Journal of Human Rights and the Environment, Vol. 13 No. 1, March 2022, pp. 35–63

# Standards for adjudicating the next generation of *Urgenda*-style climate cases

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*Over the past decade, legal norms governing States' obligations to mitigate climate change, and courts' review of such efforts, have matured greatly in many jurisdictions around the world. In this article, we examine judicial decisions and consider future developments in* Urgenda*-style, or 'systemic mitigation cases' as we define them, at the national level. Systemic mitigation cases seek to compel a State or one of its organs to increase its overall mitigation efforts. These cases, which are growing in number, can lead to a significant increase in a country's overall mitigation ambition. Yet a perceived lack of standards by which to assess mitigation efforts has given rise to judicial concerns regarding the separation of powers in adjudicating such cases. In response to these concerns, we present a framework based on international climate change law and best available climate science to assist litigants and courts in human-rights- and tort-based cases. We draw on principles developed by the Dutch courts in* Urgenda v the Netherlands *and on recent judgments of other national courts, and identify a range of concrete standards by which courts may assess whether a State has met the minimum legal requirements of its duty of care in the 'next generation' of systemic mitigation cases.*

**Keywords:** *climate change, litigation, human rights, national courts, effort-sharing, climate science, separation of powers, standards,* Urgenda

## 1 INTRODUCTION

> [D]ecision-making on the reduction of greenhouse gas emissions is a power of the government and parliament. They have a large degree of discretion to make the political considerations that are necessary in this regard. It is up to the courts to decide whether, in availing themselves of this discretion, the government and parliament have remained within the limits of the law by which they are bound. (Supreme Court of the Netherlands, *Urgenda v the Netherlands*, December 2019)[1]

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> Current [Nationally Determined Contributions] remain 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. (UN Environment Programme, December 2020)[2]

The landmark decisions of the Dutch courts in *Urgenda v the Netherlands*[3] (*Urgenda*) gave hope to many that courts can hold States accountable for serious inaction on climate change mitigation. Since the first decision of the Dutch court in 2015, there has been a surge in these types of cases brought before national courts around the world – from Asia Pacific,[4] to the Americas,[5] to Europe[6] – as well as before several supranational bodies.[7] National courts, including apex courts in the Netherlands, Germany, Ireland, Nepal and Colombia, have issued judgments in climate cases against their respective States.[8]

*Urgenda*-style cases – or systemic mitigation cases as we define them – represent a particular sub-set of climate litigation: they challenge the overall effort of a State or its organs (hereinafter, the State) to mitigate dangerous climate change, as measured by the pace and extent of its greenhouse gas (GHG) emissions reduction. If successful, such a case can lead to a significant increase in a country's overall mitigation ambition, as illustrated in the Netherlands following the *Urgenda* case.[9] Such heightened ambition is critical given the gravity of the climate crisis and continued inaction on the part of States.[10]

Systemic mitigation cases, however, pose challenges for judges. A review of decisions over the past decade reveals a concern on the part of national courts about a perceived lack of standards against which to assess the legality of a State's mitigation

1. *State of the Netherlands (Ministry of Economic Affairs and Climate Policy) v Stichting Urgenda* (2019) ECLI:NL:HR:2019:2007 (official translation) (Supreme Court of the Netherlands, Civil Division) [8.3.2].
2. UN Environment Programme, 'Emissions Gap Report 2020' (2020), Executive Summary, 11.
3. *Urgenda Foundation v The State of the Netherlands* (2015) ECLI:NL:RBDHA:2015:7196 (official translation) (District Court); *Netherlands v Urgenda Foundation* (2018) Case No 200.178.245/01 (official translation) (Hague Court of Appeal); *Urgenda* Supreme Court (2019) (n 1).
4. This includes ongoing and concluded proceedings in India, Nepal, the Republic of Korea, and New Zealand. See Annex.
5. This includes ongoing and concluded proceedings in Canada, Colombia, Brazil, Mexico, Peru and the United States. See Annex.
6. This includes ongoing and concluded proceedings in Austria, Belgium, the Czech Republic, France, Germany, Ireland, Italy, Poland, Spain, Switzerland and the United Kingdom. See Annex.
7. See cases referred to in footnote 168 in Annex (as at June 2021).
8. See Annex.
9. See eg A Wonneberger and R Vliegenthart, *Agenda-Setting Effects of Climate Change Litigation: Interrelations Across Issue Levels, Media, and Politics in the Case of Urgenda Against the Dutch Government*, Environmental Communication, 2021. Jonathan Watts, 'Dutch Officials Reveal Measures to Cut Emissions after Court Ruling', The Guardian, 24 April 2020. Available at <https://www.theguardian.com/world/2020/apr/24/dutch-officials-reveal-measures-to-cut-emissions-after-court-ruling>. Hans von der Brelie, 'Interview with the Dutch government's "Climate Tsar"', Euronews, 18 August 2020. Available at https://www.euronews.com/2020/09/18/interview-with-the-dutch-government-s-climate-tsar.
10. See UN Environment Programme (n 2).

efforts. This concern has led some courts to decline to adjudicate such cases, or to treat the executive or legislature as having a wide margin of discretion.

This article therefore presents a framework, based on international climate change law and what is regarded as best available science, that litigants and courts can draw upon to assess whether a State's mitigation efforts comply with its duty of care in human rights law or tort law, as tailored to the national context. In part 2, we identify human-rights- and tort-based systemic mitigation cases as the focus of our article. In part 3, we outline key developments in case law over the last decade (until June 2021). Finally, in part 4, we present standards by which courts can assess the legality of a State's mitigation efforts in rights- and tort-based cases. We show that many of these standards have already been relied upon by national courts.

## 2 SCOPE

### 2.1 Systemic mitigation cases and the need for accountability

States are 'nowhere close' to taking the level of action needed to fight global warming.[11] Despite formal legal commitments in the UN Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, State Parties have largely failed to adequately increase their mitigation efforts to bring them into line with the long-term temperature goal of the Paris Agreement. According to a UNFCCC report on the impacts of the updated Nationally Determined Contributions (NDCs) submitted up until 30 July 2021, global GHG emissions in 2030 are still projected to *increase* by 16 per cent compared to 2010 levels.[12] Without stronger action, global warming will reach almost 3°C by the end of the century, with catastrophic implications.[13]

Against this backdrop of serious inaction, individuals and communities continue to turn to courts to challenge States' mitigation efforts.[14]

In this article, we examine *systemic mitigation cases* before national courts. These are proceedings in which plaintiffs challenge the overall efforts of a State to mitigate climate change. Various 'mitigation efforts' are subject to challenge:

- A State's NDC for 2030 submitted pursuant to the Paris Agreement;
- Emissions reduction targets prior to 2030;
- Emissions reduction targets post-2030, which may include a target year for climate neutrality; and/or

11. UN Secretary-General Antonio Guterres, UN Climate Press Release on the launch of Initial NDC Synthesis Report prepared by the UNFCCC, 26 February 2021, UNFCCC. Available at <https://unfccc.int/news/greater-climate-ambition-urged-as-initial-ndc-synthesis-report-is-published>.
12. UNFCCC, 'Nationally determined contributions under the Paris Agreement: Synthesis report by the secretariat', UN Doc. FCCC/PA/CMA/2021/8 (2021) [13]. According to the IPCC Special Report on 1.5°C, to limit global warming to 1.5°C with no or limited overshoot, global net $CO_2$ emissions need to decline by 45 per cent from 2010 levels by 2030.
13. UN Environment Programme (n 2). See also: David Boyd, 'Safe Climate: A Report of the Special Rapporteur on Human Rights and the Environment' UN Doc. A/74/161 (2019).
14. See: Michael Burger and Daniel Metzger, 'Global Climate Litigation Report: 2020 Status Review' (UNEP 2020). Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2021 Snapshot' (Grantham Research Institute on Climate Change and the Environment and Centre for Climate Change Economics and Policy, London School of Economics and Political Science 2021) Policy Report.

- Carbon budget(s) for specified periods, which represent the maximum permitted emissions for the country within a particular period.

We describe these as 'systemic' cases because they focus on a State's *overall* mitigation efforts, rather than on a specific project or initiative with GHG emissions implications.[15] If successful, systemic mitigation cases can lead to a declaratory or binding order that a State must increase its mitigation efforts.

The number of systemic mitigation cases brought before national courts is on the rise (see Annex). Most cases to date have been brought in countries in the Global North, reflecting these countries' heightened responsibility for climate change and greater ability to mitigate.

The claims rest on one or more of the following bases (depending on the jurisdiction):

(a) Rights-based: enforcing a State's obligations to protect the human rights of people within its jurisdiction, whether under a constitution or pursuant to regional or international human rights law;
(b) Tort-based: enforcing a State's duty (at common law or under civil law) to take reasonable care to safeguard persons or things within its jurisdiction against risk of harm; and/or
(c) Public law: enforcing a State's compliance with its own laws, such as framework climate change legislation.

The claims typically identify one or more of the following indicators of a State's conduct:

- The absence of *any* reduction of GHG emissions in a given period;
- A State's failure to meet its *own* carbon budgets or emissions reduction targets;
- The lack of *consistency* between a State's targets (such as an ambitious target for 2050, and a low target for 2030);
- The *postponement or downgrading* of a State's emissions reduction target;
- *Insufficient* reductions in the short term;
- The proposed heavy reliance on uncertain *negative emissions technology* to reduce emissions in the future; and/or
- The failure to set emission reduction targets that reflect a State's '*fair share*' of global emissions reductions.

Separation of powers has been a 'central issue' in systemic mitigation cases.[16] The principles related to the separation of powers differ across jurisdictions, but, in essence, they are: that the three branches of government, namely the executive, the legislature and the judiciary, have distinct powers and functions; that each branch must refrain from exercising powers that are reserved for the other branch; and that

15. We distinguish systemic mitigation cases from (equally ambitious) proceedings that challenge sector- or project-specific decisions, such as the approval of fossil-fuel-intensive projects or new fossil fuel exploration or exploitation, among other cases in the broad climate litigation landscape.
16. See eg MA Loth, 'The Civil Court as Risk Regulator: The Issue of its Legitimacy' (2018) 9 (Special Issue 1) European Journal of Risk Regulation 66–78; as discussed in Kim Bouwer, 'Lessons from a Distorted Metaphor: The Holy Grail of Climate Litigation' (2020) 9 Transnational Environmental Law 347 and Laura Burgers, 'Should Judges Make Climate Change Law?' (2020) 9 Transnational Environmental Law 55.

the judiciary has a particular function in ensuring that the legislative and executive branches of government operate within the legal limits of their powers.

In the context of systemic mitigation cases, one commentator notes:

> the separation of powers struggle … lies at the heart of *Urgenda* and, in some sense, all 'holy grail' climate litigation, which is the capacity of and constraints on the courts to impose standards or make mandatory orders in areas that are considered the domain of politics.[17]

Our interest in this article is therefore to examine how national courts have navigated concerns relating to the separation of powers. As will become apparent, the question that most often arises is not whether the claim is justiciable (ie suitable for judicial consideration) but how far the court can go in adjudicating a State's conduct. A key difficulty relates to a perceived lack of standards against which to adjudicate whether a State is complying with the requirements of the applicable law in the context of climate mitigation.

