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Reparation for Climate Change: The Successes and Limits of Litigation

Helen Keller
Corina Heri
(eds)

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Helen Keller / Corina Heri (eds)

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Preface

We are in a climate crisis. The gravity of the situation has been clear at the latest since the publication of the reports of the sixth assessment cycle of the Intergovernmental Panel on Climate Change (IPCC).[1,2,3,4] These reports show that achieving the Paris Agreement's aim of limiting global warming to 1.5°C[5] is essential to avoid irreversible impacts to ecosystems and society, but also that this aim is becoming increasingly elusive because of insufficient climate action across the world.

The natural and physical sciences have already provided all the information needed to recognize the urgency of climate mitigation and adaptation.[1,2,3,4] However, the lack of effective climate action – which is manifest from the fact that current climate policies set us on a path to about 3.2°C rather than 1.5°C of global warming,[4] ie more than twice as much as the Paris temperature limit – shows that new developments are necessary on the level of society, including new developments in legal research and practice. The 2015 Paris Agreement is a legally binding international treaty and has thus introduced a legal dimension to climate mitigation. This provides the basis for the emergence of varied climate litigation cases, as highlighted in the present breakthrough compilation of contributions on this topic.

The contributors to this book encompass world-leading experts in this field, including the editors, Helen Keller, former judge at the European Court of Human Rights and professor at the University of Zurich, as well as Corina Heri, assistant professor at Tilburg University. The authors of the main chapters display versatile expertise in this emerging field at the interface between legal and climate research.

The topics addressed in this volume reach from the assessment of risks and the valuation of climate-related harms (first part) to rights-based climate

1 Valérie Masson-Delmotte, Panmao Zhai and others (eds), *Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2021).

2 Hans-Otto Pörtner, Debra C Roberts and others (eds), *Climate Change 2022: Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2022).

3 Priyadarshi R Shukla, Jim Skea and others (eds), *Climate Change 2022: Mitigation of Climate Change. Working Group III Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2022).

4 Hoesung Lee and José Romero (eds), *Climate Change 2023: Synthesis Report* (IPCC 2023).

5 UNFCCC COP, 'Decision 1/CP.21 Adoption of the Paris Agreement' (29 January 2016) UN Doc. FCCC/CP/2015/10/Add.1; Paris Agreement, art 1(a).

litigation (second part), perspectives on reparations for climate-related harms (third part), and litigation against corporate actors (fourth part). These are all essential questions for citizens, legal actors and stakeholders worldwide.

To conclude, it is important to note that all people are affected by the climate crisis. As shown in the latest IPCC assessment, all regions of the world are displaying changes in impactful weather and climate extremes.[1,6] This affects both rich developed countries such as Switzerland, which faced recent heatwave deaths due to human-induced climate change and crumbling mountains due to thawing permafrost, as well as small-island developing states threatened in their long-term subsistence due to sea level rise and increasing coastal impacts, among others.

This book comes at the right time and makes an incredibly important contribution, both to climate and legal research, and ultimately to society. I congratulate the editors and the authors on such a groundbreaking publication!

Zurich, 31 July 2025
Prof. Sonia I. Seneviratne
ETH Zurich, IPCC Working Group I Vice-chair

6 Sonia I Seneviratne, Xuebin Zhang and others, 'Weather and Climate Extreme Events in a Changing Climate' in Valérie Masson-Delmotte, Panmao Zhai and others (eds), *Climate Change 2021: The Physical Science Basis. Working Group I Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2021).

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We also warmly thank the Helmuth M. Merlin Stiftung and the Open-Access Publication Fund of the Universitätsbibliothek Zürich for their generous contributions to making this book available as an open-access volume.

Zurich and Antwerp, 31 July 2025
Helen Keller and Corina Heri

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Editor biographies

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Table of Abbreviations

AAL	Average Annual Loss
ACHR	American Convention on Human Rights
ACtHPR	African Court on Human and Peoples' Rights
AOSIS	Alliance of Small Island Developing States
APA	Swiss Act on Administrative Procedure
App	Application
AR4	Fourth Assessment Report of the IPCC
ARSIWA	Articles on the Responsibility of States for Internationally Wrongful Acts
Art	Article
ATS	United States of America Alien Tort Statute
AU	African Union
BGB	German Civil Code
BVerfG	German Bundesverfassungsgericht
BVerfGE	Official bulletin of case law of the German Bundesverfassungsgericht
BVerwG	German Bundesverwaltungsgericht
C	Celsius
CBDR-RC	common but differentiated responsibilities and respective capacities
CBDRRC-NC	common but differentiated responsibilities and respective capacities, in the light of different national circumstances
CHF	Swiss Francs
CJEU	Court of Justice of the European Union
CNJ	Brazilian National Council of Justice
CO2	carbon dioxide
CO2e	carbon dioxide equivalent
COP	Conference of the Parties
COSIS	Commission of Small Island States on Climate Change and International Law
CRC	Convention on the Rights of Child
CRPD	Convention on the Rights of Persons with Disabilities
CRRP	Climate Rights and Remedies Project
CSDDD	Corporate Sustainability Due Diligence Directive
CSRD	Corporate Sustainability Reporting Directive
CUP	Cambridge University Press

DETEC	Swiss Federal Department of the Environment, Transport, Energy and Communications
ECB	European Central Bank
ECHR	European Convention on Human Rights
ECJ	European Court of Justice
ECtHR	European Court of Human Rights
EIOPA	European Insurance and Occupational Pensions Authority
EPA	United States Environmental Protection Agency
ESRS	European Sustainability Reporting Standards
EU	European Union
EUR	Euro
EWHC	England and Wales High Court
GBP	British pound sterling
GCC	German Constitutional Court
GHG	greenhouse gas(es)
GNP	Gross National Product
GWP	Global Warming Adapter
HRC	United Nations Human Rights Committee
IACtHR	Inter-American Court of Human Rights
ICC	International Criminal Court
ICCPR	International Covenant on Civil and Political Rights
ICERD	International Convention on the Elimination of all Forms of Racial Discrimination
ICESCR	International Covenant on Economic Social and Cultural Rights
ICJ	International Court of Justice
ICSID	International Centre for Settlement of Investment Disputes
IFRS	International Financial Reporting Standards Foundation
ILC	International Law Commission
ILM	International Legal Materials
IPCC	Intergovernmental Panel on Climate Change
IPRG	Swiss Federal Act on Private International Law of 18 December 1987, SR 291 *(Bundesgesetz über das Internationale Privatrecht)*
ISSB	International Sustainability Standards Board
ITLOS	International Tribunal for the Law of the Sea
IWG	Interagency Working Group
KSG	German Klimaschutzgesetz
L&D	Loss and Damage
LC	Lugano Convention
MPEPIL	The Max Plank Encyclopedia of Public International Law

MPF	*Ministério Público Federal* (Brazilian Public Prosecutor's Office)
NDC	Nationally Determined Contribution(s)
NECP	National Energy and Climate Plan
NGO	non-governmental organization
OAS	Organization of American States
OECD	Organisation for Economic Co-operation and Development
OHCHR	Office of the High Commissioner for Human Rights
OUP	Oxford University Press
OVG	Higher Administrative Court (Germany)
PCA	Permanent Court of Arbitration
PCIJ	Permanent Court of International Justice
PFAS	per- and polyfluoroalkyl substances
R$	Brazilian Reais
RDS	Royal Dutch Shell
SCC	Social Cost of Carbon
SFDR	Sustainable Finance Disclosure Regulation
SKCC	South Korean Constitutional Court
SRF	Schweizer Radio und Fernsehen
TCFD	Task Force on Climate-Related Financial Disclosures
UDHR	Universal Declaration of Human Rights
UK	United Kingdom
UKHL	United Kingdom House of Lords
UKSC	United Kingdom Supreme Court
UN	United Nations
UNCC	United Nations Compensation Commission
UNCLOS	UN Convention on the Law of the Sea
UNDP	United Nations Development Programme
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNGA	United Nations General Assembly
UNHCHR	United Nations High Commissioner for Human Rights
UNRIAA	Reports of International Arbitral Awards
UNTS	United Nations Treaty Series
US	United States of America
USC	United States Code
USD	United States dollars
VCLT	Vienna Convention on the Law of Treaties
VSL	Value of a Statistical Life
WIM	Warsaw International Mechanism for Loss and Damage

Helen Keller and Corina Heri

Introduction

1. Climate Risks Are a Reality

This chapter was written after the end of *another* year of record-breaking meteorological observations.[1] The global average temperature in 2024 rose by over 1.6° Celsius (C) above pre-industrial levels,[2] thereby making this year the new record-holder after 2023.[3] In its most significant contribution on the topic of climate risks and impacts to date, Working Group II of the Intergovernmental Panel on Climate Change (IPCC) noted in 2022 that, since its previous assessment eight years ago, climate risks are appearing faster and will get more severe sooner.[4] With respect to near-term risks, this 2022 report noted that global warming reaching 1.5°C would cause "unavoidable increases in multiple climate hazards and present multiple risks to ecosystems and humans."[5]

While the IPCC's report discusses impacts and risks in general, advances in attribution science have made it possible to link individual extreme events like forest fires, cyclones and heatwaves to climate change. From the 2019–2020 bushfire in Australia to the 2025 wildfire disaster in California in the United States,[6] it has been shown that climate change increases the risk of such events.[7] In a similar vein, scientists were able to quantify that more than half of the over 68,000 heat-related deaths that took place in Europe during the summer

1 Friederike EL Otto and others, 'When Risks Become Reality: Extreme Weather In 2024' (Climate Central and World Weather Attribution, 27 December 2024).

2 Copernicus Climate Change Service, 'Global Climate Highlights 2024' (10 January 2025).

3 Copernicus Climate Change Service, '2023 Global Climate Highlights' (9 January 2024).

4 Hans-Otto Pörtner and others, '2022: Technical Summary' in Hans-Otto Pörtner and others (eds), *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022) 37, 45.

5 Hans-Otto Pörtner and others (eds), '2022: Summary for Policymakers' in *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022) 3, B.3.

6 Clair Barnes and others, 'Climate Change Increased the Likelihood of Wildfire Disaster in Highly Exposed Los Angeles Area' (28 January 2025).

7 Geert Jan van Oldenborgh and others, 'Attribution of the Australian Bushfire Risk to Anthropogenic Climate Change,' (2021) 21(3) NHESS 941.

of 2022 would not have occurred without anthropogenic global warming.[8] Another attribution study estimated that about 4 billion USD in damage caused by Typhoon Hagibis in 2019 could be attributed to climate change.[9]

Today, climate risks are an undeniable reality. As climate litigation proliferates across fora and jurisdictions, litigation seeking reparations for climate harms stands out as a new frontier. Before introducing how this topic will be addressed in the present volume, the present introduction briefly reflects on the evolution of climate law, progress in climate action, and climate litigation over the years, given how interconnected these topics are with the themes explored in this volume.

2. Climate Law and Action: Our Collective Progress Report

The ultimate objective of the 1992 United Nations Framework Convention on Climate Change (UNFCCC),[10] the first international treaty addressing the risks of climate change, was described as the "stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[11] The treaty's focus was on risk mitigation, and a proactive effort by the Alliance of Small Island States (AOSIS) to insert a provision on a legal mechanism for dealing with loss and damage should these risks materialize[12] was unsuccessful. Climate mitigation, equitable principles for burden sharing and the freedom of developing countries to develop occupied the center stage of the negotiations.

Over the years, the UNFCCC's supreme decision-making body, known as the Conference of Parties (COP), has been adopting decisions for the effective implementation of this treaty. Through these decisions, which responded to the latest scientific findings of the IPCC, the ultimate objective mentioned above became more specific.[13] During the 15th COP held in 2010 in Copenhagen,

8 Thessa M Beck and others, 'Mortality Burden Attributed to Anthropogenic Warming during Europe's 2022 Record-breaking Summer' (2024) 7 NPJ Climate and Atmospheric Science 1.

9 Sihan Li and Friederike EL Otto, 'The Role of Human-induced Climate Change in Heavy Rainfall Events Such as the One Associated with Typhoon Hagibis' (2022) 172 Climate Change 6.

10 United Nations Framework Convention on Climate Change (adopted 29 May 1992, entered into force 21 March 1994) 1771 UNTS 107, preamble, para 3.

11 *Ibid*. art. 2.

12 UNFCCC Secretariat, 'Consolidated Working Document: Addendum, Annex: V, Insurance Mechanism' (19 December 1991) UN Doc. A/AC.237/Misc.17/Add.9.

13 COP, 'Decision 2/CP.15 Copenhagen Accord' (30 March 2010) UN Doc FCCC/CP/2009/11/Add.1, para 2.

parties to the UNFCCC reached a consensus that the treaty's ultimate objective could be expressed in terms of a negative temperature target (ie a threshold that must not be crossed) of avoiding a global average temperature increase of 2°C above pre-industrial levels. The Copenhagen Accord invited parties to submit pledges for GHG emission reductions, and called for a periodic review to consider "strengthening [this] long-term goal" considering scientific findings "in relation to temperature rises of 1.5 degrees Celsius."[14] Recognizing the risk of catastrophic levels of harm which would follow upon exceeding 1.5°C, the 21st COP in Paris concluded the following as the goal of the 2015 Paris Agreement:

> Holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change.[15]

Notwithstanding the variance in the language surrounding the two temperature targets, we at least have internationally agreed upon anchors based on which the adequacy of states' mitigation pledges can be evaluated. This made headway in the development of international climate law. As concerns efforts to meet the UNFCCC's ultimate objective, however, collective progress thus far paints a less rosy picture. In 2023, the United Nations Environmental Programme (UNEP) gave an apt title to its annual assessment report on the gap between countries' greenhouse gas (GHG) emissions reductions pledges, their Nationally Determined Contributions (NDCs), and the emissions reductions required to avoid reaching the 2°C temperature threshold by the end of the century: *Broken Record*. The Anthropocene had just witnessed record-breaking numbers in terms of rises in temperature and concentrations of GHG emissions. And like a broken record, the UNEP was forced to tell the same story as it did in its previous emissions gap reports, namely that current policies point to a temperature rise above 2°C by the end of the century. In writing this introduction, and although we risk sounding like a broken record ourselves, we must reiterate that the need for an interdisciplinary discussion on solutions to the problems posed by climate change is more pressing than ever.

Under the international climate treaty regime, discussions on solutions are organized around three pillars of climate change law and governance, viz. 'mitigation,' 'adaptation' and 'loss and damage' (L&D), which we can view as

14 *Ibid.* para 12.

15 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) 3156 UNTS 107, art 2(1)(a).

three ramparts in a fortress.[16] As discussed above, the outermost rampart of mitigation has not progressed to the point required to stave off the fundamental threats posed by climate change. Although the ambitiousness of states' mitigation commitments is ramping up,[17] the pace is frustratingly slow relative to the climate disaster that we are barreling towards. While the story of institutional response to climate change has been framed in different ways,[18] it has primarily been one of institutional failure.[19] The states most vulnerable to the adverse impacts of climate change, concerned individuals and civil society may lack the means to bring about direct change. However, they have increasingly resorted to climate litigation to boost their odds in the fight against institutional failures and political deadlock.[20] More and more national and international climate litigation has been occurring over the last two decades, with increasing diversity in the nature of the legal claims being brought.[21]

3. Climate Litigation

The latest developments from across several jurisdictions show that courts are increasingly asserting their role in adjudicating issues related to climate change. Amongst the most high-profile examples of this is the European Court of Human Rights (ECtHR), which endorsed the view jointly expressed by UN Special Rapporteurs and a UN Independent Expert[22] that "the question is no longer whether, but how, human rights courts should address the impacts of environmental harms on the enjoyment of human rights."[23] *KlimaSeniorinnen and Others v Switzerland* became the first case in the category of litigation against

16 Morten Broberg, 'Interpreting the UNFCCC's Provisions on "Mitigation" and "Adaptation" in Light of the Paris Agreement's Provision on "Loss and Damage"' (2020) 20 Climate Policy 527, 528.

