Litigating Climate Change in National Courts: Recent Trends and Developments in Global Climate Law

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Summary

This Article highlights the role that national judiciaries worldwide have played in developing the field of "climate law." It focuses on some of the key lawsuits from civil and common-law jurisdictions that may influence climate law beyond their borders, including climate mitigation and adaptation cases as well as transnational climate cases. In particular, it considers the procedural tools and interpretive principles that judges have employed to decide novel legal issues presented by climate litigation. It concludes that judges are successfully adapting their traditional role of administration of justice to the challenges posed by climate change litigation, and holding their own governments accountable. While courts have thus far been unwilling to impose civil liability on private entities, emerging science may help address some of the causation and apportionment hurdles in these cases, and additional and collateral avenues for private-sector accountability may emerge.

Domestic and international judges have found themselves at the front lines of the global effort to address climate change, and their role can only be expected to grow in coming years. As the Paris Agreement on Climate Change comes into force,[1] national judges will increasingly be called upon to help shape climate law, police existing obligations, and provide guidance through the application of domestic and international legal principles.

The developing field of "climate law"—which has emerged over the past decade through an explosion in climate change litigation—comprises a wide range of legal disputes before a variety of judicial, administrative, and arbitral institutions at the domestic, regional, and international levels. This Article is principally concerned with the role that different national judiciaries have played in this process. In particular, it explores the procedural tools and interpretive principles that national judges have employed to decide novel legal issues presented by climate litigation.

As shown below, climate litigation in national courts has gone beyond the traditional confines of environmental litigation—such as air and water pollution, or environmental impact assessments (EIAs)—to include a variety of disputes addressing climate change issues both directly and indirectly: lawsuits over constitutional rights to life, the rights of future generations, climate treaty commitments, and climate-resilient zoning regulations. These disputes can broadly be categorized as (a) litigation involving climate mitigation measures—efforts designed to reduce or prevent emissions of greenhouse gases (GHGs), and (b) litigation involving climate adaptation measures—efforts designed to build resilience and reduce the negative impacts of climate change on communities and ecosystems.

While hundreds of climate-related lawsuits have been filed worldwide in recent years, this Article focuses on some of the key lawsuits from civil and common-law jurisdictions that may influence climate law beyond their borders. The orders issued in the last few years in particular may signal a paradigm shift in the engagement of the judiciary branch relative to the issue of climate change. Sections I and II provide an overview of these precedent-setting climate mitigation and adaptation cases, such as a U.S. district court's recent order permitting constitutional and public trust claims by a group of youths to proceed to trial, The Hague District Court's order setting specific national emission reductions for The Netherlands, and the

Authors' Note: The authors are grateful to Gregory Porter for his research assistance. Any views or opinions expressed in this Article are solely our own, and do not necessarily represent those of the institutions with which we are affiliated.

1. Adoption of the Paris Agreement, Dec. 12, 2015, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (entered into force Nov. 4, 2016).

Supreme Court of Pakistan's ruling allowing a child's constitutional climate case to proceed on behalf of the public and future generations. Section III reviews several recent examples of transnational climate litigation—litigation in domestic courts involving either foreign plaintiffs or defendants. Section IV concludes with a reflection on the emerging trends in climate law and the role of national judges in future climate litigation.

I. Litigation Over Climate Mitigation Measures

A large number of cases have been filed in recent years worldwide against both governments and private entities with the aim of reducing GHG emissions or imposing liability on the parties deemed responsible for those emissions.[2] This section provides an overview of some key climate mitigation precedents and pending lawsuits that raise novel legal theories, including (a) lawsuits against public authorities and (b) civil litigation against private entities.

A. Lawsuits Against Public Authorities

Actions against public entities have generally taken the form of judicial or administrative review of governmental measures, or inaction, relating to climate change. For example, in the United States, states, municipalities, private land trusts, and civil society organizations have filed dozens of lawsuits in federal and state courts, as well as administrative petitions for rulemaking, to address climate change. A large number of recent cases around the world are asking courts to recognize that governments have a common-law duty under the public trust doctrine to protect the atmosphere by regulating GHG emissions.[3] While the majority of climate mitigation lawsuits have sought to pressure governments to enact stronger mitigation measures, a number of actions have also been filed by governments and private entities adversely affected by new climate regulations.[4] Outside the United States, climate lawsuits have run the gamut from constitutional petitions to disputes over siting of renewable facilities.

On the whole, climate lawsuits have met with varying success. In a number of jurisdictions, courts have been reluctant to fill in the gaps left by legislative or regulatory inaction, citing separation-of-powers concerns and jurisdictional or evidentiary issues posed by climate change.[5] However, as the consensus around climate science has strengthened and the sense of urgency around the climate question has become more palpable, national courts in a number of jurisdictions have responded by instructing their governments to take concrete steps to avert climate change in accordance with their domestic or international commitments and obligations.

1. Duty of Care

A leading example of this trend is *Urgenda v. The Netherlands*, a citizen suit in which The Hague District Court ruled that the Netherlands has breached its duty of care to the plaintiffs by taking insufficient measures to prevent climate change, and ordered the government to implement specific emissions reductions.[6] The basic facts were not in dispute because both sides agreed on the need for mitigation; at issue was "the pace, or the level, at which the State needs to start reducing greenhouse gas emissions."[7] After reviewing the scientific evidence, the court concluded that the Dutch reduction target was "below the standard deemed necessary by climate science and the international climate policy, meaning that in order to prevent dangerous climate change, Annex I countries (including the Netherlands) must reduce greenhouse gas emissions by 25-40% by 2020 to realize the 2°C target."[8]

Having made this finding, the court considered whether the State had a legal obligation to pursue a more aggressive emissions reduction target.[9] The petitioners had relied on a variety of legal theories rooted in domestic constitutional and statutory law, European Union (EU) human rights law, and international law. The court held that while the petitioners could not rely on these obligations, they could proceed on the basis of a claim that the State had breached its duty of care ("unlawful hazardous negligence").[10]

The court developed a framework to define the "scope of the State's duty of care and the discretionary power it is

2. For a list of cases, *see, e.g.*, Sabin Center for Climate Change Law, *Comprehensive Databases of Climate Change Caselaw*, http://wordpress2.ei.columbia.edu/climate-change-litigation/.
3. *See, e.g.*, Juliana v. United States, No. 6:15-CV-01517-TC, 2016 WL 6661146, 46 ELR 20175 (D. Or. Nov. 10, 2016); Alec L. v. Jackson, 863 F. Supp. 2d 11, 42 ELR 20115 (D.D.C. 2012), *aff'd sub nom.* Alec L. ex rel. Loorz v. McCarthy, 561 F. App'x 7, 44 ELR 20130 (D.C. Cir. 2014); Sanders-Reed ex rel. Sanders-Reed v. Martinez, 350 P.3d 1221, 1222 (N.M. Ct. App. 2015); Kanuk ex rel. Kanuk v. State Dep't of Natural Res., 335 P.3d 1088 (Alaska 2014); Butler ex rel. Peshlakai v. Brewer, No. 1 CA-CV 12-0347, 2013 WL 1091209 (Ariz. Ct. App. Mar. 14, 2013); Filippone ex rel. Filippone v. Iowa Dep't of Natural Res., 829 N.W.2d 589, 43 ELR 20054 (Iowa Ct. App. 2013); Aronow v. State, No. A12-0585, 2012 WL 4476642, 42 ELR 20210 (Minn. Ct. App. Oct. 1, 2012); Chernaik v. Kitzhaber, 263 Or. App. 463 (Or. Ct. App. 2014); Svitak ex rel. Svitak v. State, 178 Wash. App. 1020 (Wash. Ct. App. 2013).
4. *See, e.g.*, West Va. v. Environmental Prot. Agency, 136 S. Ct. 1000 (2016) (granting application for stay of the U.S. Environmental Protection Agency's (EPA's) "Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units," 80 Fed. Reg. 64662 (Oct. 23, 2015), pending disposition of the applicants' petitions for review in the U.S. Court of Appeals for the District of Columbia Circuit).
5. *See, e.g.*, Friends of the Earth v. Canada (Governor in Council), [2008] F.C. 1183 (Can.) (declining to review Canada's compliance with the Kyoto Protocol as a matter of "an inherently political nature"); Turp v. Canada (Attorney Gen.), [2012] F.C. 893 (Can.) (declining to review Canada's withdrawal from the Kyoto Protocol where a violation of the Charter was not alleged).
6. *See* Urgenda Found. v. The Netherlands, The Hague Dist. Ct. (Chamber for Comm. Affairs June 24, 2015), *available at* http://uitspraken.rechtspraak.nl/inziendocument?id=ECLI:NL:RBDHA:2015:7145, *translated in* http://www.urgenda.nl/documents/VerdictDistrictCourt-UrgendavStaat-24.06.2015.pdf.
7. *Id.* at 4.32, 4.34.
8. *Id.* at 4.31, 4.84. By comparison, the State had indicated at the hearing that the expected emissions reduction was 14-17% in 2020 compared to 1990. *Id.* at 4.26.
9. *Id.* at 4.34 et seq.
10. *Id.* at 4.52-4.53.

entitled to" by drawing on its hazardous negligence jurisprudence, the State's constitutional and treaty obligations, and international legal principles, such as fairness (protection of the climate system for the benefit of current and future generations), the precautionary principle, and the sustainability principle.[11] On this basis, the court found that the State had "acted negligently and therefore unlawfully towards Urgenda by starting from a reduction target for 2020 of less than 25% compared to the year 1990," and ordered the State to reduce national emissions by 25% as an "absolute minimum."[12] The government has appealed the judgment.

