(1)(a); Prevention of Transboundary Harm from Hazardous Activities (n 133) 159 (art 8).

<sup>139</sup> See in particular UNFCCC (n 1) art 12; Paris Agreement (n 1) art 13; and generally Benoit Mayer, ‘Transparency under the Paris Rulebook: Is the Transparency Framework Truly Enhanced?’ (2019) 9 Climate Law 40.

temperature targets, including information on their emissions as well as scientific knowledge on the evolution of the climate system.

Second, States must negotiate in good faith additional commitments with a view to achieving the temperature targets.<sup>140</sup> By analogy, as the ICJ noted with regard to maritime delimitation, States must ‘not merely go through a formal process of negotiation ... they are under an obligation so to conduct themselves that the negotiations are meaningful’.<sup>141</sup> Most States have long been striving to agree on commitments that show an increasing level of ambition,<sup>142</sup> thus making the achievement of temperature targets more likely. A State would be acting in breach of this obligation to negotiate in good faith, in particular, if it sought to free ride on the mitigation action of other States.<sup>143</sup>

Third, States must take the temperature targets into account in conducting regular reviews of their mitigation action. The Paris Agreement requires each Party to communicate an NDC every five years,<sup>144</sup> noting that ‘each Party’s successive [NDCs] will represent a progression beyond the Party’s then current [NDC]’.<sup>145</sup> The Parties to the Paris Agreement decided that, when communicating new NDCs or updating their existing NDCs, they should ‘consider’ the gap between national targets and collective objectives.<sup>146</sup> By 2020, a third of the Parties to the Paris Agreement, including most major GHG emitters, had either updated their first NDC or communicated a second one, or had announced that they would imminently do so, often in ways that enhanced their ambition on climate change mitigation.<sup>147</sup> Such policy reviews may also become necessary as a consequence of new insights into the implications of the temperature targets for global mitigation action. Thus, the High Court of New Zealand held that the publication of an IPCC report taking stock of new scientific insights into the global

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<sup>140</sup> Evan J Criddle and Evan Fox-Decent, ‘Mandatory Multilateralism’ (2019) 113 AJIL 272, 319.

<sup>141</sup> *North Sea Continental Shelf* (n 113) [85].

<sup>142</sup> Paris Agreement (n 1) art 4(3).

<sup>143</sup> Criddle and Fox-Decent (n 140) 320–21; Eric A Posner and David Weisbach, *Climate Change Justice* (Princeton University Press 2010) 181–83.

<sup>144</sup> Paris Agreement (n 1) art 4(9).

<sup>145</sup> *ibid* art 4(3).

<sup>146</sup> Dec 1/CMA.2 (15 December 2019) [8]. See also Dec 1/CP.21 (12 December 2015) paras 23–24; Paris Agreement (n 1) art 14(3).

<sup>147</sup> Climate Action Tracker, ‘Climate Target Update Tracker’, <<https://climateactiontracker.org/climate-target-update-tracker/>>.

mitigation action necessary to achieve the 2 °C target required the government to consider reviewing its long-term national mitigation objective.<sup>148</sup>

Fourth, States must consistently justify how their individual mitigation action contributes to the achievement of the temperature targets. The Parties to the Paris Agreement are specifically obligated to provide information on how they consider their NDC to be ‘fair and ambitious in the light of its national circumstances’ and how it ‘contributes towards’ achieving the objective of the UNFCCC and the mitigation objective of the Paris Agreement.<sup>149</sup> Nothing really prevents a Party from fulfilling this requirement in a formalistic fashion, for instance through a mere assertion that its NDC ‘is an ambitious, fair and responsible contribution to global efforts’,<sup>150</sup> ‘is in line with the objectives of the Paris Agreement’,<sup>151</sup> or ‘represents its fair share of the efforts to achieve the global long-term goal of the Paris Agreement’.<sup>152</sup> However, some Parties have gone further in justifying their NDC, for instance by listing the factors they consider relevant in assessing what constitutes their fair share.<sup>153</sup> Internal consistency requires the Parties whose intended NDC (communicated before the adoption of the Paris Agreement) only referred to a 2 °C target<sup>154</sup> to enhance their ambition following the inclusion of a 1.5 °C target in the Paris Agreement—and some have done so.<sup>155</sup>

Fifth, States must also take temperature targets into account when deciding whether to authorize activities that will result in substantial amounts of GHG emissions. Almost every State has established a mandatory procedure to assess the likely environmental impacts of certain activities before authorizing them, and many States have integrated an assessment of GHG emissions as part of this process.<sup>156</sup> The significance of the activity’s GHG emissions

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<sup>148</sup> *Thomson v Minister for Climate Change Issues*, 2017 NZHC 733, [94].