In addition to the *Urgenda* decisions (2015, 2018 and 2019),[18] we focus on the following decisions in rights- and tort-based systemic mitigation cases:

- *VZW Klimaatzaak v Kingdom of Belgium & Others* (Belgium, first instance court, 2021) ('*Klimaatzaak*');[19]
- *Neubauer et al. v Germany* (Germany, apex court, 2021) ('*Neubauer*');[20]
- *Notre Affaire à Tous and Others v France* (France, first instance court, 2021) ('*Notre Affaire à Tous*');[21]
- *Mathur et al. v Ontario* (Canada, preliminary decision by first instance court, 2020) ('*Mathur*');[22]
- *La Rose v Her Majesty the Queen* (Canada, preliminary decision by first instance court, 2020) ('*La Rose*');[23]
- *Family Farmers v Federal Republic of Germany* (Germany, first instance court, 2019) ('*German Family Farmers*');[24] and
- *ENvironnement JEUnesse* v *Canada* (Quebec, Canada, preliminary decision by first instance court, 2019).[25]

We also refer to several pending cases, including *Do-Hyun Kim et al. v South Korea* (hereinafter, South Korean Youth Constitutional Claim), which is pending before the

17. Bouwer (n 16) 20.
18. *Urgenda* District Court (2015) (n 3); *Urgenda* Court of Appeal (2018) (n 3); *Urgenda* Supreme Court (2019) (n 1).
19. *VZW Klimaatzaak v Kingdom of Belgium & Others* [2021] Belgium, Court of First Instance of Brussels (unofficial translation).
20. *Neubauer and Others v Germany* [2021] German Federal Constitutional Court 1 BvR 2656/18, 1 BvR 96/20, 1 BvR 78/20, 1 BvR 288/20, 1 BvR 96/20, 1 BvR 78/20 (official translation).
21. *Notre Affaire à Tous and Others v France* [2021] Administrative Court of Paris N° 1904967, 1904968, 1904972 1904976/4-1 (unofficial translation).
22. *Mathur et al. v Her Majesty the Queen in Right of Ontario (Decision on motion to dismiss)* [2020] Ontario Superior Court CV-19-00631627.
23. *La Rose v Her Majesty the Queen* [2020] 2020 FC 1008 (Federal Court of Ottawa).
24. *Backsen and Others (German Family Farmers) v Federal Republic of Germany* [2019] Administrative Court Berlin VG 10 K 412.18 (unofficial translation).
25. *ENvironnement JEUnesse v Canada* [2019] Superior Court of Quebec No 500-06-000955-183 (unofficial translation).

Constitutional Court of Korea;[26] *A Sud et al. v Italy*, which is pending before the Civil Court of Rome;[27] and the case of *Gorska v Poland*, pending in Poland.[28]

Where relevant, we draw on judgments of national courts in climate mitigation cases that are not systemic mitigation cases *per se*, but address similar legal issues. These include the recent decisions of the District Court of the Hague in the Netherlands regarding the liability of Royal Dutch Shell in tort (the *Shell* case)[29] and of the Federal Court of Australia regarding the duty of care of the Environment Minister in tort (the *Sharma* case).[30]

### 2.2 Minimum reasonableness standard

Within systemic mitigation cases, we focus on cases relying on human rights and tort law (hereinafter, rights- and tort-based claims) – the first two legal bases identified above. While there are differences in how these legal claims operate within and between jurisdictions, there are sufficient similarities in the nature of the applicable duty to allow for a comparative analysis.[31] In both instances, the State's duty is framed as an open-textured norm, requiring the court to determine the applicable standard of care in light of the circumstances.

Our approach is necessarily schematic in nature: it is not designed to specify a 'one size fits all' legal test for rights- and tort-based cases across jurisdictions, but rather to offer a principled approach to the assessment of breach, which may be tailored to the specific national legal claims.

Rights-based claims usually draw upon existing case law regarding a State's 'positive obligations' or 'duty to protect'.[32] This generally requires the State to take reasonable and appropriate measures to prevent or to minimize a foreseeable and sufficiently

26. *Do-Hyun Kim et al. v South Korea* Constitutional Court of South Korea (filed 2020, pending).
27. *A Sud et al. v Italy* Civil Court of Rome (filed 2021, pending).
28. *Górska v Poland* District Court (filed 2021, pending).
29. *Milieudefensie v Royal Dutch Shell* [2021] District Court of the Hague ECLR:NL: RBDHA:2021:5339 (official translation).
30. *Sharma and others v Minister for the Environment* [2021] Federal Court of Australia [2021] FCA 560.
31. Among others, there are differences with respect to the issue of causation and how it operates in, for example, the common law tort of negligence, as compared with the jurisprudence of States' positive obligations under the European Convention on Human Rights (ECHR): see eg Donal Nolan, 'Negligence and Human Rights Law: The Case for Separate Development' (2013) 76 Modern Law Review 286, 309. Nolan notes (at 305), however, that with respect to the 'fault' element: 'there are quite close parallels between the common law negligence standard and the fault standard in Convention cases concerning positive state obligations of protection', and that 'it is fair to say that the standard of reasonableness which is employed appears broadly to mirror the approach taken in negligence law'. For further discussion of the parallels and differences, see Vladislava Stoyanova, 'Common Law Tort of Negligence as a Tool for Deconstructing Positive Obligations under the European Convention on Human Rights' (2020) 24 The International Journal of Human Rights 632, 648.
32. Cf *Neubauer and Others v Germany*, above (n 20). For an overview of human-rights-based climate litigation up to early 2021, see Cesar Rodriguez-Garavito, 'Litigating the Climate Emergency: The Global Rise of Human Rights-Based Litigation for Climate Action' in César Rodríguez-Garavito (ed), *Litigating the Climate Emergency: How Human Rights, Courts, and Legal Mobilization can Bolster Climate Action* (Cambridge University Press 2021).

serious risk of harm to the protected rights of persons within its jurisdiction.[33] Generally speaking, the test for determining a legally significant breach is whether a State has failed to adopt reasonable and appropriate measures in light of a foreseeable risk of harm,[34] or failed to take 'sufficient measures' that ensure 'adequate and effective' protection.[35]

Claims based on tort law, meanwhile, usually rely on an existing duty of public authorities to exercise reasonable care (or similar formulations) to prevent or mitigate a foreseeable risk of serious harm to life or to bodily integrity, property or other protected interest(s), such as the environment, depending on the jurisdiction.[36] In the remainder of the article, we refer to a State's legal duty under human rights and tort law simply as a State's 'duty of care'.

In none of the cases studied for this article did the courts determine the precise scope of a State's climate mitigation measures, or the means by which to reduce the emissions. Rather, courts have generally confined themselves to assessing whether a State has adopted the *minimum* measures reasonably required to minimize the risk of harm posed by climate change to the protected right(s) or interest(s) at stake. Thus, in *Urgenda*, the Dutch Supreme Court saw its role as 'determining the State's minimum obligations'.[37] In the *German Family Farmers* case, the court asked whether the emissions reduction target violated 'the constitutionally required minimum level

33. See, eg, regarding States' positive obligations under the ECHR in the context of environmental harm: *Öneryildiz v Turkey* (Grand Chamber) [2004] App No 48939/99 [101] ('necessary and sufficient' measures); *Hatton v The United Kingdom (Grand Chamber)* [2003] App No 36022/97 [98] ('reasonable and appropriate measures'); *Cordella and others v Italy* [2019] App Nos 54414/13 54264/15 (unofficial English translation) [159] ('measures to ensure the effective protection of citizens whose lives may be exposed to the dangers inherent in the area in question'); *Kolyadenko and Others v Russia* [2012] App No 3567305 (ECtHR) [212] ('reasonable and appropriate measures'); *Tatar v Romania* [2009] App No 67021/01 (ECtHR) (unofficial English translation) [112] ('adequate measures'); *Budayeva v Russia* [2008] App No 1533902 (ECtHR) [128] ('appropriate steps'); *Taşkin v Turkey* [2004] App No 4611799 (ECtHR) [113] ('reasonable and appropriate measures'); regarding States' positive obligations with respect to the right to life (Article 6) under the International Covenant on Civil and Political Rights, see UN Human Rights Committee (HRC), 'General Comment No. 36, Article 6 (Right to Life)' UN Doc. CCPR/C/GC/35 (2019) [21]; regarding States' positive obligations with respect the right to life under the American Charter of Rights, *The Environment and Human Rights (State Obligations in Relation to the Environment in the Context of the Protection and Guarantee of the Rights to Life and to Personal Integrity – Interpretation and Scope of Articles 4(1) and 5(1) of the American Convention on Human Rights) (Advisory Opinion) OC-23/17* (2017) (ser A) No 23 Inter-Am Court Hum Rights (IACtHR) [108]; regarding States' positive obligations to protect the right to a healthy environment (Article 24) under the African Charter of Human and Peoples' Rights, see African Commission on Human and Peoples' Rights, *Case of the Social and Economic Rights Center (SERAC) and Center for Economic and Social Rights (CESR) v Nigeria* Communication 155/96. Decision of October 27, 2001, [52] and [53].

34. See footnote 33 above.

35. *German Family Farmers* (n 24) [75]. See also Petra Minnerop, 'The First German Climate Case' (2020) 22 Environmental Law Review 215.

36. See eg, Keith N Hylton, 'The Reasonable Person', in *Tort Law: A Modern Perspective* (Cambridge University Press 2016); Stoyanova (n 31). See also the discussion regarding the applicable standard of care in *Sharma and others v Minister for the Environment* (n 30).

37. *Urgenda* Supreme Court (2019) (n 1) [6.6].

of climate protection'.[38] Similarly, in *Neubauer*, the German Constitutional Court described the test as being whether the climate change mitigation provisions adopted by the State are 'manifestly unsuitable or completely inadequate' to achieve the required rights protection goal.[39]

The touchstone of our analysis is therefore the *minimum standard of reasonableness.* The aim of our analysis is to show how courts can give content to this concept by recourse to standards based on best available science and international law, as has been done in several of the cases analysed. This, in turn, enables the assessment of whether a State's mitigation efforts are lawful in light of the risk of harm posed by climate change.

Viewed in this light, the limitations of systemic mitigation litigation become apparent. Climate litigation will not be able to provide the 'full' answer to preventing the threats of climate change. There will, therefore, remain a crucial role for politics to go beyond the level of ambition that can be enforced in the context of legal proceedings.[40] Given, however, that most (developed) States are guilty of inexcusable inaction on climate change, national courts have a critical role to play in scrutinizing States' overall mitigation efforts and determining whether they meet the standards imposed by the applicable legal duty.