17 UNFCCC Secretariat, '2023 NDC Synthesis Report' (14 November 2023) UN Doc. FCCC/PA/CMA/2023/12, para 9.

18 Sanja Bogojević, 'Legal Dilemmas of Climate Action' (2023) 35(1) Journal of Environmental Law 1; Anne Saab, 'Discourses of Fear on Climate Change in International Human Rights Law' (2023) 34 European Journal of International Law 113.

19 Elizabeth Fisher, 'Climate Change Litigation, Obsession and Expertise: Reflecting on the Scholarly Response to Massachusetts v EPA' (2013) 35 Law & Policy 236, 240–241; Mark A. Maslin, John Lang and Fiona Harvey, 'A Short History of the Successes and Failures of the International Climate Change Negotiations' (2023) 5 UCL Open Environment 1.

20 United Nations Environment Program, 'Global Climate Litigation Report: 2023 Status Review' (27 July 2023).

21 Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2023 Snapshot' (June 2023).

22 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR), paras 378–379.

23 *Ibid*. [451].

states on the issue of climate change mitigation where an international court found a breach of international obligations. The ECtHR recognized that Contracting States must take measures for the substantial and progressive reduction of GHGs,[24] supplemented with adaptation measures aimed at alleviating the most severe or imminent consequences of climate change,[25] as part of their positive obligations under the European Convention of Human Rights (ECHR).

While there are no inter-state contentious cases on the issue of climate change yet, four international courts have also been asked to issue advisory opinions on the content of climate change-related obligations. While the Inter-American Court of Human Rights (IACtHR),[26] the International Court of Justice (ICJ)[27] and the African Court on Human and Peoples' Rights (ACtHPR)[28] were yet to reply to these requests at the time of writing (concluding on 30 June 2025), the International Tribunal for the Law of the Sea (ITLOS) issued an advisory opinion at the request of the Commission of Small Island States on Climate Change and International Law (COSIS) in 2024. The Tribunal replied unanimously that anthropogenic GHG emissions into the atmosphere fall under the definition of "pollution to the marine environment"[29] in Article 1(1)(4) of the 1982 UN Convention on the Law of the Sea (UNCLOS), that Article 194(1) of the UNCLOS provides for "specific obligations to take all necessary measures to prevent, reduce and control marine pollution from anthropogenic GHG emissions and to endeavor to harmonize their policies in this connection,"[30] and that more stringent due diligence obligations exist in respect of the obligation to prevent transboundary damage due to pollution from sources of GHG emissions within states parties' territories under Article 194(2) of the UNCLOS.[31]

The climate advisory opinion request to the ITLOS did not mention reparations, but instead focused on the scope of preventive and protective

24 *Ibid*. [548].

25 *Ibid*. [552].

26 *Advisory Opinion OC-32/25 on Climate Emergency and Human Rights* (Inter-American Court of Human Rights, 29 May 2025) was issued after work on the volume was concluded.

27 Request for an Advisory Opinion on the Obligations of States in Respect of Climate Change, transmitted to the Court pursuant to UNGA Res 77/276 (29 March 2023) UN Doc A/RES/77/276.

28 African Court on Human and Peoples' Rights, *Request for an Advisory Opinion on the Human Rights Obligations of African States in Addressing the Climate Crisis*, filed 2 May 2025 (pending).

29 Request for an Advisory Opinion Submitted by the Commission on Small Island States on Climate Change and International Law (Advisory Opinion, 21 May 2024) ITLOS Reports 2024, 1 [179].

30 *Ibid*. [243].

31 *Ibid*. [258].

obligations under the UNCLOS.[32] By contrast, the requests to the IACtHR and ACtHPR both referenced the need to clarify legal obligations around reparation.[33] The clearest focus on reparations was made in the request to the ICJ, which particularly foregrounds the need for advice as to the *legal consequences* of breaches of climate change-related obligations which have caused "significant harm to the climate system and other parts of the environment."[34] Reparations for climate change-related L&D have been a contested issue in the hearings before the ICJ, with for example the Nordic countries rejecting climate reparations as a non-starter due to the implausibility of the requirements of state responsibility being met.[35] A majority of the written submissions from states address "compensation,"[36] with vulnerable countries emphatically arguing in support of compensation as necessarily forming part of the reparations to be borne by states responsible for breaching international law through their climate contributions.

On the domestic level, there is also an increase in cases against corporations responsible for the emission of large proportions of GHGs, seeking to hold them liable for not having performed their duty to mitigate the GHG emissions under their control, or for causing climate-related L&D.[37] These cases are yet to result in judgments where a corporation is ordered to take remedial measures or pay damages for the costs of adaptation or for climate-related L&D. Beyond high-profile cases such as for example the Dutch *Milieudefensie* case,[38] which is discussed at length by Valentin Jentsch in chapter 15 of this volume, there are several cases at lower levels of governance, for example challenging environmental permits, which are arguably equally important but fly under the radar.[39]

32 COSIS, 'Request for Advisory Opinion' submitted to ITLOS on 12 December 2022.

33 Request for an Advisory Opinion on the Climate Emergency and Human Rights submitted to the Inter-American Court of Human Rights by the Republic of Colombia and the Republic of Chile (9 January 2023), question F.2; ACtHPR, Request for an Advisory Opinion (n 28), 40.

34 UNGA Res 77/276 (n 27).

35 Obligations of States in respect of Climate Change (Advisory Opinion), Verbatim Record CR 2024/39, 5 December 2024, ICJ, 52–55.

36 Thomas Burri, 'Data from Submissions of Participants to the International Court of Justice Advisory Proceedings on Climate Change Law' (2024) Mendeley Data, V2, DOI: 10.17632/f997hfnhjk.2.

37 Global Climate Litigation Report: 2023 Status Review (n 20) at 50.

38 The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al*, 12 November 2024, ECLI:NL:GHDHA:2024:2100.

39 Kim Bouwer, 'The Unsexy Future of Climate Change Litigation' (2018) 30 Journal of Environmental Law 483.

4. Litigating for Climate Reparations

In light of these developments and acknowledging the emerging discourse on litigation seeking reparations for climate-related L&D, the present volume invites legal scholars with expertise in different disciplines to reflect on the idea of "successful" climate litigation. This prompts consideration of different kinds of questions. What outcomes can we realistically expect from individual cases of climate litigation on the one hand, and from climate litigation as a "movement" on the other? Does success necessarily hinge on the remedies that courts can order? And importantly, can these remedies encapsulate reparations for climate-related L&D? Furthermore, an evaluation of prospects without consideration of the costs entailed in the pursuit of successful climate litigation is half-baked. So, can climate litigation integrate concerns of global distributive injustices, the vulnerabilities of certain groups of persons, ecocentrism, and effects on the (international) rule of law? Can courts ensure reparations for the wrongs entailed in states' and corporations' contributions towards climate change, or do the aforementioned concerns prevent full and fair climate reparations from becoming a reality?

To enable discourse that moves from abstractions to concrete ideas, and to promote a streamlined discussion, we presented authors with ten different hypothetical climate litigation scenarios. The merits of this approach consist not merely in exploring unsettled legal issues and speculating on how complex questions may be resolved, but also in stimulating critical thinking about potential reforms to current legal systems around shared problems. We would be remiss not to mention a collection edited by Francesco Sindico and Makane Moïse Mbengue which followed a similar approach, with contributions from scholars across the globe sharing scenario-based analyses of climate litigation from national legal perspectives.[40] However, our project differs from theirs in a number of respects. To mention a few, we encouraged authors to adopt an *à la carte* approach with respect to the hypothetical scenarios on which they wished to reflect, and to focus on concrete (and, to a large extent, visible) outcomes. We do not aim to present a comprehensive picture of what climate litigation can (potentially) look like in various domestic contexts. Rather, our aim is to collect insights on approaches to assessment and valuation of climate-related harms, and the potentials and pitfalls of litigation for climate reparations in different fora and against different categories of respondents. The ten hypothetical scenarios can be found in the next chapter. These cover the ECtHR,

40 Francesco Sindico and Makane Moïse Mbengue (eds), *Comparative Climate Change Litigation: Beyond the Usual Suspects* (Springer 2021).

IACtHR, the UN Committee on Economic, Social and Cultural Rights, ITLOS, the ICJ and domestic settings, as well as a range of different kinds of claims.

This volume is particularly keen on advancing legal understandings of reparations for climate-related harms. In this respect, developments in international law have moved at a snail's pace, notwithstanding L&D's growing importance over the years as an agenda item in various successive COPs.[41] Currently, L&D stands out as a hotbed for frustrations about the perceived injustice of multilaterally negotiated resolutions.[42] As a result of this frustration, affected states and individuals may wish to turn to litigation to ensure accountability for climate-related harms.[43] However, it is not apparent whether the challenges facing such pursuits are surmountable.

In the context of redressing breaches of international environmental law more generally, a litigation-based approach has been characterized as having several disadvantages when it comes to holding states responsible.[44] For climate-related L&D, challenges begin from a lack of clarity on whether international law norms exist which may have been breached, and if so, which states can be identified and moved against for having committed a breach. Doctrinal questions aside, concerns about the role of judicial bodies in the network of actors whose outputs affect the international negotiation process may be raised. Judicial dispute resolution is further complicated by the requirement for judges to engage with scientific evidence to establish causation (in law),[45] and valuation of climate-related L&D which has already occurred as well as that which is risked.

41 Elisa Calliari et al, 'Article 8: Loss and Damage' in Geert Van Calster and Leonie Reins (eds), *The Paris Agreement on Climate Change* (Edward Elgar 2021) 200.

42 On the negotiations underlying the drafting of Article 8 of the Paris Agreement, which is the first-ever treaty provision on the issue of L&D, see Maxine Burkett, 'Reading between the Red Lines: Loss and Damage and the Paris Outcome' (2016) 6 Climate Law 118.

43 Charter of the United Nations (1945), art 33; no provision in the UNFCCC or the Paris Agreement expressly prevents state parties from pursuing avenues outside the framework of the UNFCCC to claim compensation for climate-related harms. In this regard, it is worth highlighting the interpretive declarations in the instruments of ratification of the Paris Agreement submitted by Bolivia, Cook Islands, Fiji, Niue, The Philippines, Marshall Islands, Micronesia, Nauru, Solomon Islands, Tuvalu.

44 Alan Boyle and Catherine Redgwell, *Birnie, Boyle, and Redgwell's International Law and the Environment* (4th edn, OUP 2021) 220.

45 Standards or tests for establishing causation may vary depending on the context (causation to prove the commission of an internationally wrongful act, versus causation between injury and damage), as well as the legal system). On this, see Andrea Gattini, 'Breach of International Obligations' in André Nollkaemper and Ilias Plakokefalos (eds), *Principles of Shared Responsibility in International Law: An Appraisal of the State of the Art* (CUP 2014) 28; Ilias Plakokefalos, 'Causation in the Law of State Responsibility and the Problem of Overdetermination: In Search of Clarity' (2015) 26 European Journal of International Law 471.

Given that the interests of concern are not limited to present lives, property, and territory, but also future generations' interests, ecological services, and (Indigenous) peoples' right to transmit their culture and cultural heritage, questions of whether and to what extent decisions on reparations do justice to injured individuals, peoples, and states need to be explored. For example, at the ICJ, beyond the usual forms of reparations listed in the Articles on State Responsibility for Internationally Wrongful Acts (ARSIWA),[46] states have proposed technology transfers,[47] debt-for-climate swaps[48] or debt forgiveness[49] and non-monetary redress for climate-induced displacement.[50]

The relevance of these ideas for the practice of international courts is further evidenced by the ECtHR's remedial practice, which is yet to find an appropriate way to ensure full redress for environmental harms. The ECtHR typically limits remedies to declarations of violation, granting pecuniary damages in some rare environmental cases and non-pecuniary damages in exceptional (very grave) cases.[51] The *KlimaSeniorinnen* case suggests that the Court may not utilize its power to order general measures in follow-up climate cases, and the judgment in that case has triggered a contentious debate before the Committee of Ministers as to whether the Swiss government has indeed complied with its obligation to remedy the violation identified by the Court.[52]

More innovative approaches can be found in the IACtHR's remedial practice, which contains several examples of 'creative' non-compensatory remedies,[53] including specific measures for reparation of collective harms,[54]

46 These are cessation, restitution, compensation and satisfaction (ILC, Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries (2001) *Yearbook of the International Law Commission* (vol II, part two) arts 34-37).

47 Written Statement of Viet Nam, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (22 March 2024), paras 10-12; Written Statement of the African Union, Obligations of States in respect of Climate Change (Request for an Advisory Opinion), para 278.

48 Written Statement of Colombia, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (11 March 2024), para 4.15.

49 Written Statement of Kenya, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (22 March 2024), para 6.112.

50 Written Statement of Vanuatu, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (21 March 2024), para 582.

51 Helen Keller, Corina Heri and Réka Piskóty, 'Something Ventured, Nothing Gained? Remedies Before the ECtHR and their Potential for Climate Change Cases' (2022) 22 Human Rights Law Review 1.

52 HUDOC Execution Database, *Verein KlimaSeniorinnen Schweiz and Others v Switzerland*.

53 Başak Çalı, 'Explaining Variation in the Intrusiveness of Regional Human Rights Remedies in Domestic Orders' (2018) 16 International Journal of Constitutional Law 214, 218.

54 *Plan de Sánchez Massacre v Guatemala*, Reparations and Costs (Inter-American Court of Human Rights Series C No. 105, 19 November 2004) [125].

restitution of ancestral land to indigenous communities and establishment of community development funds.[55] Often, the IACtHR insists on compliance with these orders within a specified time-limit,[56] although the rate of compliance is alarmingly low.[57] Compliance concerns form yet another factor in assessing the content of possible reparations orders, among other limitations of litigating for climate reparations.

These issues are examined in the present volume, which we hope enables readers to critically assess the merits of litigation for seeking climate reparations. The book is organized into four parts, each representing a theme. The first is about assessment of risks and the valuation of climate related harms, with approaches from climate economics, psychology, and insurance law. The section begins with Francesca Leucci's contribution, which elaborates on techniques developed in climate economics and argues for their application in the valuation of climate-related damage by courts (chapter 1). Alberto Monti's contribution on the other hand approaches the topic of valuation from the perspective of the insurance and financial sectors, which are themselves exposed to climate-related risks but also called upon to play a crucial role in the management of these same risks (chapter 2). Addressing valuation from a different angle, Arden Rowell's contribution highlights the problems that psychological factors pose to legal appreciation of risks and valuation of climate-related damage. Her chapter speaks to the importance of quantitative valuation of climate harms, with an emphasis on the need for uncovering and understanding the ethical choices involved at each step of the process (chapter 3). Lastly, Jason Rudall's analysis focuses on the various types of damage captured under the law of reparations and the practical challenges international courts and tribunals such as the ICJ face in ensuring that environmental damage is fully repaired (chapter 4).

The second part contains contributions which focus on rights-based climate litigation. The chapters in this section show how the different authors understand "success" in this context. Jannika Jahn's contribution analyzes the *Neubauer et al* case decided by the German Federal Constitutional Court (chapter 6), April Williamson and others present a comparative analysis of the impacts of cases in different jurisdictions (chapter 7), and Charlotte E. Blattner's

55 Joel E Correia, 'Land Matters: How Indigenous Land Restitution Can Inform Loss and Damage Policy and Chart a Path Toward an Otherwise Climate Justice' (2024) 16 Climate and Development 811, 815.

56 Çalı (n 53), 218.

57 Gabriela CB Navarro, 'The Struggle after the Victory: Non-compliance in the Inter-American Court of Human Rights' Jurisprudence on Indigenous Territorial Rights' (2021) 12 Journal of International Dispute Settlement 223, 233-236.

contribution analyzes the outcome and impacts of the *KlimaSeniorinnen* case decided by the European Court of Human Rights (chapter 8).