Though *Urgenda* was decided under Dutch law, the court's reasoning—including its analysis of causation and duty of care—may serve as persuasive authority for climate litigation in other jurisdictions. For example, the court rejected the State's argument that its intended adaptation measures satisfied its duty of care, finding that mitigation is "the only really effective tool" and thus the State "has a duty of care to mitigate as quickly and as much as possible."[13] Second, the court was unpersuaded by the State's arguments that unilateral emissions reductions by the Netherlands, a relatively small emitter, would be futile.[14] As the court explained, "climate change is a global problem and therefore requires global accountability."[15] Because "any anthropogenic greenhouse gas emission, *no matter how minor*, contributes to an increase of [carbon dioxide (CO_2)] levels in the atmosphere and therefore to hazardous climate change," States have a joint and individual responsibility for emissions reductions.[16]

The court thus put to rest the "but for" test—the need to show that climate change would not happen but for the actions of the Dutch State—which has proved a significant hurdle in a number of other climate lawsuits. The holding that a defendant's contribution, "no matter how minor," could give rise to an actionable claim could inform other courts' interpretation of duties and standards of care in the climate context.[17] As noteworthy was the court's dismissal of the State's separation-of-powers argument on the grounds that the petitioners' "claim essentially concerns legal protection and therefore requires judicial review."[18] As such, "[t]he possibility—and in this case even certainty—that the issue is also and mainly the subject of political decision-making is no reason for curbing the judge in his task and authority to settle disputes," especially where the State retains discretion over how to comply.[19]

A similar citizen suit is currently pending in Belgium, in which the judiciary is being asked to order the regional and federal governments to take all measures necessary to ensure that Belgian emissions in 2020 are 40% less than in 1990.[20] The court's analysis in *Urgenda* is also being used as a model in Norwegian, Swiss, and Swedish petitions, discussed below, and at least two foreign courts have cited *Urgenda* in their analysis.[21]

2. Constitutional and Rights-Based Theories

Though *Urgenda* did not explicitly turn on the Dutch Constitution, climate change litigation could find stronger footing in jurisdictions with express constitutional protections for the environment. For example, Norway's recent constitutional amendment relating to climate change could prove pivotal in a recent suit filed by two environmental organizations over oil drilling licenses in the Norwegian Arctic.[22] However, citizen suits have also proceeded in jurisdictions that do not have an express constitutionally protected right to environmental quality, but where the national judiciaries have interpreted the fundamental right to life and dignity as including such a right.

A prominent example that falls into this category is the Pakistani case of *Leghari v. Pakistan*, in which Ashgar Leghari, a Pakistani farmer, initiated public interest litigation arguing that inaction and delay by the federal and provincial governments in implementing the National Climate Change Policy and Framework (the Climate Framework) violated his constitutional rights to life and dignity.[23] In a groundbreaking decision, the Lahore High Court Green Bench instructed all levels of government to take immediate action to tackle the problem of climate change.

In the court's first order, Judge Syed Mansoor Ali Shah described climate change as "a defining challenge of our time," which has caused heavy floods and droughts in Pakistan, compromising water and food security.[24] The court observed that Pakistan's environmental jurisprudence, which has taken a center stage in the protection of constitutional rights, needs to adapt to meet the climate

11. *Id.* at 4.52-4.63.
12. The court declined to set the higher target of 40% in order not to encroach on the State's discretionary power. *Id.* at 4.93.
13. *Id.* at 4.73-4.76.
14. The State argued that since Dutch emissions account for 0.5% of global emissions, imposing a reduction target of 25-40% would result in a reduction of only 0.04-0.09% of global emissions. *Id.* at 4.78-4.79.
15. *Id.* at 4.79.
16. *Id.* (emphasis added).
17. *Compare* Massachusetts v. EPA, 549 U.S. 497, 525-26, 37 ELR 20075 (2007) ("Nor is it dispositive that developing countries such as China and India are poised to increase greenhouse gas emissions substantially over the next century: A reduction in domestic emissions would slow the pace of global emissions increases, no matter what happens elsewhere.").
18. *Id.* at 4.98.
19. *Id.* at 4.98-4.100.
20. For information on the case and the complaint, see Klimaatzaak, *Le Proces [The Trial]*, http://klimaatzaak.eu/fr/le-proces/.
21. *See* Juliana v. United States, No. 6:15-CV-1517-TC, 2016 WL 1442435, 46 ELR 20072 (D. Or. Apr. 8, 2016); Foster et al. v. Washington Dep't of Ecology, No. 14-2-25295-1 SEA, Order Denying Motion for Order of Contempt and Granting Sua Sponte Leave to File Amended Pleading (Wash. Super. Ct. Dec. 19, 2016).
22. The complaint also alleges violations of fundamental human rights enshrined in the European Convention on Human Rights (ECHR) and the International Covenant on Economic Social and Cultural Rights (ICESCR). *See* Greenpeace Nordic Association & Natur og Ungdom (Nature & Youth) v. Norway, Writ of Summons (Oslo District Court, dated 18 Oct. 2016), *available at* http://www.greenpeace.org/norway/Global/norway/Arktis/Dokumenter/2016/legal_writ_english_final_20161018.pdf/.
23. Leghari v. Federation of Pakistan, WP No. 25501/2015 (Lahore High Ct. Green Bench 2015).
24. *Leghari*, Order No. 1, at 6 (Sept. 4, 2015).

change challenge.[25] In particular, the court underscored that existing constitutional rights—including the rights to life, human dignity, property, and information, read together with the constitutional values of political, economic, and social justice—"provide the necessary judicial toolkit to address and monitor the Government's response to climate change."[26]

The court concluded that "the delay and lethargy of the State in implementing the Framework offends the fundamental rights of the citizens which need to be safeguarded."[27] It directed the relevant government agencies to nominate a climate change "focal person" to ensure the implementation of the Framework and assist the court in overseeing its remedy, ordered them to provide a list of actionable priority items, and directed the establishment of a Climate Change Commission.[28] The court issued the terms of reference and appointed the commission's members in its second order, issued 10 days later, "to expedite the matter and to effectively implement the fundamental rights of the people of Punjab."[29] The commission was instructed to file interim reports as and when directed by the court, which has retained continuing jurisdiction over the matter.[30]

Further constitutional petitions relating to climate change are currently pending before the Philippine, Pakistani, and Swiss courts. In 2014, a citizen action was filed in the Supreme Court of the Philippines alleging that the government's failure to implement the "road-sharing principle" on all roads in the country pursuant to its statutory mandate contributes to emissions and pollutants and thus violates "the Filipino people's basic human rights to health, to equal protection of the laws, and to their right to a balanced and healthful ecology in accord with the rhythm and harmony of Nature."[31] The petition also alleges that the government's actions have violated its obligation to the atmospheric trust.

Similarly, in June 2016, in *Rabab Ali v. Pakistan*, the Supreme Court of Pakistan overruled a registrar's rejection of a child's constitutional law petition on behalf of the public and future generations, and ruled that her climate change lawsuit may proceed.[32] The petitioner argues that continued exploitation of lignite coal, a particularly high-emitting fuel source, in Pakistan's Sindh province in the Lower Indus Basin would drastically increase Pakistan's GHG emissions, worsening air pollution and global warming. This allegedly infringes on the constitutionally guaranteed right to life and other fundamental rights of the petitioner and Pakistan's future generations and violates the public trust doctrine—the principle that the government must preserve certain natural resources for public use. This case bears watching for precedential value, as it could speak to both the rights of future generations (to which the *Urgenda* court had also alluded) and the public trust doctrine.

The constitutional petition filed in Switzerland in November 2016 by a group of senior women alleges that the Swiss government's failure to adopt stronger mitigation targets and measures for 2020 and 2030 is a violation of their fundamental rights to life and health and the principles of precaution and sustainability under the Swiss Constitution, as well as their rights enshrined by the European Convention on Human Rights (ECHR).[33] Since the Swiss legal system does not recognize a general right to popular action, the petitioners argue that they, as a group of older women between 70 and 90 years of age, are particularly affected by climate change ("most vulnerable group") due to the impact of climate-induced heat waves on their health and life expectancy.[34] Among other things, the petition asks the government to adopt a mitigation target of at least 25% (to 40%) below 1990 levels by 2020 and at least 50% below 1990 levels by 2030.[35]

A constitutional petition was also recently filed in the U.S. courts. The U.S. Constitution does not expressly protect the environment, and U.S. courts, unlike some of their foreign counterparts, have yet to infer an implicit right to a clean environment from the Constitution.[36] In view of this jurisprudence, the petitioners in *Juliana et al. v. United States*—a group of 21 youths—did not claim a violation of their right to a clean environment.[37] Instead, they alleged that the federal government's aggregate actions relating to climate change, such as its continued approval, promotion, extraction, and use of fossil fuels violates other constitutionally protected rights, including the fundamental rights to life, liberty, and property; equal protection; and the implicit right to a stable climate. They

25. *Id.* at 7.
26. *Id.*
27. *Id.* at 8.
28. *Id.* at 8(i)-(iii).
29. *Leghari*, Order No. 2, at I-II (Sept. 14, 2015).
30. *Id.* at 11(VII).
31. *See* Segovia v. Climate Change Comm'n, Special Civil Action for a Writ of Kalikasan and Continuing Mandamus Under the Rules of Procedure for Environmental Cases, filed Feb. 17, 2014 (Sup. Ct. Phil.).
32. *See* Rabab Ali v. Federation of Pakistan (petition, filed Apr. 6, 2016), *available at* https://www.elaw.org/pakistan.rabab.ali.climate.petition.2016.
33. For information on *Verein KlimaSeniorinnen Schweiz et al. v. Switzerland* (complaint filed, 25 Nov. 2016), see http://klimaseniorinnen.ch/.
34. *See* Complaint, at paras. 1, 19-20, *available at* http://klimaseniorinnen.ch/wp-content/uploads/2016/11/161124-Gesuch-um-Erlass-anfechtbarer-Verfuegung_final.pdf.
35. *Id.,* at paras. 145, 160.
36. *See, e.g.*, Environmental Def. Fund, Inc. v. Corps of Eng'rs of U.S. Army, 325 F. Supp. 728, 739, 1 ELR 20130 (E.D. Ark. 1971) (holding no such right protected under the Fifth, Ninth, and Fourteenth Amendments, but noting that such "claims, even under our present Constitution, are not fanciful and may, indeed, some day, in one way or another, obtain judicial recognition"). *See also* Ely v. Velde, 451 F.2d 1130, 1139, 1 ELR 20612 (4th Cir. 1971) ("[G]enerally it has been held that there is no constitutional right to [environmental] protection."); Tanner v. Armco Steel, 340 F. Supp. 532, 537, 2 ELR 20246 (S.D. Tex. 1972) ("[N]o legally enforceable right to a healthful environment . . . is guaranteed by the Fourteenth Amendment or any other provision of the Federal Constitution."); In re Agent Orange Prod. Liab. Litig., 475 F. Supp. 928 (D.C.N.Y. 1979). Some U.S. state constitutions do establish a right to a clean environment, but this is not necessarily enough to compel the state government to regulate GHG emissions. *See, e.g.*, Funk v. Wolf, 144 A.3d 228, 233 (Pa. Commw. Ct. 2016) (holding that the Environmental Rights Amendment to Pennsylvania's Constitution does not provide petitioners with a clear right to the performance of the specific acts—here, regulation of emissions).
37. Juliana v. United States, No. 6:15-CV-1517-TC, 2016 WL 1442435, 46 ELR 20072 (D. Or. Apr. 8, 2016).

