Standing, Justiciability, and Burden of Proof in Climate Litigation: Challenges and Proposals

Gianni Ghinelli

Contents

Abstract Climate change impacts fundamental rights with increasing and irreversible effects. Yet, it remains largely unresolved by political action, and tipping points in the climate system are a genuine concern. Citizens are therefore seeking relief in

G. Ghinelli (✉)
Department of Legal Studies, University of Bologna, Rimini, Italy
e-mail: gianni.ghinelli2@unibo.it

E. Storskrubb (ed.), *YSEC Yearbook of Socio-Economic Constitutions 2022,*
YSEC Yearbook of Socio-Economic Constitutions (2023) 2022: 147–182,
https://doi.org/10.1007/16495_2023_50, Published online: 4 July 2023

court. However, traditional standing, justiciability, and evidence rules hinder access to climate justice, making it uncertain and potentially expensive for plaintiffs. Many cases have, in fact, been rejected based on procedural grounds. In addition, procedural rules appear to mismatch the fragmented nature of climate change harm. This Chapter argues that the 2020 *Model Statute for Proceedings Challenging Government Failure to Act on Climate Change*, drafted by the International Bar Association, might offer viable solutions for procedural law reform to decrease the hurdles identified for climate justice.

1 Introduction

This Chapter focuses on the procedural law implications of climate litigation.[1] It aims to show that most standing, justiciability, and evidence rules are designed for traditional individual conflicts; they do not fit the features of climate change harm, which is widespread and potentially involves anyone. To set the stage, Sect. 2 sums up the legally relevant features of climate change and why climate change poses an issue of justice. It then explains the reasons that pushed citizen groups to bring court proceedings relying on international climate law. Section 3 highlights the constitutional relevance of climate litigation, regardless of the different aims, legal basis, and jurisdictions. Despite some inevitable differences, all climate litigation potentially involves protecting human rights and the collective interests of younger and future generations.

Section 4 focuses on three main legal obstacles that obstruct access to justice: standing, justiciability, and evidence rules. Section 5 suggests that an adequate set of standing, justiciability, and evidence rules should match the public interest implications of climate litigation. Hence, Sect. 5 presents the proposals made in 2020 by the International Bar Association's Model Statute for Proceedings Challenging Government Failure to Act on Climate Change (Model Statute).[2] Finally, Sect. 6 argues that the Model Statute offers a helpful reference point for procedural reform to better fit the significant wave of public interest litigation seeking to vindicate climate rights.

[1] Estrin (2016).

[2] David Estrin and Baroness Helena Kennedy QC co-chaired the IBA Task Force on Climate Change Justice and Human Rights. The text of the Model Statute and a commentary are available on the IBA's website https://www.ibanet.org/Climate-Change-Model-Statute. On the IBA's climate commitment, see Leslie (2016).

2 The Roots of Climate Litigation

2.1 Climate Change and Justice

2.1.1 Background

This Section argues that climate change is a matter of justice and that it is appropriate for national courts to deal with it based on international obligations undertaken by governments. The link between climate change and justice requires an understanding of the relationship between anthropogenic Green House Gases (GHGs), climate change, and its effects on individuals and communities based on the Reports issued by the Intergovernmental Panel on Climate Change (IPCC). The IPCC is the United Nations body that assesses climate science.[3] It releases Assessment Reports and Special Reports on the state of knowledge regarding climate change impacts, risks, and possible solutions for mitigation and adaptation to climate change. Three Working Groups contributed to the Sixth Assessment Report (AR6).

The climate science summarized by the IPCC shows that climate change is a matter of justice for three reasons. First, climate change impacts fundamental rights. Second, climate change exacerbates social inequality. Third, the long-term effects of climate change and "tipping points" put younger and future generations at risk.

2.1.2 Human Rights

Working Group I drafted the report Climate Change 2021: The Physical Science Basis. The report helps understand the link between anthropogenic climate change and human rights. Human activities contribute to global warming and interfere with natural climate fluctuations. Between 1890–1900, human-produced GHGs have been responsible for approximately 1.1 °C of warming. Although the climate has always changed, the rate at which the climate is currently warming is unprecedented. Unless sufficient is action, by 2040, the global average temperature is expected to increase by 1.5 °C above pre-industrial levels.

Working Group II reinforced these conclusions in its Report Climate Change 2022: Impacts, Adaption, and Vulnerability.[4] For the purposes of this Chapter, the core takeaway is that climate change affects our health and safety and will increasingly do so, impacting every aspect of our lives. Hence, climate change can potentially cause mass human rights violations. Furthermore, Working Group II reported that climate change has increasingly contributed to extreme weather events

[3] The IPCC was created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP). It represents 195 countries and aims to provide governments with scientific knowledge for climate policies. It does not research on its own. The IPCC reviews studies conducted all over the world on climate-related matters.

[4] IPCC (2022).

(e.g., heatwaves and wildfires) and slow onset processes (e.g., ocean acidification and sea level rise). Working Group II also stressed that such impacts concern food and water security, urban infrastructure, economic damages, and humanitarian crises. Climate change impacts occur both in developed countries as well as in the Global South.

2.1.3 Inequality

In 2019, the UN Special Rapporteur, Robert Boyd, found that climate change also drives inequality: countries and communities characterized by poverty, political instability, or conflicts have fewer resources to adapt to climate change.[5] Climate change-driven inequality harms both the Global South and less affluent communities in developed countries.[6]

Working Group II identified—with high confidence—global hotspots for human vulnerability: West-, Central- and East Africa, South Asia, Central, and South America, Small Island Developing States, and the Arctic. One of the effects identified is migration.[7] Even within developed countries, some individuals are more vulnerable than others. According to a report by the US Environmental Protection Agency (EPA) released in 2021, socially vulnerable populations are more exposed to climate change and less able to cope. The EPA found that low income, belonging to minority groups, and lack of high school diplomas are the main factors determining how much climate change affects people in the US.[8] A further element concerns the ratio between who bears responsibility for most GHG emissions and who suffers climate change harm. Historically, not all countries have contributed equally to climate change, as developed countries account for most of the emissions. Yet the Global South is disproportionately affected, and indigenous peoples are particularly exposed.[9]

Consequently, climate change reiterates historical and ongoing patterns, such as colonialism. Working Group II stated, "*Across sectors and regions, the most vulnerable people and systems are observed to be disproportionately affected.*"[10] This factual element is legally acknowledged by the principle of "*common but*

[5] See, Boyd (2019). Also, United Nations Environmental Program Report (2015) Climate Change and Human Rights. https://www.unep.org/resources/report/climate-change-and-human-rights.

[6] See Malijean-Dubois (2015). Also, see Diffenbaugh and Burke (2019).

[7] The Italian Supreme Court granted the right to humanitarian protection to a migrant coming from the Niger Delta because it is an area hit by environmental damage and climate change. See Italian Supreme Court (Corte di cassazione), judgment No. 25143 of 2020.

[8] EPA (2021).

[9] Ibid footnote 4, SPM. B.2.1.: "*Loss of ecosystems and their services has cascading and long-term impacts on people globally, especially for Indigenous Peoples and local communities who are directly dependent on ecosystems, to meet basic needs (high confidence)*".

[10] Ibid footnote 4, SPM.B.1.

differentiated responsibilities" enshrined in Articles 3 and 4 of the 1992 UN Framework Convention on Climate Change (UNFCCC).

2.1.4 Future Generations

Future generations will be disproportionally affected by climate change.[11] The AR6 Summary for Policymakers exposes the mismatch between present GHG emissions and the increasing threat posed by climate change. The irreversible effects of emissions will increasingly impair the enjoyment of fundamental rights. As recognized by the German Constitutional Court, present climate policies will affect the fundamental rights of future generations in two separate ways: first, they will be more exposed to risks deriving from climate change, and second, restrictive measures will most probably be introduced to meet the emission targets impacting on individual freedoms.[12]

2.1.5 Conclusion: Climate Change Is a Matter of Justice

In conclusion, climate change is a matter of justice, as it impacts fundamental rights, drives inequality, and due to its long-term effects and the risk posed by "tipping points," it endangers younger and future generations. This Chapter argues that these features—highlighted by IPCC Reports—conflict with the structure of traditional standing, justiciability, and evidence rules, mainly designed for individual disputes. However, before conducting that analysis, it is important to outline the roots of climate litigation—starting from international climate change law.

2.2 From International Law to National Courts

Given the implications on justice of climate change and its inherent cross-border features, international law has addressed climate change. The first milestone of climate law is the 1992 UN Framework Convention on Climate Change, which entered into force on 21 March 1994. Under Article 2, the Convention aims to "*achieve (. . .) stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system*". Article 3(1) acknowledges that not all countries have equal responsibilities. It, therefore, states the principle of "*common but differentiated responsibilities*," which requires developed countries to lead in granting effective mitigation. Article

[11] Sanson and Burke (2020).

[12] *Neubauer* et al. *vs. Germany*, German Constitutional Court (BVerfG), judgment of the First Senate of 24 March 2021, BvR 2656/18 -, paras. 243–245.

7 of the UNFCCC instituted the Conference of the parties for the further implementation and development of the UNFCCC. In 1997 the Kyoto Protocol was signed to operationalize the UNFCCC. It attributed mandatory targets to developed countries and created a market-based mechanism to reduce emissions. It was then updated in 2012 in Doha.