<sup>149</sup> Dec 4/CMA.1 (15 December 2018) Annex I paras 6–7. The legal obligation to comply with this provision arises under Paris Agreement (n 1) art 4(8). See also Decs 1/CP.20 (14 December 2014) [14]; 1/CP.21 (12 December 2015) [27].

<sup>150</sup> Australia, First NDC (updated, 2020) 6. All NDCs are available on the UNFCCC’s interim registry at <<https://www4.unfccc.int/sites/NDCStaging>>.

<sup>151</sup> Brunei Darussalam, First NDC (2020) 9.

<sup>152</sup> Zambia, First NDC (updated provisional, 2020) 18.

<sup>153</sup> Switzerland, First NDC (updated, 2020) 13–15; Brazil, First NDC (updated, 2020) 7–9.

<sup>154</sup> UNFCCC Secretariat (n 68) [178].

<sup>155</sup> See EU, First NDC (updated, 2020), which refers for the first time to the 1.5 °C target and contains a more demanding target than the EU’s intended NDC.

<sup>156</sup> Benoit Mayer, ‘Climate Assessment as an Emerging Obligation under Customary International Law’ (2019) 68 ICLQ 271.

can be evaluated on the basis of the State's specific commitments, in particular its NDC's mitigation objectives, but it should also arguably be appraised in light of global temperature targets, given NDCs' lack of ambition and their limited temporal, geographical and material scope. Admittedly, States are under no obligation to prohibit projects that are inconsistent with global temperature targets (and such a finding of inconsistency is, in any case, nearly impossible), but decisionmakers and various stakeholders who are typically consulted in the process should be informed about the implications of the proposed activity in light of global mitigation pathways likely to realize these temperature targets. Thus, various jurisdictions already require global environmental objectives to be taken into account in the assessment of the likely environmental impacts of a proposed activity, in particular in the context of a strategic environmental assessment.<sup>157</sup>

## **5. Normative potential**

States have accepted temperature targets as a collective mitigation objective, but they are yet to accept an obligation to adopt and implement consistent mitigation action. At present, two main obstacles prevent the identification of this obligation. First, it is unclear what precisely temperature targets imply in terms of global efforts and, a fortiori, as to the action needed for a particular State at a given time. Second, general State practice is not generally consistent with an obligation to adopt and implement action to realize the temperature targets. The following discussion envisages two scenarios in which States would incur new obligations in relation to the temperature targets. In the first scenario, States gradually accept an obligation to act consistently with a shared understanding of the temperature targets or their implications. In the second scenario, each State accepts an obligation to act consistently with its own understanding of the temperature targets. These two scenarios are not mutually exclusive. To some extent, there are already signs of both scenarios starting to be realized.

### 5.1. Towards a common understanding of temperature targets

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<sup>157</sup> Protocol on Strategic Environmental Assessment to the Convention on Environmental Impact Assessment in a Transboundary Context (21 May 2003) 2785 UNTS 140, Annex IV [5]; Directive 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment [2001] OJ L197/30, Annex I [(e)]. But see *Friends of the Earth* (n 14) paras 143, holding that the EU law obligation for decisionmakers to take international environmental objectives into account does 'not impose a standard of perfection'.

In one scenario, State practice develops in a way that indicates and follows a common understanding of the temperature targets. The COP or the CMA would likely play an instrumental role in defining this common understanding, which States would confirm by adopting and implementing consistent policies and measures on climate change mitigation. This common understanding would become legally binding as part of existing treaty commitments on climate change mitigation, in particular the general mitigation obligation defined under the UNFCCC,<sup>158</sup> interpreted in light of subsequent practice or agreement between the Parties.<sup>159</sup> It would also become legally binding under customary international law as an application of States' general obligation of due diligence confirmed by consistent State practice.