The third part presents critical perspectives on reparations for climate related-harms. This section begins with a contribution from Yusra Suedi, in which she assesses the challenges entailed in inter-state litigation for climate reparations and makes the case for why such efforts cannot be written off as futile (chapter 10). This is followed by Usha Natarajan's analysis of important aspects of climate reparations that international law fails to capture, and assumptions in international environmental law which lead to the reproduction of the environmental problems it seeks to resolve (chapter 11). Natarajan argues that while international legal regimes and dispute settlement mechanisms operate in favor of the powerful, litigation is still valuable to the victims of climate injustice given that courts are theatres of immense symbolic power. Next, Linnéa Nordlander analyzes the prospects for compensatory relief in different types of climate litigation. Striking a different tone than the preceding chapters, Nordlander argues that litigation offers limited hope to global victims of climate-related loss and damage, whose needs would more reliably be addressed through an international loss and damage fund (chapter 12). Applying a relational approach to scrutinize climate litigation, Sara Seck's contribution sheds light on how the prevalence of a certain frame in legal discourse, which ignores the social and ecological embeddedness of individuals, workers, corporations, the state and other legal actors, affects actors' understanding of loss and damage in climate litigation, and monetization of climate harms (chapter 13).

The fourth and last part of this volume focuses on litigation against corporate actors. It starts with Valentin Jentsch's analysis of legal questions arising in different types of climate cases brought against corporations (chapter 15). This is followed by Josephine van Zeben's chapter, which considers the challenges of corporate climate litigation, and argues that the pathway towards accountability through litigation requires the development of a common legal framework that bridges the public-private divide (chapter 16). Lastly, Monika Hinteregger's contribution contrasts the prospects of litigation brought by victims of climate change against those of shareholder-led litigation, which she argues we will see much more of in the future (chapter 17).

Each of these four parts is completed by a reflection chapter from, respectively, Viktoriya Gurash, Hazhar Jamali, Pranav Ganesan and Judge Larisa Alwin (chapters 5, 9, 14, and 18 respectively). These interim reflections capture the core issues of the debate concerning each of the four themes directly at the end of each part, rather than leaving them unaddressed until the end of the book. The final chapter of this volume then synthesizes the ideas discussed

by the various contributors. In this concluding chapter, we attempt to place the various ideas presented throughout the volume in a broader context, highlight the limitations of climate litigation and formulate questions for further research on this topic, which has now turned into a specialized field of legal research in its own right.

Helen Keller, Corina Heri and Pranav Ganesan

Model Scenarios

Scenario 1: Valuing loss of quality of life, and increased health risks

An association of elderly people residing in the State of X, a state party to the European Convention on Human Rights (ECHR) and all protocols to that Convention, have filed an application against X before the European Court of Human Rights (ECtHR). They allege that X is partly responsible for violations of their rights under Articles 2, 3 and 8 of the ECHR arising from adverse events linked to climate change. Beyond seeking to hold the respondent responsible for its inadequate mitigation measures, they seek a just satisfaction award as reparation for the damage that they have already suffered and will inevitably suffer in the future.

The applicants argue that climate change has already negatively impacted their lives, as heatwaves have produced specific health impairments and generally reduced their quality of life. They also argue that they face an increased risk of mortality that cannot be fully averted even if the respondent state takes the most ambitious mitigation measures possible. That is, while mitigation measures could contribute towards minimizing these harms, they would not avert them fully. Lastly, they seek compensation for the cost of proceedings given the complex nature of climate change litigation (which involves more groundwork and research than environmental pollution litigation, as well as interdisciplinary exchange with experts).

This scenario is based on the facts in the case of *KlimaSeniorinnen and Others v Switzerland,* which the ECtHR decided after we began this project.[1] While the ECtHR decided against the individual applicants regarding their victim status, it did not rule out the possibility that individuals could qualify as victims in future climate cases. Likewise, it held that state parties to the ECHR have a positive obligation to adopt measures and regulations capable of mitigating the present and future adverse effects of climate change, effectively implement those regulations and measures, and take supplementary adaptation measures to protect individuals from unavoidable risks. While the question of

1 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR).

substantive obligations was answered in this way, the precise content of these obligations is debated, as is the issue of the ECtHR's exercise of its remedial powers in climate cases.

Scenario 2: Valuing loss of the ability to enjoy, practice and pass down culture

Members of the Sámi indigenous people living within Norway's territory bring a case to the ECtHR, alleging that elements of their culture and traditional way of life stand to be affected by climate change. They seek to hold Norway responsible for violating Article 8 ECHR by granting new fossil fuel licenses. They submit that while the cultural rights of minority groups (eg under Article 27 of the International Covenant on Civil and Political Rights [ICCPR]) have not been explicitly recognized in the ECHR, a right to the protection of culture can arguably be derived from the Convention's Article 8, as can a right to the protection of health. The applicants urge the ECtHR to make reparations for the adverse impacts on the practice of their culture.

They draw on the case of *Billy et al v. Australia,*[2] where members of an Indigenous community living in the Torres Strait complained before the UN Human Rights Committee that Australia had violated their ICCPR rights given climate-related "flooding and inundation [on the applicants'] villages and ancestral burial lands; destruction or withering of their traditional gardens through salinification caused by flooding or seawater ingress; decline of nutritionally and culturally important marine species and associated coral bleaching and ocean acidification."[3]

This scenario invites engagement with the assessment of the effects of climate change on individuals' ability to participate in cultural life and cultural heritage more broadly, as well as the ability for courts like the ECtHR to recognize this dimension of climate impacts and consequently adjust their adjudication of climate cases.

Scenario 3: Valuing loss of property

An association of farmers who own large tracts of agricultural land in Sicily, Italy, turn to domestic courts seeking redress for climate-related impacts on their land. They argue that the ongoing water crisis, which they link with

2 UN Human Rights Committee, *Billy et al v Australia,* 22 September 2022, UN Doc CCPR/C/135/D/3624/2019.

3 *Ibid*. [8.12].

climate change, has affected their harvests. They also point to the high risk of desertification of their land in the near future. Connecting these risks with climate change, and thereby with the emission of greenhouse gases from within Italy's jurisdiction, they allege a violation of their constitutional right to property, as well as Article 1, Protocol No. 1 ECHR. They argue that the appropriate remedy to be ordered by the Italian Constitutional Court should entail a combination of mitigation measures, adaptation measures, and compensation for lost profits and loss in value of the land.

This scenario illustrates the complexity arising from the relationship of climate mitigation and adaptation, as well as the valuation of damage to property caused by slow-onset events, and loss of profits. Notably, since the model scenarios were designed, a case resembling this scenario was brought before Swiss domestic courts by a group of farmers alleging the impacts of drought on their livelihoods.[4]

Scenario 4: Just transition litigation

Article 11 of the International Covenant on Economic, Social and Cultural Rights (ICESCR)[5] provides for the right to the continuous improvement of living conditions (alongside the right to an adequate standard of living for the individual and their family). The Committee on Economic, Social and Cultural Rights (CESCR) receives a communication against a state party to the ICESCR, and its Optional Protocol,[6] from individuals alleging a violation of this right in relation to climate change. The authors of this Communication argue that the effects of climate change are diametrically opposite to the continuous improvement of their and others' living conditions and urge the Committee to assess the climate-related damage to these conditions and to set up a loss and damage fund accessible to affected individuals (not just within the respondent State's territory, but also those beyond).[7]

CESCR has not received any communications regarding environmental issues, much less climate change. Still, it has clearly indicated that respect for

4 Swiss Federal Administrative Court, *Uniterre et al v Swiss Department of the Environment (Swiss Farmers Case),* filed 23 October 2024 (pending).

5 International Covenant on Economic, Social and Cultural Rights (adopted 16 December 1966, entered into force 3 January 1976) 993 UNTS 3 (ICESCR).

6 Optional Protocol to the International Covenant on Economic, Social and Cultural Rights (adopted 10 December 2008, entered into force 5 May 2013), 2922 UNTS 29.

7 On the basis of the CRC's views in *Sacchi et al* (UN Committee on the Rights of the Child, *Sacchi et al v Argentina et al,* 22 September 2021, UN Doc CRC/C/88/D/104/2019 et al) and the IACtHR's *Advisory Opinion OC-23/17 on the Right to a Healthy Environment* (Inter-American Court of Human Rights, 15 November 2017).

human rights includes "refraining from the adoption of measures that could worsen climate change; protecting human rights, by effectively regulating private actors to ensure that their actions do not worsen climate change; and fulfilling human rights, by adopting policies that can channel modes of production and consumption towards a more environmentally sustainable pathway."[8] Since the Committee has flown under the radar as a potential venue for litigation of human rights violations caused by climate inaction, we found it important to include a standalone scenario such as this. The aim is for the participating authors to evaluate the potential of arguments based on social, economic and cultural rights.

Scenario 5: Collective remedies, and the rights of future generations

A collective of Indigenous peoples brings a case against Mexico, a member of the Organization of American States and a party to the American Convention on Human Rights, before the Inter-American Commission on Human Rights, alleging that by failing to adequately mitigate greenhouse gas emissions, the State is violating and will continue to violate their human right to a healthy environment, along with their right to life, food, water, cultural identity and property. They bring the case on their own behalf, and on behalf of future generations. They support their case by drawing on the best available scientific models, peer-reviewed IPCC findings and assessments by non-governmental organizations such as the Climate Action Tracker[9] that all show that Mexico's mitigation commitments are insufficient when evaluated against the Paris Agreement's temperature target of 1.5°C. Drawing on the past case-law of the Inter-American Court of Human Rights (IACtHR), the plaintiffs seek both individualized economic reparations and collective, community-wide ones.

The IACtHR's practice on reparations stands apart from that of other international courts in terms of innovation.[10] In its environmental case law, this Court has specifically ordered the adoption of a robust environmental compensation plan, even detailing the quality that such a plan must reflect.[11]

8 CESCR, 'Climate Change and the International Covenant on Economic, Social and Cultural Rights', 31 October 2018, UN Doc. E/C.12/2018/1, para 10.

9 Climate Action Tracker, 'Methodology'.

10 Gina Donoso, 'Inter-American Court of Human Rights' Reparation Judgments: Strengths and Challenges for a Comprehensive Approach' (2009) 49 Revista IIDH 29; David Attanasio, 'Extraordinary Reparations, Legitimacy, and the Inter-American Court' (2016) 37 University of Pennsylvania Journal of International Law 813.

11 *Inhabitants of La Oroya v Peru* (Inter-American Court of Human Rights Series C No. 511, 27 November 2023) [351].

Considering the complexity entailed in determining what individual states must do in regard to climate mitigation and adaptation measures, this scenario invites consideration of the IACtHR as a potential inspiration for other international courts and especially the ECtHR[12] in regard to remedial measures.

Scenario 6: ITLOS

Small Island State v. Flag State is a hypothetical case before the International Tribunal for the Law of the Sea (ITLOS) concerning environmental damage to maritime environments and fishing caused by an oil tanker accident. The applicant State argues that *restitutio in integrum* may not be possible here, but that it should be granted full reparation with interest under an ecosystem goods and services approach.

Since it concerns the problem of environmental damage in an ocean pollution case rather than a climate case, this scenario invites authors to identify and propose solutions to the basic problems associated with environmental damage valuation in inter-state cases, where the harm is not strictly limited to the boundaries of the affected state but impacts the global commons as well. It also invites reflection on the contentious potential of ITLOS after its climate advisory opinion.[13]

Scenario 7: Inter-state litigation on transboundary harm and historical emissions

Peru brings a case against Brazil before the International Court of Justice (ICJ) alleging that the latter has breached its duty not to cause significant transboundary harm to the environment by failing to take the required protection measures in respect of the Amazon rainforest. In particular, it points to Brazil's failure to prevent illegal deforestation and forest fires, and notes that – like all states – Brazil has known about the devastating effects of anthropogenic climate change since at least 1990.

Owing to its high vulnerability to the adverse effects of climate change, Peru supports its standing as a specially affected state. Aside from a declaration that Brazil violated international law, it requests the Court to order compensation for the harm to Peru's environment that is causally related to Brazil's wrongful conduct, including for climate-related loss and damage suffered by Peru.

12 *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* (n 1) [653]-[657].

13 *Request for an Advisory Opinion Submitted by the Commission on Small Island States on Climate Change and International Law* (Advisory Opinion, 21 May 2024) ITLOS Reports 2024, 1 [179].

While the natural resources within a state's territory are subject to its permanent sovereignty, their mismanagement may produce transboundary effects on *erga omnes* interests such as biodiversity, populations of migratory species, and of course, the atmosphere.[14] Therefore, can states that are vulnerable to the effects of climate change succeed before an international court in seeking reparations from other states for their (gross) mismanagement of crucial carbon sinks?

Scenario 8: Civil liability of corporations for climate adaptation costs and damage

In the case of *Asmania et al v. Holcim,*[15] four residents of the Indonesian island of Pari have sued the Swiss-based building materials manufacturer Holcim for its contribution to climate change, and for current and future harms to which it has thereby subjected them. They argue that the corporation must be ordered to take mitigation measures and that it is civilly liable for the costs of adaptation and the value of climate-related loss and damage already suffered. Their claim for adaptation costs is similar to that in the German civil case of *Lliuya v. RWE,*[16] where the plaintiff sought to hold the energy corporation RWE responsible for part of the costs of protecting his property from floods due to glacial melting linked with climate change. In both cases, the plaintiffs argued that the compensation owed should represent a percentage of the losses or costs incurred that is equivalent to the respective corporation's percentage share in global industrial greenhouse gas emissions. While the plaintiffs lost in the latter case, which nevertheless established important principles in the sense of a "success without victory,"[17] the former is still pending. These cases invite authors to explore both the strategic considerations underlying corporate responsibility litigation projects, their potential impact and the legal arguments involved in these cases.

14 Executive Secretary of the Convention on Biological Diversity, 'Summary of Case-Law and Case Studies Pertaining to Transboundary Environmental Damage' (20 September 2005) UN Doc. UNEP/CBD/EG-L&R/1/INF/2.

15 Conciliation authority of the canton of Zug, petition of 11 July 2022 *(Asmania et al v Holcim)*; Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

16 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG).*

17 *Ibid.* as discussed in Paul Grimm and Jan-Erik Schirmer, 'Success Without Victory: Lliuya v. RWE Decided' (*Verfassungsblog,* 1 June 2025), referring to Jules Lobel, *Success Without Victory: Lost Legal Battles and the Long Road to Justice in America* (New York University Press 2004).

Scenario 9: Shareholder-led litigation

Shareholder v. UBS is a hypothetical shareholder-led case against a major Swiss financial institution, brought before Swiss civil courts, arguing that the bank failed to disclose and account for the risks of financing CO_2-intensive investments.

Shareholder-led litigation has remained underexplored in scholarship, especially as regards analysis of issues like litigating against certain categories of defendants (eg financial institutions, as opposed to energy or fossil fuel companies), and the problem of risk valuation that is specific to this context. This scenario invites authors to consider these types of arguments, and the prospects of success associated with this form of litigation.

Scenario 10: Class action lawsuit in the United States

Members of an Indigenous community in Norway file a class action suit against ExxonMobil and Chevron before a United States District Court on the basis of the US Alien Tort Statute (ATS) found in Title 28 of the US Code. They allege that the respondents have breached their duties arising out of international human rights law and the no harm principle by contributing to greenhouse gas emissions despite their knowledge about the links between fossil fuel extraction and climate change. The ATS reads: "The district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States."[18]

In *Jesner v. Arab Bank,*[19] the Supreme Court of the United States seems to have denied that the ATS can serve as a basis to litigate *foreign* corporate liability, but it is unclear whether American corporations can be sued.[20] Justice Kennedy reasoned against the ATS extending to corporate liability because "current principles of international law [do not extend] liability – civil or criminal – for human-rights violations to corporations or other artificial entities."[21] Justice Sotomayor, in her dissent in the same case, opined that in ATS litigation, international law determines the scope of "substantive conduct" that is proscribed, rather than "forms of liability."[22] The scenario thus

18 28 USC § 1350.

19 *Jesner v. Arab Bank, PLC,* 584 US 241 (2018).

20 See Myanna Dellinger, 'Post-Jesner Climate Change Lawsuits Under the Alien Tort Statute' (2019) 44 Columbia Journal of Environmental Law 241, 253.

21 *Jesner v Arab Bank, PLC* (n 19), 14.