The 2015 Paris Agreement (PA) was signed to hold the global temperature rise to a maximum of 2 °C, preferably to 1.5 °C, above pre-industrial levels. For this purpose, it relies on each country's commitment to the mechanism of Nationally Determined Contributions (NDCs). Thus, the PA does not impose a reduction quota on individual countries. Instead, the common goal of limiting the temperature increase to 1.5 °C requires the engagement of each national government in the procedural mechanism created by the PA. The latest development of international climate law is the 2021 Glasgow Climate Pact,[13] which further implements the PA and commits to a 1.5 °C temperature increase limit. All these legal instruments, developed under the UNFCCC, arguably constitute essential steps forward in the fight against climate change. However, they all share a concerning element: they impose only procedural duties—such as the NDCs—and mere "best efforts" obligations. It is ultimately up to governments to determine their climate ambition.[14]

The lack of coercive legal mechanisms at the international law level and other factors, such as political and practical difficulties in addressing the climate crisis, has contributed to a lack of sufficient climate action. As a result, emissions have been increasing, despite the UNFCCC and the PA.[15] The consequence is the erosion of the so-called "carbon budget," i.e., the emissions allowed before hitting the 1.5 °C temperature increase thresholds that the IPCC considers relatively safe.[16]

In light of the threats of climate change and the failure to reduce emissions through international law, individuals and citizen groups are resorting to litigation to enforce the PA's temperature goals. In addition, shareholders, investors, or private citizens have sued so called carbon majors for damages or to hold their directors accountable on different legal bases. Climate litigation is expanding as leveraging courts seems to be the last resort to enforce the PA[17] This bottom-up approach reflects the failure of the political branches of government to address climate change promptly. It also creates friction between courts and the other branches of the state.[18] The following Section presents the main categories of climate litigation: each type presents specific challenges in establishing standing and justiciability and sustaining the burden of proof.

[13] The Glasgow Climate Pact is the result of 2021 Glasgow Climate Change Conference COP26.

[14] Preston (2020a).

[15] See the World Meteorological Organization (2021) Greenhouse Gas Bulletin No.17: The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2020.

[16] For a definition of carbon budget, see Matthews et al. (2021).

[17] Wegener (2020).

[18] See Sindico and Mbengue (2021).

3 Litigation Categories

3.1 Classification

Section 3 proposes to organize climate litigation into categories. Based on the remedies and aims sought by the parties, climate litigation can be classified as strategic litigation against governments, strategic litigation against actors in the private sector, and claims seeking damages. Climate litigation can be further divided based on the legal basis for the claims made in such litigation. Accordingly, this Section deals separately with claims that rely on statutory duties under administrative law and those leveraging fundamental rights. The analysis of the latter category is further separated with respect to the specific human rights claimed by plaintiffs and the chosen jurisdiction level. The purpose of this categorization is to assist the later analysis of strategies to overcome the procedural hurdles of standing, justiciability, and the burden of proof.

3.2 Strategic Litigation Against Governments

3.2.1 General

In many countries across the world citizens have resorted court to enforce the international law commitments of their governments. This litigation category is commonly referred to as "strategic."[19] Strategic litigation against governments commonly relies on the UNFCCC and the PA as legal basis. Citizen groups seek judicial orders to reduce national GHG emissions consistent with the PA's 1.5 °C temperature increase limit. The following cases exemplify strategic litigation against governments: *Leghari vs. Federation of Pakistan*[20] (*Leghari*), *Juliana vs. the United States* (*Juliana*),[21] *Urgenda vs. The Netherlands* (*Urgenda*),[22] and *Neubauer and others vs. Germany* (*Neubauer*).[23] This Section will briefly discuss each case to highlight the core features of strategic climate litigation.

[19] Peel and Osofsky (2019).

[20] *Ashgar Leghari* vs. *Federation of Pakistan* (W.P. No. 25501/2015), Lahore High Court Green Bench, Orders of 4 and 14 September 2015.

[21] *Juliana vs. United States*, U.S. District Court for the District of Oregon, case No. 947 F.3d 1159 (9th Cir. 2020).

[22] The case developed over three decisions and ended with the Supreme Court ruling: The Hague District Court 24 June 2015, ECLI:NL:RBDHA:2015:7145. ECLI:NL:RBDHA:2015:7196; The Hague Court of Appeal 9 October 2018, ECLI:NL:GHDHA:2018:2591. ECLI:NL:GHDHA:2018:2610; Supreme Court, 13 January 2020, ECLI:NL:HR:2019:2007. See Spier (2020).

[23] Ibid footnote 12.

3.2.2 Leghari

In *Leghari*, a Pakistani farmer sued the Federation of Pakistan and the local State of Punjab, maintaining that they failed to implement the necessary climate adaptation measures previously identified by these governments in a national adaptation plan.[24] The Lahori High Court held that the government's response to the threat of climate change was delayed and "lethargic" in violation of fundamental rights protected by the Constitution. The remedy provided indicates the "strategic" nature of this case. The Court requested the relevant government ministries to nominate a "focal person" responsible for the plan of implementation and present to the Court a list of actions necessary to implement the plan. To further supervise the progress of the government the Court also created a commission composed of government representatives, NGOs, and experts.

3.2.3 Juliana

Twenty-one young plaintiffs brought the *Juliana* case before the US District Court for the District of Oregon, United States. The claim relied on constitutional rights and the public trust doctrine. They sought an order against the United States government to draft and implement a national plan to phase out fossil fuel emissions and stabilize the climate system. The suit has had a complex and lengthy judicial journey through various levels of court challenges by the US Government and, at one point, by significant carbon emitters, which were given leave to intervene. In 2020, the relief sought was found not redressable by a two-to-one decision of an appellate panel of the Federal Court. The majority took the view that the required supervision activity would have resulted in a violation of the principle of separation of powers. The Court held that the claim lacked redressability—which led to the claim's dismissal for lack of standing under Article 3 of the Constitution. Thus, the case was dismissed. The plaintiffs then sought to amend their claim for relief, and settlement discussions followed, but at present there appears to be no final resolution.

3.2.4 Urgenda

The *Urgenda* case led to a more fortunate outcome. The Urgenda foundation and 886 citizens sued the Dutch Government and maintained that its GHG emission reduction targets were insufficient, resulting in a breach of the civil duty of care owed by the state to the plaintiffs under Dutch tort law. They also argued that such conduct violated the rights to life and private and family life, protected by Articles

[24] The 2012 National Climate Change Policy and the Framework for Implementation of Climate Change Policy.

2 and 8 of the European Convention of Human Rights (ECHR), which are directly applicable in the Netherlands. All courts levels rejected the government's objections to the alleged lack of standing and justiciability. Based on human rights obligations and the duty of care, the Supreme Court ordered the Dutch government to reduce national emissions by 25% by 2020 compared to 1990 levels,[25] leaving it to the government's discretion how to achieve such reductions. The strategic ambition of this case stands between *Leghari* and *Juliana*. The plaintiffs obtained a ruling that the government had a duty to reduce national emissions to a greater extent and more urgently. Such a result was unprecedented. However, the plaintiffs did not require, as in *Leghari*, to undertake any supervising activity. Nor did the plaintiffs ask the court, as in *Juliana*, to order the government to restructure the national energy system. In *Urgenda*, plaintiffs only requested an order to reduce emissions, leaving it to the government to make any further assessment on the methods to curb emissions.

3.2.5 Neubauer

In the *Neubauer* case, the German Constitutional Court declared the partial unconstitutionality of the law regulating climate change-related emissions because these provisions did not set sufficient guidelines for the reductions required after 2031 and offloaded the great majority of the necessary cuts after 2030.[26] As a result, according to the Court, the law disproportionately impaired future generations' fundamental rights. This judgment stands out as it acknowledges the irreversible effects of climate tipping points for future generations.

3.2.6 Conclusion

*Leghar*i, *Urgenda*, and *Neubauer* show that strategic litigation against governments may help obtain more climate action. An analysis of all the cases presented above also suggests that plaintiffs should consider the issues of justiciability, redressability, and standing when preparing their request for relief. Balancing the strategic ambitions of the claim with the existing procedural rules has proven crucial. Based on their national law, plaintiffs should seek a type of relief that can be granted in light of the separation of powers principle. Requesting an effective remedy within the framework of the separation of powers principle is essential to reduce the risk of dismissal on procedural grounds.

[25] The year 1990 is the benchmark chosen by the UNFCCC for any reduction target. The 25% reduction target is based on the IPCC Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC, Geneva, Switzerland.

[26] KlimaSchutzGesetz, § 3(1) second sentence and § 4(1), in conjunction with Annex 2.

Even in the face of the climate emergency, courts may—at least in the short term—resist ordering relief against governments on the ground that by such decisions, the judiciary would step into the province of political discretion. However, as shown in *Urgenda*, judges who appreciate the arguments can help shape the relief provided to be effective while staying within the appropriate ambit of judicial responsibilities. If provided by domestic law, the best option is to bring proceedings directly before the Constitutional or Supreme Court to seek a declaration of unconstitutionality of national climate legislation.

3.3 Strategic Litigation Against Actors in the Private Sector

3.3.1 General

While governments have the legal power to impose the reductions required by the PA, the 1.5 °C limit objective could arguably not be reached without the cooperation of the private sector. Certain groups of companies—so-called carbon majors—have more impact than entire countries.[27] If climate action by actors in the private sector is not achieved through compliance with national regulation or by voluntary measures, court action appears to be the last resort for citizens. Strategic litigation against carbon majors aims at curbing emissions in line with the PA. Litigation against the actors in the private sector can be separated into two categories: cases aiming at an order to reduce overall emissions and cases aiming at an order to stop specific development projects deemed incompatible with the objective set out by the PA.

3.3.2 Claims Seeking to Reduce Emissions

The first category is exemplified by *Milieudefensie* et al. *vs. Royal Dutch Shell plc*[28] (*Shell*). In 2021, the Hague District Court ordered Royal Dutch Shell—the holding company of the well-known oil and gas conglomerate—to cut the group's emissions by 45% by the end of 2030 compared to 2019 levels, including Scope 3 emissions meaning those created once the products are sold to consumers. This decision shares one element of commonality with the ruling in Urgenda. The Court made similar use of tort law in combination with the ECHR. In both cases, Dutch courts held that the

[27] The Shell group emits more than the entire Netherlands, as ascertained by *Milieudefensie* et al. *vs. Royal Dutch Shell plc*, The Hague District Court. 6 May 2021. ECLI:NL:RBDHA:2021:5339, paragraph 4.4.5.