This scenario would more likely be realized in relation to purported implications of temperature targets—with which the consistency of State practice could more realistically be assessed—than with the temperature targets themselves. For instance, States could accept that temperature targets imply the need for each of them to achieve specified mitigation outcomes by a given time, subject to some variation between Parties in light of national circumstances. States have shown some interest in defining three time-specific milestones,<sup>160</sup> although none has been accepted as law and one has already become obsolete.

First, just as the 2 °C target was gaining traction, States showed some interest in defining a range of emission reductions that developed country Parties should achieve by 2020. The 2007 Bali Action Plan highlighted the need for 'deep cuts in global emissions',<sup>161</sup> referring to a page of the IPCC's Fourth Assessment Report according to which, '[u]nder most equity

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<sup>158</sup> UNFCCC (n 1) art 4(1)(b).

<sup>159</sup> VCLT (n 105) art 31(3)(a)–(b). See Draft Conclusions on Subsequent Agreements and Subsequent Practice in Relation to the Interpretation of Treaties, in ILC, 2018 Report (n 111) 82 (conclusion 11).

<sup>160</sup> In addition to the targets presented in the following, States have considered the adoption of a common 2050 target. See Decs 1/CP.13 (14–15 December 2007) [1(a)]; 1/CP.16 (10–11 December 2010) [5]; 2/CP.17 (11 December 2011) Preamble ([2]), [1–3]. See also Paris Agreement (n 1) art 4(1), defining only a *global* emission reduction pathway, rather than a target applicable to each State taken individually. The communication of long-term low GHG emission development strategies may help build a consensus on common mid-century targets. See Paris Agreement (n 1) art 4(19). For an early assessment of long-term mitigation strategies, see Climate Action Tracker, 'Paris Agreement Turning Point' (December 2020) <<https://climateactiontracker.org/publications/global-update-paris-agreement-turning-point/>>.

<sup>161</sup> Dec 1/CP.13 (14–15 December 2007) Preamble ([5], fn 1).

interpretations, developed countries as a group would need to reduce their emissions significantly by 2020 (10–40% below 1990 levels)’ in order to achieve mitigation outcomes that the report associated with cost-effective scenarios for holding global warming around or below 2 °C.<sup>162</sup> Negotiations on a 2020 target then moved gradually from the COP to the Meeting of the Parties to the Kyoto Protocol (CMP), presumably as a way to bypass potential objections from Canada or the United States. In 2010, both COP16 and CMP6 called upon Annex I Parties to raise the level of ambition of their mitigation pledges ‘in accordance with the range indicated’ by AR4.<sup>163</sup> In the CMP decision, this provision was an allusion to the range consistent with the ‘lowest [stabilization] levels assessed by the [IPCC]’, which, according to the Decision’s Preamble, required Annex I Parties ‘to reduce emissions in a range of 25–40 per cent below 1990 levels by 2020’.<sup>164</sup> CMP7 affirmed more directly the aim of ensuring that Annex I Parties’ aggregate emissions ‘are reduced at least 25–40 per cent’ by 2020.<sup>165</sup> The 2012 Doha Amendment to the Kyoto Protocol defined quantified commitments for some developed country Parties that were anticipated to achieve an aggregate 18 percent emission reduction by 2020,<sup>166</sup> but CMP8 also decided that each developed country Party would revisit its commitment by 2014 ‘in line with an aggregate reduction of [GHG emissions] of at least 25 to 40 per cent below 1990 levels by 2020’.<sup>167</sup>

However, this potential milestone did not attract sufficient support in State practice to emerge as a legal rule. The COP started expressing concern in 2011 about a ‘significant gap’ between Parties’ pledges towards 2020 and the COP’s interpretation of the 1.5 and 2 °C targets.<sup>168</sup> This gap between intended mitigation action and collective targets was never bridged. The CMP8 decision, in 2012, was the last mention of the 25–40 percent emission reduction target: subsequent COP and then CMA decisions have only alluded to the need for States to implement mitigation action by 2020 that would be in line with ‘aggregate emission pathways consistent with’ agreed temperature targets—without specifying the emission reduction that these

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<sup>162</sup> Terry Barker and others, ‘Technical Summary’ in Bert Metz and others (eds), *Climate Change 2007: Mitigation of Climate Change* (CUP 2007) 90.