## 3 EXISTING CASE LAW

In this section, we present a snapshot of existing case law to interrogate how national courts have dealt with the issue of standards, or a perceived lack thereof, in systemic mitigation cases. We focus on three key questions that arise in such cases:

- Is the case justiciable (in whole or in part)? (*Justiciability*)
- Does climate change mitigation fall within a State's existing obligations under human rights law, and/or tort law? (*Duty of care*)
- Do a State's mitigation efforts meet the minimum standard of reasonableness required pursuant to the duty of care? (*Standard of care and assessment of breach*)

Most courts have recognized the justiciability of systemic mitigation cases. Many courts have also recognized that, in certain circumstances, States have a legal obligation to protect those within their jurisdiction from dangerous climate change, pursuant to human rights and/or tort law (hereinafter duty of care, as defined above). Few courts, however, have proceeded to assess whether a State's overall mitigation efforts are sufficient to discharge its legal obligations (standard of care and assessment of breach). This latter issue thus forms the focus of the article.

38. *German Family Farmers* (n 24). This also forms part of the South Korean Youth Constitutional Claim.
39. *Neubauer and Others v Germany* (n 20) [152].
40. See Lavanya Rajamani, 'Climate Litigation: The Second-Best Option for Governing Climate Change', Keynote speech at British Institute of International and Comparative Law, *Our Future in the Balance: The Role of Courts and Tribunals in Meeting the Climate Crisis*, Day 1, Keynote Speech 2, 7 July 2021. Available at <https://www.youtube.com/watch?v=riS6baHuWrc>.

### 3.1 Justiciability

Justiciability concerns whether a claim is suitable or appropriate for judicial resolution.[41] It is generally a preliminary question: if a claim is non-justiciable, the court will not proceed to hear the claim on the merits. A claim may be justiciable in whole or in part, depending on a range of factors.[42]

In several jurisdictions, the existence of 'judicially manageable standards' by which to assess a claim is a relevant factor when determining justiciability.[43] This factor has proven problematic for some (but not all) systemic mitigation cases in North America. In *La Rose*, for example, the Canadian first instance court struck out the case due to a perceived absence of a 'judicially manageable legal standard' against which to assess the impugned conduct of the State.[44]

This concern has not, however, prevented other national courts from finding that systemic mitigation cases are justiciable. National courts in the Netherlands,[45] Germany,[46] Belgium,[47] Canada,[48] Colombia,[49] France[50] and Nepal[51] have proceeded to hear claims in systemic mitigation cases on the merits.[52] The reasons advanced by courts in favour of justiciability in these cases include, in addition to a recognized legal obligation(s) on the part of the State:

41. See Bryan A Garner (ed), *Black's Law Dictionary* (10th edn, Thomson Reuters, St Paul 2014) 997. In the US, justiciability also encompasses the question of standing. See: Margit Cohn, 'Form, Formula and Constitutional Ethos: The Political Question/Justiciability Doctrine in Three Common Law Systems' (2011) 59 Am J Comp L 675, 677; Burger and Metzger (n 14) 37.
42. See UN Environment Programme (n 2) 37–40. The remedy is also a relevant factor. For example, in *Urgenda*, the Dutch courts each indicated that it was significant that the remedy sought did *not* seek to prescribe the manner in which the State should reduce its GHG emissions (ie via preferences for certain policy choices). See *Urgenda* Supreme Court (2019) (n 1) [8.2.7].
43. For example, the English House of Lords concluded that a claim is non-justiciable if there are 'no judicial or manageable standards' by which to judge the case. *Buttes Gas and Oil Co. v Hammer* (No 3) [1982] AC 888, 938. The US Supreme Court considers that a question is non-justiciable if the court is being asked 'to enter upon policy determinations for which judicially manageable standards are lacking', *Baker v Carr* 396 US 186 (1962).
44. *La Rose* (n 23) [22]. See also *Juliana v United States* [2020] Court of Appeal for the Ninth Circuit No. 18-36082 SC No 6:15-cv-01517-AA. However, this is in contrast to the decisions in *ENvironnement JEUnesse* (n 25) and *Mathur* (n 22).
45. *Urgenda* District Court (2015) (n 3); *Urgenda* Court of Appeal (2018) (n 3); *Urgenda* Supreme Court (2019) (n 1) [8.3.2].
46. *German Family Farmers* (n 24); *Neubauer and Others v Germany* (n 20) [205] [206].
47. *Klimaatzaak* (n 19) 45.
48. *ENvironnement JEUnesse* (n 25); *Mathur* (n 22); but not *La Rose* (n 23).
49. *Future Generations v Ministry of the Environment and Others 'Demanda Generaciones Futuras v Minambiente*' [2018] 11001 22 03 000 2018 00319 00 (Colombia Supreme Court).
50. *Notre Affaire à Tous* (n 21); *Commune de Grande-Synthe v France* (France, Council of State).
51. *Shrestha v Office of the Prime Minister et al.*, Decision no 10210, NKP, Part 61, Vol 3 (Supreme Court).
52. See also the decisions in judicial review cases: *Friends of the Irish Environment CLG v The Government of Ireland (Irish Climate Case)* [2020] Appeal No. 2015/19 (Supreme Court of Ireland) and *Thomson v Minister for Climate Change Issues* (2017) [2017] NZHC 733 (High Court).

- The necessity of judicial scrutiny of executive and legislative conduct, in particular when human rights are at stake;[53]
- The necessity of judicial review of executive conduct with respect to climate change legislation, which renders matters which once might have been 'political' subject to judicial scrutiny;[54]
- The existence of 'objective' standards against which to review the State's conduct;[55] and
- The existence of constitutional provisions that limit the scope for political decision-making to take measures to protect the environment or not.[56]

Several courts have stated that neither the complexity of the matter, nor the fact that it is the subject of political decision-making, renders the case immune from judicial scrutiny.[57]

A perceived lack of standards has, therefore, generally *not* been a barrier to the litigation of systemic mitigation cases.[58] Rather, many courts around the world have understood their constitutional mandate to require them to decide systemic mitigation cases.

### 3.2 Duty of care

The next question is whether a State's duty of care under human rights and/or tort law (as defined above) applies to climate change mitigation.

In a number of recent cases, national courts have found that a State's duty of care *does* apply to climate change mitigation.[59] These courts have determined that the risk

53. The Superior Court of Quebec, for instance, noted in *ENvironnement JEUnesse* that 'in the case of an alleged violation of the rights guaranteed by the Canadian Charter, a court should not decline jurisdiction on the basis of the doctrine of justiciability' *ENvironnement JEUnesse* (n 25) [56]. See also *Urgenda* Supreme Court (2019) (n 1) [6.4] and [8.3.3]; *German Family Farmers* (n 24) [45]; and *Mathur* (n 22) [126].

54. See *Irish Climate Case* (n 52) [9.1]; *Mathur* (n 22) [132]; and *Thomson* (n 52) [101]–[135].

55. See *Urgenda* Supreme Court (2019) (n 1) at [6.4]; *Mathur* (n 22) at [56].

56. *Neubauer and Others v Germany* (n 20) [206]. See also [197].

57. The Superior Court of Ontario in *Mathur et al.* found that '[t]he fact that the matter is complex, contentious or laden with social values does not mean that the courts can abdicate the responsibility vested in them by our Constitution to review legislation for Charter compliance when citizens challenge it. In such circumstances, it is the court's obligation to decide the matter' *Mathur* (n 22) [121] quoting *Chaoulli v Québec (Attorney General)*, 2005 SCC 35, [2005] 1 S.C.R. 791. See also: *Urgenda* District Court (2015) (n 3) [4.98]; *Thomson* (n 52) [134]; and *ENvironnement JEUnesse* (n 25) [70].

58. For example, the Ontario Superior Court in its recent preliminary decision in *Mathur* indicated, in allowing the case to proceed to trial, that standards exist, established through scientific evidence, according to which the court can assess whether the State's emissions reduction target for 2030 represents its 'fair share' of the emissions reductions. *Mathur* (n 22) [96]–[97].

59. These include: the tort of hazardous negligence under the Dutch Civil Code (*Urgenda Foundation v The State of the Netherlands* (2015) ECLI:NL:RBDHA:2015:7196 (English translation) (District Court) [4.53]); the tort of negligent conduct (as applied to public authorities) under the Belgian Civil Code (*Klimaatzaak* (n 19) 61); the tort of ecological damage in France (*préjudice écologique*) under the French Civil Code (*Notre Affaire à Tous* (n 21) [34]); the rights to life and to private and family life under Articles 2 and 8 of the European Convention on Human Rights (ECHR) (*Urgenda* Supreme Court (2019) (n 1) [4.7] and

of harm posed by climate change triggers a State's duty of care to take measures in order to prevent or minimize such impacts. To reach this conclusion, courts have engaged with scientific evidence regarding the *current* and *projected* harm to human health, life and the natural environment attributable to climate change – evidence often drawn from the reports of the Intergovernmental Panel on Climate Change (IPCC).[60]

Courts have formulated a State's duty to mitigate climate change pursuant to existing legal obligations in a variety of ways. For instance, in *Urgenda*, the Dutch Supreme Court considered the State's obligations to protect the rights to life and to private and family life under Articles 2 and 8 of the European Convention on Human Rights (ECHR). The court found that 'no other conclusion can be drawn but that the State is required pursuant to Articles 2 and 8 ECHR to take measures to counter the genuine threat of dangerous climate change',[61] and that such measures must be 'reasonable and suitable', and consistent with 'due diligence'.[62]

Recently, the German Federal Constitutional Court in *Neubauer* considered the State's duty to protect the constitutional rights to life and health (among others). It determined that, pursuant to existing constitutional jurisprudence, '[t]he state's duty of protection [of fundamental rights] … includes the duty to protect life and health against the risks posed by climate change'.[63]

Importantly, courts have determined that a State's duty of care applies to climate change mitigation, notwithstanding that climate change is a global problem and that no single country can 'solve' it alone. Despite attempts of States to rely on the well-known 'drop in the ocean' defence, no national court has accepted this argument. For instance, the Dutch Supreme Court in *Urgenda* determined that the State must 'do "its part" in order to prevent dangerous climate change, even if it is a global problem'[64] and expressly rejected the State's submissions that its emissions were negligible in absolute terms. Similarly, the German Constitutional Court in *Neubauer* found that:

> [t]he fact that the German state is incapable of halting climate change on its own and is reliant upon international involvement because of climate change's global impact and the global nature of its causes does not, in principle, rule out the possibility of a duty of protection arising from fundamental rights.[65]

The Belgian court of first instance in *Klimaatzaak* came to the same conclusion,[66] as did the French court of first instance in *Notre Affaire à Tous*.[67]

[5.6.2]); constitutional rights (*Neubauer and Others v Germany* (n 20) [99] and [148]–[149]; *Future Generations* (n 49) [11]–[12]; *Shrestha* (n 51) [3] and in principle in *Mathur* (n 22) [141]–[159].

60. For example, the Constitutional Court in *Neubauer* noted that IPCC reports 'are considered to be reliable summaries of the current state of knowledge on climate change' [16]. See also: *Urgenda* Supreme Court (2019) (n 1) 4; *Klimaatzaak* (n 19) 63.

61. *Urgenda* Supreme Court (2019) (n 1) at [5.6.2].

62. ibid [5.6.2]. This was also the conclusion of the Court in the *Klimaatzaak* case (n 19), see 61.