[28] *Milieudefensie* et al. *vs. Royal Dutch Shell plc*, The Hague District Court. 6 May 2021. ECLI:NL:RBDHA:2021:5339.

tort law principle of *neminem laedere* must be construed in conjunction with the ECHR. In *Shell*, the Court also set a new precedent in finding that the private sector—not just governments—has a duty of care toward citizens regarding carbon emissions. Thus, the Court allowed the extension of strategic litigation to the private sector.

3.3.3 Claims Against Specific Projects

Alternatively, plaintiffs can seek to enforce strategic climate objectives by halting a specific highly emitting development or industrial project through judicial planning decisions. The Australian case, *Gloucester Resources Limited v Minister for Planning*[29] *(Gloucester Resources)*, provides an excellent example of a planning decision involving climate change considerations. This judgment arises from an appeal to the Land and Environment Court of New South Wales by Gloucester Resources Limited (Gloucester), a company operating in the mining business. Gloucester requested the Court to approve its application for the construction of a coalmine following a negative decision by the local government, which was based on the mine's environmental, social, and economic impact. The Court dismissed the appeal finding that, despite climate change's multiple sources, single significant emissions sources are still sufficiently relevant contributors to climate change. Compared to strategic litigation based on human rights and tort law strategic, statutory planning decisions have the substantial advantage of causing less angst for judges or administrative hearing officials. Considering many factors, they often have broad discretion regarding what constitutes good planning. They are also given statutory authority to make a "yes or no" decision regarding the feasibility of a project from a planning perspective. In other words, justiciability is a less relevant issue. Also, planning decisions are easily enforceable, as once a project has been denied, the GHG emissions will not occur.

Conversely, decisions ordering the reduction of future emissions based, for example, on tort law require the defendant to comply with the order and, therefore, implement those actions to modify its corporate climate policy or how it operates its business. The ability to access procedural mechanisms in national law to enforce the order is crucial if there is no voluntary compliance. These concerns do not exist when planning decisions produce the effect of preventing GHG emissions.

[29] *Gloucester Resources Limited vs. Minister for Planning*, Land and Environment Court New South Wales, Australia, 8 February 2019. [2019] NSWLEC 7.

3.4 Litigation for Compensatory Damages Against Actors in the Private Sector

Litigation against carbon majors can also aim to recover economic damages caused by climate change harm. Both individuals and municipalities harmed by climate change are seeking damages in Court to provide for costly adaption measures.

In *Luciano Lliuya vs. RWE AG* (*Luciano Lliuya*), a Peruvian farmer filed an action in the German courts against the largest German energy company, seeking an order to pay 0.47% of the financial loss caused by climate change.[30] The claim is based on study concluding that 0.47% of all atmospheric GHG emissions are attributable to RWE AG's activities. The case was initially dismissed based on insufficient proof of causality between RWE AG's emissions and the climate change effects suffered by plaintiff. However, the Court of Appeal established the admissibility of the claim. Hence, the proceeding are currently pending and continue before the first instance court and at the time of writing have entered the evidentiary phase, with the presentation of facts proving the causal link.

In the *City of Charleston vs. Brabham Oil Company Inc.* et al. (*City of Charleston*), the City of Charleston sued fossil fuel companies before the South Carolina Court of Common Pleas, seeking compensatory and punitive damages and disgorgement of profits.[31] The plaintiff argued that climate change produced land and beach erosion, floods, and higher sea levels, causing social and economic harm. Further, the plaintiff maintained that the defendants knowingly deceived consumers about the direct connection between their products and climate change harm, well aware of such risks for over 50 years; also, according to the plaintiffs, the defendants did not pursue less hazardous alternatives. This case was still pending at the time of writing.

The *Luciano Lliuya* and *City of Charleston* cases indicate that litigation may help recover resources needed to adapt and compensate for climate harm. In addition, the fact that plaintiffs claim damages for the infringement of their individual rights, rather than seeking redress for collective interests, helps prevent the objections of lack of standing and justiciability. From the plaintiffs' perspective, the main problem with this litigation category might be proving the causal link between the defendant's conduct and the actual damages under existing evidentiary rules.

[30] *Luciano Lliuya vs. RWE AG*, Landgericht Essen, Case No. 2 O 285/15. See Dellinger (2018).

[31] *City of Charleston vs. Brabham Oil Company Inc.* et al., case No. 2:20-cv-03579-BHH.

3.5 Claims Based on Statutory Environmental Assessment Law

3.5.1 General

To date, statutory administrative provisions have primarily been used by plaintiffs in conjunction with the PA to pursue strategic litigation against actors in the private sector in planning and environmental assessment cases. In this context, plaintiffs face the challenge of successfully arguing that, before approving a project, public authorities must consider its climate change impact. This task is facilitated if the national law includes GHGs as relevant criteria. However, the case law shows that most national environmental assessment legislation does not include climate change-specific provisions. Plaintiffs must, therefore, be creative and try to link administrative law with the PA and the UNFCCC. This category of cases is exemplified by the *Gloucester Resources* case mentioned above,[32] *Earthlife Africa Johannesburg vs. Minister of Environmental Affairs and Others*[33] (*Earthlife Africa*), and *Vienna Airport Third Runway*[34] (*Vienna Airport*).

3.5.2 Gloucester Resources

As mentioned above, in *Gloucester Resources*, the Land and Environment Court of New South Wales upheld the local government's decision to deny planning permission for a coal mine based on the overall impact of the mine. However, the Court also considered the expert evidence as to the proposed consequences of GHG emissions that would occur through the use of the coal made available from the new mine on the Australian and NSW carbon budgets. By doing so, the decision provided renewed content to the general clause of public interest long codified in the Australian legal system. The "public interest" notion included the project's impact on the carbon budget. The Court further noted that the evaluation must include Scope 3 emissions—meaning also deriving from the consumption of the final product.

To secure the decision from further appeals, the Court apparently chose a pragmatic approach by relegating such climate change arguments to an ancillary role. While at first, the Court states that, given the obligations deriving from the PA, the emissions of new coal mines are contrary to the "public interest"[35] and that this

[32] Ibid. footnote 28.

[33] *Earthlife Africa Johannesburg vs. Minister of Environmental Affairs and others*, Case no. 65662/16 (2017).

[34] *Third Runway at Vienna International Airport*, Case No. W109 2000179-1/291E, Federal Administrative Court, Austria, 2 Feb. 2017.

[35] Section 4.15(1)(2) of the New South Wales Environmental Planning and Assessment Act 1979 No 203.

sole fact could form the basis for dismissal, the application was then primarily dismissed on the poor environmental, social, and economic impact of the mine.

3.5.3 Earthlife Africa Johannesburg

In *Earthlife Africa*, the plaintiff challenged the government's permit to develop a coal-fired energy plant based in the negative impact of the project on climate change. Although the national statutes did not expressly mention climate change as part of the legal criteria for environmental assessment, the South African High Court held that the Ministry's environmental review was unlawful for not adequality considering the impact on climate change. Further, the Court found that national provisions on environmental assessment require the public authority to evaluate whether highly emitting development projects are compatible with the NDCs and the overall obligations accepted by the government of South Africa in signing the PA.[36]

3.5.4 Vienna Airport

In *Vienna Airport*, the Federal Administrative Court quashed the government's permission to construct a third runway at Vienna Airport in light of obligations under the PA to mitigate climate change. The case revolved around the notion of "public interest" in the context of planning permits and climate change. As a result, Court held that obligations under the PA must be considered by public authorities when issuing permits for development projects that impact on the carbon budget.

This decision was overturned by the Austrian Constitutional Court in 2017. The Constitutional Court held that the lower court had erred in its balancing the climate change and land use concerns with the other public interests at stake in constructing a third runway. Importantly, the Constitutional Court also held that the Kyoto Protocol and PA are sources of international law that cannot directly be applied in the context of planning review decisions. The judgment thus significantly limited the possibility of enforcing climate obligations through administrative review in Austria. However, despite this setback, Vienna Airport still shows that climate obligations are a *potentially* relevant criterion.

3.5.5 Conclusion: The Potential of Environmental Assessment Litigation

Gloucester Resources, *Earthlife Africa*, and *Vienna Airport* show that national law regulating environmental assessment and planning can—and should—be interpreted in a way that considers the impact of a development plan on the carbon budget. If

[36] See *Earthlife Africa*, par. 91.

domestic legislation does not explicitly mention climate change among the relevant factors to consider, it is arguable that public authorities should interpret legal concepts, such as the one of public interest, in such a way as to include climate change.

Leveraging statutory provisions, rather than directly fundamental rights, is a different litigation pathway to pursue the same constitutionally relevant objective. This strategy, however, secures a decision with immediate effects, as the halt of a carbon-intensive project prevents all emissions from occurring. Conversely, in rights-based claims before ordinary courts, plaintiffs must deal with the fact that enforcing the judgment might be difficult as mentioned above.

3.6 Fundamental Rights Litigation

3.6.1 General

In recent years, plaintiffs have increasingly resorted to causes of action based on fundamental rights in litigation against governments and actors in the private sector. Some legal scholars called it a "rights-turn" in climate litigation, following a first wave based on statutory avenues.[37] This shift may reflect a growing realization that anthropogenic climate change involves people and rights—not only the environment.

The following sub-section separates fundamental rights litigation based on legal basis and based on jurisdiction. The separation will help understand the variation in the spectrum of climate litigation; however, the categories not immutable and will sometimes overlap.