also alleged that the United States violated the public trust doctrine under the authority of the Ninth Amendment.[38] The plaintiffs applied for declaratory and injunctive relief, which included ordering the federal government to prepare a national climate plan.[39]

In April 2016, the magistrate judge of the U.S. District Court of Oregon recommended denying motions to dismiss that were filed in the *Juliana* case. With respect to standing, Magistrate Judge Thomas Coffin noted that "the intractability of the debates before Congress and state legislatures and the alleged valuing of short term economic interest despite the cost to human life, necessitates a need for the courts to evaluate the constitutional parameters of the action or inaction taken by the government."[40] He also determined that the alleged injury is fairly traceable to the challenged action of the defendant[41] and that the claims are redressable.[42] The magistrate judge further disposed of the "political question" objection by emphasizing the judiciary's duty to address constitutional violations by government agencies—"issues committed to the courts rather than either of the political branches."[43]

The district court adopted these findings and recommendations in November 2016 in a judgment that, if upheld on appeal, would represent a paradigm shift in the way U.S. courts approach climate petitions.[44] First, similar to *Urgenda,* Judge Ann Aiken found that the political question doctrine did not bar the court's jurisdiction, as the question of whether defendants had violated plaintiffs' constitutional rights "is squarely within the purview of the judiciary."[45] The court further noted that the requested relief could be granted without directing any individual agency to take any particular action, thus respecting the separation of powers.[46] Similarly, granting the requested relief would respect the government's international commitments, as "[t]here is no contradiction between promising other nations the United States will reduce CO_2 emissions and a judicial order directing the United States to go beyond its international commitments to *more aggressively* reduce CO_2 emissions."[47]

Second, the court determined that plaintiffs had met all elements of the standing test. For example, the court declined "to forever close the courthouse doors to climate change claims" on the basis of prior case law that had relied on a record developed more than five years ago, as climate science is "constantly evolving."[48] The court further concluded that the claims are redressable even though many other entities contribute to global warming, because the question is not whether "some other individual or entity might later cause the same injury . . . the question is whether the injury *caused by the defendant* can be redressed."[49] The fact that the U.S. is responsible for a large share of global emissions was seen as significant.[50]

Third, the court broke new legal ground by concluding that plaintiffs had adequately alleged infringement of a fundamental right. Specifically, Judge Aiken held that "the right to a climate system capable of sustaining human life is fundamental to a free and ordered society,"[51] and that "a stable climate system is a necessary condition to exercising other rights to life, liberty, and property."[52] The court, however, also emphasized that the scope of its reasoning was limited to situations where the government is affirmatively and substantially damaging the ecosystem.[53] The court also allowed plaintiffs' public trust claims to proceed, finding that the government's

38. *Id*. at *1.
39. *Id*.
40. *Id*. at *5.
41. *Id*. (noting that "the failure to regulate the emissions has resulted in a danger of constitutional proportions to the public health" and that "sweeping regulations . . . could result in curtailing of major CO_2 producing activities by not just the defendant agencies, but by the purported independent third parties as well").
42. *Id*.
43. *Id*. at *7 (noting that a court order mandating regulation of emissions would not be ineffective given that the United States is responsible for 25% of the global CO_2 emissions) (internal quotations omitted).
44. Juliana v. United States, No. 6:15-CV-01517-TC, 2016 WL 6661146, 46 ELR 20175 (D. Or. Nov. 10, 2016).
45. *Id.* at *8. The Court affirmed that "a case does not present a political question merely because it raises an issue of great importance to the political branches." *Id.* at *4 (internal citations omitted). *See also id.* at *7 (finding that the facts in the case, "though novel, are amenable to th[e] well-established standards" governing due process claims); *27 ("Even when a case implicates hotly contested political issues, the judiciary must not shrink from its role as a coequal branch of government."). *Cf.* Robinson Twp., Washington Cty. v. Com., 623 Pa. 564, 609-10, 43 ELR 20276 (Pa. 2013) (noting that while a policy decision regarding rapid exploitation of shale gas is "squarely within [the legislature's] bailiwick, "[r]esponsive litigation rhetoric raising the specter of judicial interference with legislative policy does not remove a legitimate legal claim from the Court's consideration; the political question doctrine is a shield and not a sword to deflect judicial review.").
46. *Id.* at **6-7. *See also id.* at *9 (noting that "[t]he separation of powers might . . . permit the Court to direct defendants to ameliorate plaintiffs' injuries but limit its ability to specify precisely how to do so.").
47. *Id.* at *8.
48. *Id.* at *12 (discussing *Washington Envtl. Council v. Bellon*, 732 F.3d 1131, 43 ELR 20231 (9th Cir. 2013), *hearing en banc denied*, 741 F.3d 1075, 44 ELR 20023 (9th Cir. 2014), a case in which the U.S. Court of Appeals for the Ninth Circuit held that plaintiffs seeking to compel the state to regulate GHG emissions from the state's five oil refineries had failed to meet the standing requirements to bring a claim under the citizen suit provision of the Clean Air Act (CAA)). *Compare Bellon*, 741 F.3d 1075, 1081, 44 ELR 20023 (9th Cir. 2014) (Gould, C.J., dissenting) ("In my view, as our planet warms and our oceans rise, individual citizens should have standing to urge their states to take corrective incremental actions to combat global warming.").
49. *Id.* at *13.
50. *Id.* at *12 (noting that "plaintiffs' chain of causation rests on the core allegation that defendants are responsible for a substantial share of worldwide [GHG] emissions").
51. *Id.* at *15 (citing, inter alia, Minors Oposa v. Sec'y of the Dep't of Envt'l & Natural Res., G.R. No. 101083, 33 I.L.M. 173, 187-88 (S.C., July 30, 1993) (Phil.)).
52. *Id.* at *16.
53. *Id*. ("In framing the fundamental right at issue as the right to a climate system capable of sustaining human life, I intend to strike a balance and to provide some protection against the constitutionalization of all environmental claims."). *See also id*.:

> In this opinion, this Court simply holds that where a complaint alleges governmental action is affirmatively and substantially damaging the climate system in a way that will cause human deaths, shorten human lifespans, result in widespread damage to property, threaten human food sources, and dramatically alter the planet's ecosystem, it states a claim for a due process violation. To hold otherwise would be to say that the Constitution affords no protection against a government's knowing decision to poison the air its citizens breathe or the water its citizens drink.

obligations as trustee arise from the Constitution.[54] The court, however, did not address the standing of future generations, the merits of plaintiffs' argument that youth and posterity are suspect classifications, or whether the atmosphere is a public trust asset.[55]

On the whole, the district court's decision represents the most fulsome treatment to date by a U.S. court of some of the key questions emerging in climate change litigation around the globe. This is of course the decision of a single district court, and the decision's fate on appeal is uncertain. Nonetheless, unless and until it is overturned on appeal, the decision may serve to inform judicial thinking in other jurisdictions.

Constitutional law and rights-based arguments also have the potential to influence GHG emissions indirectly. For example, in 2005, the Federal High Court of Nigeria held that the flaring (or burning) of natural gas in the course of oil extraction and production violated the right to life and dignity of the Iwherekan community in the Niger Delta—a right that inevitably includes the right to a clean, pollution-free, healthy environment.[56] Nigerian legislation permitting gas flaring was thus found to be inconsistent with those rights.[57]

Similarly, in a constitutional petition filed by local municipalities and individuals in Pennsylvania, the Supreme Court of Pennsylvania found that the state's statutory framework for rapid exploitation of shale gas violated a number of provisions of the state's constitution.[58] A constitutional petition is also currently pending before the Supreme Court of Canada, in which plaintiffs, a First Nations community, are contesting an administrative agency's approval of expanded pipeline capacity due to the alleged failure to consult the community about the impact of the proposed project on their ancestral territory.[59]

3. Statutory and Common-Law Cases

In jurisdictions where constitutional petitions are not available or are less likely to succeed, plaintiffs have relied on a variety of other legal theories, including statutory provisions and common-law doctrines, to compel their governments to mitigate climate change. The success of this litigation has been highly variable.

In Australia, the world's fourth-largest coal producer, numerous lawsuits have been filed in local courts challenging the approval of large-scale coal mining projects, especially in the Galilee Basin of central Queensland, on climate and related grounds. Australian coal is primarily mined for export to overseas markets (India and China), and plaintiffs have had to demonstrate, as a threshold matter, that emissions generated overseas from the burning of Australian coal were legally relevant. While courts in recent decisions have treated global emissions as a relevant factor, climate litigation thus far has not been successful in limiting coal development in Australia.