<sup>163</sup> Decs 1/CP.16 (10–11 December 2010) [37]; 1/CMP.6 (10–11 December 2010) [4].

<sup>164</sup> Dec 1/CMP.6 (10–11 December 2010) Preamble ([6]). See generally Lavanya Rajamani, ‘The Cancun Climate Agreements: Reading the Text, Subtext and Tea Leaves’ (2011) 60 ICLQ 499, 508.

<sup>165</sup> Dec 1/CMP.7 (11 December 2011) Preamble ([10]).

<sup>166</sup> See Doha Amendment (n 4) art 1(C), adding an article 3(1*bis*).

<sup>167</sup> Dec 1/CMP.8 (8 December 2012) [7].

<sup>168</sup> Dec 1/CP.17 (11 December 2011) Preamble ([3]).

pathways implied.<sup>169</sup> States' agreement to the 25–40 percent emission reduction target was always limited, even within the CMP, which could not agree on its inclusion within the Doha Amendment. Despite the process adopted at CMP8, no Party ended up revisiting its commitment by 2014 or thereafter.<sup>170</sup> Thus, for lack of consistent State practice, any agreement relating to this target that may have started to emerge among the Parties to the Kyoto Protocol from 2010 and 2012 had become obsolete by 2014.<sup>171</sup> This conclusion is not affected by the possible achievement of the 25 percent emission reduction target as a result of measures aimed at managing the Covid-19 pandemic,<sup>172</sup> as these measures do not evidence acceptance of an obligation to mitigate climate change and, in any case, the resulting emission reductions are transient in nature.

Second, States have sought to define and agree on a 2030 mitigation target as an implication of the 1.5 and 2 °C targets. The 2015 COP21 decision on the adoption of the Paris Agreement noted that the Parties' intended NDCs were projected to lead to 55 GtCO<sub>2</sub> equivalent emissions per year in 2030 and stated that 'much greater emissions reduction efforts [would] be required than those associated with' NDCs in order to achieve the temperature targets of the Agreement.<sup>173</sup> More specifically, the decision suggested that achieving the 2 °C target implied reducing global GHG emissions to 40 GtCO<sub>2</sub> equivalent emissions per year by 2030 and it referred to the forthcoming SR1.5 to identify the emission level consistent with the 1.5 °C target.<sup>174</sup> SR1.5's mitigation scenarios with no or limited overshoot typically showed a further decline in global GHG emissions in the 2020s, reaching a level of between 25 and 30 GtCO<sub>2</sub> equivalent per year by 2030.<sup>175</sup> So far, none of the four sessions of the COP and CMA since 2015 has either confirmed COP21's interpretation of the 2 °C target as implying

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<sup>169</sup> Decs 1/CP.17 (11 December 2011) Preamble ([3]); 1/CP.18 (8 December 2012) second recital before [4] and third recital before [14]; 2/CP.18 (8 December 2012) Preamble ([4]); 1/CP.19 (n 61) Preamble ([4]); 1/CP.20 (14 December 2014) Preamble ([7]); 1/CP.21 (12 December 2015) Preamble ([10]); 1/CP.25 (15 December 2019) [8]; 1/CMA.2 (15 December 2019) [5].

<sup>170</sup> Report on the high-level ministerial round table on increased ambition of Kyoto Protocol commitments, FCCC/KP/CMP/2014/3 (3 September 2014).

<sup>171</sup> But see *Urgenda* (SC) (n 13) [7.2.11], suggesting 'a high degree of international consensus' on this objective by the mid- to late-2010s.

<sup>172</sup> Zhu Liu and others, 'Near-Real-Time Monitoring of Global CO<sub>2</sub> Emissions Reveals the Effects of the COVID-19 Pandemic' (2020) 11 *Nature Communications* 5172.

<sup>173</sup> Dec 1/CP.21 (12 December 2015) [17].

<sup>174</sup> *ibid.*

<sup>175</sup> Allen and others, 'Summary' (n 46) 18, [D.1.1].

emissions reductions to 40 GtCO<sub>2</sub> equivalent per year by 2030 or clarified, on the basis of SR1.5, the level of global emissions with which the 1.5 °C target should be associated.