22 *Ibid*. dissenting opinion of Justice Sotomayor.

invites engagement with this debate on corporate liability under the ATS and its alternatives, as well as the debate on extraterritorial responsibility and an assessment of possibilities for reparation.

Part One
Modeling and Valuing Climate-Related Harms

Francesca Leucci

Chapter 1: Remedying the Immeasurable – The Economic Perspective on Climate Damages

1. Introduction

As the impacts of climate change intensify, the question of legal accountability has progressively moved from scientific debates to courtrooms across the globe. Most climate-related lawsuits seek declaratory and injunctive relief against state and corporate failures to address the climate crisis, while many have also been filed to claim compensation for damage. The latter seek damages due to the role of public and private actors in contributing to global warming. In light of these litigation trends, legal scholars have largely investigated issues related to the "*an,*" ie legal standing, and the "*quo modo,*" ie procedures to sue for the increase in global warming. However, the topic of the "*quantum,*" ie how much a responsible actor should pay for climate-related damage, remains quite unexplored in the legal scholarship. To give an example, in February 2021 the Administrative Court of Paris for the first time declared that the French State had failed to reduce global emissions and ordered it to take all the necessary measures to repair the resulting ecological damage by 31 December 2022.[1] The case is well known as "*l'affaire du siècle*" for its expected impact on national environmental policies. However, the fact that the claimants (four NGOs) originally requested that the state be ordered to pay only one Euro as a symbolic amount of money either for moral or ecological damage did not receive sufficient attention in the legal doctrine. Drawing on the economic theory of remedies for environmental liability, the amount of damages claimed by the plaintiffs is crucial to induce polluters to optimally invest in care and accident prevention. More specifically, if polluters pay for all the losses caused to society, they receive optimal care incentives to minimize the occurrence of harms. Conversely, if the amount of monetary compensation grossly deviates

1 *Association Oxfam France et al v État de France* nos. 1904967 et al (Tribunal Administratif de Paris, 14 October 2021).

from the real losses, polluters do not receive optimal care incentives and more damage than what is socially acceptable ultimately occurs.[2] Therefore, this chapter aims to shed light on damage calculation in climate lawsuits from a Law and Economics perspective. It first provides a brief overview of the economic theory of liability (section 2). Then, it illustrates the social costs of climate change (sections 3, 4 and 5) and the methods available to quantify them in climate economics (section 6). Three scenarios of climate-related damage compensation in litigation are then analyzed to determine whether and to what extent the employment of specific calculation methods is preferable from an efficiency perspective, particularly when compensation concerns difficult-to-quantify losses, such as those of species and ecosystems devoid of financial measurability (section 7).

2. The Economic Theory of Liability

In the economic jargon, "accidents" generally refer to the harmful outcome (ie loss of utility) of events that neither the injurer nor the victim wanted to occur, although they might have affected its likelihood and severity.[3] "Accidents" occur without being intentionally induced and between parties that are not previously bound by a contractual relationship.[4] Moreover, they hold a peculiar reciprocal nature, meaning that both parties (injurer and victim) are responsible for the resulting harm.[5] In environmental cases, injurers (eg the polluting companies) cause harmful effects whose probability and scale could have been reduced *ex ante* through optimal decisions on the levels of care and activity. Other important terms to define are those of "damages" and "expected liability.". With "damages," we mean the amount of monetary compensation for which the injurer is legally liable towards the accident's victims, whereas the "expected liability" is the amount of monetary compensation multiplied by the probability of paying.[6] According to the theory, injurers are expected to behave optimally if the amount of monetary compensation

2 Steven Shavell, *Foundations of Economic Analysis of Law* (Harvard University Press 2004). However, injurers must pay for all the losses they caused only under a strict liability regime, whereas under negligence the optimal magnitude of damages can be higher or lower compared to the magnitude of harm. In the latter case, injurers can avoid liability by taking due care (as long as the due care is set optimally).

3 Steven Shavell, *Economic Analysis of Accident Law* (Harvard University Press 1987) 1.

4 For instance, the decision of a victim to buy a house close to a polluting factory might raise the probability of an accident.

5 Ronald Harry Coase, 'The Problem of Social Cost' (1960) 3 The Journal of Law & Economics 1, 13.

6 Shavell, *Economic Analysis* (n 3).

(damages) equals (or is approximately the same as) the real damage caused to the victim(s).[7] If, for instance, there is more than one possible level of damage and the damages equal the actual level of damage, the expected liability will also match the expected damage[8] and parties' behaviors will be optimal.[9]

3. The Economic Perspective on Climate Damages

From an economic perspective, climate change is a cost. More technically, climate change "has a negative aggregate effect on economic growth and welfare,"[10] meaning that all the well-known impacts of climate change lead to the imposition of costs for the society.[11] For instance, air pollution leads to human diseases that necessitate healthcare treatments or to shorter lives that represent a loss of social welfare, as well as individual suffering and moral damage (broadly speaking, human health damages).[12] In order to understand

7 *Ibid*. 236. However, under the negligence rule the optimal magnitude of damages can be even higher or lower compared to the magnitude of harm, because injurers can avoid liability by taking due care (as long as the due care is set optimally). For this reason, Law and Economics scholars agree that only under a strict liability regime economic efficiency requires that the injurers pay for all the losses they caused. See Robert C Cooter, 'Prices and Sanctions' (1984) 84(6) Columbia Law Review 1523, 1542; William M Landes and Richard A Posner, *The Economic Structure of Tort Law* (Harvard University Press 1987) 64; Richard A Posner, *Economic Analysis of Law* (Aspen Publishers 1986) 176; A Mitchell Polinsky, *An Introduction to Law and Economics* (Little, Brown 1983).On the other hand, even under negligence a too-low level of expected liability might induce injurers to prefer being liable rather than taking due care.

8 Shavell, *Foundations* (n 2) 236. The underlying assumption according to rational choice theory is that parties have an optimal amount of information about the level of harm and they know in advance if the accident may result in more possible levels of harm.

9 Louis Kaplow and Steven Shavell, 'Economic Analysis of Law' in Alan J Auerbach and Martin Feldstein (eds), *Handbook of Public Economics,* vol 3 (Elsevier 2002) 1661.

10 Richard SJ Tol and others, 'How Much Damage Will Climate Change Do? Recent Estimates' (2000) Working Paper FNU-2, Research Unit Sustainability and Global Change. But consider that the costs of moderate global warming are not negative everywhere: "[p]oorer countries are likely to be net losers, richer countries may gain from moderate warming" (*ibid*. 17).

11 In the words of Tol, "climate change is the mother of all externalities" (Richard SJ Tol, 'The Economic Effects of Climate Change' (2009) 23(2) Journal of Economic Perspectives 29, 51).

12 Moral or non-material damage occurs when people (or entities) suffer in their feelings, beliefs, reputation, privacy as a consequence of an illegal act. Compensation of moral damage is allowed in many countries for both natural (individuals) and legal persons (entities), despite its non-pecuniary nature. For a Law and Economics perspective on non-pecuniary damages, see Siewert D Lindenbergh and Peter PM van Kippersluis, 'Non Pecuniary Losses' in Michael Faure (ed), *Tort Law and Economics* (vol 1, Edward Elgar 2009) 215.

how economists look at the consequences of climate change, we may look to scholarship on the "economics of climate change" (or climate economics), which includes the economic study of the significance of such change for human well-being, on one hand, and the study of the actions taken to manage changes in the climate (like mitigation and adaptation), on the other hand.[13] The goal of this section is therefore to present the state of the art on the economic impact of climate change.

The first point to clarify is that, for economists, climate change is the cause of both economic and non-economic (ie monetary and non-monetary) losses. Secondly, specific methods have been developed to quantify all total costs of climate change. Yet, none of them can be regarded as fully accurate and uncontroversial. Thirdly, a concept that became crucial for policy-making is the social cost of carbon. Its computation is also quite debated. Fourthly, and in light of this discussion, the calculation of marginal abatement costs has gained momentum in climate economics. All these issues will be investigated in the following sections.

4. Economic and Non-economic Losses

Traditionally, when trying to account for climate change losses, economists make a general distinction between economic and non-economic damage or losses, ie the monetary and the non-monetary.[14] The former refer to goods and services traded in markets and are therefore easy to quantify in monetary terms.[15]

13 Marshall Burke, Melanie Craxton, Charles D Kolstad and Chikara Onda, 'Some Research Challenges in the Economics of Climate Change' (2016) 7(2) Climate Change Economics 1650002, 1650002-1.

14 In the economics of climate change, the debate specifically focused on the distinction between economic and non-economic losses is better known as the "Loss and Damage" (L&D) debate. It examines in-depth the consequences of extreme weather events. Within that discussion, the term 'losses' refers to monetary harms, such as damages to buildings and private property, whereas "damages" relate to non-monetary and irreversible effects, such as human health diseases, loss of life, coastal erosion and ecosystem impacts. In this article, the terms "loss" and "damage" are employed indifferently for both monetary and non-monetary consequences of climate change. For an overview of the L&D debate, see Reinhard Mechler and others (eds), *Loss and Damage from Climate Change: Concepts, Methods and Policy Options* (Springer 2019). See also Reinhard Mechler and others, 'Loss and Damage and Limits to Adaptation: Recent IPCC Insights and Implications for Climate Science and Policy' (2020) 15(4) Sustainability Science 1245, 1251.

15 On 14 October 2024, the European Environment Agency reported that weather- and climate-related events caused economic losses exceeding EUR 790 billion across 38 European countries from 1980 to 2023, with a significant insurance protection gap where many losses remain uninsured. See European Environment Agency, 'Economic Losses and Fatalities from Weather- and Climate-Related Extremes' (14 October 2024).

Economic losses may thus include damage to land, crops, homes or infrastructure.[16] Agricultural losses and damages caused by Invasive Alien Species are part of this category, given that relevant data are available and regularly updated by environmental authorities. The same applies to the expenses for climate displacement, which is the movement of people because of climate-induced changes of ecosystems and urban environments (ie costs of hotels and relocation).

On the other hand, non-economic losses relate to negative impacts of climate change that are more difficult to measure and quantify in monetary terms. They may include harm to human health, loss of cultural heritage, loss of indigenous and local knowledge, and damage to biodiversity and habitats.[17]

Despite the large amount of evidence available in the natural sciences, research has primarily focused on the impacts of climate change on human beings rather than on ecosystem services and non-market losses. This gap in the literature on climate change is mainly due to the complex challenge of quantifying ecological losses in monetary terms but also to the difficulties of identifying causal links between climate change and ecosystem degradation.[18] For these reasons, non-economic losses are often left neglected in climate risk and cost estimates (despite their probable high magnitude) and only partially or not internalized by climate policies[19] (in the sense of losses

16 Clearly, extreme weather events, such as droughts or severe floods determine a decline in economic growth with more adverse consequences in poorer regions. Let's take an example. From June to August 2022, large parts of Pakistan were flooded as a consequence of increased monsoon rainfall due to climate change. The two southern provinces of Sindh and Balochistan received seven or eight times their usual rainfall in August. Over 33 million people were affected by the rains and resulting floods, around 1500 people lost their lives and more than 2 million houses were damaged. Preliminary estimates of losses and damages were around USD 30 billion, which included crop losses (mainly cotton and rice crops) of USD 2.3 billion, plus industrial losses, damages to infrastructure (bridges, roads, schools and health facilities), to private properties and life-saving needs. In addition, the killed livestock and the spread of human diseases (cholera) due to stagnant flood waters had to be considered. For more information, see the scientific report by Friederike EL Otto and others, 'Climate Change Likely Increased Extreme Monsoon Rainfall, Flooding Highly Vulnerable Communities in Pakistan' (2022).

17 For a recent overview of non-economic losses of climate change, see UNFCCC, 'Non-economic Losses: Featuring Loss of Territory and Habitability, Ecosystem Services and Biodiversity, and Cultural Heritage' (2024).

18 Other factors, like the management of natural resources and investments in infrastructures, may raise the risk of losses and damages. Moreover, some empirical evidence shows that losses and damages occurred even where adaptation measures were implemented, hence raising the need for more research on appropriate actions and new methods. See Mechler and others, 'Recent IPCC Insights' (n 14).

19 The term "non-economic loss and damage" emerged in the negotiations under the United Nations Framework Convention on Climate Change (UNFCCC). For an overview

that count but are not counted).[20] Therefore, more research is needed to represent these types of damages and incorporate them into assessments of the costs of climate change.

5. Adaptation and Mitigation Costs

All the costs mentioned above will almost certainly increase in the future, but mitigation and adaptation measures can considerably limit their magnitude. Related expenses for adaptation and mitigation may be thus deemed as an additional category of climate-related costs.[21] For instance, the costs of sea level rise can be expressed as the sum of the economic value of the lost land and structures, plus the costs of coastal protection.[22]

More precisely, *mitigation* refers to actions to limit the severity of climate change impacts by reducing emissions of greenhouse gases (GHG) or enhancing the sinks of emissions.[23]

Adaptation is instead the process of adjustment to actual or future effects of climate change, rather than a one-time emergency response, a risk-management strategy[24] to maintain human-ecological systems in "a safe operating space."[25] For instance, adaptation includes large-scale infrastructure changes,

of challenges and policy implications, see Olivia Serdeczny, Eleanor Waters and Sander Chan, 'Non-Economic Loss and Damage: Addressing the Forgotten Side of Climate Change Impacts' (2016) German Development Institute.

20 Losses and damages that are difficult to express in monetary terms cannot be addressed by insurance tools either. See Laura Schäfer, Koko Warner and Sönke Kreft, 'Exploring and Managing Adaptation Frontiers with Climate Risk Insurance' in Mechler and others (eds), *Loss and Damage from Climate Change* (n 14) 317.

21 For a reflection on the costs of mitigation and adaptation policies, see Richard SJ Tol, 'The Social Cost of Carbon' (2011) 3 Annual Review of Resource Economics 435, 443.

22 Tol and others, 'How Much Damage' (n 10).

23 Mitigation is about using new technologies, more renewable energies, more efficient energy equipment, changing consumer behaviors and storing gases through reforestation projects.

24 According to the Glossary of the IPCC, adaptation options can be categorized as structural, institutional, ecological and behavioral. See JB Robin Matthews and others (eds), 'Annex VII: Glossary' in Valérie Masson-Delmotte and others (eds), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2021).

25 Johan Rockström and others, 'A Safe Operating Space for Humanity' (2009) 461 *Nature* 475. The correlation between risk levels for physical, biological and human systems and climate adaptation scenarios were first analyzed and illustrated by the IPCC in 2014. See Rajendra K Pachauri and Leo A Meyer (eds), *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2014).

building defenses to protect against sea-level rise and any measures to cope with hazardous, exposure and vulnerability effects of current and future climate change conditions.[26]

Despite its influence on the severity of climate damage, adaptation was initially the least explored area in climate economics.[27] However, it has recently gained more relevance especially in the science-policy interface debate.[28] It is important to stress that, while damages from climate change are estimated using damage functions, the debate around the proper economic method to assess adaptation is extensive and there is still little guidance on how it should be built into damage functions.[29] Moreover, adaptation certainly increases public and private expenditures. Large differences between damage costs with and without adaptation surely require more research.

Lastly, it is common to distinguish between *avoidable* and *unavoidable* damages, where "avoidable" refers to those damages that can be prevented through mitigation and adaptation measures.[30] For instance, the adverse effects of droughts may be prevented by planting drought-resistant crop seeds. Likewise, the damage to property caused by high tide and coastal storms may be avoided by measures to adapt to sea level rise. Yet, there are losses that are unavoidable because technical, financial or political obstacles make it impossible to mitigate and adapt. To provide an example: if sea levels continue to rise, the costs of building the infrastructure necessary to protect an island might become prohibitive. For this reason, losses are avoidable only within adaptation limits[31] and to the extent that they can be efficiently prevented through mitigation measures (without too-high costs).

26 European Commission, Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Forging a Climate-Resilient Europe: The New EU Strategy on Adaptation to Climate Change* [2021] COM 82 final.