3.6.2 Legal Foundations

Plaintiffs seeking judicial redress for fundamental rights rely on legal sources conceived at different times. Some are as old as the 1787 Constitution of the United States; others are the result of the post-Second World War era[38] or are even more recent, such as the 1996 South African Constitution. In Italy and Germany, for example, Constitutions were drafted in the late 1940s but have been amended over time. In 2022, the Italian Parliament introduced a new version of Articles 9 and 41: Article 9 now includes the environment, biodiversity, and ecosystems in the interest

[37] Peel and Osofsky (2018).

[38] The United Nations General Assembly adopted the Universal Declaration of Human Rights on December 10, 1948. The Japanese Constitution was promulgated in 1947, the Italian Constitution was enacted in 1948, and the German Basic Law the following year. The ECHR was adopted in 1950.

of future generations, and Article 41 now provides that free enterprise should benefit society, respect the right to health, human dignity, and the environment.[39]

The different historical backgrounds of the legal sources leveraged in climate litigation matters for plaintiffs, as the law crystalizes the social tensions of a specific society at a given time. Similarly, fundamental rights are not immutable—they are constantly confronted with evolving sensitivities and novel threats. Environmental and climate protection are among those new urges seeking legal recognition. However, not all constitutions provide explicit provisions in this regard; once again, plaintiffs' creativity is crucial to successfully anchor climate litigation claims to legal sources conceived in the past. Another relevant issue is the relationship between international and national law. In some jurisdictions, human rights provided by international law apply directly to all citizens. In The Netherlands, for example, individuals can claim ECHR directly before Courts.[40] Conversely, in Italy, the Constitutional Court has held that the provisions of the ECHR are not directly effective.[41]

Considering the diversified legal context of each jurisdiction, human rights-based climate litigation can be divided into three categories: cases based on fundamental rights protecting the individual, claims that rely on the implied existence of a right to a safe climate or the public trust doctrine and claims leveraging provisions that recognize the right to a safe climate. The first category includes those claims based on individual fundamental rights protecting human dignity, life, health, and private property, usually protected under constitutional or treaty provisions. The argument here is that governments, or carbon majors, are contributing to climate change, with their actions or omissions, in a way that harms the Plaintiff's rights.

For example, in *Mathur vs. Ontario*[42] (*Mathur*), the applicants sought declaratory and mandatory orders against the Province of Ontario to set more stringent emission targets and a more ambitious plan for combating climate change over the coming 10 years. In addition, they argued that the government's initiative to repeal the Climate Change Act violated Applicants' rights, protected by sections 7 and 15 of the Canadian Charter of Fundamental Rights.[43] In *Urgenda*, plaintiffs based their claim on Articles 2 and 8 of the ECHR, protecting life and private and family life, and sought an order to reduce Dutch emissions by 40% compared to 1990 levels. Similarly, *Shell* was based on Articles 2 and 8 of the ECHR combined with the Dutch tort law provisions. The argument was that the Shell's GHG emissions, including Scope 3 emissions, violate the duty of care that generally prevents

[39] Constitutional Law n. 1, February 11, 2022.

[40] See Nollkaemper (1998).

[41] See the Italian Constitutional Court extensive case law on the indirect effects of the ECHR in the Italian jurisdictions: judgment No. 80 of 2011 and judgments No. 348 and No. 349 of 2007. Conversely, all Courts involved in Urgenda accepted the idea that Articles 2 and 8 ECHR apply directly to Dutch residents.

[42] *Mathur vs. Ontario*, Ontario Superior Court of Justice, case No. 2020 ONSC 6918.

[43] *Canadian Charter of Rights and Freedoms*, s 7, Part 1 of the *Constitution Act*, 1982, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11.

anyone—private or public actor—from harming others. While climate change is one of the factual elements composing the cause of action, in all these cases, the primary objective is protecting the individuals' fundamental rights, not the climate.

In jurisdictions lacking explicit constitutional provisions that establish a right to a safe environment or climate, some plaintiffs have developed arguments based on the implied existence of a right to a safe climate or the public trust doctrine. The common characteristic is the evolving interpretation of existing rights or legal theories to achieve climate protection. The recent Italian case *A Sud* et al. *vs. Italy*[44] (*Giudizio Universale*) is partially based on the implied existence of a right to a safe environment, and the plaintiffs requested the Court to order the government to reduce national emissions according to the PA obligations. In *Juliana*, the plaintiffs argued that the defendants violated their rights to life, freedom, and private property. They also argued that the defendants knowingly endangered the atmosphere, which is a vital component of the public trust. The public trust doctrine roots back to Roman law; it was further developed in the 1970s by prominent legal scholars to protect the natural heritage.[45] Recently, it has been argued that the scope of the public trust doctrine should be extended to the atmosphere, considering that the latter is a public good and respecting certain GHG thresholds responds to the general interest to live in a sustainable climate. *Juliana* is part of a vaster wave of cases named atmospheric trust litigation launched in the US by Our Children Trust.[46]

A third category includes claims that leverage the explicit recognition of a right to a safe environment or climate by constitutions or other legal instruments. In *ENvironnement JEUnesse vs. Procureur General du Canada*[47] (*La Jeunesse*), the plaintiffs alleged the violation of the right to live in a "healthful environment in which biodiversity is preserved" under the explicit provision of Article 46.1 of the Québec Charter of Human Rights and Freedoms.

3.6.3 Jurisdiction Levels

Another relevant factor in assessing strategic climate litigation is the forum available to or chosen by the plaintiffs to hear the case. Cases have generally been adjudicated in three layers of jurisdiction: (i) at national, state or provincial level; (ii) at the constitutional or highest court level; and (iii) at the supra-national or regional level.

First-level court cases: falling under this category are *Leghari*, *Urgenda*, *Juliana*, *Mathur*, and *Giudizio Universale*. In *Leghari*, *Juliana*, and *Mathur*, the cause of action lay directly in constitutional rights, while *Urgenda* and *Giudizio Universale*

[44] The ENGO A Sud together with over 200 Plaintiffs filed on 5 June 2021 a lawsuit against the Italian government alleging the violation of fundamental rights including the right to a stable and safe climate.

[45] See Sax (1970).

[46] See Our Children Trust's website via https://www.ourchildrenstrust.org/mission-statement.

[47] *ENvironnement JEUnesse vs. Procureur Général du Canada*, Cour Supérieure, Province de Québec, District de Montréal (Canada), 26 November 2018.

coupled constitutional rights with tort law provisions. The causes of action were all based on fundamental rights, and the relief sought was an order to reduce emissions compatible with the PA to protect the rights to life, health, security of the person, and private property. In Leghari and *Juliana*, plaintiffs requested the drafting of a plan containing sufficiently ambitious climate actions.

Constitutional claims: In the *Neubauer* case, fundamental rights were actioned directly before the German Constitutional Court requesting a declaration of unconstitutionality of the specific national provisions regulating GHG emissions. Resorting to constitutional courts may present a substantial advantage, as it allows for a direct court intervention – modification indeed – on the legal source deemed incompatible with fundamental rights. In addition, such direct access eliminates the delays and costs of several prior lower court hearings.

Supra-national jurisdictions: some important climate-related fundamental rights cases have been brought to supra-national courts and tribunals based on fundamental rights recognized by international or regional instruments. In *Innuit Petition,*[48] plaintiffs resorted to the Inter-American Commission on Human Rights (IACHR) against the United States and Canada for their omissions in preventing climate change. The IACHR rejected the petition due to insufficient information provided to the Commission.

Carvalho and Others vs. Parliament and Council[49] (*People's Case*) provides another example of a fundamental rights-based claim. The plaintiffs were families living across the EU who, for various reasons, alleged to have been harmed in their fundamental rights due to climate change. They sought the annulment of the EU legislative package regulating emissions,[50] under Article 263 of the Treaty on the Functioning of the European Union (TFEU), as well as compensation in kind for breach of non-contractual liability, under Article 340 TFEU. Both actions were based on the violation of fundamental rights threatened by climate change. The claim was first dismissed by the General Court and then appealed to the European Court of Justice (ECJ)[4]. The case was dismissed on procedural grounds for lack of standing. The applicants were found missing sufficient "individual concern" under Article 263(4) TFEU, as shaped by the ECJ judgment *Plaumann*.[51] Despite the right to an effective remedy under Article 47 of the European Charter of Fundamental Rights (EUCFR) and Article 9(2) of the Aarhus Convention, the ECJ held that the plaintiffs lacked standing as they could not show "individual concern" given that anyone is potentially affected by climate change. The result is paradoxical, the wider the effects of a supposedly harmful act, the more restricted the access to justice will be. In action for damages, the plaintiffs sought compensation "in kind" for the

[48] *Sheila Watt-Cloutier, et al. vs. United States*, Inter-American Commission on Human Rights, Petition No. P-1413-05, 16 November 2006.

[49] *Armando Carvalho and Others vs. European Parliament and Council of the European Union,* Court of Justice of the European Union, Case C-565/19 P, 25 March 2021.

[50] Directive (EU) 2018/410, the Regulation (EU) 2018/842, and Regulation (EU) 2018/841.

[51] *Plaumann & Co. v Commission of the European Economic Community*, European Court of Justice, case No. 25-62, ECLI:EU:C:1963:17.

extra-contractual liability of the EU institutions in the form of an order to modify the legislative package. The ECJ noted the equivalence of the two claims and dismissed also the request for compensation.