63. *Neubauer and Others v Germany* (n 20) [148]. The court did not find a breach of the duty to protect, but did find that the manner in which the legislator had discharged this duty violated fundamental freedoms by offloading the burden to reduce emissions onto future generations.

64. *Urgenda Supreme Court (2019)* (n 1) [5.7.1].

65. *Neubauer and Others v Germany* (n 20) [149].

66. *Klimaatzaak* (n 19) 61.

67. *Notre Affaire à Tous* (n 21) [34].

Various courts have therefore recognized that a State's duty of care requires it to protect those within its jurisdiction from dangerous climate change.

### 3.3 Assessing breach

This brings us to the central focus of this article: the role of courts in assessing whether a State's mitigation efforts comply with its duty of care under human rights and/or tort law.

To date, courts have tended to avoid addressing this issue. In most instances, they have either upheld the plaintiffs' claims on grounds that do not require an assessment of the reasonableness of a State's overall mitigation efforts, or have determined that a State has such a wide margin of discretion in this context that the alleged violation of obligations in human rights or tort law is unfounded.[68]

Some courts have, however, proceeded to undertake this assessment of reasonableness.[69] For instance, the Dutch Supreme Court in *Urgenda* acknowledged that 'decision-making on the reduction of greenhouse gas emissions is a power of the government and parliament' and that '[t]hey have a large degree of discretion' in this respect.[70] Nevertheless, the Supreme Court recognized that the judiciary has a role in determining whether the other branches of government 'have remained within the limits of the law by which they are bound'.[71] The Dutch Supreme Court defined the 'limits of the law' in terms of the *minimum* emissions reductions required of the State to 'do its part' to prevent dangerous climate change. On the facts of the case, the Supreme Court confirmed the rulings of the lower courts that an emissions reduction of 25 per cent by 2020 against 1990 levels was the 'absolute minimum' required for the State to discharge its human rights obligations, drawing on climate science and international law on climate change.[72]

The German Constitutional Court in *Neubauer* similarly acknowledged that while it is not, in principle, for the courts to specify 'quantifiable global warming limits and corresponding emissions amounts or reduction targets', it *is* the role of the court to 'review whether the boundaries of Art 20a [of the Constitution] [concerning the protection of the natural foundations of life and animals] are respected', and 'is not drained of substance as an obligation to take climate action'.[73]

Having reviewed existing case law, the remainder of this article formulates a framework that can assist litigants in challenging, and courts in adjudicating, whether a State's mitigation efforts comply with its duty of care.

68. See eg, ibid [32]. *German Family Farmers* (n 24) [79]; *Klimaatzaak* (n 19).
69. For instance: the Dutch courts in *Urgenda* District Court (2015) (n 3); *Urgenda* Court of Appeal (2018) (n 3); *Urgenda* Supreme Court (2019) (n 1); the German Constitutional Court in *Neubauer and Others v Germany* (n 20); the Belgian first instance court in *Klimatzaak* (n 19); and, in principle, the Canadian first instance court in *Mathur* (n 22) in a decision permitting the case to proceed to trial.
70. *Urgenda Supreme Court* (2019) (n 1) [8.3.2] [6.2].
71. ibid [8.3.2].
72. ibid [7.5.1].
73. *Neubauer and Others v Germany* (n 20) [206]. See also [152].

## 4 FRAMEWORK FOR ASSESSING BREACH OF STATES' LEGAL DUTIES IN FUTURE CASES

In this section, we present a framework that can be used to assist litigants in bringing, and courts in adjudicating, systemic mitigation cases in developed countries. First, we set out two sources that inform the framework: international law and best available science. Secondly, we highlight two features of human rights jurisprudence that we consider to be particularly helpful for the adjudication of systemic mitigation cases. Finally, we set out a range of standards – some of which have already been relied on by national courts – which can be used to assess whether a State's mitigation efforts comply with its duty of care, as tailored to the national context.

### 4.1 Sources

The duty of care under human rights law and tort law is often framed by reference to open-textured standards, as discussed above. National courts thus have an important interpretive role to play in determining the content of such standards. Two sources are of critical importance: the norms of international law and the findings of climate science.

#### *4.1.1 International law*

International law is a key source of standards for assessing the legality of a State's mitigation efforts. How national courts apply international law differs from one jurisdiction to the next.[74] In jurisdictions where international law is not directly incorporated into national law, there often exists a presumption that national courts must interpret statutory law consistently with international law.[75] Various national courts have referred to international law in adjudicating systemic mitigation cases.[76]

The UNFCCC and the Paris Agreement are central sources of applicable international legal norms. Both treaties enjoy almost universal ratification among States.[77] The ultimate objective of the UNFCCC is 'the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic

74. See Antonios Tzanakopoulos, '(Study Group on) Principles on the Engagement of Domestic Courts with International Law. Final Report: Mapping the Engagement of Domestic Courts with International Law' (International Law Association (Johannesburg Conference) 2016) 10.
75. ibid 11. See *Urgenda* District Court (2015) (n 3) [4.43]; *Urgenda* Supreme Court (2019) (n 1) [5.41]–[5.4.3]; *Royal Dutch Shell* (n 29) [4.4.1]; *Thomson* (n 52) [88].
76. In addition to those above, see eg: *Klimaatzaak* (n 19); *Neubauer and Others v Germany* (n 20); *Notre Affaire à Tous* (n 21); *German Family Farmers* (n 24); *Grande-Synthe* (n 50). See also: Sarah Mead and Lucy Maxwell, 'Climate Change Litigation: National Courts as Agents of International Law Development', in Edgardo Sobenes, Sarah Mead and Benjamin Samson, *The Environment through the Lens of International Courts and Tribunals* (Asser Press 2022); and Helen (CJ) Winkelmann, Susan Glazebrook and Ellen France, 'Climate Change and the Law, Asia Pacific Judicial Colloquium, 28–30 May 2019' para 99. Available at <https://www.courtsofnz.govt.nz/assets/speechpapers/ccw.pdf>.
77. The UNFCCC has 197 parties; 193 Parties out of 197 Parties to the Convention are Parties to the Paris Agreement. See <https://treaties.un.org/>.

interference with the climate system'.[78] The UNFCCC requires Parties to adopt policies to mitigate their emissions, and commits developed countries specifically to reducing their emissions.[79] The Paris Agreement builds on the UNFCCC's objective by setting a long-term temperature goal of holding global temperature increase 'well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C'.[80] It imposes an obligation on each Party to set an NDC specifying, inter alia, the State's mitigation measures.[81]

Various legal principles guide the implementation of the UNFCCC and the Paris Agreement.[82] The principles of equity and 'common but differentiated responsibilities and respective capabilities' (CBDR-RC) are 'deeply embedded in the UN climate regime',[83] and inform States' mitigation obligations under both treaties.[84] Consistent with this, developed countries have accepted that they will 'take the lead' in reducing emissions.[85]

General principles of international environmental law are also relevant. These include: the precautionary principle;[86] the right to sustainable development;[87] and the duty to prevent significant transboundary harm[88] – all of which are included in the UNFCCC and/or the Paris Agreement.

### *4.1.2 Best available science*

Best available science – in particular, as contained in the reports of the IPCC – is another key source in assessing a State's mitigation measures. This has been recognized by numerous national courts.[89]

The IPCC is the pre-eminent intergovernmental scientific expert body on climate science. It has 195 member countries, and government representatives approve the

78. UNFCCC, Art 2.
79. UNFCCC, Art 4.
80. Paris Agreement, Art 2.1(a).
81. Paris Agreement, Art 4.
82. For example, UNFCCC, preamble and Art 3; Paris Agreement, Preamble and Art 2.
83. Daniel Bodansky, Jutta Brunnée and Lavanya Rajamani, *International Climate Change Law* (Oxford University Press 2017) 27.
84. UNFCCC, Arts 3.1 and 4.1; Paris Agreement, Preamble, Arts 4.1, 4.2 and 4.4. See also: Lavanya Rajamani, *Differential Treatment in International Environmental Law* (Oxford University Press 2006) 191; Patrícia Galvão Ferreira, '"Common But Differentiated Responsibilities" in the National Courts: Lessons from Urgenda v. The Netherlands' (2016) 5 Transnational Environmental Law 329, 349.
85. UNFCCC, Art 4.2(a); Paris Agreement, Preamble and Art 4.4.
86. See UNFCCC, Art 3.3. See also: Declaration of the United Nations Conference on Environment and Development 1992, UN Doc. A/CONF151/26 (UNCED) (Rio Declaration); 31 ILM 874 (1992), Principle 15.
87. See UNFCCC Art 3.4; Paris Agreement Preamble, Arts 2.1 and 4.1. See also: G Brundtland, Report of the World Commission on Environment and Development: Our Common Future (1987), UN Doc. A/42/427.
88. See UNFCCC, Preamble. See also: UN, 'Declaration of the United Nations Conference on the Human Environment' (1972) 11 ILM 1416, Principle 21; Rio Declaration (n 86), Principle 2; *Trail Smelter Arbitration (United States v Canada)* (1938) III UNRIAA 1905.
89. See eg: *Urgenda* Supreme Court (2019) (n 1); *German Family Farmers* (n 24); *Neubauer and Others v Germany* (n 20); *Mathur* (n 22); *Klimaatzaak* (n 19); *Notre Affaire à Tous* (n 21); *Royal Dutch Shell* (n 29); *Future Generations* (n 49).

summary of its reports line-by-line.[90] The IPCC's Special Report on Global Warming of 1.5°C (SR1.5)[91] has played an important role in recent systemic mitigation cases. The report highlights, inter alia: the current and projected impacts of climate change; the difference in impacts between warming of 1.5°C and 2°C; and the risk of tipping points. It also provides an assessment of the best available science with regard to the emission pathways that need to be followed at the global level to stay below 1.5°C. The IPCC's Sixth Assessment Report will also serve as an essential source of climate science in future climate litigation.[92]

There are, however, also other sources of climate science which litigants and courts rely on. The annual Emissions Gap reports published by the UN Environment Programme (UNEP) highlight the contrast between States' mitigation pledges and the emissions reductions required to prevent climate change above 1.5°C.[93] Expert independent research institutes, such as the consortium behind the Climate Action Tracker[94] and academic research (as discussed below), also provide important scientific analysis of emission reduction pathways.

Finally, evidence from national scientific or specialist bodies provides crucial guidance for courts, particularly in relation to country-specific impacts and mitigation efforts. For example, in *Neubauer*, the German Constitutional Court referred extensively to evidence from the German Advisory Council on the Environment (SRU) in relation to the facts of climate change and the emission reduction measures that Germany must adopt to do 'its part' to address climate change.[95] In *Notre Affaire à Tous*, the Administrative Court of Paris similarly highlighted the findings of the High Council for the Climate, an independent national scientific body that noted how 'France's actions are not yet commensurate with the challenges and objectives it has set for itself'.[96]

### 4.2 Nature of the court's enquiry

Before turning to the proposed standards, we highlight two features of human rights jurisprudence that we consider to be particularly helpful to the adjudication of rights-based systemic mitigation cases (and which may be applicable to tort-based cases). While based on jurisprudence of the European Court of Human Rights (ECtHR), we consider that these techniques might be of value in national jurisdictions as well.