In the *Xstrata* case, for example, a civil society organization lodged objections to the Wandoan Coal Mine on climate grounds, arguing that the mine's downstream impacts, including ocean acidification resulting from global warming, were relevant to the EIA.[60] In this case, emissions that were to result from the transportation and burning of coal after it was removed from the proposed mine amounted to 1.32 gigatons of CO_2 over the life of the mine, mostly from overseas use.[61] The Land Court rejected the challenge in 2012, finding that judicial review of the environmental impacts was legislatively limited to the physical activities associated with the process of extracting coal.[62]

The Land Court determined in the alternative that even if transportation and coal burning emissions were relevant, the plaintiffs had in any event failed to establish harm.[63] In particular, the Land Court found that stopping the project would have "no impact on climate change" because it would not reduce the global demand for coal.[64] The Land Court did, however, hold that climate change is a matter of general public interest that may militate against the grant of a mining lease project in some cases, but concluded this mine's "comparatively minor" environmental impact was outweighed by its "significant economic" benefits.[65]

Conservation groups and local ranchers filed a similar challenge to the Alpha Coal Mine in *Hancock Coal*.[66] The Land Court found that emissions from transportation and burning of coal from the mine—which would

54. *Id.* at *25. *Contra* Alec L. v. Jackson, 863 F. Supp. 2d 11, 17, 42 ELR 20115 (D.D.C. 2012), *aff'd sub nom.* Alec L. ex rel. Loorz v. McCarthy, 561 F. App'x 7, 44 ELR 20130 (D.C. Cir. 2014) (holding that even if plaintiffs could allege a public trust claim based on federal common law, that cause of action was displaced by the federal CAA).
55. *See id.* at *14 n.5, n.7, *20, n.10, *25.
56. Gbemre v. Shell Petroleum Dev. Co. Nigeria Ltd. & Ors, [2005] No. FHC/B/CS/53/05 (Fed. High Ct. Nov. 14, 2005) (Nigeria), *available at* www.climatelaw.org/media/gas.flaring.suit.nov2005/ni.shell.nov05.decision.pdf.
57. A number of other courts have considered governments' failure to reduce air pollution as a violation of their citizens' fundamental constitutional rights. *See, e.g.*, M.C. Mehta v. Union of India (1998) 5 S.C.C. 206 (Sup. Ct.) (Delhi air pollution); Farooque v. Gov't of Bangladesh (2002) 22 BLD 345 (Sup. Ct.) (vehicle-generated air pollution); Mansoor Ali Shah & Ors. v. Gov't of Punjab [2007] CLD 533 (Lahore High Ct.) (Pak.) (vehicular air pollution in Lahore); Prakash Mani Sharma v. His Majesty's Gov't Cabinet Secretariat & Ors [2003] WP No. 3440 of 1996 (Sup. Ct.) (Nepal) (air pollution in the Katmandu Valley generated by diesel taxis imported from India); Prakash Mani Sharma v. His Majesty's Gov't Cabinet Secretariat [2007] WN 3027 of 2002-3 (Sup. Ct.) (Nepal) (brick kiln pollution).
58. *See* Robinson Twp. v. Com., No. 104 MAP 2014, 2016 WL 5597310, 46 ELR 20156 (Pa. Sept. 28, 2016); Robinson Twp., Washington Cty. v. Com., 623 Pa. 564, 43 ELR 20276 (Pa. 2013).
59. Among other things, the agency approved an increase in the pipeline's capacity from 240,000 barrels of diluted bitumen per day to 300,000 barrels of heavy crude per day. Chippewas of the Thames First Nation v. Enbridge Pipelines Inc., 2015 FCA 222 (Can.), on appeal to the Supreme Court, File No. 36776 (argued 30 Nov. 2016) (Can.).
60. Xstrata Coal Queensland Pty Ltd. & Ors v. Friends of the Earth—Brisbane Co-op Ltd. & Ors & Dep't of Env't & Res. Mgmt. (2012) 33 QLCR 79 (Austl.), at 511 et seq.
61. By comparison, primary emissions from the extraction process would amount to 17.7 million tons of CO_2 per year. *Id.* at 497-99, 541.
62. *Id.* at 557.
63. *Id.* at 558.
64. *Id.* at 503, 559.
65. *Id.* at 576, 581. *See also id.* at 604-05, 632.
66. Hancock Coal Pty Ltd. v. Kelly & Dep't of Env't & Heritage Prot. [No. 4] (2014) Q.L.C. 12 (Austl.).

account for as much as 0.16% of global emissions through the burning of 30 million tons of coal per year—were "both real and of concern."[67] Nonetheless, adopting the *Xstrata* analysis, it rejected the climate-based objection on statutory grounds[68] and made findings of fact, in the alternative, that the mine would not detrimentally affect global emissions.[69]

The Supreme Court of Queensland upheld the lower court's factual findings.[70] However, the Court also recognized that "environmental harm that might be caused by another coal mine somewhere else" might well be relevant under state environmental laws.[71] This interpretation was affirmed by two judges of the Court of Appeal in September 2016,[72] leaving the door slightly ajar for future citizen suits. As Justice Margaret McMurdo explained, the state's "environment is part of and affected by the global environment. Harmful global greenhouse gas emissions from the transportation and burning of coal after its removal clearly has the potential to harm Queensland's environment."[73] This suggests that a finding of consequential harm to the global climate from a proposed fossil fuel development could lead to a different result.

A different legal strategy was employed in challenging the Carmichael Coal Mine, an open-cut and underground coal mine approved until 2090. There, public interest groups argued that the approval was inconsistent with Australia's environmental legislation and international obligation to protect the Great Barrier Reef, a World Heritage Site, which would be harmed by increased ocean temperature and acidification from climate change.[74] The Federal Court of Australia dismissed the challenge in August 2016, accepting the government's conclusion that the mine would not have a relevant "impact" on the Great Barrier Reef (in that the mine's actions were not a substantial cause of the physical effects associated with climate change and that any specific impact on the climate was too speculative).[75] The court also accepted the government's submission that any direct or consequential emissions associated with the mine would be "managed and mitigated through national and international emissions control frameworks both in Australia and in overseas countries to which Adani's coal would be exported."[76] An appeal is pending before the Full Federal Court.

Courts in other jurisdictions reviewing their governments' decisions relating to climate change have often been less deferential.[77] For example, in *Sudiep Shrivastava v. Union of India*, plaintiffs challenged the government's approval of forest clearance plans in conjunction with coal development, which was contrary to non-binding expert advice from the Forest Advisory Committee (FAC).[78] In approving the plans, the government noted that several Indian states wanted the project to go forward to meet the demand for coal from their power plants.[79]

India's National Green Tribunal held that the government's decision was not fully informed or consistent with the principle of sustainable development. It explained that "diversion of forest land for any non-forest purpose is required to be made on the basis of most careful examination of any such proposal by specialist to evaluate social and environmental cost and benefits."[80] This analysis must be mindful of "ecocentric" factors as well:

> Understandably, there is a reason for the State Governments to persistently follow up the opening of the coalfields as [their] power generation plants are linked to the coal blocks. However, these are anthropocentric reasons the merit of which needs to be evaluated in context with ecocentric reasons in order to understand whether the development proposed is sustainable.[81]

The tribunal proceeded to quash the forest clearance approval and remanded the case to the FAC, to be determined in accordance with these principles. While the tribunal did not discuss climate change specifically, its reasoning implies that climate-impactful projects that would adversely affect the community, or the ecosystem, would be subject to heightened scrutiny. In another proceeding, the National Green Tribunal acted *sua sponte* in ordering the State of Himachal Pradesh to take additional measures

67. *Id*. at 209, 227. By contrast, the court found that extraction-related emissions associated with the proposed mine were "infinitesimal" as a percentage of global emissions—0.002%. *Id*. at 208.
68. *Id*. at 216.
69. *Id*. at 229-31 (finding that global emissions from transporting and burning coal would not fall if the mine did not proceed "as the coal will simply be sourced from somewhere else . . . [I]t is the demand for coal-fired electricity, and not the supply of coal from coal mines, which is at the heart of the problem.").
70. *See* Coast & Country Ass'n of Queensland Inc. v. Smith & Anor; Coast & Country Ass'n of Queensland Inc. v. Minister for Env't & Heritage Prot. & Ors (2015) Q.S.C. 260 (Queensl. Sup. Ct.) (Austl.).
71. *Id*. at 40, 45-46.
72. Coast & Country Ass'n of Queensland Inc. v. Smith & Ors (2016) Q.C.A. 242 (Queensl. Ct. App.), *per* McMurdo JA, at 1, 11-13. *See also id*., *per* Fraser JA, at 42-46.
73. *Id*. at 3.
74. Australian Conservation Found. Inc. v. Minister for the Env't (2016) F.C.A. 1042 (Fed. Ct.) (Austl.).
75. *Id*. at 158-62.
76. *See id*. at 164-65 (citing the minister's statement of reason, which explained that international multilateral environment agreements—namely, the United Nations Framework Convention on Climate Change and the Kyoto Protocol—provide mechanisms to address climate change globally, such that "the nations responsible for burning the coal produced from the proposed mine would be expected to address the emissions from transport by rail, shipping and combustion of the product coal in their own countries").
77. *See* Pembina Inst. for Appropriate Dev. v. Canada (Attorney Gen.), [2008] F.C. 302, [2008] F.C.J. No. 324 (Fed. Ct.), at 78-79 (holding that no deference is due where the panel tasked with reviewing the environmental impact of the Kearl Oil Sands Project failed to provide "clear and cogent" reasons for dismissing as insignificant the project's GHG emissions equivalent to 800,000 passenger vehicles). A number of other courts have treated GHG emissions as a relevant factor in the EIA process. *See, e.g.*, Gray v. Minister for Planning (2006) 152 LGERA 258 (New S. Wales Land & Env't Ct.) (Austl.); Australian Conservation Found. v. Latrobe City Council (2004) 140 L.G.E.R.A. 100 (Victorian Civil & Admin. Tribunal) (Austl.); R (on application of Hillingdon LBC) v. Secretary of State for Transport & Transport for London [2010] EWHC 626 (Admin.) (Eng.); Fastlane Transp., Inc. v. City of Los Angeles et al., 2016 WL 4417206, at *61 (Cal. Super. Ct. July 26, 2016).
78. Sudiep Shrivastava v. Union of India, Appeal No. 73/2012 (National Green Tribunal Mar. 24, 2014).
79. *Id*. at 27.
80. *Id*. at 31.
81. *Id*. at 28.