27 Burke and others (n 13) 1650002-6.

28 United Nations Environment Programme, *Adaptation Gap Report 2024: Come Hell and High Water – As Fires and Floods Hit the Poor Hardest, It Is Time for the World to Step Up Adaptation Actions* (Nairobi 2024).

29 Anil Markandya and Mikel González-Eguino, 'Integrated Assessment for Identifying Climate Finance Needs for Loss and Damage: A Critical Review', in Mechler and others (2019) (n 14) 343. The authors argue that there has not been sufficient discussion on models to estimate optimal adaptation.

30 Kees van der Geest and others 'The Impacts of Climate Change on Ecosystem Services and Resulting Losses and Damages to People and Society', in Mechler and others (eds), *Loss and Damage from Climate Change* (n 14) 221.

31 According to the IPCC, adaptation limits are reached when adaptation is no longer able to prevent existing risks and losses. See Hans-Otto Pörtner, Debra C. Roberts and

6. Methods of Damage Calculation

"A key challenge when assessing the impacts of climate change is synthesis, i.e. (…) to identify a set of indicators that can summarize and make comparable the impacts in different regions, sectors or systems in a meaningful way."[32]

a. Total Damage Calculation

The first studies on the total welfare effects of climate change date back to the 1990s.[33] Their goal is to synthetize all physical impacts of climate change with estimates of their economic impacts[34] on the gross domestic product in order to obtain the total present value of future costs[35] of climate change in utility[36] units.[37] For that, they require specific assumptions related to future scenarios, the pattern of warming and changes in sea levels and rainfall. Moreover, they employ a variety of methodological approaches ranging from enumerative to statistical to a combination of both.[38]

Admittedly, none of these methods is fully accurate, as the assessment of each category is incomplete.[39] From an economic standpoint, all external

others, *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022). The same point was already highlighted in Richard JT Klein and others, 'Adaptation Opportunities, Constraints, and Limits' in Christopher B Field and others (eds), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects, Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2014).

32 Samuel Fankhauser, Richard SJ Tol and David W Pearce, 'The Aggregation of Climate Change Damages: A Welfare Theoretic Approach' (1997) 10(3) Environmental and Resource Economics 249, 266.

33 For a review of the scholarship on this topic, see Tol, 'The Economic Effects' (n 11), 51.

34 Physical metrics serve to measure the impact on natural systems, but when applied to systems under human management they are ultimately linked to human welfare. Therefore, indicators of human welfare changes are needed.

35 The process of valuing future costs and benefits in terms of their value today (present value) is commonly defined as 'discounting'.

36 Changes in individual utility are then aggregated to obtain global welfare effects.

37 Paul Watkiss, Tom Downing, Claire Handley and Ruth Butterfield, 'The Impacts and Costs of Climate Change' report commissioned by the European Commission (DC Environment) (2005).

38 Tol, 'The Economic Effects' (n 11).

39 Richard SJ Tol, 'Why Worry About Climate Change? A Research Agenda' (2008) 17(4) *Environmental Values* 437, 470.

effects[40] should be monetized, but this is highly unlikely to occur for the following reasons. Primarily, knowledge about the magnitude of physical impacts caused by global warming is still insufficient.[41] Some effects are quite certain and they have been proven by detailed modeling, such as impacts on agriculture, forestry, water, coastal zones, air quality and human health.[42] Others, which may potentially be extremely damaging, are not yet fully understood and, thus, only partially or not at all included in the models. Moreover, there are what Tol defined as three "big unknowns" (extreme climate scenarios,[43] the effect of climate change in the very long term[44] and the impact of climate change on biodiversity[45]) that have been largely ignored so far simply because they cannot be sufficiently quantified.[46] Last but not least, adaptation measures may be often neglected under the damage cost approach although they have the potential of considerably lowering the total costs.

b. Marginal Damage Calculation

Compared to the studies on the total costs of climate change, the scholarship on marginal climate damage functions is much richer.[47] These functions differ from total damage functions because they measure the incremental damage (marginal change) in just some complex sectors. In this way, they provide a more simplified and less resource-intensive basis for estimating the so-called

40 "External effects" or "externalities" refer to costs (negative externalities) and benefits (positive externalities) of economic activities falling upon third unrelated parties. The most common example of negative externality is pollution.

41 In addition to those effects whose magnitude is uncertain, there may be catastrophic effects (eg the melting of the polar ice caps in Greenland or West Antarctica or changes in climate subsystems) that are partially or not incorporated in the relevant analyses because their causal links with climate change is still controversial.

42 The best-studied impact categories are agricultural impacts and the costs of sea level rise.

43 Models are not often calibrated for higher temperature variations, plus they do not take into account weather variations that are crucial for agricultural productivity. See also Richard L Revesz and others, 'Global Warming: Improve Economic Models of Climate Change' (2014) 508 Nature 173, 175.

44 "During the historical record, climate has varied far too little for us to be able to estimate its economic consequences, let alone predict the consequences of a change way outside anything that has ever been seen by humans" (Geoffrey Heal, 'The Economics of the Climate' (2017) 55 Journal of Economic Literature 1046, 1053).

45 Tol, 'The Economic Effects' (n 11).

46 *Ibid*.

47 For a review of scholars developing climate damage functions, see James E Newman and others, 'Climate Damage Functions for Estimating the Economic Impacts of Climate Change in the United States' (2020) 14(1) Review of Environmental Economics and Policy 25, 43.

Social Cost of Carbon[48] (SCC),[49] which is indeed a central concept in the economics of climate change. The SCC can be simply defined as the "monetary value of the damage done by emitting one more ton of carbon at some point in time."[50] More precisely, it refers to "the change in the present (or discounted) value of economic welfare from the emission of an additional unit of CO_2 (or equivalent greenhouse gas)"[51] given a certain prediction of future global emissions (climate scenarios),[52] of economic and demographic growth.[53]

The concept has been surrounded by much controversy on how it should be computed[54] and a range of different values may be obtained depending on the chosen discount rate or other factors, such as the impact of extreme events.[55]

48 CO_2 is the major GHG implicated in global warming, but it is not the only one. For this reason, emissions from GHG other than CO_2 need to be converted into "CO_2-equivalent" emissions in order to be included in the SCC. To compare CO_2 emissions and non-CO_2 emissions as far as their lifetime and potency are concerned, a tool to make the different types of emissions equivalent is needed. In the EU, this is represented by the Global Warming Adapter (GWP): "[t]he GWP is a relative measure, which compares the amount of heat trapped by a certain mass of gas to the amount of heat trapped by a similar mass of CO_2 over a certain period of time (eg 100 years). The GWP of CO_2 is standardized to 1. In the IPCC's latest Assessment Report (IPCC, 2013) the GWP over a 100-year time period of [methane] and [nitrous oxide] are 34 and 298 respectively. This implies that the same amount of [methane] is 34 times more potent than the same amount of CO_2, when looking at a period of 100 years." Thanks to the GWP, it is possible to compare CO_2 emissions with nitrous oxide emissions, for instance, for road, rail, inland waterways and maritime transport. See European Commission, 'Green Taxation and Other Economic Instruments: Internalising Environmental Costs to Make the Polluter Pay. Annex D' (2021) 76. As a consequence, the social cost of carbon shall be intended as the social cost of all GHG and not only of CO_2.

49 National Academies of Sciences, Engineering, and Medicine, *Valuing Climate Damages: Updating Estimation of the Social Cost of Carbon Dioxide* (2017).

50 David Pearce, 'The Social Cost of Carbon and its Policy Implications' (2003) 19(3) Oxford Review of Economic Policy 362, 384.

51 William D Nordhaus, 'Revisiting the Social Cost of Carbon' (2016) 114(7) Proceedings of the National Academy of Sciences USA 1518, 1518.

52 One type of scenario is the optimal one where the sum of discounted benefits minus costs is maximized; the second type is the one under the policy target of keeping global warming below 2°C; the third type is the one where no climate policy is introduced (baseline). All these scenarios can be computed by sets of Integrated Assessment Models, which are based on a lot of assumptions. See John CV Pezzey, 'Why the Social Cost of Carbon Will Always Be Disputed' (2019) 10(1) WIREs Climate Change e558.

53 Nordhaus (n 51), 1523.

54 British Department for Environment, Food and Rural Affairs, 'The Social Cost of Carbon (SCC) Review – Methodological Approaches for Using SCC Estimates in Policy Assessment. Final Report' (December 2005).

55 For an overview of possible estimates under different scenarios, discounting rates and at different times, see the early paper: William D Nordhaus, 'Estimates of the Social Cost of Carbon: Concepts and Results from the DICE-2013R Model and Alternative Approaches' (2014) 1(1) Journal of the Association of Environmental and Resource Economists 273, 312. Also: Brian C Prest, 'Disentangling the Roles of Growth Uncer-

For these reasons, it has been maintained that "no scientific consensus on SCCs can be reached for many decades, if ever"[56] due to uncertainties related to the validity of sectoral models, to the emission-temperature relationship, to discounting and other causes of inaccuracy.

An additional source of uncertainty is equity weighting between poor and rich countries. In economics, it is a well-known fact that the impacts (and so, the costs) of climate change differ across countries with different levels of economic development.[57] This is because standard economic theory assumes a declining marginal utility with increasing levels of consumption: for the same loss of utility a poor person suffers more than a rich one and for the same increase in utility a rich person gains less utility than a poor one.[58] Therefore, when calculating marginal damage functions, the different income levels and their interactions with climate impacts should be taken into account.[59] The process to account for these income differences is called "equity weighting."[60]

tainty, Discounting, and the Climate Beta on the Social Cost of Carbon' (23 October 2023) Resources for the Future Working Paper. And: Frances C Moore and others, 'Synthesis of Evidence Yields High Social Cost of Carbon Due to Structural Model Variation and Uncertainties' (2024) 121(52) Proceedings of the National Academy of Sciences e2410733121.

56 Pezzey (n 52), 2. Some scholars argued that the early estimates of SCC provided by the IPCC (1996) for which the global costs of climate change were in the order of 1.5% and 2% of GDP were based on a "relatively small body of economic assessment studies" produced by Fankhauser, Tol and Pearce and based on US and Western European estimates. A central point of criticism was the existence of substantial differences between regions, with plausibly much higher damages in developing countries due to severe life costs (more vulnerable countries). See: David Demeritt and Dale S Rothman, 'Figuring the Costs of Climate Change: An Assessment and Critique' (1999) 31(3) Environment and Planning A: Economy and Space 389, 408; Samuel Fankhauser and Richard SJ Tol, 'Figuring the Costs of Climate Change: A Reply' (1999) 31(3) Environment and Planning A: Economy and Space 409, 411.

57 David Anthoff, Cameron J Hepburn and Richard SJ Tol, 'Equity Weighting and the Marginal Damage Costs of Climate Change' (2009) 68(3) Ecological Economics 836, 849.

58 A richer person derives less utility from extra money available than a poorer person because the curve of marginal utility is descending. This is of course true within the framework of the utilitarian welfare theory according to which human beings take "rational" decisions, ie they choose the options that maximize their utility given certain expectations based on the optimal amount of information previously gathered. See Thomas S Ulen, 'Rational Choice Theory in Law and Economics' in Boudewijn Bouckaert and Gerrit De Geest (eds), *Encyclopedia of Law and Economics: Volume I. The History and Methodology of Law and Economics* (Edward Elgar 2000) 790.

59 That means weighting damage costs more in poor countries, so that they become equal to costs of the same magnitude in rich countries.

60 The concept was first introduced by Pearce and others (David W Pearce, William R Cline and others, 'The Social Costs of Climate Change: Greenhouse Damage and the Benefits of Control' in James P Bruce, Hoesung Lee and Erik F Haites (eds), *Climate Change 1995: Economic and Social Dimensions of Climate Change. Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change*

It consists of adjusting monetary values of damages with the global average discount rate or, by contrast, using regional weights.[61] Scholars have pointed out that equity weighting leads to higher damage estimates than an approach where equity weighting is not considered.[62]

Lastly, the baseline scenario is barely considered in models of SCC, although it should be essential to determine the marginal costs of additional GHG emissions. To explain it better, some models on climate change impacts do not include the so-called status quo ante, ie the economic conditions before climate change started to have a negative impact on welfare. As a consequence, final estimates of climate change damage costs might not be so reliable and accurate. Likewise, damage functions include centennial scenarios (the impact of climate change in one hundred years) that are so fundamentally uncertain that there will always be disputes about the SCC.

Nevertheless, the SCC has been largely adopted for policy purposes[63] and, namely, to estimate the optimal tax on carbon (tax internalizing the externality of carbon and bringing the market back to efficiency) or the optimal mitigation policy (where the marginal damage cost of climate change equals the marginal cost of emissions reductions or marginal abatement cost).[64]

7. Scenarios of Damage Calculation

After having illustrated the main economic methods to quantify climate-related damages, this section aims to analyze selected scenarios of damage compensation in climate litigation to determine whether the employment of the methods above is feasible from an efficiency perspective.

An important point emphasized by Law and Economics scholars is that the amount of monetary compensation should not grossly and systematically deviate from the total social costs of accidents.[65] The economic rationale for this

(IPCC 1995) 178). Then Fankhauser and Tol proposed the first equity weighting corrected social cost of carbon estimates (Fankhauser and Tol [n 56]). See overall Anthoff and others (n 57).

61 Friedrich Soltau, 'Fairness and Equity in Climate Change' (SJD dissertation, Pace University School of Law, April 2008).

62 Fankhauser and others, 'The Aggregation' (n 32).

63 Burke and others (n 13) 1650002-3.

64 In the words of Pearce, "[c]ost-benefit analysis would set the optimal amount of greenhouse gas reduction at the point where this social cost just equals the incremental cost of controlling emissions. The higher the value for the social cost of carbon, the more control is warranted." See Pearce (n 50).

65 Michael G Faure and Louis T Visscher, 'The Role of Experts in Assessing Damages – A Law and Economics Account' (2011) 2(3) European Journal of Risk Regulation 376, 378.

theoretical point is that polluters tend to invest in care up to the point where the marginal cost of risk reduction (or precaution) equals the marginal benefit (avoided loss or expected liability). In other words, if the amount of monetary compensation is lower than the true harm, potential polluters will underinvest in care, which turns into underdeterrence and a higher likelihood of accidents.[66] On the other hand, the achievement of a certain degree of accuracy in damage assessment increases the administrative costs of handling cases, which might discourage plaintiffs from bringing a case in the first instance.[67] Therefore, from an efficiency perspective, abstract assessments should be preferred to the extent that they provide a good approximation of real losses.[68] This is also applicable to climate-related non-economic losses:[69] difficult-to-estimate components of harm should be replaced by average estimates to the extent that the cost of their estimation outweighs the benefit of their inclusion (ie not assessing them would yield a serious underestimation of the total losses caused).[70]

Drawing on this theoretical perspective, it is clear that alleging in a case that climate change caused economically quantifiable impacts, such as lost profits from arable lands (scenario 3), does not imply high administrative costs either for the parties or a court: it is an easy-to-estimate loss and it can be easily repaired. Conversely, if applicants allege that climate change caused important ecological losses, such as decline of marine species, coral bleaching and ocean acidification (scenario 2), loss of a forest (scenario 7), or damage to maritime environments (scenario 6), these kinds of ecological losses are pretty difficult-to-estimate and thus hard to *fully repair*.

When it comes to maritime disasters, it might be useful to recall a 2004 study by Hay and Thébaud that collected evidence of total costs after major oil spills across the globe. By comparing the amount of estimated, claimed and granted damages, the study shows that the environmental damage (intended in a narrow sense, as damage to non-use values and indirect use values of nature) represents the less frequently assessed share of monetary damages under both US and international liability regimes.[71]

66 For more detailed examples, see Kaplow and Shavell (n 9).

67 *Ibid*. 379.

68 *Ibid*.

69 Steven Shavell, 'Contingent Valuation of the Nonuse Value of Natural Resources' in Jerry A Hausman (ed), *Contingent Valuation: A Critical Assessment* (Contributions to Economic Analysis, vol 220, 1993) 371.