In *Duharte Agostinho and Others vs. Portugal and Others*[52] (*Duharte Agostinho*), six young Portuguese citizens filed a claim directly with the European Court of Human Rights (ECtHR) against Portugal and 32 other countries. The plaintiffs alleged that the respondents' inaction infringed their fundamental rights. This case is particularly interesting because the plaintiffs skipped their national courts and resorted directly to the ECtHR, despite Article 35(1) of the ECHR requiring the Plaintiffs to have resorted to all available remedies in their respective national jurisdictions. The plaintiffs argued that they could not obtain an effective remedy before a domestic court. In their view, a Portuguese court lacks jurisdiction against other foreign governments; the urgency of the "climate emergency" requires a top-down approach; finally, the plaintiffs do not have the resources to sue all 32 respondents before their national courts. This case takes multi-party cross-border litigation to a new level and raises some serious arguments on the issue of effective judicial remedies.

Comparing national, constitutional, and supra-national courts leads to some considerations. National courts are in general the only judicial resort for claims against actors the private sector, while it might be more effective to pursue strategic ambitions directly before constitutional or international courts. The *Neubauer*, *Inuit Petition*, the *People's Case*, and *Duharte Agostinho* prove that it makes sense for plaintiffs to opt for a top-down approach, which presents substantial procedural effectiveness advantages with respect to the remedy. If plaintiffs reach a positive result, the judgment rendered by constitutional or supra-national courts does not need further enforcement. Constitutional courts can annul unlawful legislative provisions, while international courts can declare that the climate policy of one or even multiple governments violates international law. This is certainly a meaningful advantage considering the need for urgent global action. However, there may still be significant procedural hurdles to bringing cases, as shown in particular by the cases concerning the international level immediately above.

3.7 Conclusion: Enforcing Climate Rights Through Litigation

Section 3 of this Chapter showed that climate litigation responds to an increasing urge for access to justice across countries and social settings. Some plaintiffs bring claims because they see a discrepancy between government policies and the need to tackle climate change decisively.[53] Others are affected individually or want to hold

[52] *Duarte Agostinho and Others v. Portugal and Others* (communicated case), Application No. 39371/20.

[53] See Marx et al. (2017).

the private sector accountable or leverage litigation to push toward a more sustainable society. Personal motives, causes of actions, and court actions are different and fast evolving.

Strategic litigation against governments or actors in the private sector constitutes a way to protect fundamental rights enshrined in constitutions or international charters endangered by climate change. It is also a means, complementary to the political process, to enforce international commitments. Claims seeking monetary damages are also constitutionally relevant as they can help recover financial losses deriving from fundamental rights violations. Both statutory- and fundamental rights-based claims contribute secure the interest of living in a sustainable climate system.

The constitutional relevance of climate litigation arguably requires effective procedural rules that allow plaintiffs to access courts and provide adequate judicial protection to diffuse fundamental rights and interests. However, often plaintiffs must spend time and resources dealing with procedural objections raised by the defendant on the issue of standing and justiciability; they also have a hard time sustaining their burden of proof. The following Section argues that traditional standing, justiciability, and evidence rule constitute serious obstacles to access to justice.

4 Outdated Standing, Justiciability and Evidence Rules

4.1 Introduction

Sections 4.2 and 4.3 explore further cases showing how traditional standing and justiciability rules can hamper plaintiff's access justice climate litigation. Similar complaints face different domestic jurisdictions and procedural rules. Despite national differences, there is an emerging trend across all climate litigation categories and jurisdictions: standing and justiciability are genuine concerns for plaintiffs everywhere as already evidenced by the cases presented above. Many cases are being dismissed on motions to strike before even considering the merits. Other times, defendants leverage the lack of standing or justiciability to appeal up to the highest courts, draining the plaintiff's finances and delaying any decision on the merits.

Standing rules identify who, among the general public, is sufficiently entitled to claim rights and interests. Climate litigation highlights a paradox: the more comprehensive the harm claimed by plaintiffs, the harder it is to pass the standing test. In effect, standing seems to be a difficult hurdle to overcome, especially in strategic litigation, which is oriented at protecting the public interest. The issue of justiciability concerns the fine line between political power and court jurisdiction in matters of public interest. Establishing the limits of the judiciary when plaintiffs seek vindication of fundamental rights and public interests can be particularly difficult in strategic cases as emerged in some of the cases presented above.

If plaintiffs overcome the procedural hurdles of standing and justiciability, the next major obstacle is sustaining the burden of proof. Based on traditional evidence rules, providing sufficient evidence is complex and potentially costly. Before and during the proceedings, plaintiffs spend significant time and financial resources to present and prove facts requiring scientific knowledge and expert witnesses' involvement. Section 4.3 will explore the complexities in proving the burden of proof.

4.2 Standing Rules

In *Verein KlimaSeniorinnen Schweiz vs. Bundesrat* (*KlimaSeniorinnen*),[54] the association KlimaSeniorinnen, representing older ladies, and four individuals, sued the Swiss Federal Government and several agencies.[55] The plaintiffs argued that climate change and heatwaves exposed them to life-threatening health problems. The plaintiffs pointed out that women aged 75 years and over are subject to significantly higher risk during hot summers and are more severely affected than the general public. The measures taken by the Swiss Government were presented as insufficient for protecting the rights to life, foreseen by article 10 of the Swiss Constitution, and to private and family life, under article 8 ECHR. The claim, however, was rejected for lack of standing, as the first and second instance courts held that the plaintiffs were insufficiently affected by climate change.[56]

The plaintiffs further appealed to the Federal Supreme Court, alleging a violation of the right to be heard and maintaining that they should have standing.[57] The Court, however, found that climate change did not affect the plaintiffs with sufficient intensity, as the threshold of 2 °C is not expected to be exceeded before 2040. Therefore, according to the Court, there is still time to prevent climate harm from materializing. Thus, the plaintiffs' rights were not affected with sufficient intensity, and standing was denied. The case has been brought to the ECtHR and is currently

[54] *Verein KlimaSeniorinnen Schweiz vs. Bundesrat*. The case was filed in 2016 and finally decided by the Swiss Supreme Court on 27 November 2018, after two previous decisions that had dismissed the case for lack of standing.

On 26 November 2020, the plaintiffs applied to the ECHR. The case has not been decided yet. On this case, see Bahr et al. (2018).

[55] The defendants are the Federal Council, the Federal Department of the Environment, Transport, Energy and Communications; the Federal Office for the Environment, and the Swiss Federal Office of Energy.

[56] The claim was initially dismissed by the Agency for Transport Energy and Communications, which ruled on behalf of all the Public Authorities addressed, then by the Federal Administrative Court.

[57] The Appellants claimed the violation of Article 29 of the Swiss Constitution and Article 6 ECHR, as the Federal Administrative Court did not fully engage with decisive factual and legal circumstances that would lead to the conclusion that women aged 75, and over, are actually "particularly affected" by climate change and have, therefore, standing.

pending. Whatever the ECtHR will find on this matter, this case in addition to many of the cases already presented above indicates how difficult it is to have strategic claims heard on the merits. The suit was indeed consistently rejected at all levels of the Swiss courts, based on the fact that climate change creates diffuse harm with long-term and progressive effects.

Standing is a serious concern for plaintiffs, even in group litigation in which it poses issues regarding the class definition. A too-broad or narrow class definition faces the risk of dismissal for arbitrariness or lack of sufficient commonality. In the Canadian class action *La Jeunesse*, plaintiffs pleaded that the Canadian government's emission targets are insufficient and therefore violated the class members' rights to life, inviolability, and security, protected under section 7 of the Canadian Charter of Fundamental Rights and section 1 of the Québec Charter. Plaintiffs also claimed that the Canadian government violated the right to a healthful environment in which biodiversity is preserved, foreseen by the Québec Charter.

The Superior Court of Quebéc found the claim justiciable in certain respects. However, the Court did not certify the class action based on the proposed class definition. First, the Court deemed the class definition arbitrary, as it was launched only on behalf of all residents of Quebéc aged under 35 and unreasonably excluded the older population whose rights could also be violated by climate change. Second, the class included all minors residing in the province of Québec; however, minors cannot act in court without their parent's representing them. Third, the Court deemed the class action useless, given that an individual claim would have an *erga omnes* effect reaching the same results as a class action. Following on appeal, the Court of Appeal dismissed the case based on the different justiciability issues. Nonetheless, the first instance decision remains relevant because it proves that the widespread effects of climate change make it hard to establish standing even using the class action device.

In contrast, the plaintiffs were successful and overcame the hurdle of standing in the *Urgenda* case. However, due to the Dutch government's appeals, it took 5 years of litigation, mainly on procedural matters, for the original decision to be conclusively upheld. The Supreme Court found that, under Article 305a of the Dutch Civil Code,[58] the plaintiffs could sue on behalf of all residents in the Netherlands to protect their right to life and private and family life, protected by Articles 2 and 8 ECHR. The decision also noted that Article 305a of the Dutch Civil Code, i.e. the procedural mechanism of a representative action, is well suited for those cases where plaintiffs invoke harm to diffuse interests—such as in environmental matters.[59] Finally, the Court found that standing must also be granted based on the right to an effective remedy under Article 13 ECHR and 9(3) in conjunction with Article

[58] Art. 305a of the Dutch Civil Code grants standing to bring public interest suits to foundations established to protect public interests. See Loth (2016).

[59] ECLI:NL:HR(2019(2007, Hoge Raad, par. 5.9.2.

2(5) of the Aarhus Convention, which guarantees interest groups access to justice in environmental matters.[60]

Cases aimed at recovering damages seem exempt from procedural objections on standing (and justiciability) as plaintiffs claim an individual right, such as in the *Luciano Lliuyac* case, where a Peruvian farmer based his claim on his property rights endangered by a melting glacier lake waters. Even though plaintiffs might also pursue idealistic objectives and symbolic compensations, their claims follow the traditional patterns of individual litigation. Seeking redress for financial losses helps prevent procedural objections on standing and justiciability.

4.3 Justiciability

In *Gloucester Recources*, the mining company objected that the Court could not prohibit the development of the proposed new open-cut coal mine based on the PA provisions. The company argued that, without national provisions banning new coal mines, a policy of "no new coal mines" in Australia, determined by the Court solely based on the PA, would result in a legislative act and a consequent violation of the separation of powers principle.