to protect eco-sensitive areas, including glaciers impacted by vehicular emissions, holding that the public trust doctrine "imposes an obligation not only on the State but even at the public at large to maintain its natural assets in a condition in which it was received by them, if not in a better condition, to the next generation."[82] Should the State not effectively comply with the Tribunal's directions, the Tribunal "would be compelled to pass coercive orders, including stopping tourism activity in the coming season."[83]

Citizen suits to limit continued fossil fuel exploitation on statutory grounds have likewise been filed in a number of other jurisdictions. In the United States, the turning point on climate litigation, and climate initiatives more generally, happened in 2007, with the U.S. Supreme Court's seminal decision in *Massachusetts v. Environmental Protection Agency*. That case still stands as a towering illustration of judicial influence in the climate arena.[84] Since then, a large number of climate lawsuits have been filed. A public interest petition filed in the U.S. District Court for the District of Columbia in August 2016, for example, challenges 397 new oil and gas leases on federal public lands authorized since 2015 on the grounds that the federal government has failed to analyze the climate impacts. According to the complaint, the federal Oil and Gas Leasing Program contributed more annual GHG emissions in 2008-2010 than all of the Central American countries combined.[85]

A variety of other citizen suits have been filed in the United States to either compel state governments to comply with their existing climate legislation or to force state agencies to engage in rulemaking. The plaintiffs in a number of these suits are children and youth.[86] For example, in 2014, youth petitioners sought declaratory relief, or in the alternative, a writ of mandamus, arguing that the Massachusetts Department of Environmental Protection had failed to mitigate climate change in accordance with the state's ambitious climate change legislation. In May 2016, the Massachusetts Supreme Judicial Court found that the state had failed to comply with its statutory mandate to reduce GHG emissions by at least 80% below 1990 levels by 2050.[87] While acknowledging that the agency has a "wide range of discretion" in acting pursuant to the enabling legislation, the court held that "statutory interpretation is ultimately the duty of the courts, and for that reason, the principle of according weight to an agency's discretion is one of deference, not abdication."[88] After scrutinizing the department's various other initiatives and rejecting them as not being a substitute for climate mitigation, the court concluded that the legislation requires "actual, measurable, and permanent emissions reductions," with set limits that decline on an annual basis, and ordered the department to promulgate the necessary regulations.[89]

Similarly, in June 2016, a Washington state court directed the state's Department of Ecology to promulgate a rule capping and regulating emissions by the end of 2016 and to make a recommendation to the legislature during the 2017 legislative session.[90] The court had previously denied the petition brought by eight youths on the grounds that the state was in the process of creating an emissions reduction plan.[91] After the plan failed to materialize, however, the court lost confidence that "the rule making procedure [would] be completed . . . without a court order."[92] As Judge Hollis Hill explained, judicial intervention was necessary at that point because:

> [T]his is an urgent situation. This is not a situation that these children can wait on. Polar bears can't wait, the people of Bangladesh can't wait. I don't have jurisdiction over their needs in this matter, but I do have jurisdiction in this court, and for that reason I'm taking this action.[93]

The state issued a revised Clean Air Rule in June 2016, which petitioners argue is not consistent with Judge Hill's order, and subsequently appealed the order.[94] The court denied the petitioners' contempt motion because the state had met the procedural deadline to issue a rule limiting emissions.[95] However, it granted petitioners *sua sponte* leave to add claims against the state of Washington and its governor for violations of the petitioners' right to a healthy

82. Court on its own Motion v. State of Himachal Pradesh & Ors. (National Green Tribunal May 12, 2016) (India), at paras. 7-8.
83. Court on its own Motion v. State of Himachal Pradesh & Ors. (National Green Tribunal Dec. 19, 2016) (India).
84. In 2007, the Supreme Court had held that EPA was authorized and obliged under the CAA to regulate GHG emissions if EPA determined that such emissions endanger public health or welfare. The decision followed a suit by several U.S. states, cities, and environmental organizations to force EPA to consider regulating CO_2 as a pollutant under the CAA. Massachusetts v. Environmental Prot. Agency, 549 U.S. 497, 37 ELR 20075 (2007). In 2009, EPA made the requisite determination, setting the stage for regulation of GHGs under the CAA. Endangerment and Cause or Contribute Findings for Greenhouse Gases Under §202(a) of the CAA, 74 Fed. Reg. 66496-501.
85. The federal government has ordered a programwide analysis of climate impacts for federal coal leasing—and imposed a moratorium on new coal leases during the pendency of that process—but has not done the same for oil and gas. *See* WildEarth Guardians v. Jewell et al., No. 1:16-CV-01724 (D.D.C., filed Aug. 25, 2016).
86. *See, e.g.*, Our Children's Trust, *Other Proceedings in All 50 States*, http://www.ourchildrenstrust.org/other-proceedings-in-all-50-states.
87. Kain v. Dep't of Envtl. Prot., 474 Mass. 278, 46 ELR 20094 (Mass. 2016).
88. *Id.* at 286 (citations and quotations omitted).
89. *Id.* at 300.
90. *See* Foster et al. v. Washington Dep't of Ecology, No. 14-2-25295-1 SEA, slip op. (Wash. Super. Ct. Apr. 29, 2016), *available at* http://westernlaw.org/sites/default/files/2016.04.29-WA%20ATL%20Final%20Decision%20Bench%20Ruling%20Transcript.pdf. *See also* Foster et al. v. Washington Dep't of Ecology, No. 14-2-25295-1 SEA, Order on Petitioners' Motion for Relief Under CR 60b (Wash. Super. Ct. May 16, 2016), *available at* https://static1.squarespace.com/static/571d109b04426270152febe0/t/57607f4901dbaec634f08166/1465941834691/16.05.16.Order_.pdf.
91. Foster et al. v. Washington Dep't of Ecology, 2015 WL 7721362, at *4, 45 ELR 20223 (Wash. Super. Ct. Nov. 19, 2015) ("Now that Ecology has commenced rulemaking to establish greenhouse emission standards taking into account science as well as economic, social and political considerations, it cannot be found to be acting arbitrarily or capriciously.").
92. Foster et al. v. Wash. Dep't of Ecology, slip op., at 20 (Wash. Super. Ct. Apr. 29, 2016).
93. *Id.*
94. A hearing was held in November 2016 following petitioners' allegations that the state is not complying with the court's prior orders. For information, see Our Children's Trust, *Washington State Proceedings*, https://www.ourchildrenstrust.org/washington/.
95. *See* Foster et al. v. Washington Dep't of Ecology, No. 14-2-25295-1 SEA, Order Denying Motion for Order of Contempt and Granting Sua Sponte Leave to File Amended Pleading (Wash. Super. Ct. Dec. 19, 2016), *available at* http://westernlaw.org/sites/default/files/2016.12.19-Hearing%20to%20Show%20Cause%20Order.pdf.

environment under the state constitution and the public trust doctrine and retained jurisdiction of petitioners' claims that the government has failed to protect them from climate change.[96] The court explained that this was necessary "due to the emergent need for coordinated science based action by the State of Washington to address climate change before efforts to do so are too costly and too late."[97]

B. *Civil Suits Against Private Entities*

The second category of climate mitigation cases has involved civil lawsuits against private entities seen as responsible for emissions, such as energy and utility companies. For example, in the United States, a number of high-profile lawsuits have been filed against large emitters, borrowing a page from the mass tort playbook utilized in tobacco and asbestos litigation. To date, these and other attempts to impose climate liability on private entities have not been successful in the United States.

Some of the earliest civil lawsuits against private companies were brought in U.S. federal courts on the theory of public nuisance under federal tort law, including *Connecticut v. American Electric Power Co.* (*AEP*), *Comer v. Murphy Oil USA*, and *Native Village of Kivalina v. ExxonMobil Corp*.[98] None reached the merits.

In *AEP*, filed in 2004, eight U.S. states, the city of New York, and civil society filed a nuisance suit against five U.S. electric power companies representing some of the largest emitters in the United States.[99] The plaintiffs sought an order setting emissions for each defendant at an initial cap, to be further reduced annually, for at least a decade.[100] In 2011, the Supreme Court held that federal law (the Clean Air Act (CAA))[101] had displaced any federal common-law right to seek abatement of CO_2 emissions from fossil fuel-fired power and, moreover, that the federal agency tasked with regulating emissions[102] had already taken the first steps to determine whether and how GHGs should be regulated.[103] To the extent the plaintiffs sought emissions limits, the Court directed them to participate in the regulatory process—there was "no room for a parallel track" of federal common law.[104] As the Court saw it, the federal agency "is surely better equipped to do the job than individual district judges issuing ad hoc, case-by-case injunctions. Federal judges lack the scientific, economic, and technological resources an agency can utilize in coping with issues of this order."[105]

In *Comer*, filed in 2007, Mississippi Gulf residents sought money damages from oil and gas companies, electric utilities, and other entities for their alleged contribution to the increased intensity and magnitude of Hurricane Katrina.[106] The trial court dismissed the class action on the grounds that the plaintiffs lacked standing and that their state-law claims were nonjusticiable under the political question doctrine.[107] The U.S. Court of Appeals for the Fifth Circuit initially reversed, finding that the class had standing to assert their public and private nuisance, trespass, and negligence claims, and that none of those claims presented nonjusticiable political questions.[108] However, that decision was vacated on procedural grounds, leaving the trial court's dismissal undisturbed.[109]

Similarly, in 2008, the Inupiat village of Kivalina, Alaska, sought damages from 24 of the world's biggest energy and utility companies on behalf of its 400 residents on the grounds that defendants' contribution to climate change was eroding, and would eventually destroy, their ancestral land.[110] The complaint alleged that, as a result of climate change, the Arctic sea ice that protects the Kivalina coast has diminished and would require the relocation of Kivalina's residents at an estimated cost of $95-400 million. The village sought damages based on the defendants' alleged contribution to emissions. The lawsuit was dismissed in 2009 on similar grounds as *Comer*.[111]

Among other things, the *Kivalina* court held there were no judicially discoverable or manageable standards to resolve the dispute. The court distinguished the plaintiffs' climate claims from traditional environmental nuisance claims based on air or water pollution, which involve a discrete number of "polluters" causing a specific injury to a specific area.[112] The court was also concerned that