Although some States have enhanced their commitments, States have not generally been adopting the measures necessary to limit global GHG emissions to 40 GtCO<sub>2</sub> equivalent per year by 2030.<sup>176</sup> The emergence of State practice consistent with the achievement of a time-specific target is highly time sensitive: States may have been able to adopt relatively cost-effective measures in 2015 in order to reduce their emissions to 40 GtCO<sub>2</sub> equivalent per year by 2030 but, if they did not immediately adopt these measures, achieving the target will require faster emission reduction, hence more stringent measures, which makes the emergence of consistent State practice less likely. As of early 2021, the 2030 target is already at risk of becoming obsolete, in much the same way as the 2020 target did somewhere between 2012 and 2014, as States realize that this target has, for any practical purpose, gone out of reach. And even if this target does not become obsolete, for instance if States adopt measures whose aggregate effect is projected to achieve something close to the target, it will remain difficult, in the absence of any agreed-upon burden-sharing formula, to determine which State is failing to make its requisite contribution to collective efforts.

Third, States have considered defining the implications of temperature targets with regard to ‘peaking’ in GHG emissions.<sup>177</sup> A report by the World Resources Institute suggests that, except for Turkey, every Annex I country Party’s emissions have peaked and started to decrease.<sup>178</sup> This establishes a general practice as far as developed country Parties are concerned. Yet, there is little evidence that States have accepted this practice as a rule. The Copenhagen Accord and the Cancun Agreement appeared to move towards reflecting an acceptance of national peaking for developed States as a legal requirement by highlighting the need for cooperation in reaching the peak in ‘global *and national*’ GHG emissions ‘as soon as possible’, ‘recognizing that the time frame for peaking will be longer in developing countries’.<sup>179</sup> However, subsequent COP

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<sup>176</sup> Dec 1/CP.21 (12 December 2015) [17]; UN Environment (n 107).

<sup>177</sup> UNFCCC (n 1) art 4(2)(a)–(b), implying that Annex I Parties would reach individually or jointly a peak in their GHG emissions by 2000.

<sup>178</sup> Kelly Levin and David Rich, ‘Turning Points: Trends in Countries’ Reaching Peak Greenhouse Gas Emissions over Time’ (2017) <<https://www.wri.org/publication/turning-points-trends-countries-reaching-peak-greenhouse-gas-emissions-over-time>>. By contrast, only 11 developing country Parties had peaked or were expected to have peaked by 2020.

<sup>179</sup> Copenhagen Accord (n 29) [2]; Dec 1/CP.16 (10–11 December 2010) [6] (emphasis added).

decisions and the Paris Agreement only mentioned the aim of *global* peaking,<sup>180</sup> presumably because asserting an obligation to achieve national peaking only for developed country Parties was discordant with the more flexible approach to differentiation championed by the Paris Agreement and would have directly pointed a finger at Turkey. The developed country Parties that have peaked have not generally presented peaking as compliance with a legal requirement. However, as many developing States are expected to peak in the coming decades, States could one day recognize national peaking as a necessary milestone that every State must reach in order to work to achieve the temperature targets.

Standards that avoid a precise quantification of States' requisite level of mitigation action could become more relevant over time. In particular, as they further reduce their GHG emissions, States could identify certain activities as inherently inconsistent with ambitious collective targets. Many States, for instance, have already taken, announced or considered steps to prohibit the routine flaring in oil and gas extraction and processing,<sup>181</sup> the use of coal for power generation<sup>182</sup> or even the use of fossil fuel for road transportation.<sup>183</sup> As these standards gain recognition, a presumption could arise that a State that does not take similar steps is failing to contribute its fair share in global efforts towards achieving the temperature targets.

## 5.2. Towards national interpretations of temperature targets

A second potential scenario would see the emergence of an obligation for each State to adopt and implement mitigation action consistent with its own interpretation of temperature targets. By contrast to the focus of the first scenario on a shared understanding of temperature targets, this second scenario involves a decentralized process of interpretation, taking account of the different meanings that States may attach to temperature targets and their different approaches to burden-sharing. Nevertheless, two types of constraints could be imposed upon States. First, a State's interpretation of temperature targets would need to be plausible. For instance, it would

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<sup>180</sup> Decs 2/CP.17 (11 December 2011) Preamble ([2]), [2]; 1/CP.18 (8 December 2012) [1]; Paris Agreement (n 1) art 4(1).