In *Shell*, the defendant made a similar argument noting that it did not violate any statutory limit nor the European Emission Trading System (ETS).[61] The Court rejected this objection considering that the tort law *neminem laedere* principle is an open norm, which does not require the breach of explicit legal provisions. Unwritten rules of care are sufficient to establish tortious responsibility. The GHGs produced by Shell were therefore deemed unlawful even without any reference to explicit national provisions. The Court added that the EU "cap and trade" ETS system does not limit the Court's ability to evaluate if the overall emissions—including those produced outside the EU –violate the general duty of care under tort law. Combining the PA with the civil law notion of duty of care helped the Court establish that the claim was justiciable.

In *Juliana*, the Court dismissed the case maintaining that the claim was not "redressable," as the remedy sought by the plaintiffs could be enforced without stepping into the political province. Redressability, at its core, involves the separation of powers in the context of judgment's enforcement.[62]

[60] Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, 25 June 1998 (Aarhus Convention).

[61] Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003.

[62] The case is now continuing, as plaintiffs modified the request for relief. It is nonetheless clear how the issue of justiciability posed a significant obstacle, supposedly draining the Plaintiff's resources: The claim was filed in 2015, and the Court has not even heard the merits.

The issue of justiciability was also discussed in *Urgenda* as the Defendant argued that it is up to the government and the Parliament to set Dutch climate policy.[63] The Court managed to overcome the government's objections, finding that in a democratic state, it is the Court's role to protect fundamental rights, even if the government's climate policy allegedly commits the violation. On the other hand, the Court made sure not to overstep into the political sphere and explicitly left it to the government to determine how to achieve the 40% emissions reductions. Also, the ruling clarified that it was not an order to create legislation, as the defendant could choose what tools to use.

The cases mentioned above range across all categories of climate litigation. It seems that the justiciability argument is relevant both in claims against governments and the private sector. However, these two categories develop their objections differently. Companies tend to object that courts cannot find them responsible for excessive emissions or stop their development projects if their activity does not violate explicit national provisions. Some companies also maintain that the PA does not apply to them. In their view, any decision against the private sector based on the PA would be equivalent to introducing new legislative requirements by the Court with the consequential violation of the separation of powers. Governments argue that courts cannot determine climate policy, as climate change involves many wide-ranging policy issues that fall outside the scope of the court's jurisdiction. That line of argument results in holding a position that climate change is subjected only to discretional political power – regardless of fundamental rights.

Conversely, justiciability does not appear to be a problem in claims to recover damages. Claiming damages plaintiffs vindicate individual rights rather than a public interest. Hence, they resort to the traditional function of jurisdictional power without trying to achieve political change in Court. Juxtaposing claims for damages and strategic litigation sheds light on the real issue behind justiciability rules. Traditional procedural rules are rooted in the idea that Courts can only adjudicate individual rights. Climate litigation, however, is, for the most part, public interest litigation. Plaintiffs act on their interests as well as on behalf of others. It could be a local community or the general public. As a result, the legal community must rethink the judiciary's role if it is considered important to extend the access justice to the fragmented interest and rights of a healthy environment and atmosphere.

4.4 Evidence Rules

In strategic cases against governments based on the violation of fundamental rights, plaintiffs must usually quantify the national GHGs emissions and present how such emissions are inconsistent with those allowed by the carbon budget under the

[63] See Loth (2018).

PA. Plaintiffs must then prove the significant threat to fundamental rights, the environment, or the public trust and the causal link between government's inaction, the subsequent emissions, and rights violations. In *Klimaseniorinnen*, the plaintiffs proved with medical records how their health was being affected by heatwaves, while in *Juliana*, each presented and proved how climate change affected their rights. In *Urgenda*, the Supreme Court confirmed the existence of a causal link between the government's regulatory omissions, Dutch GHG emissions, and the threat to fundamental rights.[64]

When the claim is based on tort law, the plaintiffs must usually prove the violation of a duty of care or diligence, hence that the government has knowingly allowed more emissions than those permitted under the PA. The IPCC reports are helpful as the IPCC represents 195 countries, and its reports determine the reduction targets and the different risk scenarios. In *Urgenda*, for example, the Court relied on the 4th Assessment Report, according to which developed countries should have reduced emissions by 25–40% by 2020 compared to 1990. Yet, IPCC reports cannot prove the causal link between GHGs, and the individual plaintiffs involved in the proceedings.

In strategic litigation against actors in the private sector plaintiffs must often quantify the emissions produced by the company, substantiate that such emissions pose a danger to the plaintiffs' rights, and establish a sufficient causal link between the emissions and violation of the relevant rights. In *Shell,* the Court recognized that the Dutch holding company controls over 1100 subsidiaries worldwide and, given its policy-setting role held that it is directly or indirectly responsible for scope 1, 2, and 3 emissions produced by the entire group of companies. The Court also held that the whole group is liable for emissions that exceed those of the Netherlands and, therefore, have substantial effects on global emissions. This allowed the Court to draw a line of causation between the conduct of *Shell* and the adverse effects on climate change for individual plaintiffs. Establishing causation is naturally different in cases aimed at stopping development plans, such as in *Gloucester Resource*. The burden of proof falls on the inconsistency between the specific project and the national carbon budget rather than the threat to the plaintiff's rights.

An additional burden of proof is at hand when the aim is to recover damages, as demonstrated by *Luciano Lliuya*. In such cases, the plaintiffs must prove a personal economic loss, that the company's emissions have contributed to climate change in a non-trivial and quantifiable way, that the damages are a consequence of climate change, and, finally, the percentage of responsibility attributable to the individual defendants for the specific economic damages. In *Luciano Lliuya,* the first instance court rejected the claim based on a lack of sufficient evidence on causation, holding that it is impossible to attribute the alleged damage to RWE AG given the multiple factors that cause climate change. After a successful appeal the matter is now pending as noted above. Nevertheless, the case shows that establishing causality in damages cases can be significant hurdle.

[64] Preston (2020b).

Finally, in Native Village of Kivalina vs. ExxonMobil Corp.[65] *(Kivalina)* the inhabitants of the Alaskan village of Kivalina filed a public nuisance claim against ExxonMobil and other companies, seeking damages deriving from the necessity to relocate the village inland due to climate change-induced coastal erosion. Applying the fair traceability test as a threshold for causality, the Court maintained that the plaintiffs failed to demonstrate a substantial likelihood that the defendants' emissions caused the alleged injuries. The Court held that climate change results from numerous emissions sources over the years and could not be traced back to the individual defendants.

Thus, proving the causal link is costly, requiring plaintiffs to spend time and resources on complex matters, expert fees, and possible appeals. It entails long preparation before a case can be brought to Court. For example, effectively using attribution science requires combining legal and scientific expertise from the early stage of a climate case. A recent study analyzed 73 climate litigation cases and proved how there seems to be a disconnect between what up-to-date attribution science can prove and the facts presented to courts or the content of judicial decisions.[66] Given the scientific feasibility of allocating individual responsibilities for climate change-related injuries, it is necessary to present the correct facts scientifically attributable to climate change and submit evidence demonstrating a causal link. Therefore, cooperation between scientists and lawyers is critical.

4.5 Conclusion: Outdated Procedural Rules Entail Longer and More Risky Court Proceedings

As noted above, a common objection of the defendants in strategic litigation is that plaintiffs lack standing and that the subject matter of the litigation is not justiciable. In strategic climate litigation, standing rules appear inadequate because climate change produces diffuse and fragmented harm, which, according to the best available science, is increasing over time. For example, rising sea levels threaten certain coastal areas, and older people are more exposed to heat waves. But it is difficult to establish that all people in those categories, each plaintiff, are or will undoubtedly be affected by climate change-related events. It is even more complex to establish standing when the damage has not occurred yet, and the claim is brought to Court on behalf of future generations.

Justiciability can also be a severe concern for plaintiffs that undertake strategic claims even though an appropriate framing of the relief sought can help overcome such an issue. The justiciability argument is often based on the consideration that any solution to climate change necessarily requires vast political solutions that courts

[65] Native Village of Kivalina vs. ExxonMobil Corp., United States District Court for the Northern District of California, case No. 696 F.3d 849 (9th Cir. 2012).

[66] Stuart-Smith et al. (2021).

cannot adjudicate or micromanage, given the traditional procedural framework in civil law countries. Defendants often also argue that courts lack jurisdiction to enforce an order to reduce emissions. However, in *Leghari* the Lahore Court went as far as creating a commission to supervise the government's actions in compliance with the Court's ruling. So far this is an unprecedented decision, which would be difficult to replicate in civil law legal systems. Even if the plaintiffs do not require the courts' supervision, it is critical to frame the remedy sought considering the limits of domestic court's jurisdiction. *Urgenda* proved that fundamental rights are helpful, as they have historically been a natural limit to governments' discretionary power. Even if solutions applying existing rules are available, standing and justiciability objections make climate litigation longer and more expensive. This is also true if lawyers donate their work hours, as years of litigation to overcome procedural issues are a heavy burden.

Climate litigation reflects a trend that emerged already in the early 1970s when civil procedural law started facing the issue of group- and public-interest litigation addressing environmental, labour and consumer law matters. Mauro Cappelletti explored this topic extensively in his *Access to Justice and the Welfare State* research project.[67] Cappelletti argued that public interest litigation reflects the irresponsiveness of the political branches of government. Hence, courts get involved in legal and social issues, which necessarily require them to get involved in potentially politically relevant matters. At the same time, however, traditional standing and justiciability rules discriminate against diffuse and fragmented interests, as they are designed for individual claims. Courts must construe procedural law in a constitutionally oriented manner; if that does not happen, the danger is that courts cannot address widespread harm with a significant impact on human rights.