96. *Id.*
97. *Id.* The court found an earlier case rejecting such claims not to be persuasive in the light of the "alleged emergent and accelerating need for science based response to climate change" and the government's intervening "actions and inactions." *Id.*
98. Connecticut v. American Elec. Power Co. (AEP), 406 F. Supp. 2d 265, 35 ELR 20186 (S.D.N.Y. 2005); Comer v. Murphy Oil USA, No. 05-cv-436, 2007 WL 6942285 (S.D. Miss. Aug. 30, 2007); Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009). *See also* California v. General Motors Corp., No. C06-05755 MJJ, 2007 WL 2726871, 37 ELR 20239 (N.D. Cal. Sept. 17, 2007) (rejecting nuisance suit by California against six car manufacturers for their alleged contributions to climate change impacts as a nonjusticiable political question).
99. According to the complaint, defendants "are the five largest emitters of [CO_2] in the United States," whose emissions constitute approximately 25% of the U.S. electric power sector's emissions and 2.5% of all anthropogenic emissions worldwide. *AEP*, 406 F. Supp. 2d at 268, *vacated and remanded*, 582 F.3d 309, 39 ELR 20215 (2d Cir. 2009), *rev'd*, 564 U.S. 410, 41 ELR 20210 (2011).
100. *Id.* at 270.
101. 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618.
102. *See* Massachusetts v. Environmental Prot. Agency, 549 U.S. 497, 37 ELR 20075 (2007).
103. *AEP*, 564 U.S. 410, 424, 41 ELR 20210 (2011).
104. *Id.* at 425-27.
105. *Id.* at 428.
106. Comer v. Murphy Oil USA, Inc., No. CIVA 1:05-CV436LGRHW, 2007 WL 6942285 (S.D. Miss. Aug. 30, 2007), *rev'd*, Comer v. Murphy Oil USA, 585 F.3d 855, 39 ELR 20237 (5th Cir. 2009).
107. *Id.*
108. *Comer*, 585 F.3d 855, 39 ELR 20237 (5th Cir. 2009).
109. The Fifth Circuit ordered a rehearing en banc, but lost the necessary quorum to proceed; it nonetheless vacated the judgment. Comer v. Murphy Oil USA, 598 F.3d 208 (5th Cir.), *on reh'g en banc*, 607 F.3d 1049, 40 ELR 20147 (5th Cir. 2010). The Supreme Court refused to issue a mandamus order, and the plaintiffs' action was dismissed when they attempted to refile. Comer v. Murphy Oil USA, Inc., 839 F. Supp. 2d 849, 855, 42 ELR 20067 (S.D. Miss. 2012), *aff'd*, 718 F.3d 460, 43 ELR 20109 (5th Cir. 2013).
110. Native Vill. of Kivalina v. ExxonMobil Corp., 663 F. Supp. 2d 863, 39 ELR 20236 (N.D. Cal. 2009), *aff'd*, 696 F.3d 849, 42 ELR 20195 (9th Cir. 2012).
111. *Id.* at 868.
112. *Id.* at 875-76 (finding that climate change is "based on the emission of greenhouse gases from innumerable sources located throughout the world and *affecting the entire planet and its atmosphere*," and that the "harm from

questions of "the allocation of fault—and cost—of global warming" calls for "political judgment" that is best "left for determination by the executive or legislative branch in the first instance."[113] As such, the dispute was not justiciable. The court further held that the plaintiffs could not meet the causation prong of the test for standing because "it is not plausible to state which emissions—emitted by whom and at what time in the last several centuries and at what place in the world—'caused' Plaintiffs' alleged global warming related injuries."[114]

These cases narrowed the grounds for but did not spell an end to climate litigation against private entities in the United States. First, while further nuisance claims under federal common law are precluded, the Supreme Court in *AEP* did not foreclose the availability of such claims under state common law or, for example, federal securities law.[115] Second, emerging climate science may influence the courts' thinking about standing and causation going forward. Scientific studies attributing climate change to anthropogenic emissions, in particular the body of evidence presented by the Intergovernmental Panel on Climate Change, have largely been accepted by the courts. The issues of causation and attribution, which have posed a major obstacle to climate litigation, may also diminish as climate science becomes more granular.

In 2013, a potentially groundbreaking report established that just 90 companies have produced nearly two-thirds of the GHG emissions generated since the start of the Industrial Revolution.[116] By tying the companies' historic emissions to a concrete share of the global total, research of this kind may make it possible for litigants to identify defendants with greater particularity and may lend itself to more precise apportionment of responsibility for climate emissions. If so, courts may be less reluctant to find causation and standing in private-party climate cases. Two pending cases discussed in Section III below—one in Germany and one in the Philippines—may serve to illustrate the reach of this new research.

II. Climate Adaptation Litigation

In addition to their role as guarantor of legal obligations pertaining to climate mitigation, the courts have an equally important role to play in the area of climate adaptation. Governmental planning decisions of many different types need increasingly to take the reality of a changing climate into account, including development in coastal zones, water-stressed regions, and flood-prone areas, but also in decisions affecting endangered species whose habitat might be at risk. As planning decisions are commonly the subject of judicial review, the courts are pivotally positioned to ensure that such decisions are sound and well-considered in view of climate science. A number of recent suits raising the issue of climate adaptation in the context of local disputes over development or zoning plans demonstrates this phenomenon. While adaptation litigation is still evolving, some commentators see it as the next frontier of climate litigation.[117]

In some cases, as in *Leghari*, discussed above, plaintiffs have filed constitutional petitions to force their government to take adaptive measures. While Pakistan's Climate Framework encompasses mitigation, the government emphasized that its principal concern was the imperative to develop "climate change resilience through *adaptation*" in key sectors—water, agriculture and livestock, forestry, and disaster preparedness.[118] Thus, in its first order, the court instructed the government to "present a list of adaptation action points (out of the priority items of the Framework) that can be achieved by 31st December, 2015."[119] In its second order, the court observed that adaptation is the focus of the Framework "in view of Pakistan's high vulnerability to the adverse impacts of climate change, in particular extreme events," in various sectors such as water, agriculture, forestry, coastal areas, biodiversity, health, and other vulnerable ecosystems.[120] The court has continued its supervision of the process, including by directing the government to allocate a budget for climate actions and to submit reports on the implementation of water-related priority items under the Framework.

Climate change—as it relates to both adaptation and mitigation—was also at issue in a recent public action challenging the constitutionality of Colombia's national development plan. As relevant here, the petitioners argued that legislative provisions permitting continued oil, gas, and mining operations by existing concessionaires or license holders in Colombia's *páramo*—a fragile high-altitude ecosystem—violated their constitutional rights to a healthy environment, water, and public patrimony. In February 2016, the Constitutional Court invalidated those provi-

global warming involves a series of events disconnected from the discharge itself"). *Cf.* Washington Envt'l. Council v. Bellon, 732 F.3d 1131, 1143, 43 ELR 20231 (9th Cir. 2013) (discussing the difficultly of establishing a causal nexus "between Plaintiffs' localized injuries and the greenhouse effect," since "[c]urrent research on how [GHG] influence global climate change has focused on the cumulative environmental effects from aggregate regional or global sources. But there is limited scientific capability in assessing, detecting, or measuring the relationship between a certain GHG emission source and localized climate impacts in a given region."); Barnes v. U.S. Dep't of Transp., 655 F.3d 1124, 1140, 41 ELR 20279 (9th Cir. 2011) (stating that local aviation activities accounting for 0.03% of U.S.-based GHG emissions do "not translate into locally-quantifiable environmental impacts given the global nature of climate change").

113. *Id.* at 877.

114. *Id.* at 877-81. *Cf. Bellon*, 732 F.3d at 1144-47 (finding that the causal chain was "too tenuous" to support standing because "a multitude of independent third parties are responsible for the changes contributing to Plaintiffs' injuries" and, moreover, that the claim was not redressable because "Plaintiffs' injuries are likely to continue unabated" since the "collective emissions" from the state's oil refineries on global climate change was "scientifically indiscernible").

115. *See infra* note 162.

116. *See* Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 Climatic Change 229 (2014).

117. *See, e.g.*, Jacqueline Peel & Hari Osofsky, *Sue to Adapt?*, 99 Minn. L. Rev. 2177 (2015).

118. Leghari v. Federation of Pakistan, W.P. No. 25501/2015 (Lahore High Ct. Green Bench 2015), Order No. 1, at 2.

119. *Id.* at 8(ii).

120. *Leghari*, Order No. 2, at 8.

sions, in part due to the nexus between climate change and water and biodiversity in the *páramo*.[121]

The Court observed that the *páramo* ecosystem, which is restricted to a few regions of the planet, is of singular importance to Colombia: though *páramo* covers only 2% of Colombia's territory, it plays a key role in the hydrological cycle and provides drinking water to 70% of Colombia's residents.[122] In addition, the *páramo* is highly susceptible to the effects of climate change[123] at the same time as it is central to the efforts to mitigate it: under ideal conditions, the *páramo* acts as a significant carbon "sink"; however, if the stored carbon deposits are released into the atmosphere through a loss of surface vegetation, it can also have "grave" consequences for global warming.[124] In view of this evidence, the Court held that the *páramo* is an ecosystem of "special ecological importance" and, as such, is owed a special duty of "direct constitutional protection."[125] On this basis, and given the lack of legal protections for the *páramo*, the Court struck down provisions of the law that would have permitted mining and fossil fuel operations even during a transitional period.[126]

To ensure the effectiveness of its ruling, the Court established "a mechanism to guarantee the protection of the *páramo* ecosystem."[127] Specifically, it directed the Ministry of the Environment, which is statutorily tasked with setting the boundaries of the *páramo*, to follow science-based standards and to justify any departure from scientific expert advice by showing that the standards adopted would provide the greatest degree of protection for this ecosystem.[128]

In other cases, plaintiffs have applied for judicial review of specific local actions that relate to climate adaptation, such as protection of endangered species, residential development, or groundwater extraction in areas threatened by climate change.