90. The process of approval of IPCC reports is explained here: <https://www.ipcc.ch/about/preparingreports/>.
91. IPCC, 'Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty' (2018). Available at <http://www.ipcc.ch/pdf/special-reports/sr15/sr15_spm_final.pdf>.
92. IPCC, 'AR6 Synthesis Report: Climate Change 2022', updates available here: <https://www.ipcc.ch/report/sixth-assessment-report-cycle/>. The report of Working Group I was released in August 2021 and can be accessed here: <https://www.ipcc.ch/report/sixth-assessment-report-working-group-i/>.
93. UN Environment Programme (n 2). For example, see as referred to in *Urgenda* Supreme Court (2019) (n 1)[4.6] and [7.2.9]; *Klimaatzaak* (n 19) 64.
94. Climate Action Tracker, <https://climateactiontracker.org/>.
95. *Neubauer and Others v Germany* (n 20).
96. *Notre Affaire à Tous* (n 21) [30]. See also *Irish Climate Case* (n 52) [6.4.1].

First, in assessing whether a State has taken reasonable measures pursuant to its positive obligations under the European Convention on Human Rights (ECHR), the ECtHR frequently examines whether the State has discharged both 'substantive' and 'procedural' components of its legal obligations. The ECtHR Grand Chamber in *Hatton v United Kingdom* expressed this as follows:

> First, the Court may assess the substantive merits of the government's decision, to ensure that it is compatible with Article 8. Secondly, it may scrutinise the decision-making process to ensure that due weight has been accorded to the interests of the individual.[97]

This approach offers the court a range of options for assessing the reasonableness of a State's mitigation efforts, some of which might be considered less intrusive than others.[98]

With respect to the 'substantive' merits of the conduct of a State in environmental cases, the ECtHR has assessed matters such as: whether the State has adopted an adequate regulatory framework in light of the risk of harm; and whether it took all necessary measures to mitigate the risk of harm.[99] In the context of climate change, this jurisprudence suggests that courts should assess the content of a State's mitigation efforts and whether they are consistent with best available science and international law. With respect to procedural considerations in environmental cases, the ECtHR has looked at matters such as: whether the State undertook adequate studies and investigations; whether the affected public were able to participate in the decision-making process; and whether those affected were provided with necessary information to assess the risk.[100] In the context of climate change, this jurisprudence indicates that courts should assess whether the State has based its emissions reduction efforts on best available science and provided the public with sufficient information to assess its mitigation policy.

Secondly, the ECtHR often enquires whether the State is able to *substantiate* or to *justify* the reasonableness of its conduct. In environmental cases, the ECtHR has found that, once a plaintiff has raised a *prima facie* case of breach of the State's obligations, 'the onus is on the State to justify, using detailed and rigorous data, a situation in which certain individuals bear a heavy burden for the rest of the community'.[101]

97. *Hatton v The United Kingdom (Grand Chamber)* [2003] App No 3602297 [99]. See also *Öneryildiz v Turkey (Grand Chamber)* [2004] App No 4893999 (ECtHR) [89]; *Budayeva v Russia* (n 33) [131] and [147]. For an overview of the State's procedural obligations, see *Taşkin v Turkey* [2004] App No 4611799 (ECtHR). See also *German Family Farmers* (n 24) [75].
98. See *Fadeyeva v Russia* [2005] App No 5572300 [105]. See also: Speech by Judge Tim Eicke, 'Human Rights and Climate Change: What Role for the European Court of Human Rights' (2 March 2021). Available at: <https://rm.coe.int/human-rights-and-climate-change-judge-eicke-speech/1680a195d4>; Natalia Kobylarz, 'The European Court of Human Rights: An Underrated Forum for Environmental Litigation', in Helle Tegner Anker and Brigitte Egelund Olsen (eds), *Sustainable Management of Natural Resources: Legal Instruments and Approaches* (Intersentia 2018).
99. See eg *López Ostra v Spain* [1994] App No 1679890 (ECtHR) [186]; *Jugheli and Others v Georgia* [2017] App No 3834205 [75]; *Öneryildiz v Turkey (Grand Chamber)* (n 97) [89].
100. See eg *Hatton v The United Kingdom (Grand Chamber)* (n 97) [128]; *Öneryildiz v Turkey (Grand Chamber)* (n 97) [108]; *Giacomelli v Italy* [2006] App No 5990900 (ECtHR) [86]; *Tatar v Romania* App No 67021/01 [112]; *Vilnes and others v Norway* [2013] App Nos 5286/09 and 22703/10; *Taşkin v Turkey* (n 33) [119].
101. *Jugheli and Others v Georgia* (n 99); *Fadeyeva v Russia* [2005] App No 55723/00 [128]. See also *Dubetska v Ukraine* [2011] App No 3049903 (ECtHR) [145].

This 'duty to substantiate', as we call it, was important to the Dutch Supreme Court's decision in *Urgenda*. Following evidence from *Urgenda* on the emissions reductions required of the Netherlands in light of the best available science, the Supreme Court concluded that the State could *not* 'properly substantiate that the policy it pursues meets the requirements to be imposed, i.e. that it pursues a policy through which it remains above the lower limit of its fair share'.[102]

Similarly, in *Neubauer*, while the German Constitutional Court indicated that the legislature was not obliged to justify decisions which are the result of a legislative procedure,[103] the fact that the State was unable to explain *how* it would reach its long-term target of carbon neutrality was central to the court's determination that part of the Federal Climate Change Act was incompatible with fundamental rights.

Rather than being in conflict with the principle of the separation of powers, this approach – which 'obliges the policy-maker to *justify her choices* in light of their impact on human rights' – should be seen as 'confirmation of a working system of separation of powers'.[104]

### 4.3 Determining the standard of care and assessment of breach

We can now present a range of standards that courts can use to assess whether a State's mitigation efforts are consistent with its duty of care.

Throughout this section, we refer to findings from the IPCC's SR1.5 and, in particular, its analysis on emissions pathways and carbon budgets. The IPCC provides expert scientific analysis on the emission reduction pathways that need to be followed at the global level in order to stay below certain temperature levels. Each emission pathway is linked to a level of probability of staying below a specified temperature level, usually by the end of the century. There are thus 'safer' and 'riskier' pathways to hold temperature increase to a particular level.[105] For example, the IPCC in SR1.5 reported that in order to have an even chance (50%) of holding temperatures below 1.5°C, global net anthropogenic $CO_2$ emissions need to be reduced by 45 per cent by 2030 compared to 2010 levels and reach net zero around 2050.[106]

The IPCC also quantifies carbon budgets that correlate to each emission pathway. A carbon budget expresses the total $CO_2$ emissions that can still be emitted while remaining below certain temperature levels. The notion of a carbon budget follows from the cumulative nature of climate change: the level of global warming depends on 'total cumulative global anthropogenic emissions of $CO_2$ since the pre-industrial period'.[107] In SR1.5, the IPCC reported that as of 2018 there remained a budget of about 420 gigatonnes (Gt) of $CO_2$ for a two-thirds chance (66%) of limiting warming to 1.5°C, and a budget of about 580 $GtCO_2$ for an even chance (50%) of staying below that level.[108] In this connection, the IPCC reports that global carbon neutrality

102. *Urgenda Supreme Court* (2019) (n 1) [6.5].
103. *Neubauer and Others v Germany* (n 20) [239]–[241].
104. Christina Eckes, 'Separation of Powers in Climate Cases: Comparing Cases in Germany and the Netherlands', Verfassungsblog, 10 May 2021. Available at: <https://verfassungsblog.de/separation-of-powers-in-climate-cases/>.
105. This difference in risks also relates to the use of so-called negative emissions technologies. This is discussed below in section 4.3.6.
106. IPCC (n 91) para C1 (Summary for Policymakers).
107. ibid para C1.3 (Summary for Policymakers).
108. ibid.

(ie net zero emissions) would need to be reached by around 2040 for a 420 $GtCO_2$ budget and around 2050 for a 580 $GtCO_2$ budget.[109]

Based on these central findings of the IPCC, it is possible to identify several standards that can be utilized to inform the standard of care that States need to meet in order to act consistently with their duty to take measures to prevent dangerous climate change.

In the following sub-sections, we first discuss the long-term temperature goal on which a State's efforts need to be based (4.3.1). Subsequently we present a framework that can help a court determine whether a State has committed to doing their 'fair share' to meet the long-term temperature goal. We see this as the central standard for determining whether a State is acting in line with its duty of care in relation to climate change. After this, we outline several additional standards that can be used by courts to determine the compatibility of a State's conduct with its duty of care (4.3.3 to 4.3.7).

### *4.3.1 Long-term temperature goal*

The starting point for assessing a State's overall mitigation efforts is the long-term temperature goal on which the efforts are based. The relevant temperature goal determines the amount by which a State must reduce its emissions, and the pace at which it must do so. Best available science indicates that a State's mitigation efforts should be based on a long-term temperature goal of 1.5°C.

As noted, the ultimate objective of the UNFCCC is to 'prevent dangerous anthropogenic interference with the climate system'.[110] As also noted, the Paris Agreement sets a long-term temperature goal of holding global temperature increase to 'well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C'.[111] In setting this goal, State Parties recognized that holding warming below this level 'would significantly reduce the risks and impacts of climate change'.[112]

The IPCC's SR1.5 report, which was published after the adoption of the Paris Agreement, highlights the need to limit global warming to the lower end of the long-term temperature goal in order to prevent dangerous climate change. The report indicates that limiting global warming to 1.5°C compared with 2°C could dramatically reduce the number of people exposed to climate-related risks and susceptible to falling into poverty.[113] In addition, the report highlights that 'pathways that overshoot 1.5°C run a greater risk of passing through "tipping points", thresholds beyond which certain impacts can no longer be avoided even if temperatures are brought back down later on'.[114]

Setting targets on the basis of a long-term temperature goal which is *higher* than 1.5°C (or which assumes significant *overshoot* of the target before returning to 1.5°C) is therefore arguably inconsistent with a State's duty of care, as it accepts the prospect of exposing those within a State's jurisdiction to an excessive risk of harm.

109. ibid 33.
110. UNFCCC, Art 2.
111. Paris Agreement, Art 2.1(a).
112. Paris Agreement, Art 2.1(a).
113. By up to several hundred millions by 2050, IPCC (n 91) para B.5.1 (Summary for Policymakers).
114. ibid 283.