<sup>181</sup> World Bank, 'Zero Routine Flaring by 2030', <<https://www.worldbank.org/en/programs/zero-routine-flaring-by-2030>>, endorsed by 31 national governments.

<sup>182</sup> Powering Past Coal Alliance Declaration (2017) <<https://poweringpastcoal.org/>>, signed by 34 national governments.

<sup>183</sup> Loi 2019-1428, JORF 299 (26 December 2019, France), art 73(II)(2), setting the objective of ending sales in new fossil-fuel powered road vehicles by 2040.

have to be informed by science and to build on some of the differentiation criteria that numerous States consider as relevant.<sup>184</sup> Second, a State would be required to act consistently with its interpretation of these temperature targets over time: a State would not be permitted to revise its interpretation of temperature targets for the sole purpose of justifying its failure to implement the level of mitigation action implied by this interpretation.

State practice may already provide some support to this scenario. Two independent scientific studies suggest that almost every NDC is consistent with at least one of just a few alternative interpretations of States' requisite mitigation action in line with temperature targets.<sup>185</sup> However, States do not choose between these alternative interpretations randomly: whether for strategic reasons or out of sincere belief, each national government tends to select one of the plausible equity interpretations that implies the least demanding mitigation action on its part.<sup>186</sup> Thus, Robiou du Pont and Meinshausen showed that the aggregate effect of NDCs 'matches that of a world where each country follows the least-stringent vision of effort-sharing for their circumstance'.<sup>187</sup> As a result, it is far from clear whether the identification of several plausible interpretations of States' requisite mitigation action would be sufficient to ensure the achievement of the temperature targets.

Various rules and processes under the Paris Agreement could facilitate the realization of this scenario, in particular by requiring States to justify their mitigation action on the basis of their interpretation of the temperature targets. As noted above, the Parties to the Agreement must not only communicate NDCs,<sup>188</sup> but also justify how the Party considers these NDCs to be fair and ambitious and to contribute to the achievement of the temperature targets.<sup>189</sup> The Agreement further suggests that Parties' NDCs should be informed by the outcome of a global

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<sup>184</sup> See above section 2.3 and, in particular, text at nn 76, 84 and 85.

<sup>185</sup> Robiou du Pont and others (n 87) suggesting that the NDCs of five of the six largest GHG emitters are in line with at least one equity approach; Pan and others (n 86).

<sup>186</sup> Vegard Tørstad and Håkon Sælen, 'Fairness in the Climate Negotiations: What Explains Variation in Parties' Expressed Conceptions?' (2018) 18 *Climate Policy* 642; Kesternich, Löschel and Ziegler (n 83).

<sup>187</sup> Yann Robiou du Pont and Malte Meinshausen, 'Warming Assessment of the Bottom-up Paris Agreement Emissions Pledges' (2018) 9 *Nature Communications* 4810, 3. A similar modelling of climate action was developed in Malte Meinshausen and others, 'National Post-2020 Greenhouse Gas Targets and Diversity-Aware Leadership' (2015) 5 *Nature Climate Change* 1098.

<sup>188</sup> Paris Agreement (n 1) art 4(2).

<sup>189</sup> See references above n 149.

stocktake on the collective progress towards achieving these temperature targets.<sup>190</sup> Thus, States are expected to provide consistent justification for their mitigation action on the basis of a plausible interpretation of the temperature targets. While neither the Paris Agreement nor any implementation decision expressly requires Parties to act consistently with their interpretation of temperature targets, inconsistencies are likely to spark protests from other States and this, over time, could contribute to the identification of a legal requirement that a State's mitigation action should be in line with its own interpretation of the temperature targets.<sup>191</sup>