For example, in the United States, litigation under the Endangered Species Act (ESA)[129] in recent years has increasingly raised the potential impacts of climate change on particular at-risk species and their habitat. In a 2016 decision, a U.S. district court rejected the federal agencies' plan for the management of the Federal Columbia River Power System, having found, in part, that the latest biological opinion ignores current climate science.[130] Similarly, another U.S. court held that a federal agency's decision against listing the wolverine as threatened under the ESA is arbitrary and capricious, in part because it ignored the effects of climate change on the species' survival.[131]

The imperative of planning for the potential impacts of climate change has also influenced recent zoning decisions. For example, the Victorian Civil and Administrative Tribunal in Australia has considered—and rejected—coastal development on climate grounds on several occasions. In 2008, the tribunal rejected a planned housing project in South Gippsland as unsuitable for residential development, citing, among other factors, the risks from climate change.[132] The tribunal acknowledged that sea-level rise, coastal inundation, and the effects of climate change are not specifically set out in the state's planning statute,[133] but found it was legitimate to consider these issues in view of the statutory reference to "any significant effects . . . the environment may have on the use or development."[134] In reviewing the proposal, the tribunal interpreted the precautionary principle to require "a gauging of the consequences and extent of intergenerational liability arising from a development or proposal and if found to be warranted, appropriate courses of action to be adopted to manage severe or irreversible harm."[135] On this basis, the tribunal found there was a reasonably foreseeable risk of sea-level rise and coastal inundation.[136]

Similarly, in 2010, the tribunal rejected a permit for a residential development in a zone with a "very high level of vulnerability" to climate impacts.[137] The tribunal adopted a "cautious approach" to development until future planning frameworks have been put in place that can address and minimize these risks and satisfy the purposes of planning in the state—intergenerational equity and sustainable, fair, and socially responsible development.[138] As such, the tribunal concluded that the municipality had a duty to plan for and manage the potential impacts of climate change "now and not defer that responsibility to future generations."[139]

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121. Corte Constitucional [C.C.] [Constitutional Court], Sala Plena, 8 Feb. 2016, Sentencia C-035/16, *Demanda de Inconstitucionalidad Contra el Artículo 108 de la Ley 1450 de 2011, por la Cual Se Aprueba el Plan Nacional de Desarrollo 2010-2014; y Contra los Artículos 20, 49, 50 (parcial), 51, 52 (parcial) y el Parágrafo Primero (parcial) del Artículo 173 de la Ley 1753 de 2015, por la Cual Se Aprueba el Plan Nacional de Desarrollo 2014-2018* (Colom.).
122. *Id.* at ¶¶ 141-43, 149-50, 160 (describing ecosystem services provided by the *páramo*).
123. *Id.* at ¶ 157.
124. *Id.* at ¶¶ 141-43, 149-50, 156.
125. *Id.* at ¶¶ 160, 171-73.
126. *Id.* at ¶¶ 174-75, 177-79.
127. *Id.* at ¶ 180.
128. *Id.* at ¶ 180. *See also* ¶ 140 (expressing concerns that the Ministry to date has only established one *páramo*).
129. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.
130. National Wildlife Fed'n v. National Marine Fisheries Serv., No. 3:01-CV-00640-SI, 2016 WL 2353647, at *7 (D. Or. May 4, 2016).
131. Defenders of Wildlife v. Jewell, No. 14-247-M-DLC, 2016 WL 1363865, at *29, 46 ELR 20070 (D. Mont. Apr. 4, 2016). *See also* Alaska Oil & Gas Ass'n v. Jewell, 815 F.3d 544, 550, 46 ELR 20042 (9th Cir. 2016) (rejecting challenge by oil and gas trade associations, several Alaska Native corporations and villages, and the state of Alaska against federal designation of critical habitat for polar bears and recognizing the future impact of climate change as relevant in the designation).
132. Gippsland Coastal Bd. v. South Gippsland SC & Ors (No. 2) [2008] VCAT 1545 (Victorian Civil & Admin. Tribunal) (Austl.).
133. *Id.* at 35. In contrast, South Australia's development planning policy specifically calls for consideration of sea-level rises in the first 100 years of a development's life. *See* Northcape Props. Pty Ltd. v. District Council of Yorke Peninsula [2008] SASC 57 (Austl.) (upholding the planning authority's decision to refuse development permits for failure to account for recession of the coastline under projected rising sea levels).
134. *Id.* at 37-38.
135. *Id.* at 41, 48.
136. *Id.* at 42, 48.
137. Taip v. East Gippsland Shire Council [2010] VCAT 1222 (Victorian Civil 7 Admin. Tribunal) (Austl.), at 5.
138. *Id.* at 5-6.
139. *Id.* at 2-3.

While the relevance of climate change in zoning and planning decisions is still at an "evolutionary phase,"[140] these cases suggest that Australian courts have been increasingly willing to take climate risks into account, in addition to traditional principles of sustainable development and the precautionary principle.

Other courts may be increasingly presented with similar petitions. For example, in 2013, an environmental nongovernmental organization (NGO) challenged Miami-Dade County's plan to retrofit its sewage treatment system in the Biscayne Bay without addressing climate risks (sea-level rise).[141] The NGO had intervened in proceedings that arose out of the county's discharges of untreated sewage water in violation of federal environmental law, and that were settled by a consent decree in 2013 after the county agreed to invest $1.6 billion to come into compliance with federal law.[142] While the court ultimately entered the consent decree[143] and declined the NGO's motion to reopen the case, this case illustrates one of the numerous ways in which concerns about adaptation to climate change could wind up before courts.

Adaptation litigation can also arise in the form of tort actions against public authorities for their failure to undertake the necessary adaptation actions and avoid damage to life or property. In 2016, a French court of appeal sentenced the former mayor of La Faute-sur-Mer, a small seaside village, to several years in prison for involuntary manslaughter following the death of 29 villagers in the storm Xynthia in 2010,[144] finding that he had concealed flood risks from the residents and had continued issuing building permits in at-risk areas. There is also potential for plaintiffs who have suffered property damage from climate-induced natural disasters to attempt a constitutional takings claim.[145]

III. Transnational Climate Litigation

While cases involving transboundary climate impacts can be expected to arise under international dispute settlement bodies, the role of domestic courts in this area is also poised to grow. Compared with domestic climate litigation discussed above, transnational climate litigation—that is, disputes involving extraterritorial actions that have domestic impacts—has been relatively rare. Nonetheless, recent advances in climate science may increase the frequency and viability of transnational climate litigation, which falls into several categories.

First, in some cases, plaintiffs may apply to their local courts or human rights bodies for money damages, injunctive relief, or other remedies against foreign entities that are allegedly within the domestic courts' jurisdiction. For example, in 2016, a group of typhoon survivors and NGOs filed a petition with the Commission on Human Rights of the Philippines asking for an investigation into 47 industrial carbon producers—oil, coal, cement, and mining companies, including a number of multinational companies—for allegedly putting plaintiffs' fundamental human rights at risk from climate change (including rights to life, food, water, sanitation, adequate housing, and self-determination).[146] The Commission sent an order to the companies in July 2016, requesting a response to the allegations. Around 20 companies responded to the request,[147] and the Commission announced in December 2016 that public hearings would begin in April 2017.

The Commission's powers are limited—it cannot force non-resident companies to appear, nor can it issue fines or force defendants to reduce their emissions or compensate the survivors. However, the Commission can within its charter seek the assistance of the United Nations to encourage defendants to cooperate, make recommendations to the Philippines government, and issue factual findings and legal conclusions that could influence other climate suits.

Similarly, in September 2016, Swedish youth organizations and youths sued the Swedish state in the Stockholm District Court over Sweden's failure to stop the sale of certain lignite mines in Germany that were held by the Swedish state-owned energy company Vattenfall.[148] Plaintiffs argue that while the sale of German lignite assets would help reduce Vattenfall's own GHG emissions, it would

140. Gippsland Coastal Bd. [2008] VCAT 1545, at 47. *Cf.* Rainbow Shores Pty Ltd. v. Gympie Reg'l Council (2013) QPEC 26 (Queensl. Planning & Env't Ct.) (Austl.) (rejecting a permit application for resort and residential development in part because it was "inadequate in dealing with potential erosion and storm surge issues"). *See also* Alanvale Pty Ltd. v. Southern Rural Water [2010] VCAT 480 (Victorian Civil & Admin. Tribunal) (Austl.) (upholding local water authority's denial of groundwater extraction licenses where, applying the precautionary principle, additional exploitation of groundwater would not be sustainable in the long term given likely effects of climate change on rainfall and associated ability of aquifers to recharge).

141. Complaint in Intervention, United States v. Miami-Dade County, Fla., No. 12-24400-FAM (S.D. Fla. June 25, 2013).

142. Press Release, EPA, Miami-Dade Agrees to $1.6 Billion Upgrade of Its Sewer System to Eliminate Sewage Overflows (June 6, 2013), *available at* https://yosemite.epa.gov/opa/admpress.nsf/0/5FBC895FD6DCE53B85257B82006DB5CF.

143. United States v. Miami-Dade County, Fla., No. 12-24400-CIV, 2014 WL 7534027 (S.D. Fla. Apr. 10, 2014).

144. *See Xynthia: l'Ancien Maire de La Faute-sur-Mer Condamné à Deux Ans de Prison Avec Sursis [Xynthia: The Former Mayor of La Faute-sur-Mer Sentenced to Two Years Suspended Sentence]*, Le Monde, Apr. 4, 2016, *available at* http://www.lemonde.fr/police-justice/article/2016/04/04/xynthia-le-maire-de-la-faute-sur-mer-fixe-sur-son-sort_4894989_1653578.html.

145. A recent takings claims arising out of storm flooding did not specifically refer to climate change and was rejected on several grounds. *See* Harris County Flood Control Dist. v. Edward A., No. 13-0303, 2016 WL 3418246, at *7, *12 (Tex. June 17, 2016), *reh'g denied* (Oct. 21, 2016) (declining to "extend takings liability vastly beyond the extant jurisprudence, in a manner that makes the government an insurer for all manner of natural disasters and inevitable man-made accidents" where the county had failed to implement a flood control plan and approved "unmitigated" upstream private development).