70 Louis T Visscher, 'Tort Damages' in Michael G Faure (ed), *Tort Law and Economics* (vol 1, Edward Elgar 2009) 160.

71 Julien Hay and Olivier Thébaud, 'Including Ecological Damage in the Monetary Valuation of Oil Spill Impacts: An Assessment of Current Practice' (2006) 32(3/4) Océanis 297, 301–2.

Despite this general trend, the above suggests that there is room to improve judicial practices of damage assessment by looking at the economic methods of climate damage assessment. For instance, the SCC could be employed in case of transboundary harm and historical emissions based on illegal deforestation (scenario 7). This is indeed a common practice in Brazil.[72]

In a Brazilian case, initiated in 2021, the Public Prosecutor's Office (*Ministério Público Federal* or MPF) filed a lawsuit on behalf of the Amazon Task Force[73] against a Brazilian farmer (de Rezende) for causing the deforestation of 2,488.56 hectares in the Amazon from 2011 to 2018.[74] Moreover, the MPF claimed monetary damages for up to 85.4 million Brazilian Reais (precisely, BRL 85,399,448.75, corresponding to more than 15 million Euros) for property damages (the costs of restoring the environment to the *status quo ante*),[75] material and intermediate climate damage, intermediate and residual damage of other natural resources, economic gains from deforestation[76] and, finally, moral damage on the whole community.[77] Interestingly, the plaintiff claimed "climate damages," intended as a measure of the permanent and temporary

72 Ex multis, *Ministério Público Federal and INCRA v Dauro Parreira de Rezende,* no. 1005885-78.2021.4.01.3200 (7th Federal Environmental and Agrarian Court, Judicial Section of Amazonas, pending); *São Paulo State Public Defender's Office v São Paulo State Land Institute Foundation (ITESP) et al,* no. 0000522-11.2014.8.26.0172 (7th Federal Environmental and Agrarian Court, Judicial Section of Amazonas, 29 December 2023), under appeal.

73 The Amazon Task Force has been set down by the federal public prosecutors to combat illegal deforestation in Amazonia.

74 Illegal deforestation was in this case caused by an agroextractive settlement project. It is quite common in Amazonia to have extractive reserves, such as chestnut trees, rubber tappers and babassu coconut breakers which might be distorted through land grabbing in order to implement practices of deforestation and erosion of natural resources. The advance of deforestation then causes not only environmental damage but also damage to entire communities that depend on the deforested areas.

75 More specifically, the MPF's Technical Note in the case calculated the cost for the recovery of each hectare at EUR 1,941.89, bringing it to a total of EUR 4,832,534.66 for 2488.56 hectares.

76 This is the reimbursement of economic profits gained from the degrading activity, better known as disgorgement of profits.

77 'In short, from the material point of view, the fact of illegal deforestation includes both the obligation to restore the original condition of the environment in natura and the obligation to indemnify for intermediate and residual damages caused and for illicitly obtained gains, internalizing the negative effects of the offense under the environmental and social aspects. In this specific case, considering (i) the cost of restoring the environment to the *status quo ante,* estimated at BRL 26,732,111.50, (ii) the necessary compensation for intermediate material and residual climate damage, estimated at BRL 44,779. 679.32, (iii) intermediate and residual damages of other natures, estimated at BRL 8,019,633.45, and (iv) economic gains arising from deforestation, which must be refunded to the community, arbitrated, according to technical criteria, at

disturbance of the climatic services provided by the impaired forest.[78] Climate damages specifically referred to the value of GHG emissions that the illegal deforestation caused.[79] The value adopted by the Amazon Fund for calculating the climate impact of deforestation was USD 5.00 per ton of CO_2 (corresponding to almost EUR 5 per ton of CO_2).[80] Based on that, intermediate and residual climate damages were calculated as more than EUR 8 million (equivalent to almost 45 million Brazilian Reais). Comparing this amount with the almost EUR 5 million claimed as mere costs of restoration, it is possible to infer that the cost of returning the area to the baseline is much lower than the value of climate change damages and that the exclusion of the latter from the final amount would lead to a gross calculation error.

In April 2021, the Brazilian Federal Court issued a preliminary injunction ordering the removal of the cattle herd from farms linked to the deforestation in question, pending the resolution of the claim for damages.

When comparing the Brazilian case with the French one (*l'affaire du siècle,* see section 1 above), it can be inferred that the judicial practice of climate damage assessment could be improved drawing on the Brazilian example. In the French case, no specific methodology of climate damage assessment was either proposed by the plaintiffs or adopted by the Court. In Brazil, a separate head of damages called "climate damages" was developed in the courtroom

BRL 5,868,024.48, the final material damage is calculated at BRL 85,399,448.75, to be repaired by the defendant.' (translation from the 2021 Petition, 34).

78 "It should be noted that, both in the category of residual damage and in that of intermediates, climate damage can be introduced, corresponding to permanent disturbance of the climatic services provided by the forest. If deforestation causes the emission of greenhouse gases, the emissions derived from this act and which will not be offset by the reforestation of the area correspond to residual climatic damage. On the other hand, for what can be compensated by restoring the environment to a condition as close as possible to the *status quo ante,* there is intermediate climate damage that is perpetuated until this ideal condition is reached in proximity to the natural state. As already mentioned, national jurisprudence admits the relevance of indemnifying intermediate and residual damages, cumulatively with material damages that can be repaired by restoring the environment to the status quo ante" (translation from the 2021 Petition, 31).

79 "In the Amazon, deforestation already causes, locally and regionally, climate change associated, for example, with the decrease in the duration of the rainy season in the south of the Amazon, with an already verified impact on agricultural productivity" (translation from the 2021 Petition, 21).

80 "As for these, under the climate aspect, the value adopted by the Amazon Fund for carbon pricing, of USD 5.00/ton, can be used as a basis for calculating the respective impact. As Brazil does not yet have a reference value for the price of carbon, either to compensate those who avoid emissions or to tax those who promote them, here we suggest using, as a reference value, the one that was practiced in the scope of the Fund-do Amazonia (USD 5.00/ton CO_2)" (translation from the 2021 Petition in Portuguese, 34).

and it relates to GHG emissions released by damaged forests. Even if the law in Brazil does not mandate a specific method to quantify climate damages, the claimant relied on the SCC (a fee for every ton of carbon released). It may be still argued that the value adopted to calculate the climate impact of deforestation (USD 5.00 per ton of CO_2) was too low and in any case discretionary. However, given its widespread use in policymaking, including the SCC in other claims for climate-related damages could increase the accuracy of total calculations and lead to a better internalization of the social costs of climate change. Furthermore, in light of the scholarship available in climate economics, the final amount should not exclude adaptation and mitigation costs to avoid gross and systematic mistakes (see section 5 above).

8. Conclusions

The aim of this contribution was to shed light on climate change damage calculation in courts. Particularly, the state of the art in climate economics was compared with the judicial assessment of claims for compensation of climate-related damage in specific scenarios. The comparison aimed to determine whether the economic perspective concerning the calculation of climate damages can be applied in litigation.

Based on a review of the main economic scholarship, some interesting insights emerged. Traditionally, economists make a general distinction between economic and non-economic losses. Moreover, to help policymakers define climate policies, they developed concepts such as the SCC. Despite the limitations of this tool, there is currently sufficient consensus in climate economics regarding its use for policy purposes.

Considering the deterrent effect of liability claims as well as the principle of full reparation, it is crucial to aim for more accurate, comprehensive but easy damage assessments. This is specifically needed for the compensation of pure ecological harm that is unrelated to human uses and more difficult to estimate. Arguably, the approaches employed by judges in climate change lawsuits do not always reflect the state of the art in climate economics. Building on the example of the Brazilian judicial approach, adding the SCC to other claims for climate-related damage could increase the accuracy of the total calculation, determine a better internalization of social costs of climate change and, in turn, lead to more optimal deterrence of climate-related harm, especially when they are difficult to quantify in monetary terms.

Alberto Monti

Chapter 2: Insurance, Reinsurance and Financial Sectors' Perspectives on Quantifying Climate Change-related Harms

1. Reparation for Climate Change: Damage, Risk and Insurance

a. Setting the Scene

From a legal perspective, there are some fundamental questions that must be addressed in order to ensure a comprehensive and adequate approach to the issue of reparation for climate change.

Firstly, it is necessary to ascertain what harm is recoverable at law. That is to say, it is necessary to determine which type of harm or damage will trigger the legal obligation to restore the *status quo ante* or to pay monetary compensation. To answer this question, reference should be made, among others, to the following legal concepts: *(i)* interests protected by the law; *(ii)* causation; and *(iii)* absence of causes of exemption from liability (eg legitimate exercise of a right).[1]

Within the domain of legal discourse, the concepts of harm and damage require precise qualification, since not all negative impacts are suitable for triggering remedies. The scientific consensus on climate change is unambiguous: it is an established fact.[2] Furthermore, it is widely acknowledged that this fact

1 See Gerhard Wagner, *Comparative Tort Law,* in Mathias Reimann and Reinhard Zimmermann (eds), *The Oxford Handbook of Comparative Law, 2nd ed.* (2019) 994-1030. See also Mauro Bussani and Anthony J Sebok (eds), *Comparative Tort Law: Global Perspective, 2nd ed.* (Edward Elgar 2021).

2 See IPCC, 'Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change' (2023).

is not perceived positively. However, the question remains as to whether the phenomenon of climate change *per se* constitutes damage or harm for remedial purposes, or whether the impacts of climate change on interests protected by law can be considered as such.

Assuming that the relevance of climate change for the purposes of reparation is determined by its impact on individual and collective rights, it is evident that a significant portion of such harm is projected to occur in the future. To elaborate, the adverse effects of climate change manifest not only in the present but also, and most significantly, in the potential for future harm. Plaintiffs in climate change litigation scenarios very often base their claims on both current harms and future potential losses.[3] This is reflected in the model scenarios used throughout this volume.

— In scenario 1, the plaintiffs argue that the respondent state is liable for violations of their rights under the European Convention of Human Rights (ECHR) arising from adverse events linked with climate change. This is due to the fact that they face an increased risk of mortality that cannot be fully averted even if the respondent state takes the most ambitious mitigation measures possible. From a remedial perspective, they seek, *inter alia*, a monetary award as reparation for the damage that they have suffered and will inevitably suffer in the future.
— In scenario 2, the claimants are seeking monetary remedies for current and future harms, including the costs of adaptation and the value of climate-related loss and damage already suffered.
— In scenario 3, the claim made by the Sicilian farmers is based on the allegation that the ongoing water crisis, which is purportedly linked to climate change, has had a detrimental effect on their harvests, and has also increased the risk of desertification of their land in the near future. The remedies sought by the farmers include a combination of mitigation measures, adaptation measures, and compensation for lost future profits and loss in value of the land.
— In scenario 4, the claim is based on the alleged violation of the plaintiffs' right, under the International Covenant on Economic, Social and Cultural Rights (ICESCR), to the "continuous improvement of living conditions" (alongside the right to an adequate standard of living for the individual

3 See, for, instance: scenario 1 (increased risk of mortality), scenario 3 (high risk of desertification), scenario 2 (current and future harms), scenario 4 (future living conditions), scenario 6 (susceptibility to sustain future loss due to climate-related disasters), scenario 5 (future potential consequences of climate change) and scenario 10 (reparation for current and future harms).

and their family) due to the adverse effects of climate change. The plaintiffs are requesting an evaluation of the aforementioned climate-related damage to these present and future conditions and the establishment of a loss and damage fund accessible to affected individuals.

— In scenario 5, the case is brought also on behalf of future generations, seeking both individualized economic reparations and collective, community-wide ones, alleging that the respondent state's high greenhouse gas (GHG) emissions are violating and will continue to violate their human right to a healthy environment, along with their right to life, to food, to water, to cultural identity and to property.

— In scenario 7, Peru asserts its standing to sue on the basis of its high susceptibility to climate-related natural disasters, claiming compensation for present and future climate related loss and damage.

— In scenario 10, the claimants assert that the respondents have breached their obligations under international human rights law and the no-harm principle. This breach of duty is alleged to have occurred due to the respondents' awareness of the links between fossil fuel extraction and global warming. The claimants are seeking remedies, amongst other things, for the potential consequences of climate change that are yet to materialize.

As is evident from the characterization of the claims in the aforementioned scenarios, the negative impacts of climate change can be conceptualized for reparation purposes as an increased risk of damage. The notion is vividly exemplified by the growing frequency and severity of extreme weather events attributable to climate change. These events have the potential to result in fatalities, bodily injury, property damage, business interruption, and other substantial economic and non-economic losses.

From this standpoint, climate change engenders a "risk difference" or an increased risk of loss and damage that is contingent on several variables. Consequently, the evaluation of climate change-related harms necessitates the capacity to assess and quantify risk and risk differences in monetary terms.

This underlines the critical importance of understanding the perspectives of insurance, reinsurance and financial sector players – who operate in the risk transfer and financing market – on the modeling, valuation and quantification of climate change-related harms.

b. Risk, Uncertainty and Insurance

In view of the aforementioned discussion, it is apparent that climate change issues and associated harms pertain to both the present and the future, encompassing risk and uncertainty.

Historically and from a societal perspective, the business of insurance developed in response to risk aversion and the need for protection, with a view to managing risks efficiently by minimizing the amount of unproductive resources set aside to cover future potential losses. At the core of insurance lies the concept of risk-transfer. In exchange for the payment of a premium, the insurer accepts the transfer of risk from the insured, undertaking the legal obligation to indemnify the loss or to render another performance in case of occurrence of the insured event. The insurance premium, therefore, represents the price of risk from an *ex ante* perspective.

The aggregation of a substantial number of independent and homogeneous risks within a portfolio enables the insurer to estimate future expected losses with greater precision than any individual insured party. The risk-spreading and loss-distribution functions of insurance are further enhanced by global reinsurance markets, which facilitate worldwide geographic diversification, thereby minimizing the negative economic impacts of future potential harmful events on each participant.

To this end, a crucial distinction is made in the (re)insurance field between the notion of "risk" and the notion of "uncertainty." Based on a seminal study by Knight,[4] it is now widely acknowledged in the insurance domain that "risk" is about predictable and quantifiable probabilities, while "uncertainty" refers to unpredictable probabilities of outcomes. In other words, as opposed to risk, uncertainty is characterized by situations in which the *ex ante* probability distribution of a random outcome is unknown: *Knightian* uncertainty, in essence, is about the unknown unknowns.

To be more precise, in this domain a distinction can be made between three different types of uncertainty:

(i) *aleatoric* uncertainty (inherent to risk, due to the variability of possible outcomes). Aleatoric uncertainty arises because of the unpredictable, random nature of the physical system under study: coin flipping is the prototypical example of aleatoric uncertainty. In this type of experiment, the data-generating process has a stochastic component that cannot be reduced by any additional source of information.

4 Frank H Knight, *Risk, Uncertainty, and Profit* (Houghton Mifflin 1921).

(ii) *epistemic* uncertainty (due to imperfect knowledge or ambiguity). Epistemic uncertainty arises due to a lack of information or knowledge about the model. For example, our knowledge of how climate change will affect regional climates and relevant factors is imperfect.
(iii) *Knightian* uncertainty (the complete unknown). An illustration of Knightian uncertainty is constituted by the potential repercussions of a wholly novel and uncharted technology or market disruption. It is impossible to predict the probability or impact of such a risk using conventional models, since there is no precedent or historical data from which to draw.

Insurance and reinsurance markets reduce aleatoric uncertainty, but their functioning is impaired by the other two types of uncertainty.

In the field of climate decision-making, Smith and Stern[5] offer a slightly different conceptualization of the notion of uncertainty, which they subdivide into the four categories of *imprecision, ambiguity, intractability,* and *indeterminism*.[6] They further posit that scientists ought to explicitly articulate the policy relevance of these different uncertainty types through dialogue with policymakers.