Consistent with this argument, the Dutch first instance court in the *Shell* case recently concluded that a 'safe temperature increase should not exceed 1.5°C'[115] – a view previously expressed by the Dutch Supreme Court in *Urgenda*[116] and by the Irish Supreme Court in *Climate Case Ireland*.[117] The Dutch court in *Shell* therefore took the 1.5°C emission pathway of the IPCC as the basis for determining the duty of care in that case. The court considered that this pathway is the only pathway that has a 50 per cent chance of limiting the temperature increase to 1.5°C and an 85 per cent chance of limiting the temperature increase to 2°C. The court determined that, since this pathway still provides for a 15 per cent chance of going over 2°C, it offers 'the best possible chance to prevent the most serious consequences of dangerous climate change'.[118] The analysis of the Dutch court in the *Shell* case also illustrates that, despite the fact that the long-term temperature goal of the Paris Agreement refers to two separate temperature levels ('well below 2°C' and 1.5°C), the obligation to reach the temperature goal of the Paris Agreement is best expressed by a single emission pathway, due to the fact that the pathways defined by the IPCC provide different probabilities of remaining below 1.5°C and 2°C.[119]

### *4.3.2 'Fair share'*

We turn now to consider whether a State's emissions reduction efforts constitute a 'fair' contribution to the global effort required to combat dangerous climate change. A central allegation in most systemic mitigation cases is that the State has failed to adopt (an) emissions reduction target(s) commensurate with its 'fair share' of the global effort required to prevent dangerous climate change (as defined by the temperature goal). Here, we explore how a court can assess whether a State's mitigation efforts are consistent with its minimum 'fair share' pursuant to its duty of care.

*4.3.2.1 Global average* The global average emissions reductions that are required to prevent a particular temperature level can be derived from the global emission trajectories that are reported by the IPCC or the UNEP.

As noted above, according to the IPCC's SR1.5, global net anthropogenic $CO_2$ emissions need to be halved by 2030 and to reach net zero around 2050 in order to have an even chance (50%) of holding temperatures below 1.5°C.[120] Therefore, if a State were to halve its emissions in the next ten years, it would be following the *average* reduction rate that would need to be followed at the global level in order to meet that temperature level.

The court in *Shell* relied on this 'global average' as presented in the IPCC's SR1.5 to determine that the Shell group must reduce its emissions by 45 per cent by 2030

115. *Royal Dutch Shell* (n 29) [2.3.3].
116. *Urgenda* Supreme Court (2019) (n 1) [4.3].
117. *Irish Climate Case* (n 52) [3.4].
118. *Royal Dutch Shell* (n 29) [4.4.29].
119. On the relationship between the Paris Agreement temperature target and emission pathways see for instance: CF Schleussner and others, 'Science and Policy Characteristics of the Paris Agreement Temperature Goal' (2016) Nature Climate Change 6, 827–835.
120. IPCC (n 91) para C.1 (Summary for Policymakers).

against 2019 levels.[121] The plaintiffs in the South Korean Youth Constitutional Complaint are also referring to the global average of reduction required (as reported by the UNEP) to illustrate the insufficiency of the reduction target set by the South Korean Government for 2030.[122]

The 'global average' approach is not, however, consistent with international law, as it excludes considerations of equity and CBDR-RC which are relevant for determining developed countries' 'fair share'. Applied to individual States, the global average approach is effectively a form of grandfathering, in which future emissions are allocated based on past and current emissions: the reduction percentage is the same for each country, so those countries that currently emit more can continue to emit more (while reducing their emissions at the same rate as other countries).[123] In order to act consistently with international law, and specifically with their commitments under the UNFCCC and the Paris Agreement, developed countries need to do *more* than the global average.[124] A more robust approach to 'fair share' is addressed below.

Nevertheless, in proceedings against many developed countries, the global average serves as clear evidence that a State's mitigation efforts are *not* consistent with its duty of care. Indeed, only a handful of developed countries are preparing emissions reductions for 2030 that come close to halving their emissions in the next ten years – as per the global average as identified in IPCC SR1.5.

*4.3.2.2 Effort-sharing methodologies* In order to assess a State's fair share in light of international legal principles such as equity and CBDR-RC, courts can refer to studies undertaken on the basis of effort-sharing methodologies that take these principles into account.

Effort-sharing methodologies refer to the body of academic research that is concerned with the distribution of the global efforts to reduce GHG emissions between States in order to prevent specified levels of global warming.[125] These methodologies, developed by the scientific community, divide the remaining emission space (or carbon budget) between States, based on different interpretations of fairness and equity.[126]

121. *Royal Dutch Shell* (n 29).
122. *Do-Hyun Kim* (n 26). The Italian climate case also refers to the global average, as presented in the IPCC's SR1.5. *A Sud et al. v Italy* (n 27). This approach was also adopted by some of the plaintiffs in *Neubauer and Others v Germany* (n 20).
123. For a critique of grandfathering, see: Kate Dooley and others, 'Ethical Choices behind Quantifications of Fair Contributions under the Paris Agreement' (2021) 11 Nature Climate Change 300.
124. The UNFCCC is premised on an understanding that 'the largest share of historical and current global emissions of greenhouse gases has originated in developed countries', and that developing countries need to increase their share of global emissions to meet their social and developmental needs (UNFCCC, Preamble). Consistent with this, States' mitigation obligations under the UNFCCC and the Paris Agreement are informed by principles of equity and CBDR-RC, with developed countries 'taking the lead', UNFCCC, Arts 3.1 and 4.1; Paris Agreement, Preamble, Arts 4.1, 4.2 and 4.4.
125. See eg, Niklas Höhne, Michel den Elzen and Donovan Escalante, 'Regional GHG Reduction Targets Based on Effort Sharing: A Comparison of Studies' (2014) 14 Climate Policy 122.
126. For an overview of the categories of effort-sharing approaches, see IPCC, Fifth Assessment Report, Table 6.5, 458. The categorization of effort-sharing approaches presented by the IPCC is based on the article by Höhne et al., referred to in ibid.

The IPCC in its Fourth Assessment Report in 2007 (AR4) and Fifth Assessment Report in 2014 (AR5) presented findings on the basis of an assessment of the existing effort-sharing literature.[127]

In *Urgenda,* the Dutch courts used the findings of AR4 as the basis for determining the 'minimum fair share' of the Netherlands. The IPCC determined in AR4 that in order to have a likely chance (66%) of staying below 2°C (the relevant temperature goal considered 'safe' at the time), the so-called Annex 1 countries under the UNFCCC needed to reduce their emissions within a *range* of between 25 to 40 per cent by 2020 compared to 1990 levels. The Dutch Supreme Court concluded that this finding was not binding on the State as such. Nevertheless, the court determined that the scientific backing of the finding and the political consensus surrounding it enabled it to serve as a standard from which the court could determine the 'absolute minimum' for the Netherlands, namely: a reduction at the lowest end of the range (25% by 2020).[128]

The assessment provided by AR4 and AR5, however, has limitations when used to determine a State's 'fair share'. Most notably, the methodology does not address the issue of *sufficiency.* A key problem arises when each State 'cherry picks' the equity interpretation within the range that is most preferable to it (such as 25% in the above range). If all States adopt the lowest end of their 'fair share' range, the temperature target will be missed by a significant margin.[129]

More recent academic studies have attempted to address these limitations. A prominent example is an interdisciplinary study led by Professor Lavanya Rajamani alongside a team of climate scientists.[130] Similar to the assessment in AR4 and AR5, this study assesses the full spectrum of effort-sharing methodologies. It then, however, assesses these methodologies through the prism of international law. The study identifies the methodologies that are consistent with principles and norms of international law, such as equity and CBDR-RC. Methodologies that are *not* in line with these norms and principles, such as grandfathering (described in the previous sub-section),[131] and cost efficiency (in which global reduction efforts are based on

127. IPCC, 'Climate Change 2014: Synthesis Report', Fifth Assessment Report of the Intergovernmental Panel on Climate Change (2014); IPCC, 'Climate Change 2007: Synthesis Report', Fourth Assessment Report of the Intergovernmental Panel on Climate Change (2007).

128. *Urgenda* Supreme Court (2019) (n 1), [7.5.1].

129. This was one of the grounds for critique on the outcome in the *Urgenda* case. See for instance: Gerry Liston, 'Enhancing the Efficacy of Climate Change Litigation: How to Resolve the "Fair Share Question" in the Context of International Human Rights Law' (2020) 9 Cambridge International Law Journal 241.

130. Lavanya Rajamani and others, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions within the Principled Framework of International Environmental Law' [2021] Climate Policy.

131. As explained by Rajamani and others: 'Grandfathering or maintaining constant emissions ratios arguably creates "cascading biases" against poorer states (Kartha et al., 2018), is not a "standard of equity" (Dooley et al., 2021) and is indeed morally "perverse" (Caney, 2011)', ibid 10. Citing: Sivan Kartha and others, 'Cascading Biases Against Poorer Countries. (A Response to Robiou Du Pont et al.)' (2018) 8 Nature Climate Change 348; Kate Dooley and others, 'Ethical Choices behind Quantifications of Fair Contributions under the Paris Agreement' (2021) 11 Nature Climate Change 300; Simon Caney, 'Climate Change, Energy Rights, and Equality', in Denis G Arnold (ed), *The Ethics of Global Climate Change* (Cambridge University Press 2011).

where and when reductions are cheapest),[132] are excluded from the results presented in the study, thus reducing the range of emissions reductions that can be considered as 'fair' for each State. The study then addresses the issue of the *sufficiency* of a State's emission reductions in light of the Paris Agreement's long-term temperature goal. It further narrows each State's 'fair share' range of emissions reductions to ensure that individual contributions are *collectively* consistent with meeting the long-term temperature goal. One of the main findings of this analysis is that developed countries need to reduce their emissions to net zero (or even to become net-negative) by around 2030 in order to stay within their 'fair share', which is in line with principles of international law.[133]

The results from the Rajamani et al. study are largely in line with the calculations of 'fair share' per country published by Climate Action Tracker (CAT), which adopts a similar approach but for the exclusion of certain methodologies on the basis of inconsistency with international law. The CAT is an initiative of two independent climate science institutes and assesses States' NDCs against their 'fair share' (as calculated by CAT) under the Paris Agreement.[134] Several recent cases, including proceedings launched against Italy,[135] Poland[136] and a complaint before the ECtHR against 33 members of the Council of Europe,[137] have used expert reports that apply this methodology to identify the legally required emissions reduction level of the respective States. Prior to the publication of the Rajamani et al. study, the results relied upon in these cases represented the most accurate expression of States' 'fair share' in line with international law.

*4.3.2.3 Conclusion* Despite the rigour of the scientific analyses discussed above, determining a State's 'fair share' is not an exact science. Even if the results between studies are largely similar, methodological differences mean that precise emissions reduction levels will differ. The studies themselves also indicate that their results might change if additional elements are added to the analyses. It is, nevertheless, possible for a court to determine whether a State's mitigation efforts fall outside of the range of its minimum 'fair share', notwithstanding the absence of 'hard' answers.

This has already been recognized by national courts. In the case of *Urgenda,* the Dutch Supreme Court accepted the view of its independent legal advisors, the

132. See Rajamani and others (n 130) 10; Dooley and others (n 123) 301.

133. We note that the study does not make any statements with regards to the *feasibility* of meeting such reduction targets within a State's own territory. They rather make a statement on the *responsibility* for emission reductions, regardless of where these reductions take place. The duties of countries to reduce their emissions may therefore extend beyond their borders.

134. Climate Action Tracker, <https://climateactiontracker.org/>. The scientific methodology of the Climate Action Tracker is elaborated on in Ganti et al., 'Fair National Greenhouse Gas Reduction Targets under Multiple Equity Perspectives – A Synthesis Framework', forthcoming. Preliminary version available online (May 2021): <https://www.researchsquare.com/article/rs-397507/v1>.