A possible solution is to resort directly to constitutional courts if such direct access is available, as in Germany. This way, while it might still be necessary to answer the question of standing, the issue of justiciability can be avoided, as constitutional courts have the power to assess the constitutionality of legislation, including national climate regulation. The further advantage is that no appeal can be filed, with significant savings of resources. Similarly, plaintiffs can potentially resort to supranational courts such as the ECJ, which can directly impact the EU law, or the ECHR, as in the ongoing case *Duharte Agostinho*. However, not all jurisdictions allow such a top-down approach. Furthermore, as a matter of principle, domestic procedural law should evolve so that access to justice is also granted to protect diffuse interests. After all, access to an effective remedy within one's national jurisdiction is a human right, too.

[67] Kötz (1981), p 102.

5 The IBA Model Statute: Ideas for Procedural Law Reform

The previous sections pointed out how climate litigation, in its various forms and aims, is constitutionally relevant and stressed how the issues of standing, justiciability, and burden of proof could often make access to justice uncertain, lengthy, and costly for plaintiffs. This final section introduces the proposals made by the International Bar Association (IBA) in its 2020 Model Statute for Proceedings Challenging Government Failure to Act on Climate Change (the "Model Statute"). The document's wording clarifies that the Model Statute is meant to apply exclusively to climate litigation against governments. However, nothing precludes extending these rules to litigation against actors in the private sector.

The Model Statute is composed of 23 Articles. After defining fundamental notions (Article 1) and the scope of application (Article 2), it then proposes procedural rule reforms on the matters of standing (Articles 4, 5, and 17), rules of evidence (Articles 5–16), remedies and justiciability (Article 18), costs rules (Articles 19–23). In the subsequent section focus is placed on the key proposals on standing, justiciability, and evidence. The IBA proposals on these issues are feasible solutions that the EU, or national legislation, could implement to make climate justice more accessible.

5.1 The IBA Proposals to Overcome the Issue of Standing

The Model Statute impliedly acknowledges that in most jurisdictions standing rules require plaintiffs to be entitled to the rights claimed and, second, show the remedy sought would bring effective benefits. The judicial protection of fragmented interests poses challenges to both issues, as nobody is exclusively entitled to the right to a safe environment, and one single judgment cannot be decisive in fighting climate change.

Article 4 of the Model Statute proposes to adopt "open standing." Anyone may seek a judicial order to curb GHG emissions, even if their individual rights are not infringed, as long as they raise a serious issue. What "serious" means could be subject to debate, but procedural law necessarily requires the use of ample notions. The real benefit of open standing is to undock standing from the current individualistic conceptions of substantive law. Rights entitlement can be individual or shared. Some human rights, such as those concerning the environment and the climate, are necessarily shared. Nobody can seriously claim an exclusive relationship with public goods. Yet procedural law seems to ignore that. The Model Statute, however, pursues a different notion of how the law should regulate climate-related human rights and their judicial protection.

The IBA's proposal finds its roots in legal traditions across the globe. For example, in Canada, in case of environmental harm, Ontario's 1993 Environmental

Bill of Rights[68] allows anyone to bring an action for public nuisance regardless of personal loss or injury. Likewise, in Australia, the New South Wales Environmental Planning and Assessment Act[69] grants access to the Court regardless of the infringement of individual rights. Similar provisions are contained in Michigan's Natural Resources and Environmental Protection Act, the Rules of Procedure for Environmental Cases in the Philippines,[70] and the Ecuadorian Constitution.[71] In light of Article 9(3) of the Aarhus Convention, which requires signatory parties to allow access to justice in environmental matters, it seems plausible that this solution might also be implementable in the EU.

The Model statute also addresses the intergenerational dimension of climate change, allowing plaintiffs to represent future generations. Such a provision would fit the exponential threat to fundamental rights posed by climate change. The recent *Neubauer* and *Mathur* rulings accepted the need to represent in Court's future generations. This provision reflects the idea that climate and environmental rights are shared between the present and future generations.

5.2 The IBA Proposals to Overcome the Issue of Justiciability

Justiciability has proved to be a genuine and potentially costly concern for plaintiffs. In strategic litigation against governments and the private sector any judicial order to reduce GHGs emissions is confronted with the principle of separation of powers. Defendants argue that it is not for the courts to shape climate policy. The Model Statute tackles justiciability from two perspectives.

First, and in principle, Article 18 of the Model Statute proposes a suite of remedial measures allowing courts to issue declaratory relief and order government to reduce emission. While rendering an order against governments is normal in most jurisdictions, an explicit provision allowing a judicial order to curb emissions would simplify the plaintiff's legal arguments on justiciability.

Second, Article 18 enables courts to monitor the government's actions after the issuance of an order. This rule extends the court's jurisdiction beyond the decision providing it with supervising powers over the government. Supervision might be enforced by an order to a public authority to monitor the execution of the order or by a duty to submit reports to the court. This provision relates to the common law notion of "appropriate remedy," which, in some human rights cases, allowed courts to retain jurisdiction over the execution of their orders. In *Leghari*, the Court went as far as creating a commission composed of government officials and NGOs. In the linguistic minority rights case *Doucet-Boudreau vs. Nova Scotia*, the Canadian Supreme

[68] See, par 103(1) of the Ontario's 1993 Environmental Bill of Rights.

[69] See, par 9.45 of the 1979 New South Wales Environmental Planning and Assessment Act.

[70] See Rule 2, § 4 of the Rules of Procedure for Environmental Cases 2010 AM No 09-6-8 SC.

[71] See Article 71 of the 2008 Ecuador's Constitution.

Court held that, based on Section 24 of the Canadian Charter of Fundamental Rights and Freedoms, Canadian judges can require governments to take affirmative actions and to report back on the progress made to rectify a breach of fundamental rights. Considering that Section 24 requires courts to grant an "appropriate remedy," the Supreme Court ruled that it is appropriate for the judiciary to supervise the government's action. In order to do so, the Provincial Government was required to report on the measures taken to ensure the education rights of the French minority.[72] In Environmental matters, the 1993 Ontario Environmental Bill of Rights grants a similar power to Canadian courts, as its §93(1) provides for negotiating a plan of restoration and a duty to report to the court on its implementation.

The Pakistani and Canadian jurisdictions prove that Article 18 of the IBA Model Statute could be implemented in those jurisdictions that recognize broad judicial discretionary power for granting an appropriate remedy. Conversely, Article 18 does not fit well with civil law jurisdictions that are traditionally based on legislative predetermination of subjective rights and remedies. In civil law systems, however, enforcement could be secured through pecuniary penalties for the delay in enforcing a judgment.[73]

5.3 The IBA Proposals on Evidence Rules

Providing sufficient evidence is complex, given the need to present complex facts and scientific knowledge in an accessible way. Especially in claims for damages, proving causation requires skilful use of attribution science to allocate marginal responsibility to significant individual emitters in the face of uncountable GHG sources across space and time.

Article 6 of the Model Statute proposes that courts take judicial notice of the findings contained in IPCC Reports. Thus, plaintiffs could refer to the IPCC Reports to prove the causes and effects of climate change. Article 6 also reverses the burden of proof on defendants concerning the content of IPCC Reports. If adopted, such a provision would greatly unburden the plaintiffs; it might also reduce the plaintiff's submissions in terms of sheer volume.

Article 7 of the Model Statute lists all the various government-produced records on GHG emissions as admissible evidence. In most climate litigation cases, various documents prepared by public agencies are already being used to quantify the emissions for which governments are accountable. Similarly, the same may be foreseen for claims against the private sector, as major companies usually produce

[72] Doucet-Boudreau v. Nova Scotia (Minister of Education), 2003 SCC 62 (CanLII), [2003] 3 SCR 3. Full text available here: https://www.canlii.org/en/ca/scc/doc/2003/2003scc62/2003scc62.html.

[73] For example, the French law foresees the *astreintes*. Similar systems are provided by Article 614-bis of the Italian Code of Civil Procedure and by §§ 888 and 889 of the German ZPO and §§ 354 and 355 of the Austrian ZPO.

records of their emissions. Among the list of admissible evidence, Article 7 of the Model Statute mentions peer-reviewed government studies and information deriving from climate models. Such pieces of evidence seem to be already admissible in most jurisdictions if combined with the testimony of expert witnesses. However, the IBA Model Statute proposes to make such government studies acceptable per se and recommends that courts, at their discretion, may regard them as sufficient to adjudicate the relief sought by plaintiffs.

Article 9 proposes to apply the precautionary principle to climate litigation. As a result, Article 9 flips the burden of proof requiring the defendant to prove that its actions do not impact on climate change or that the risk for the plaintiffs is negligible. Article 9 would greatly facilitate plaintiffs, as the lack of complete scientific certainty should arguably not impede a court from granting relief. Article 9 has solid roots in international law and many national jurisdictions. The precautionary principle is a longstanding legal mechanism for environmental protection and is stated by Principle 15 of the 1992 Rio Declaration.[74] Following Article 191 of the Treaty on the Functioning of the European Union, European jurisdictions foresee the same principle in their environmental legislations, such as in Article 301 of the Italian Environmental Code.[75] In Canada, the precautionary principle is recognized by the Canadian Environmental Protection Act,[76] the Canadian Environmental Assessment Act, and in Supreme Court case law.[77]

The Model Statute could also be a game-changer for Plaintiffs based on joint interpretation of standing and evidence provisions. Open standing allows anyone to vindicate the public interest rather than individual rights. Therefore, the burden of proof would only concern the origins and causes of climate change for a geographical area or a specific demographic, regardless of the individual Plaintiffs. The IPCC Reports and government documents extensively prove these matters. Further, the precautionary principle would require the Defendant to prove their actions are harmless. In such a hypothetical regulatory setting, climate justice would be genuinely accessible.