Over the past decades, improvements in the scientific knowledge and understanding of climate change, its drivers and its impacts – including, for instance, the increase in the frequency and intensity of extreme weather events – by reducing *epistemic* uncertainty expanded the role of insurance and reinsurance in this field.[7] However, climate variability, global warming and changing weather patterns make statistical analysis based on historic data less reliable and require the adoption of a forward-looking approach to climate risk assessment.[8]

5 Leonard A Smith and Nicholas Stern, 'Uncertainty in Science and its Role in Climate Policy' (2011) 369(1956) Philosophical Transactions of the Royal Society A 4818. See also: L Mark Berliner, 'Uncertainty and Climate Change' (2003) 18(4) Statistical Science 430; M Granger Morgan and others, 'Best Practice Approaches for Characterizing, Communicating, and Incorporating Scientific Uncertainty in Climate Decision Making' (January 2009).

6 While *imprecision* corresponds to the notion of risk or *aleatoric* uncertainty proffered by Frank Knight, *ambiguity* or "recognized ignorance" is a component of the *Knightian* uncertainty. *Intractability,* in turn, refers to computations known to be relevant to an outcome, but which lie beyond the current mathematical or computational capabilities. Finally, *indeterminacy* relates to quantities relevant to policymaking for which no precise value exists.

7 See IPCC (n 2).

8 See Michiel W Ingels and others, 'The State of the Art and Future of Climate Risk Insurance Modeling' (2024) Annals of the New York Academy of Sciences 1541(1) 100.

Against this backdrop, insurance and reinsurance market players have been investing significant resources in the research, study, modeling, assessment and quantification of climate change-related risks and their harmful consequences, with the aim of developing sophisticated climate-risk transfer tools that cater to the needs of households, corporations and governments.[9]

c. Different Types of Insurance

The content of insurance contracts is subject to variation depending on the specific risks transferred and the nature of the assets or interests that are the subject of the insurance coverage. From a product perspective, a common distinction in the international insurance market is made between *first-party* and *third-party* insurance policies.[10]

In *first-party* insurance contracts, the risk transferred is a risk of loss threatening the person or the assets of the insured (eg fire insurance, theft insurance, business interruption insurance, personal accident insurance) and, as a general rule, the insurance proceeds – ie the pay-out of the insurance contract that becomes due upon occurrence of the insured event – are paid to the insured to compensate for the loss directly sustained.

On the other hand, *third-party* insurance – often referred to as liability or casualty insurance – covers the insured against the risk of liability for damages to a third party. Depending on the specific terms and conditions of coverage and the applicable law, insurance proceeds can be paid by the insurance company directly to the injured third party who, in certain jurisdictions, also has a direct action against the liability insurer of the tortfeasor.

With regard to climate change-related risks, *first-party* insurance products can be designed to protect the insured's property against physical loss caused by extreme climatic events, such as floods, storms, hurricanes, droughts, excessive rainfall and related hydrogeological hazards, including landslides and mudslides. First-party insurance products can also protect the insured against the risk of business interruption, the risk of loss of agricultural output and the risk of having to sustain additional costs and expenses due to the occurrence of the insured event. The policyholder is normally the person

9 See Peter Hoeppe, 'Trends in Weather Related Disasters – Consequences for Insurers and Society' (2016) 11 Weather and Climate Extremes 70; see also Alberto Monti, 'Climate Change and Weather-related Disasters: What Role for Insurance, Reinsurance and Financial Sectors?' (2009) 15 Hastings Environmental Law Journal (today: UC Law Environmental Journal) 151.

10 See Robert H Jerry, II and Douglas R Richmond, *Understanding Insurance Law* (7th edn, Carolina Academic Press 2025); see also Malcolm A Clarke, Julian M Burling and Robert L Purves, *The Law of Insurance Contracts* (6th ed, Informa Law from Routledge 2009).

or entity (private or public) whose property and/or economic interests are exposed to the risk of loss (ie the insured), but it can also be a collective entity that aggregates the interests of scattered individuals (eg a farmers' association, a cooperative). Public entities, including central and local governments, can also insure against the risk of having to sustain costs and expenses to perform emergency management functions and rescue operations in the immediate aftermath of an insured event (eg a hurricane, a flood, a storm, a heat wave).[11]

Third-party insurance policies, such as commercial general liability, environmental liability, and directors and officers liability policies may also provide coverage against climate change-related risks, insofar as the applicable terms and conditions do not contain specific exclusions or limitations.

In some jurisdictions, a further distinction is made between *indemnity* and *non-indemnity* insurance.[12] *Indemnity* insurance refers to transactions in which the insurance proceeds are aimed at providing compensation for a loss, cost or expense that is tied to a replacement, reimbursement, or fair-market value. The terms and conditions of certain *indemnity* insurance contracts contain partial derogations to this general rule: this is the case, for instance, of *valued policies* and *new-for-old* policies.

In *valued policies,* upon conclusion of the insurance contract the parties agree a value to be placed on the insured property – sometimes on the basis of an expert appraisal – and such value is then conclusive and binding between both parties, so the insured need not prove the actual value of the loss suffered to obtain payment of the full amount due from the insurer. Such *first-party indemnity* policies are used to protect works of art, vintage cars and other property characterized by idiosyncratic value.

In *new-for-old* policies, upon occurrence of the insured event the lost, damaged or stolen property shall be replaced with a brand new, like-for-like replacement or one of an equivalent specification, without accounting for depreciation.

Non-indemnity insurance, on the other hand, refers to transactions in which the insurance proceeds are not directly correlated with the loss (eg life insurance, disability insurance) and are freely determined by the parties.

11 See Alberto Monti, 'Public-Private Initiatives to Cover Extreme Events' in Christophe Courbage and Walter R Stahel (eds), *The Geneva Reports: Risk and Insurance Research No. 5* (March 2012), 27-38; OECD, 'Disaster Risk Financing: A Global Survey of Practices and Challenges' (2015).

12 These conceptual categories, developed in common law jurisdictions, partly overlap with the notions of *non-life* insurance and *life* insurance that have been adopted by the European Union for the regulation of the Single European insurance market.

d. Different Types of Climate Change-Related Risks

From the perspective of insurance, reinsurance and other financial sector players, and according to the terminology adopted by the Task Force on Climate-related Financial Disclosures ("TCFD") established by the Financial Stability Board – an international body that monitors and makes recommendations about the global financial system[13] –, climate-related risks can be divided into two major categories:

(i) *transition risks* – related to the transition to a lower-carbon economy; and
(ii) *physical risks* – related to the physical impacts of climate change.

Additional conceptual categories have been recently proposed,[14] including that of:

(iii) *litigation risks* – related to the risk of being involved in a judicial dispute for failure to mitigate impacts of climate change, to adapt to climate change or for insufficient or inadequate disclosure of material financial risks.[15]

Acute physical risks are event-driven, such as those arising from the increased frequency and intensity of extreme weather events (eg floods, cyclones, hurricanes, storms, heat or cold waves, drought), while *chronic* physical risks are those associated with longer-term shifts in climate patterns (eg sustained higher temperatures, rising sea levels, changing precipitation patterns).

For the purpose of the present analysis, it is important to note that acute physical risks can have a significant impact on the financial system and its stability. First, physical risks may have financial implications for corporations, such as direct damage to assets, business interruption and indirect impacts from supply chain disruption. Second, companies affected by extreme weather events might be unable to service their debts. Third, collateral, such as buildings or land, might suddenly lose value, with negative effects on price levels.

Insurers and reinsurers perform multiple functions and their relationship with climate change risks is manifold, insofar as they act as:

(i) *risk carriers*
(ii) *risk managers*
(iii) *investors*

13 See FSB website.

14 See Maryam Golnaraghi and others, 'Climate Change Litigation: Insights into the Evolving Global Landscape' (*Geneva Association*, 11 April 2021).

15 The TCFD considers litigation risk (or legal risk) as a component of the transition risk, linked to the increase in climate-related litigation.

In their capacity as *risk carriers,* from an underwriting perspective insurers and reinsurers are mostly concerned with acute physical risks (as regards *first-party* insurance contracts) and litigation risks (as regards *third-party* liability insurance contracts). Their underwriting choices may also expose them directly to litigation risks, insofar as their shareholders or even third parties might question such choices or the way in which they are disclosed to the market.[16]

As *risk managers,* insurers contribute to risk awareness and can design and implement solutions aimed at incentivizing risk prevention and reduction, in addition to risk transfer.

In their role as *investors,* insurance and reinsurance companies face all types of climate change-related risks, not only because the corporations in which they invest their assets are exposed to such risks and may lose value, but also in consideration of the fact that their own business conduct can be judged on the basis of their investment decisions.[17]

e. Risk Assessment and Loss Quantification

As stated above, a necessary precondition for the (re)insurance markets to operate is the possibility to perform accurate risk assessments able to generate quantitative outcomes and monetary evaluations that are required by insurers to determine the price of risk (ie the premium) and their overall exposure at portfolio level.

With regard to climate-related risks, in consideration of climate variability and changing weather patterns, statistical analysis based on historic data becomes less reliable and risk assessment must be performed adopting a

16 The UNEP FI Principles for Sustainable Insurance serve as a global framework for the insurance industry to address environmental, social and governance risks and opportunities. The Net-Zero Insurance Alliance, which is convened by the UNEP, published in 2023 a Target-Setting Protocol which is a voluntary best practice guide to aid in the accurate measurement, standardization, and comparability of science-based decarbonization targets for insurance and reinsurance underwriting portfolios and to enhance overall transparency and accountability across the insurance industry on climate action (January 2023). The Net-Zero Insurance Alliance also collaborated with the Partnership for Carbon Accounting Financials to develop the first global standard to measure and disclose emissions attributable to insurance underwriting portfolios, or "*insurance-associated emissions,*" PCAF, 'Insurance-Associated Emissions' (November 2022).

17 Achieving the goals of the Paris Agreement requires collective action from governments and non-state actors, in particular, the private sector. For business, this means (i) reducing GHG emissions and thereby the adverse climate-related impacts of their operations on people and the planet; and (ii) strengthening the resilience of companies and their supply chains in order to address and adapt to climate change, including impacts on workers, local communities and the natural environment. See OECD, 'Guidelines for Multinational Enterprises on Responsible Business Conduct' (8 June 2023).

forward-looking approach, which implies significant uncertainties. The predictability of long-term climate trends must be balanced with the uncertainty of climate projections and then translated into the real economic impacts of climate change.

In this regard, from an insurance viewpoint climate change could impact all underwriting lines: for life and health insurance, for instance, this would concern mortality, longevity, and disability/morbidity risks;[18] for non-life insurance, the main area of concern lies in the property catastrophe underwriting lines.[19]

Over the past decades, the (re)insurance industry has made significant investments in modeling and quantifying physical climate risks. Catastrophe risk models are aimed at providing the necessary guidance in this highly complex field.[20]

Risk analysts in the insurance market use different types of models to perform their climate risk assessments, among which:

(i) ***Scenario models*** – adopting a *deterministic* approach, such models are used to build and analyze "what if?" situations, with a view to assessing the impact of specific events on exposure. Scenario models, in other words, are not concerned with the probability of occurrence of the risk event under scrutiny (eg the worst-case scenario, an event with a certain return period), rather they are aimed at understanding what would happen should such event materialize;[21]

18 Higher mortality and morbidity rates could be caused by more frequent and intense climatic events, such as heatwaves (see scenario 1). Pandemic risk could also be negatively impacted by climate change, insofar as diseases which currently affect only certain countries or regions (eg malaria, Dengue) could spread in other parts of the world.

19 To ensure continuing policyholder protection and stability of the insurance market, the solvency capital requirements for catastrophe underwriting risk should reflect the expected impact of climate change on natural hazards. To this end, for instance, in 2024 EIOPA launched a public consultation on reassessing natural hazard risks in the standard formula for Solvency Capital Requirements. See EIOPA, '2023/2024 (Re)assessment of the Nat Cat [Natural Catastrophe] Standard Formula' (3 April 2024) EIOPA-BoS-24/080.

20 "While historically labeled as 'black boxes,' there has been a shift in the catastrophe modeling world to more transparency and flexibility in recent years, which is crucial when considering the extremely large uncertainties in understanding physical risk associated with climate change" (Mathieu Boudreault and others, 'A Changing Climate for Actuarial Science' (2023) 17(3) Annals of Actuarial Science 415).

21 "Although there is significant uncertainty regarding climate change, further uncertainty arises as to the effectiveness of adaptation actions under both current and future conditions. The development of climate scenarios should consider a range of potential future climate-related risks and adaptation actions. Conflicts in values and risk preferences held by different stakeholders mean that some analyses ignore uncertainties relating to expected losses and damages" (International Actuarial Association, 'The Climate Change Adaptation Gap: An Actuarial Perspective' (May 2023)).

(ii) ***Stochastic or probabilistic models*** – adopting a *probabilistic* approach, such models are used to investigate the probability of occurrence of a series of risk events and outcomes which depend on a wide range of variables.

Probabilistic risk models are mathematical representations of a system whose purpose is to predict and analyze its potential future outcomes. Historic data and the insights of human experts are combined in risk models to assess the probability and severity of events to which a system is exposed. The output of these models converts risk into a metric of potential loss, which in turn allows for comparability of risks across categories, perils and geographic locations.

Physical climate risk models adopting a *probabilistic* approach assess future potential financial impacts of extreme weather events using a framework that combines *(i) hazard, (ii) exposure, (iii) vulnerability* and *(iv) financial* modeling.

The first three elements are based on the concept of "risk triangle":

(i) *Hazard* refers to the probability of occurrence of a certain intensity of hazard (eg hurricane, flood, storm) at a certain location.
(ii) *Exposure* refers to the people and assets exposed to *hazard,* and it may include socioeconomic factors.
(iii) *Vulnerability* accounts for the susceptibility to damage of the people and assets exposed to the *hazard*.

Risk is the combination of hazard, exposure and vulnerability.

To build a climate risk model, it is necessary to start by generating a stochastic event set, comprising a database of scenario events (eg hurricanes, cyclones, floods, storms) reflecting climate change trends and projected future potential climate states. Specific characteristics must be attributed to each event, including physical parameters of the *hazard* (eg wind speed, rainfall measurements, elevation of water level), location or path, and probability of occurrence. Thousands of plausible event scenarios are included in the catalogue to simulate and probabilistically model what could happen in the future. The *hazard* module then assesses the level of physical hazard across a geographical area at risk. For example, a hurricane model calculates the speed of the winds, considering the specific features of the terrain and the built environment at a given location.

The *exposure* module includes information about the people and assets exposed to *hazard* at any given location and, for insurance industry purposes, it also comprises insured values, as well other terms and conditions of coverage (eg coinsurance, deductibles, retentions, limits, attachment points).

The *vulnerability* module assesses the susceptibility of exposed people and assets, including buildings, structures and contents to be damaged by the *hazard,* based on construction types, building codes and other physical or technical characteristics. In the insurance industry, vulnerability modules mostly focus on buildings and infrastructure, but some also consider human vulnerability to extreme climate events when assessing mortality risk. This is based on factors such as age, disability, and health conditions.

Finally, the *financial* module translates the expected physical damage into a monetary value, based on a set of parameters derived from the specific terms and conditions of insurance coverage applicable to the exposed assets (eg sums insured, *new-for-old* clauses, retentions, deductibles).

In the perspective of *first-party* insurers, therefore, the quantification of the loss in monetary terms depends on the specific contractual terms and conditions agreed upon by the parties. The position of *third-party* liability insurers is different, insofar as the monetary evaluation of the loss depends on the underlying damages award granted by the court to the injured party and for which the insured party is liable, up to the limit of liability established in the insurance policy as the maximum exposure of the insurance company, and subject to any applicable deductible, retention or coinsurance provision.

Uncertainties about the amount of monetary compensation that courts and arbitral tribunals will award as damages in standard situations can hinder the development of *third-party* liability insurance markets or make insurance products covering climate change litigation risks extremely costly, due to the need to incorporate significant safety loadings in the pricing structure. The problem has emerged in the recent past with regard to environmental pollution liability insurance products in several jurisdictions.[22]

For the purposes of the present analysis, it is worth noting that a variety of loss metrics can be derived from risk models, including:

— *Exceedance Probability:* It is the probability that a loss will exceed a certain value in a year. It is presented as a curve, to illustrate the probability of exceeding a range of losses with different values.