135. *A Sud et al. v Italy* (n 27).

136. *Górska v Poland* (n 28).

137. *Duarte Agostinho and Others v Portugal and Others*, European Court of Human Rights, App No *39371/20 (filed 2020, pending*). See [31] of the complaint, available online: <http://climatecasechart.com/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2020/20200902_3937120_complaint.pdf>.

Procurator General and Advocate General, that while the IPCC did not provide 'cut and dried answers', it was a 'reasoned proposal' as it was derived from the latest scientific studies and covered a broad spectrum of effort-sharing methodologies, and thus could be taken as a starting point for specifying the duty of care of the Dutch State.[138] Similarly, the German Constitutional Court in *Neubauer* acknowledged that, while there are several methods for determining a State's necessary emissions reductions, all of which entail uncertainties:

> … this does not make it permissible under constitutional law for Germany's required contribution to be chosen arbitrarily. Nor can a specific constitutional obligation to reduce $CO_2$ emissions be invalidated by simply arguing that Germany's share of the reduction burden and of the global $CO_2$ budget are impossible to determine.[139]

The Hague District Court in *Shell* also accepted that while 'no one single [reduction] pathway is the measure of all things on a global scale',[140] there nevertheless exists 'widely endorsed consensus' regarding the minimum emissions reductions that are required to avert dangerous climate change.[141]

The justification for adjudicating whether a State's emissions reduction efforts are consistent with its 'fair share', despite slight variations in outcomes of the aforementioned studies, lies in part in the exceptional risks associated with climate change. As mentioned, the emissions reduction pathways reported by the IPCC merely specify the different levels of *likelihood* of staying below temperature levels. Thus, even if global emissions are reduced in line with the IPCC pathways for holding the temperature increase below 1.5°C, significant chances of exceeding this temperature level remain. This in turn could lead to the triggering of tipping points, with potentially catastrophic consequences.[142] In this context, the Dutch Supreme Court in *Urgenda* determined that the risk 'that dangerous climate change will occur even with less global warming and a lower concentration of greenhouse gases' than anticipated requires 'more far-reaching measures … to reduce greenhouse gas emissions, rather than less far-reaching measures'.[143]

### *4.3.3 Carbon neutrality*

Consistent with the analysis above, a State's mitigation efforts should also be based on a concrete goal of achieving carbon neutrality by a specific date in the near future. The science is clear that all States must design their mitigation policies around a goal of reaching carbon neutrality.[144]

138. 'Advisory Opinion on Cassation Appeal of the Procurator General in the Matter between the Netherlands v Urgenda' (Hoge Raad 2019) ECLI:NL:PHR:2019:1026, No. 19/00135 [4.129] to [4.137]. See also Joana Setzer and Dennis van Berkel, 'Urgenda v State of the Netherlands: Lessons for International Law and Climate Change Litigants' (2019) Grantham Research Institute, available at: <https://www.lse.ac.uk/granthaminstitute/news/urgenda-v-state-of-the-netherlands-lessons-for-international-law-and-climate-change-litigants/>.
139. *Neubauer and Others v Germany* (n 20) [225].
140. *Royal Dutch Shell* (n 29) [4.4.29].
141. ibid.
142. Timothy M Lenton and others, 'Climate Tipping Points – Too Risky to Bet Against' (2019) 575 Nature 592.
143. *Urgenda* Supreme Court (2019) (n 1) [7.2.10]. See also *Neubauer and Others v Germany* (n 20) [229].
144. IPCC (n 91) 108.

This consideration has been brought to bear in recent judgments. The German Constitutional Court in *Neubauer* noted that '[a] manifestly unsuitable protection strategy would be one that concerned itself with reducing greenhouse gas emissions without pursuing the goal of climate neutrality'.[145] Related to this, and in light of the risk of irreversible climate change, the court noted that 'the law must therefore take into account the IPCC's estimates on the size of the remaining global $CO_2$ budget and its consequences for remaining national emission budgets'.[146]

#### *4.3.4 Short-term emissions reduction targets*

A State's short-term emissions reduction targets should also be scientifically consistent with its long-term target of achieving carbon neutrality. Holding global temperature increase to a particular level by an end-point (such as 2100) depends on how much each State *cumulatively* emits along the way to achieving its target, as opposed to the level of emissions reduction at a single point in time (such as at 2030 or at 2050).[147]

It has become common practice for States to set long-term carbon neutrality targets (also known as net-zero $CO_2$ targets).[148] Yet, many States fail to support this with the necessary pathway to carbon neutrality; instead, they propose modest emissions reductions in the short-term (such as by 2030), with more ambitious emissions reductions in the medium term until 2050. Such an approach is not consistent with best available science, as delaying ambitious emissions reductions until after 2030 will result in *higher cumulative emissions* – thus exceeding the carbon budget for 1.5°C.

Courts have shown a willingness to assess the adequacy of short-term targets by reference to a carbon budget methodology. In *Neubauer*, the court assessed Germany's short-term targets with its long-term goal of carbon neutrality, on the basis of the carbon budget calculated for Germany by the German Advisory Council on the Environment (SRU).[149] The court concluded that – under the current reduction targets – the entire carbon budget for Germany would almost be used up by 2030.[150] The court therefore concluded that Germany's climate law was effectively 'offloading' reduction burdens to future generations, giving rise to a violation of the young plaintiffs' fundamental freedoms.[151]

Putting an assessment of *adequacy* to one side, a State should – at the very least – meet its own interim targets even if there remains time and scope to meet its longer-term

145. *Neubauer and Others v Germany* (n 20) [155]. The IPCC defines 'climate neutrality' as: 'Concept of a state in which human activities result in no net effect on the climate system'. See further IPCC (n 91) 545.
146. *Neubauer and Others v Germany* (n 20) [229].
147. IPCC (n 91) para C1.3 (Summary for Policymakers).
148. More than 120 countries have adopted net-zero targets by 2050. The UNFCCC has an inventory of those countries that have committed to net-zero $CO_2$ emissions by 2050 as part of the Climate Ambition Alliance: Net Zero 2050, Ambition. See online: <https://climateinitiativesplatform.org/index.php/Climate_Ambition_Alliance:_Net_Zero_2050>. See also a register maintained by Net Zero Tracker, an initiative of four research organizations, which indicates that 136 countries had adopted a net zero target at the time of publication. See online: <https://zerotracker.net>.
149. See: SRU, *Using the CO2 Budget to Meet the Paris Climate Targets*, Environmental Report 2020, Chapter 2, 19.
150. *Neubauer and Others v Germany* (n 20) [231].
151. ibid [117], [183].

targets. This was relevant to the decision in *Notre Affaire à Tous.* The French State had failed to achieve its own interim target set for the period of 2015–2018 (in the form of a carbon budget) towards achieving its 2030 reduction goals. The court did not accept the State's argument that there was still time to meet the 2030 target despite missing interim targets; rather, the court determined that it is cumulative emissions that determine a country's contribution to global temperature increase, and that the State was thus also bound by the intermediary emissions targets it had set in order to achieve the 2030 target.[152] Similarly, in the decision in the Belgian *Klimaatzaak* case, the court found a violation of the State's duty in tort (civil code) and human rights because it had not taken enough action to meet the State's own (European Union) targets.[153]

### *4.3.5 Downgrading*

A State should also refrain from downgrading its emissions reduction targets. Downgrading occurs, for instance, when the date of an emissions reduction target is postponed, even if GHGs continue to be reduced and long-term targets are retained. Postponing a reduction target inevitably leads to higher cumulative GHG emissions over a particular period, as discussed above.

The Paris Agreement imposes expectations that a State's NDC will constitute a 'progression' over time,[154] and reflect its 'highest possible ambition'.[155] A downgrading of ambition was relevant to the finding of a breach of the duty of care by the Dutch courts in *Urgenda*.[156] In *Neubauer*, the German Constitutional Court also suggested that '*ever increasing* reduction quotas … and annually decreasing emission amounts' (ie progression over time) are necessary to discharge the duty to protect constitutional rights to life and to health.[157]

Allegations regarding the downgrading of ambition are also central to the pending climate cases against governments in Ontario, Canada,[158] the Republic of Korea[159]

152. *Notre Affaire à Tous* (n 21).
153. *Klimaatzaak* (n 19).
154. Paris Agreement, Arts 3 and 4.3. Daniel Bodansky, Jutta Brunnée and Lavanya Rajamani, *International Climate Change Law* (OUP 2017) 223–4. See also Petra Minnerop, 'Integrating the "Duty of Care" under the European Convention on Human Rights and the Science and Law of Climate Change: The Decision of The Hague Court of Appeal in the Urgenda Case' (2019) 37 Journal of Energy & Natural Resources Law 149, 176.
155. Paris Agreement, Art 4.3. See also: Lavanya Rajamani and Jutta Brunnée, 'The Legality of Downgrading Nationally Determined Contributions under the Paris Agreement: Lessons from the US Disengagement' (2017) 29(3) Journal of Environmental Law 537–51.
156. See *Urgenda* Supreme Court (2019) (n 1) [7.4.6]: The Dutch State had adjusted its 2020 emissions target downwards on the basis that it would accelerate reductions *after* 2020. In the view of the court, the State had not 'provided any insight into which measures it intends to take in the coming years, let alone why these measures, in spite of the above, would be both practically feasible and sufficient to contribute to the prevention of dangerous climate change to a sufficient extent in line with the Netherlands' share'.
157. *Neubauer and Others v Germany* (n 20) [167] (emphasis added). For a similar argument see also Minnerop (n 154) 176.
158. *Mathur* (n 22). The plaintiffs challenge the provincial government's decision to repeal the Climate Change Act, and downgrade its 2030 target from a reduction of 37% compared to 1990 levels, to a reduction of 30% compared to 2005 levels – which represents a significant increase in the allowable level of GHG emissions.

and Brazil[160] – which are all premised on the State's duty to protect constitutional rights.

#### *4.3.6 Negative emissions technology*

A State's emissions reduction targets should not rely heavily on negative emissions technology. The adoption of modest short-term targets (as discussed above) is often premised on the deployment of large amounts of so-called negative emissions technologies in the future. This is contrary to best available science and the precautionary principle under international law.