[74] 1992 Rio Declaration on Environment and Development, adopted after the United Nations Conference on Environment and Development, held in Rio De Janairo from 3-14 June 1992.

[75] Art. 301 of the legislative decree 3 April 2006, n. 152.

[76] Canadian Environmental Protection Act, 1999 S.C. 1999, s. 2(1).

[77] *114957 Canada Ltée (Spraytech, Societé d'arrosage) vs. Hudson (Town)*, Supreme Court of Canada, case No. 2001 SCC 40, [2001] 2 SCR 241, at paras 31 and 31. On Canadian environmental law see, Estrin (1993). Also, see Muldoon et al. (2015).

6 Conclusion

In all its forms, climate litigation is a way to enforce human rights enshrined in constitutions and international treaties. While a political solution to climate change is necessary and preferable, courts play a role in mitigating climate injustice. In this scenario, the IBA Model Statue provides feasible model rules on standing, justiciability, and evidence rules that could form the basis for future potential reform. In addition, the Model Statute taps into procedural techniques developed in environmental law across multiple domestic jurisdictions, offering a solid background experience for legislators.

The core takeaway from the IBA experiment is that the global legal community should rethink the role of procedural law in light of the growing need for public interest litigation. Mauro Cappelletti's *Access to Justice* project is still an authoritative reference point.[78] He raised the need to reshape the judiciary's role in constitutional democracies with regard to fragmented interests.[79] Procedural law should free itself from the outdated and narrow conception that limits its function to deal only with individual disputes. While traditional individual claims will remain, the entitlement to some rights is inherently shared among multiple persons. Climate litigation shows that in a dramatic way. Common goods, such as the atmosphere and the environment, cannot be merely individual. Substantive and procedural law should acknowledge and protect fragmented and collective interests to which nobody is entitled exclusively. One way to do that is to reform substantive law by recognizing such emerging rights in constitutions, treaties, and statutory law. At the same time, scholars and legislators should develop new procedural devices geared toward the protection of fragmented interests.

Case Law

114957 *Canada Ltée (Spraytech, Societé d'arrosage) vs. Hudson (Town)*, Supreme Court of Canada, case No. 2001 SCC 40, [2001] 2 SCR 241

Ashgar Leghari vs. *Federation of Pakistan* (WP No. 25501/2015), Lahore High Court Green Bench, Orders of 4 and 14 September 2015.

City of Charleston vs. Brabham Oil Company Inc. et al., case No. 2:20-cv-03579-BHH

Earthlife Africa Johannesburg vs. Minister of Environmental Affairs and others, Case no. 65662/16 (2017).

Environnement Jeunessevs. Procureur Général du Canada, Cour Supérieure, Province de Québec, District de

[78] Kötz (1981). Firenze. See also Cappelletti and Garth (1978), p. 194.

[79] Cartabia (2016).

Gloucester Resources Limited vs. Minister for Planning, Land and Environment Court New South Wales, Australia, 8 February 2019. [2019] NSWLEC 7

Italian Supreme Court (*Corte di cassazione)*, judgment No. 25143 of 2020.

Juliana, US District Court for the District of Oregon, case No. 947 F.3d 1159 (9th Cir. 2020)

Luciano Lliuya vs. RWE AG, Landgericht Essen, Case No. 2 O 285/15

Mathur vs. Ontario, Ontario Superior Court of Justice, case No. 2020 ONSC 6918

Milieudefensie et al. *vs. Royal Dutch Shell plc*, The Hague District Court. 6 May 2021. ECLI:NL:RBDHA:2021:5339., paragraph 4.4.5

Montréal (Canada), 26 November 2018

Native Village of Kivalina vs. ExxonMobil Corp., United States District Court for the Northern District of California, case No. 696 F.3d 849 (9th Cir. 2012).

Neubauer et al. *vs. Germany*, German Constitutional Court (BVerfG), judgment of the First Senate of 24 March 2021, BvR 2656/18 -, paras. 243-245

Plaumann & Co. v Commission of the European Economic Community, European Court of Justice, case No. 25-62, ECLI: E.U.:C:1963:17

Urgenda vs. The Netherlands, Supreme Court of the Netherlands, 13 January 2020, ECLI:NL:HR:2019:2007

Urgenda vs. The Netherlands, The Hague Court of Appeal 9 October 2018, ECLI: NL:GHDHA:2018:2591. ECLI:NL:GHDHA:2018:2610

Urgenda vs. The Netherlands, The Hague District Court 24 June 2015, ECLI:NL: RBDHA:2015:7145. ECLI:NL:RBDHA:2015:7196

Third Runway at Vienna International Airport, Case No. W109 2000179-1/291E, Federal Administrative Court, Austria, 2 February 2017

References

Bahr C, Brunner U, Casper K, Lustig SH (2018) KlimaSeniorinnen: lessons from the Swiss senior women's case for future climate litigation. J Human Rights Environ 9(2):194–221

Cappelletti M, Garth B (1978) Access to justice: the newest wave in the worldwide movement to make rights effective. Buffalo Law Rev 27(2):181–292, 194

Cartabia M (2016) Mauro Cappelletti: one of the precious few of our generation. Int J Const Law 14(2):464–473

Dellinger M (2018) See you in court: around the world in eight climate change lawsuits. William Mary Environ Law Policy Rev 42(2):525–552

Diffenbaugh NS, Burke M (2019) Global warming has increased global economic inequality. Proc Natl Acad Sci U S A 116:9808–9813. https://doi.org/10.1073/pnas.1816020116

Estrin D (1993) Business guide to environmental law. Carswell, Toronto

Estrin D (2016) Limiting Dangerous Climate Change: The Critical Role of Citizen Suits and Domestic Courts—Despite the Paris Agreement. CIGI Papers No. 101. Available via https://www.cigionline.org/publications/limiting-dangerous-climate-change-critical-role-citizen-suits-and-domestic-courts/. Accessed 31 March 2022

Kötz H (1981) Public interest litigation: a comparative survey. In: Cappelletti M (ed) Access to justice and the welfare state, Firenze, pp 85–117

Leslie N (2016) IBA takes leading role in increasing awareness of climate change justice. J Energy Nat Res Law 34(1):7–15

Loth DMA (2018) The civil court as risk regulator: the issue of legitimacy. Eur J Risk Regul 9: 66–78
Loth M (2016) Climate change liability after all: Dutch landmark case. Tilburg Law Rev (Gaunt) 21(1):5–30
Malijean-Dubois S (2015) Climate change litigation. Oxford Public International Law, Oxford
Marx W, Haunschild R, French B et al (2017) Slow reception and under-citedness in climate change research: a case study of Charles David Keeling, discoverer of the risk of global warming. Scientometrics 112:1079–1092
Matthews HD, Tokarska KB, Rogelj J et al (2021) An integrated approach to quantifying uncertainties in the remaining carbon budget. Commun Earth Environ 2:7. https://doi.org/10.1038/s43247-020-00064-9
Muldoon P, Alastair L, Gibson RB, Pickfield P, Williams J (2015) An introduction to environmental law and policy in Canada. Emond Montgomery Publications Limited, Toronto
Nollkaemper A (1998) Judicial application of international environmental law in The Netherlands. Rev Eur Comp Int Environ Law 7(1):40–46
Peel J, Osofsky H (2018) A rights turn in climate change litigation? Transnatl Environ Law 7(1): 37–67. https://doi.org/10.1017/S2047102517000292
Peel J, Osofsky HM (2019) Litigation as a climate regulatory tool. In: Voigt C (ed) International judicial practice on the environment. Questions of Legitimacy. Cambridge
Preston BJ (2020a) The influence of the Paris agreement on climate litigation: legal obligations and norms (part I). J Environ Law 00:3–6
Preston JB (2020b) The influence of the Paris agreement on climate litigation: causation, corporate governance and catalyst (part II). J Environ Law 00:5
Sanson AVS, Burke SEL (2020) Climate change and children: an issue of intergenerational justice. In: Balvin N, Christie D (eds) Children and peace. Peace psychology book series. Springer, Cham, pp 243–259. https://doi.org/10.1007/978-3-030-22176-8_21
Sax J (1970) The public trust doctrine in natural resource law: effective judicial intervention. Mich Law Rev 68(3):471–566. https://doi.org/10.2307/1287556
Sindico F, Mbengue MM (eds) (2021) Comparative climate change litigation: beyond the usual suspects. Springer, Geneva
Spier J (2020) The "strongest" climate ruling yet: the Dutch Supreme Court's Urgenda Judgment. Neth Jud Decis Law Rev 67:319–391
Stuart-Smith RF, Otto FEL, Saad A et al (2021) Filling the evidentiary gap in climate litigation. Nat Clim Change 11:651–655. https://doi.org/10.1038/s41558-021-01086-7
Wegener L (2020) Can the Paris agreement help climate change litigation and vice versa? Transnatl Environ Law 9(1):24

Reports

Boyd R (2019) Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment. A/74/161. https://www.ohchr.org/en/special-procedures/sr-environment/safe-climate-report
EPA (2021) Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. US Environmental Protection Agency, EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report
IPCC (2007) Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. In: Core Writing Team, Pachauri, RK, Reisinger A (eds) IPCC, Geneva, Switzerland

IPCC (2022) Climate Change 2022: Impacts, Adaption, and Vulnerability. https://www.ipcc.ch/report/ar6/wg2/downloads/report/IPCC_AR6_WGII_SummaryForPolicymakers.pdf. Accessed 30 March 2023

United Nations Environmental Program Report (2015) Climate Change and Human Rights. https://www.unep.org/resources/report/climate-change-and-human-rights. Accessed 30 March 2023

World Meteorological Organization (2021) Greenhouse Gas Bulletin No.17: The State of Greenhouse Gases in the Atmosphere Based on Global Observations through 2020