146. For the petition and related documents, see Greenpeace Philippines, *The Climate Change and Human Rights Petition*, http://www.greenpeace.org/seasia/ph/press/releases/Worlds-largest-carbon-producers-ordered-to-respond-to-allegations-of-human-rights--abuses-from-climate-change/The-Climate-Change-and-Human-Rights-Petition/.

147. Several responses are publicly available. *See* Business & Human Rights Resource Centre, "Fossil Fuel Firms Respond to Petition Before Philippines Human Rights Commission on Human Rights & Climate Impacts," *available at* https://business-humanrights.org/en/fossil-fuel-cos-respond-to-petition-with-philippines-human-rights-commission-on-human-rights-climate-change-impacts.

148. For the petition and information about the case, *PUSH Sverige et al. v. Sweden* (Summons filed, 15 Sept. 2016), see http://www.magnoliamålet.se/material/.

have the opposite effect at the EU level since the new buyer intends to expand lignite exploitation.[149] According to the complaint, five of Vettenfell's mines contain 1.2 billion tons of lignite, which if burned, would release emissions equivalent to 22 years of Sweden's total current national emissions.[150] Citing, among other things, the *Urgenda* judgment, Plaintiffs allege that the State owes a "duty of care" to its inhabitants and to future generations based on the Swedish Constitution, the ECHR, and general principles of law.[151] This duty allegedly also entails a responsibility to ensure that national activities do not contribute to increased emissions *abroad*.[152] The complaint also seeks disclosure of classified documents relating to the sale, including information on a potential assessment of its environmental and climate impacts.[153]

In other cases, affected parties may ask a foreign court to impose damages on an entity that is subject to that court's jurisdiction. In a recent example, Saúl Luciano Lliuya, a Peruvian farmer, filed a suit against the German energy company RWE AG in the Essen Regional Court (Germany) in November 2015.[154] The plaintiff's home town of Huaraz, Peru, is allegedly threatened by a potential flood wave from a glacial lake above the city that has swelled fourfold since 2003 due to climate-induced glacial melting in the Andes. The complaint asked the German court to order RWE to provide compensation of 17,000 Euros—an amount allegedly proportional to the company's contribution to climate change—for adaptive measures that need to be taken at the lake. The Regional Court dismissed the suit in December 2016, pointing to a lack of "legal causality," which it stated does not exist despite the fact that there may be "scientific causality" on the facts.[155] This is the first suit of its kind in Europe, and could be a precursor to additional transnational litigation against large emitters for adaptation measures or compensation.

Alternatively, affected parties—including sovereigns—may try to intervene in the foreign administrative proceedings or environmental permitting to seek more aggressive mitigation measures.[156] In December 2009, the Federated States of Micronesia (Micronesia), assisted by Greenpeace, requested the initiation of a transboundary environmental impact assessment (TEIA) proceeding in the Czech Republic to examine the planned expansion and life-extension of the Czech Republic's largest coal-fired power plant. While neighboring countries had resorted to the TEIA procedure in the past, this was the first time that a distant, non-EU State that saw itself as threatened by climate change had used the process, and may signal a strategy for other small vulnerable States.

Micronesia argued in its submission that the original EIA had failed to assess the climate impacts of the project or to consider alternatives, and that it should be rejected as being inconsistent with EU and Czech law. The Czech Republic announced in 2010 that it would request an independent assessment, though it stopped short of committing to assess the climate impacts of the project. In 2011, the construction was cleared to proceed, but the Czech Republic also recognized Micronesia as an "affected state" and required the operator to provide a compensation plan to offset the additional five million tons of CO_2 emissions.[157]

Other transnational lawsuits have raised the issue of climate change-induced migration as a basis for asylum or immigration rights, but have thus far not been successful. For example, in 2010, a citizen of Kiribati filed an asylum claim in New Zealand courts on the basis that Kiribati was suffering the effects of climate change, and that the rising sea water levels would force its inhabitants to leave their islands.[158] The New Zealand Supreme Court dismissed the claim in 2015, holding that the plaintiff did not meet the asylum standard. However, the Court also emphasized that there may be circumstances in which "environmental degradation resulting from climate change or other natural disasters could . . . create a pathway into the Refugee Convention or protected person jurisdiction."[159]

There are numerous other decisions from Australia and New Zealand rejecting claims by petitioners from Kiribati, Tuvalu, Tonga, Bangladesh, and Fiji on the grounds that the harm feared—environmental problems in low-lying countries attributable to climate change—does not amount to persecution under the Refugee Convention and there were no differential impacts on the applicants.[160]

IV. Conclusion

Though the reviewed holdings are both jurisdiction- and context-specific, the growing body of climate jurisprudence from both common-law and civil law jurisdictions points to several emerging trends, especially in the last few years.

149. Summons Application, at paras. 76-78 (noting the Swedish National Audit Office critique that Sweden and Vattenfall did not follow the conventional definition of sustainability, which looks to global emissions reductions), *available at* https://drive.google.com/file/d/0BwNst9QrJa18Y2x6X1hMYmJmSEk/view (unofficial English translation).
150. *Id.* at 52.
151. *Id.* at 88-90, 92, 114.
152. *Id.* at 99. *See also id.* at 103-06 (discussing the State's alleged negligence and foreseeable risks for EU climate goals).
153. *Id.* at 121-25.
154. For information about the case, see Germanwatch, *Der Fall Huaraz [The Huaraz Case]*, http://germanwatch.org/de/der-fall-huaraz/.
155. *Id.* The court noted that there were countless GHG emitters worldwide and any risks from potential flooding as a result of the melting of glacial ice could not stem solely from RWE. *See* Reuters, "German court dismisses claims by Peruvian farmer against RWE," 15 Dec. 2016, *available at* http://www.reuters.com/article/us-rwe-court-idUSKBN1441CB.
156. Litigants have also resorted to transnational litigation to limit mitigation laws. *See, e.g.*, Air Transp. Ass'n of Am. v. Sec'y of State for Energy & Climate Change, Case C-366/10, 2011 E.C.R. I-13833, (Eur. Ct. Justice Dec. 21, 2011), by reference from R on the Application of Air Transp. Ass'n of Am. v. Secretary of State for Energy & Climate Change [2010] EWHC 1554 (Admin.) (Eng.). Nova Medical Skin Care
157. *See* News, Frank Bold, Pacific Island Nation Makes Legal History (Mar. 29, 2012), *available at* http://en.frankbold.org/news/pacific-island-nation-makes-legal-history.
158. Teitiota v. Chief Executive of the Ministry of Bus., Innovation & Employment [2015] NZSC 107 (N.Z. Sup. Ct.).
159. *Id.* at 13.
160. Teitiota v. Chief Executive of the Ministry of Bus., Innovation & Employment [2013] NZHC 3125 (N.Z. High Ct.), at 45.

First, national judges are by and large successfully adapting their traditional role of administration of justice to the new challenges posed by climate change litigation. Presented with a number of novel and urgent legal questions, they have increasingly held their own governments accountable under national constitutional principles, implementing legislation, or common-law doctrines. Since 2013, as one court noted, courts have increasingly "recognized the role of the third branch of government in protecting the earth's resources that it holds in trust."[161] Thus, though climate litigation will continue facing different substantive and procedural hurdles in different jurisdictions—from standing to the political question doctrine—courts have demonstrated that, generally, they are rising to the task and using the tools at their disposal for administration of justice in this emerging area.

This trend can be greatly enabled by making the emerging cross-jurisdictional jurisprudence in this area more readily accessible to judges around the world. Likewise, climate literacy training aimed at building judicial awareness of climate science, climate impacts, and climate resilience imperatives can help equip judges to perform their traditional role of administering justice in the context of this global phenomenon.

Thus far, constitutionally protected environmental rights have represented the most straightforward vehicle for climate litigants in some jurisdictions (e.g., Norway), although litigation based on broader rights (e.g., to enforce fundamental constitutional rights to life and property) has also provided a viable strategy in other jurisdictions (e.g., Pakistan). In still other jurisdictions, courts have relied on the language of environmental statutes and common-law doctrines to mandate agency rulemaking or more effective implementation of climate policies (e.g., *Foster*). A number of lawsuits may not even present climate change as the core issue, but may have an indirect impact on climate mitigation or adaptation efforts by regulating conventional pollutants in a manner that may have climate co-benefits (e.g., *Gbemre*).

The experience to date suggests that courts are more willing to exercise an active role in guiding regulatory development where the statutory framework has proven ineffective (e.g., *Leghari*), as well as where States' actions to avert climate harm are seen as out of step with national policy or international commitments (e.g., *Urgenda*). Resort to international legal principles as a means of defining the scope of the State's legal obligation appears to occur most frequently when the content of national law is ambiguous (e.g., *Urgenda*; *Leghari*), and in legal systems that permit a direct uptake of international law.

Second, while courts to date have been unwilling to impose civil liability on private entities, especially in the United States where the majority of these suits has been brought, emerging science appears likely to feed additional litigation insofar as it helps to address some of the causation and apportionment hurdles that have made these cases challenging. Also, additional and collateral avenues for private-sector accountability may emerge. For example, following the announcement that several state attorneys general and the Securities and Exchange Commission in the United States are investigating energy companies for allegedly misleading investors and the public about climate change, a securities fraud class action was filed against an energy company relating to climate change and non-disclosure of climate-related risks.[162]

Finally, while few national judges to date have been called upon to adjudicate transnational climate claims, several recent cases, supported by emerging climate research, appear likely to lead to an increase in cases of this kind.

Overall, the number of climate lawsuits is unquestionably on the rise, positioning the courts for an increasingly vital role in ensuring climate-related accountability, enabling resiliency, and contributing to a sustainable future.

161. Foster et al. v. Washington Dep't of Ecology, No. 14-2-25295-1 SEA, Order Denying Motion for Order of Contempt and Granting Sua Sponte Leave to File Amended Pleading (Wash. Super. Ct. Dec. 19, 2016) (citing *Juliana* and *Urgenda*).

162. Ramirez v. Exxon Mobil Corp. et al., No. 3:16-cv-03111 (N.D. Tex., filed Nov. 7, 2016).