The IPCC in SR1.5 indicated that all pathways that hold the temperature increase to below 1.5°C rely on the deployment of negative emissions to a certain extent – but with significant variation. The IPCC also found that the feasibility of deploying negative emissions measures at large scale is 'uncertain and entail[s] clear risks'.[161]

Courts have taken into consideration the risks associated with relying on this unproven technology. In *Urgenda,* the Dutch Supreme Court determined that 'there is no technology that allows [negative emissions] to take place on a sufficiently large scale',[162] and that excessive reliance on such technology constituted 'irresponsible risks', which would 'run counter to the precautionary principle that must be observed when applying Articles 2 and 8 ECHR and Article 3(3) UNFCCC'.[163] Other national courts have taken a similar approach.[164]

#### *4.3.7 Specifying the pathway towards carbon neutrality*

Finally, a State's mitigation efforts should comply with certain procedural requirements, as discussed in section 3.2. For example, sufficient information should be made available to the public, explaining on what basis a State has calculated its emissions reduction targets and how it proposes to achieve them. For instance, in *Neubauer*, the German Constitutional Court found a violation of fundamental rights because the legislature had failed to adequately specify how it would achieve its long-term emissions reduction target. The court concluded that the legislature was constitutionally obliged to set out *how* it would achieve climate neutrality by 2050, by setting intermediate targets post-2030 'in good time' and establishing 'a planning horizon'.[165] This conclusion reflects the finding of the Irish Supreme Court in *Friends of the Irish Environment* that the Government had failed to 'specify' how it would reach its long-term climate targets.[166]

159. *Do-Hyun Kim* (n 26). The plaintiffs seek the annulment of the current 2030 target, based on the fact that it represents a downgrade from the State's previous 2020 target.
160. *Six Youths v Minister of Environment and Others* [2021] 14th Federal Civil Court of Sao Paulo.
161. IPCC (n 91) 95 (Chapter 2, Executive Summary).
162. *Urgenda* Supreme Court (2019) (n 1) [7.2.5].
163. ibid.
164. *Irish Climate Case* (n 52) [3.4]. The need to take a precautionary approach in setting climate policy was also emphasized by the German Constitutional Court in *Neubauer. Neubauer and Others v Germany* (n 20) [229].
165. *Neubauer and Others v Germany* (n 20) [253] and [251].
166. *Irish Climate Case* (n 52). In this case, the need to specify was a statutory requirement.

## 5 CONCLUSION

The decisions of the Dutch courts in *Urgenda* are rightly regarded as ground-breaking: they represent the first time in the world that a government has been ordered to reduce its GHG emissions by an absolute minimum amount to comply with its legal obligations. The judgment of the Supreme Court of the Netherlands is the most detailed elaboration of States' human rights obligations to mitigate climate change issued by a court or tribunal globally.

However, these decisions do not stand alone. Since the first *Urgenda* decision, national courts in Belgium, Colombia, Nepal, Ireland, France, Germany and Canada have also recognized the justiciability of challenges to States' mitigation efforts. Moreover, many courts have recognized that, in certain circumstances, States have a legal obligation to protect those within their jurisdiction from dangerous climate change, pursuant to human rights and/or tort law, and that States have an individual responsibility to mitigate climate change, notwithstanding its global nature.

These 'systemic mitigation' cases can have a transformative impact: if successful, they can lead to a significant increase in a State's mitigation efforts – thereby bringing us closer to holding the global temperature increase to below 1.5°C, and avoiding the most devastating impacts of climate change.

Courts, however, face challenges when adjudicating systemic mitigation cases. A review of case law over the last decade reveals a concern on the part of judges about a perceived lack of standards by which to assess the legality of States' mitigation efforts. This concern is unfounded.

In this article, we have presented a range of standards, based on best available science and international law, which can be used to assess whether a State has 'remained within the limits of the law by which they are bound' in relation to their mitigation efforts.[167] We show that many of these standards have already been used by courts and litigants in systemic mitigation cases. We also point to new research that defines a State's 'fair share' of emissions reductions, in line with principles of international law, that should be used to strengthen existing and future cases.

As the climate crisis continues to worsen, and mitigation targets remain globally insufficient, there will be increasing recourse to courts around the world to scrutinize the mitigation efforts of States. The standards presented in this article can be used by plaintiffs in future and ongoing climate cases to assist courts in deciding on the legality of States' climate efforts.

## ANNEX: LIST OF SYSTEMIC MITIGATION CASES

National courts have issued a small but growing number of judgments in systemic mitigation cases. Many proceedings are currently in progress before national courts, as well as several before regional and supranational bodies.[168] We include the

167. *Urgenda* Supreme Court (2019) (n 1) [8.3.2].
168. *Duarte Agostinho and Others v Portugal and Others* European Court of Human Rights, App No 39371/20 (filed 2020, pending); *KlimaSeniorinnen v Switzerland* European Court of Human Rights (filed 2020, pending); *Mex M. v Austria* European Court of Human Rights (filed 2020, pending); *Sacchi et al. v Argentina et al.* United Nations Committee on the Rights of the Child (filed 2019, pending); *Petition of Torres Strait Islanders* United Nations Human

following cases at the national level in our definition of systemic mitigation cases (up to June 2021):[169]

- In **Europe**: *Urgenda* (the Netherlands, judgment issued by apex court in 2019 and lower courts in 2015 and 2018);[170] *Plan B Earth and Others v The Secretary of State for Business, Energy, and Industrial Strategy* (UK, judgment issued by first instance court, 2018);[171] *Family Farmers* (Germany, judgment issued by first instance court, 2019);[172] *KlimaSeniorinnen* (Switzerland, judgment issued by apex court, 2020);[173] *Climate Case Ireland* (Republic of Ireland, judgment issued by apex court, 2020);[174] *Zoubek et al. v Austria* (Austria, judgment issued by Constitutional Court, 2020);[175] *Grande-Synthe* (France, judgment issued by apex court, 2020);[176] *Notre Affaire à Tous* (France, judgment issued by first instance court, 2021);[177] *Neubauer et al. v Germany* (Germany, judgment issued by apex court, 2021);[178] *Klimaatzaak* (Belgium, judgment issued by first instance court, 2021);[179] *Greenpeace v Spain* (Spain, judgment pending);[180] *External Contribution to the French Constitutional Council* (France, judgment pending);[181] *Plan B Earth and Others v Prime Minister* (UK, judgment pending);[182] *Klimatická žaloba ČR v Czech Republic* (Czech Republic, judgment pending);[183] *A Sud et al. v Italy* (Italy, judgment pending);[184] *Górska et al. v Poland* (Poland, judgment pending).[185]
- In **the Americas**: *Future Generations* (Colombia, judgment issued by apex court, 2018);[186] *Juliana* (United States, judgment issued by appellate court,

Rights Committee (filed 2019, pending); *Armando Ferrão Carvalho and Others v The European Parliament and the Council 'The People's Climate Case'* (2019) Case no. T-330/18 (European Court of Justice).

169. With the exception of the *Urgenda* case, where a judgment has been issued by an apex court, we have not referred to the lower court proceedings in this list. See also: Setzer and Higham (n 14) 23.

170. *Urgenda* District Court (2015) (n 3); *Urgenda* Court of Appeal (2018) (n 3); *Urgenda* Supreme Court (2019) (n 1).

171. *Plan B Earth and Others v The Secretary of State for Business, Energy, and Industrial Strategy* [2018] EWHC 1892 (Admin). Permission to appeal refused by Court of Appeal on 25 January 2019.

172. *German Family Farmers* (n 24).

173. *KlimaSeniorinnen Schweiz & Ors v Federal Department of the Environment, Transport, Energy and Communications* [2020] 1C_37/2019 (Switzerland Supreme Court).

174. *Irish Climate Case* (n 52).

175. *Zoubek et al. v Austria* G 144-145/2020-13, V 332/2020-13 (Austrian Constitutional Court). This case was brought in relation to tax credits, as it was not possible to challenge the State's overall mitigation targets at the national level. This is evident from the subsequent complaint to the ECtHR – see *Mex M. v Austria.*

176. *Grande-Synthe* (n 50).

177. *Notre Affaire à Tous* (n 21).

178. *Neubauer and Others v Germany* (n 20).

179. *Klimaatzaak* (n 19).

180. *Greenpeace v Spain* (Supreme Court of Spain) (filed 2020, pending).

181. *External Contribution to the French Constitutional Council* (France, filed 2019, pending).

182. *Plan B Earth and Others v Prime Minister* (filed 2021, pending).

183. *Klimatická žaloba ČR v Czech Republic* Municipal Court of Prague (filed 2021, pending).

184. *A Sud et al. v Italy* (n 27).

185. *Górska v Poland* (n 28).

186. *Future Generations* (n 49).

2020)[187] and numerous cases initiated against governments at the State level in the United States;[188] *Álvarez* (Peru, judgment pending);[189] *Mathur et al.* (Ontario, Canada, preliminary decision by first instance court issued 2020; proceedings ongoing);[190] *ENvironnement JEUnesse* (Quebec, Canada, preliminary decision by first instance court issued, 2019; proceedings ongoing);[191] *La Rose* (Canada, judgment issued by first instance court, 2020; proceedings ongoing);[192] *Lho'imggin* (Canada, judgment pending);[193] *Institute of Amazonian Studies (Instituto de Estudos Amazônicos – IEA) v Brazil* (Brazil, judgment pending);[194] *Six Youths v Minister of Environment* (Brazil, judgment pending);[195] *Jóvenes v Gobierno de México* (Mexico, judgment pending).[196]

- In **Asia-Pacific**:[197] *Thomson* (New Zealand, judgment issued by first instance court, 2017);[198] *Shrestha* (Nepal, judgment issued by apex court, 2018);[199] *Pandey* (India, judgment issued by the national green tribunal, 2018);[200] *Maria Khan et al. v Federation of Pakistan* (Pakistan, judgment pending);[201] *Mataatua District Maori Council v New Zealand* (WAI2607, pending);[202] *Bushfire Survivors for Climate Action Incorporated v Environment Protection Authority* (Australia, judgment pending);[203] *Korean Youth for Climate Action* (Republic of Korea, judgment pending).
- In **Africa**: there has not yet been a ruling in a systemic mitigation case, as far as we are aware, but there have been a number of sector- or project-specific cases.

187. *Juliana* (n 44).
188. Additional information on some of the legal actions currently pending before State courts in the USA is available at: <https://www.ourchildrenstrust.org/other-proceedings-in-all-50-states>.
189. *Álvarez et al. v Peru* Superior Court of Justice, Lima (pending).
190. *Mathur* (n 22).
191. *ENvironnement JEUnesse* (n 25).
192. *La Rose* (n 23).
193. *Lho'imggin et al. v Her Majesty the Queen* [2020] Federal Court, Ottawa, 2020 FC 1059.
194. *Institute of Amazonian Studies (Instituto de Estudos Amazônicos – IEA) v Brazil* Federal District Court of Curitiba (filed 2020, pending).
195. *Six Youths v Minister of Environment and Others* [2021] 14th Federal Civil Court of Sao Paulo.
196. *Jóvenes v Gobierno de México* First Circuit District Court in Administrative Matters, Mexico City (pending).
197. Note: *Leghari* focuses on adaptation, so is excluded. *Ashgar Leghari v Federation of Pakistan* [2015] Case No WP No 255012015 (Lahore High Court).
198. *Thomson* (n 52).
199. *Shrestha* (n 51).
200. *Pandey v India* [2019] National Green Tribunal, No. 187/2017.
201. *Maria Khan et al. v Federation of Pakistan et al.* No. 8960 of 2019 (filed 2018, pending).
202. A claim before the Waitangi Tribunal on the basis of the Government's obligations under the Treaty of Waitangi (a quasi-judicial body).
203. *Bushfire Survivors for Climate Action Incorporated v Environment Protection Authority* No 106678 of 2020 (Australia, filed 2020, pending).