In addition to NDCs, the Paris Agreement invited Parties to communicate long-term low-GHG emissions development strategies (LT-LEDS).<sup>192</sup> These documents will further contribute to defining each Party's interpretation of the temperature targets, creating at least an expectation that States will implement mitigation action consistent with their LT-LEDS over time. It is unclear whether Parties are authorized to revise their LT-LEDS, in particular in ways that reduce the ambition of their mitigation action, given the general notion, affirmed by the Paris Agreement, that '[t]he efforts of all Parties will represent a progression over time'.<sup>193</sup> When a Party reiterates its long-term goal in its NDC, at least, it would appear to be bound not to downgrade it.<sup>194</sup> The realization of this scenario would confirm that Parties are precluded from revising their interpretation of temperature targets, whether embodied in NDCs, LT-LEDS or any other declaration or statement, if this is for the sole purpose of evading international responsibilities, as doing so would be inconsistent with a general obligation of good faith.<sup>195</sup>

However, it remains that, as Parties generally select interpretations of temperature targets that are favourable to them, overall mitigation action under this scenario may not be sufficient to achieve the temperature targets. This scenario could become more effective if each State were to commit to doing more than it considered to be its fair share. For instance, States could agree

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<sup>190</sup> Paris Agreement (n 1) art 14(3).

<sup>191</sup> Identification of Customary International Law (n 113) 140 (conclusion 10, [2]).

<sup>192</sup> Paris Agreement (n 1) art 4(19).

<sup>193</sup> *ibid* art 3.

<sup>194</sup> *ibid* art 4(3); and generally Lavanya Rajamani and Jutta Brunnée, 'The Legality of Downgrading Nationally Determined Contributions under the Paris Agreement: Lessons from the US Disengagement' (2017) 29 JEL 537.

<sup>195</sup> VCLT (n 105) art 26. See also, on the concept of estoppel, *Eritrea/Ethiopia* (2002), 25 RIAA 83, [3.9]; Separate Opinion of Vice-President Alfaro in *Temple of Preah Vihear (Cambodia v Thailand)*, Merits, 1962 ICJ Rep 39, 39; *Argentine/Chile* (1966), 16 RIAA 109, 164.

to pursue a more stringent target merely as a way of ensuring the achievement of existing targets.<sup>196</sup> This is perhaps one way of explaining States' agreement on two distinct temperature targets: while 2 °C might be the 'real' objective, States could have realized that achieving it is only possible if each of them implements the level of mitigation action that *it* sees as consistent with a 1.5 °C target. Another way this scenario could be made more effective would be if States were to narrow down the range of what they consider as plausible, hence permissible, interpretations of temperature targets. They could do so both by agreeing on time-specific milestones that they consider to be implied by the temperature targets and by clarifying their common understanding of differentiation principles.

All in all, these two scenarios are complementary. National interpretations of equity may help to determine a State's fair share in achieving temperature targets, in particular in relation to a specific milestone collectively agreed upon. Only a combination of these two scenarios would realize the full normative potential of the temperature targets.

## **6. Conclusion**

The legal relevance of temperature targets has often been overestimated. The COP would have been particularly badly advised to adopt two temperature targets, rather than for instance a global emission budget, if its intention had really been to define a benchmark to appraise States' collective—and a fortiori individual—mitigation action. States have not accepted any treaty or customary obligation to adopt or implement mitigation action consistent with a given interpretation of these targets. Temperature targets do not define the destination of international action on climate change mitigation, even though they certainly provide a direction of travel—indicating unambiguously that far more mitigation action is urgently needed than currently committed or implemented by States. As such, these targets may only be of limited assistance in interpreting States' general and procedural obligations relating to climate change mitigation.

It remains that the temperature targets have the potential to foster additional normative developments, which States could realize by agreeing on certain implications and by requiring each of them to act in a way that is consistent with its own understanding of these targets. There is no denying, however, that achieving any plausible interpretation of either target is rapidly

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<sup>196</sup> Robiou du Pont and Meinshausen (n 187).

becoming more difficult, as continuing GHG emissions commit us gradually to higher levels of global warming. Negative emission technologies would likely not be able to make up for any significant exceedance of these targets, which therefore would be irremediable on relevant timescales. Once exceeded, these targets may continue to stand as a beacon of the urgency of mitigation action, while they may also become a political and potentially legal basis for the States least responsible for climate change but most affected by its impacts to claim reparations.

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