— *Return Period:* Return periods of loss events, expressed in years, are the inverse of the exceedance probability. For instance, a loss event that has a 1% probability of occurrence in any given year is characterized by a return period of 100 years, meaning that such a loss has a 1 in 100 chance of being exceeded on an annual basis.

— *Average Annual Loss* ("AAL"): AAL is the average loss of all modeled events or periods, weighted by the probability of their occurrence. In simple

22 See eg scenario 8.

terms, the AAL is the expected loss per year, averaged over many years. It is often referred to as the "pure premium" or "technical cost of insurance," insofar as it can be incorporated into pricing of insurance along with safety and fluctuation loadings, an allowance for expenses and return on capital.

In light of the above, it is evident that the AAL is powerful physical climate risk metric that can have a wide range of possible applications in climate risk management and the domain of reparation for climate change. To some extent, from an insurance point of view the AAL represents the monetary evaluation of acute physical risks from climate change affecting a certain portfolio. To be more precise, the AAL displays the quantification in currency units of the risk of loss arising from extreme weather events, not the portion specifically attributable to their increased frequency and severity due to climate change. Having said that, it must be acknowledged that the uncertainties associated with the estimation of the rate of recurrence and intensity of the extreme climatic events make it difficult to precisely gauge climate change impacts via risk models.[23] Chronic physical risks, associated with longer-term shifts in climate patterns, are also difficult to capture, model and assess.[24]

2. The Costs of Climate Change: beyond Loss and Damage

a. Conceptual Framework

A survey of the literature and relevant policy documents reveals that there is no commonly agreed definition or conceptualization of "loss and damage."[25] In general terms, loss and damage describes the negative impact associated with the adverse effects of climate change caused by extreme events and slow

23 "Decisions affecting climate change adaptation are made under conditions of uncertainty. The uncertainty of future outcomes is at the heart of the climate change discussion" (International Actuarial Association (n 21)).

24 Linda Fache Rousová and others, 'Climate Change, Catastrophes and the Macroeconomic Benefits of Insurance' (2021).

25 "Research on the varying conceptualizations of loss and damage shows that perspectives range from:
— considering all anthropogenic climate change impacts as loss and damage, to
— understanding loss and damage as impacts that occur after limits to adaptation have been reached, to
— defining loss and damage as irreversible and inevitable harms from climate change"
(UNEP (2023), 'Adaptation Gap Report 2023: Underfinanced. Underprepared. Inadequate investment and planning on climate adaptation leaves world exposed').

onset events such as sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification.[26]

From an economic perspective, it is a shared view that the total costs of climate change can be seen to consist of:

- *mitigation costs,* or the costs of reducing GHG emissions
- *adaptation costs,* or the cost of dealing with the consequences of unavoidable climate change,[27] and
- *loss and damage* – the residual costs that cannot be avoided through adaptation and mitigation,[28] which can be further split into
  - *economic loss and*
  - *non-economic loss*.

These three dimensions of the total costs of climate change are linked to one another: higher investments in mitigation costs would reduce loss and damage and make adaptation less costly; higher investments in adaptation costs would also reduce loss and damage. The economic problem, therefore, is how to balance these elements in order to reduce the total costs.

Focusing on loss and damage, with respect to the *economic loss* component monetary quantification is feasible, even if not straightforward. From an accounting and insurance perspective, for instance, there are several ways to monetize a loss consisting in physical damage to or destruction of a building. Such methods can be based on acquisition cost, fair-market value, replacement (new-for-old) value, each of which would result in a different quantification in monetary terms. The same applies for the economic assessment of business interruption losses following a major weather event that can be quantified based on different criteria such as gross profit, gross earnings, extra expenses and contribution margin.

Disasters resulting from extreme weather events such as flood, storms and hurricanes generate a wide range of economic losses and costs to households, businesses and governments:

- Costs related to restoring access and basic services, such as debris removal, emergency management and infrastructure repair;

26 UNFCCC, 'Non-economic Losses in the Context of the Work Programme on Loss and Damage' (9 October 2013) UN Doc FCCC/TP/2013/2. See also: UNFCCC COP, 'Decision 1/CP.16, Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010' (15 March 2011) UN Doc FCCC/CP/2010/7/Add. 1, para 25.

27 See Article 7 of the Paris Agreement.

28 See Article 8 of the Paris Agreement.

— Costs related to meeting basic needs (including living expenses and temporary housing) of those affected by the disaster;
— Losses and costs related to the rehabilitation or reconstruction of damaged buildings and structures, as well as replacement of damaged contents, crops/livestock, machinery or inventory; and
— Lost production, income or revenues (including tax revenue for governments).

Governments, in particular, may face significant costs to support households and businesses that have insufficient financial capacity to absorb the costs that they face, including as a result of limited availability or acquisition of insurance coverage for those losses.[29]

With regard to the evaluation in monetary terms, non-economic loss poses more serious challenges, insofar as non-economic items are not traded in markets and there are no prices or accounting data to refer to. The insurance industry has not specifically addressed the issue of monetary quantification of non-economic losses through risk models, but certain types of non-economic losses are implicitly contemplated in *non-indemnity* insurance, such as life and disability insurance, where payment by the insurance company of a predetermined amount is merely linked to the occurrence of the insured event and does not require an *ex post* monetary assessment of the underlying loss. In this contractual context, the evaluation of the loss of life is based on subjective preferences and willingness and ability to pay the corresponding risk cost, or the *premium* in insurance terms.

It shall be noted, incidentally, that legal systems have adopted different quantification methods to attach a monetary value to the loss of life or physical integrity for the purpose of determining the amount of damages to be awarded in liability cases. While the analysis of this area would go beyond the scope of this paper, it is worthwhile noting, from a comparative viewpoint, that different legal approaches to the monetary quantification of non-economic losses for damage assessment purposes (loss of life, personal injury, pollution damage to

29 See: International Association of Insurance Supervisors, 'A Call to Action: The Role of Insurance Supervisors in Addressing Natural Catastrophe Protection Gaps' (November 2023). According to the ECB and EIOPA, only about a quarter of climate-related catastrophe losses are currently insured in the European Union. This insurance protection gap could widen in the medium to long term as a result of climate change, partly because repricing of insurance contracts in response to increasingly frequent and intense events may lead to such insurance becoming unaffordable. This would further increase the burden on governments, both in terms of macroeconomic risks and in terms of fiscal spending to cover uninsured losses. See: ECB and EIOPA, 'Policy Options to Reduce the Climate Insurance Protection Gap' (April 2023).

natural resources) offer a rich menu of options from which to select possible criteria to evaluate non-economic losses due to climate change.

Similarly, certain elements of climate change-related non-economic losses, such as loss of *tangible cultural heritage* (eg monuments, archive materials, books, works of art, artifacts) could in theory be considered for insurance coverage – and climate change reparation purposes – through *valued* indemnity policies, in which the amount of the indemnity to be paid by the insurer in case of loss, damage or destruction of the insured asset – in this case, tangible cultural heritage – is determined *ex ante* on the basis of an agreed upon appraisal.

b. The Loss and Damage Fund

After the establishment of the Warsaw International Mechanism for Loss and Damage ("WIM") in 2013, loss and damage is now considered the third pillar – besides mitigation and adaptation – of climate action under the United Nations Framework Convention on Climate Change (UNFCCC).[30] Dating back to 1991, when the Alliance of Small Island States proposed an "insurance scheme" aimed at providing financial resources to countries impacted by rising sea level,[31] the idea that loss and damage due to climate change should be addressed by some form of international financial mechanism continued to permeate climate negotiations.

In 2023, upon conclusion of the negotiations at the 28th meeting of the Conference of the Parties to the UNFCCC (COP28) in Dubai, a landmark decision was adopted to operationalize new funding arrangements, including a Loss and Damage Fund ("Fund").[32] The purpose of the Fund is to assist developing countries that are particularly vulnerable to the adverse effects of climate change in responding to economic and non-economic loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events.

30 Kees van der Geest and Koko Warner, 'Loss and Damage in the IPCC Fifth Assessment Report (Working Group II): A Text-Mining Analysis' (2020) 20(6) Climate Policy 729.

31 The proposal – voiced by Vanuatu, then rejected and not included in the UNFCCC as adopted in 1992 – did not contemplate an insurance mechanism, rather a fund alimented by countries based on their relative contribution to global emissions and their share of the global gross national product.

32 UNFCCC COP, 'Decision 1/CP.28, Report of the Conference of the Parties on its twenty-eighth session, held in the United Arab Emirates from 30 November to 13 December 2023' (15 March 2024) UN Doc FCCC/CP/2023/11/Add.1, 2ff.

The Fund will provide financing in the form of grants and highly concessional loans, concessional resources and other financial instruments, modalities and facilities. Article 58 of the decision explicitly indicates that the Fund may deploy insurance mechanisms, risk-sharing mechanisms and pre-arranged finance that augments and complements national resources for addressing loss and damage. The Fund will provide finance for addressing a variety of challenges associated with the adverse effects of climate change, such as climate-related emergencies, sea level rise, displacement, relocation, migration, insufficient climate information and data, and the need for climate-resilient reconstruction and recovery.

The financial support of the Fund may include funding that is complementary to humanitarian actions taken immediately after an extreme weather event; funding for intermediate or long-term recovery, reconstruction or rehabilitation; and funding for actions that address slow onset events. It may also include developing national response plans; addressing insufficient climate information and data; and promoting equitable, safe and dignified human mobility in the form of displacement, relocation and migration in cases of temporary and permanent loss and damage. Developing countries that are particularly vulnerable to the adverse effects of climate change are eligible to receive resources from the Fund.

c. Reducing Vulnerabilities to Climate Change: Ex Ante v Ex Post Financial Management Tools

Whilst it would seem that the present structure and financial resources of the Loss and Damage Fund are inadequate in comparison to the financial requirements of developing countries, in order to enable them to effectively cope with climate change,[33] the operationalization of the Fund at COP28 provides new opportunities to develop and implement innovative risk transfer and risk financing tools, with the aim of reducing vulnerabilities to climate change.

The escalating cost of climate-related disasters imposes a major drain on governmental resources, as governments are not only expected to rescue populations in devastated areas, but also often called upon to cover a large proportion of the losses that are not insured. In times of economic crisis, the need to manage disaster risk efficiently becomes even more pressing in order to maintain economic growth and national budgetary positions: disaster risk financing, therefore, has become an essential and integral part of any

33 See UNEP (n 25).

comprehensive disaster risk management strategy, with a view to optimizing the allocation of public financial resources needed to cover natural hazard risks and losses, and possibly at reducing risk over time.[34]

The effort requires a partnership between public and private sectors, as witnessed by the experience of several jurisdictions in managing the financial impacts of extreme weather events and other climate change-related risks.[35]

From a theoretical viewpoint, governments have the option of financing climate-related disaster losses *ex post* through budget cuts and reallocations, post-event debt financing and taxation, thereby spreading disaster costs across present and future generations. Many countries, however, have complemented their investment in physical risk reduction with *ex ante* disaster risk financing tools. These instruments can address short-term (emergency response), mid-term (recovery) or long-term (reconstruction) financial needs and can be used in combination to cover different risk layers, based on the relative frequency and severity of the expected events. Policy options in this field include

— *government reserves,* such as dedicated contingency reserves for disasters (with allocated funds lapsing at year end), or multi-year disaster reserve funds (with allocated funds building up over time);
— *insurance,* which enables the transfer of risks and indemnifies against damage (eg to cover damage to government assets such as buildings and infrastructure);
— *contingent credit arrangements* with a financial institution or international organization; and
— *catastrophe bonds* or other types of catastrophe-linked securities or derivatives, which provide an alternative means for risk transfer.

Risk financing involves the retention of risks combined with the adoption of an explicit financing strategy to ensure that adequate funds are available to meet financial needs should a disaster occur. Such financing can be established internally through the accumulation of funds set aside for future use or obtained externally through pre-arranged credit facilities. The banking sector, capital markets and international lending institutions are sources of risk financing.

Risk transfer involves the shifting of risks to others who, in exchange for a premium, provide compensation when a disaster occurs, ensuring that any financing gap that might emerge is partially or fully bridged. Risk transfer may be obtained through insurance policies or capital market instruments such as

34 OECD, 'Recommendation of the Council on Building Financial Resilience to Disaster Risks' (adopted on 23 February 2017, revised on 8 November 2023) OECD/LEGAL/0436.

35 See Monti, 'Public-Private Initiatives' (n 11); OECD, 'Disaster Risk Financing' (n 11).

catastrophe bonds.[36] The insurance and reinsurance sectors are the main sources of risk transfer, although capital markets provide an alternative source.

In response to the peculiar insurability problems posed by catastrophic risks – such as the geographical and inter-temporal risk spreading issues and the high cost of capital to cover low-probability/high consequence risks – and in the context of country-specific disaster risks and other possible national factors, governments have entered into partnerships with the private insurance sector with the policy objective of making disaster insurance available to the general public at affordable rates and/or ensuring that private assets exposed to risk are duly covered by insurance.

To this end, special institutional arrangements aimed at the explicit coordination of public and private actions have been set up to deal with losses caused by different catastrophic perils, including extreme weather phenomena.[37] The opportunity to develop an *ex ante* strategy for the financial management of large-scale catastrophes is generally suggested by the observation that purely *ex post* approaches to the compensation of disaster losses may have several limitations.[38] From a legal perspective, the implementation of *ad hoc ex post* compensation is likely to result in inequalities in treatment and lead to discontent.

Possible *ex ante* solutions include the establishment of dedicated catastrophe funds, market-based or state-sponsored disaster insurance and reinsurance programs, alternative risk transfer and alternative risk financing tools – such as risk securitization and contingent capital arrangements – allowing broader risk spreading through capital markets.

Insurance and reinsurance companies are already actively engaged in several climate initiatives at local levels, through public-private partnerships and via transnational platforms, such as the Net-Zero Insurance Alliance, the Global Shield against Climate Risk, the Insurance Development Forum and the InsuResilience Global Partnership, which supports implementing programs and projects related to Climate and Disaster Risk Finance and Insurance.[39]

36 See OECD, 'Risk Awareness, Capital Markets and Catastrophic Risks: Policy Issues in Insurance. No. 14' (12 August 2011).

37 Monti, 'Climate Change' (n 9).

38 In many cases, *ex post, ad hoc* funding is cost-ineffective and untargeted. Delivery of compensation is often too slow and, if the hazard risk exposures are significant, the fiscal burden may be unsustainable for the public authorities in the long run. Moreover, *ex post* allocation of public funds to meet critical needs may divert resources from other projects, and critical decisions have to be made under political pressure. Finally, *ad hoc, ex post* compensation mechanisms may also entail moral hazard, reducing the incentive to take precautions *ex ante* and increasing the total cost of disasters.

39 See InsuResilience Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions.

d. Indemnity-Based v Parametric Risk Transfer and Financing Tools

As explained in section 1.c above, the pay-outs of risk transfer instruments, such as insurance, may be quantified on the basis of actual losses sustained by the protection buyer (indemnity based), or the value of the payment may be agreed upon by the parties irrespective of actual losses and triggered by a physical parameter measuring the intensity of the hazard at given locations (parametric) or by an index comprising multiple measurements of such parameters for each event (parametric index).

Parametric policies provide for a fixed sum to be paid on the occurrence of the event without the policyholder having to demonstrate the extent of its own loss. These instruments make payments based on measures of a parametric index that is assumed to proxy actual losses. Basing pay-outs on such an objective index allows for timely payments, without relying on potentially lengthy and subjective loss assessments or evidence of incurred costs, which is especially important to fulfill emergency management financing need.

Parametric approaches require reliable data and technology to monitor hazard levels, which may be costly to acquire, manage and maintain, presenting significant implementation challenges, but in principle they can be used with all risk transfer instruments and contingency financing approaches. With reference to both economic and non-economic losses due to climate change, innovative parametric risk transfer solutions[40] could be tested with the support of the financial resources made available via the Fund operationalized at COP28.

e. Linking Risk Transfer with Risk Reduction

While risk financing and transfer mechanisms can reduce financial vulnerabilities and optimize cost allocation, in the long term they are not a solution per se: with a view to strengthening financial resilience, a key challenge, therefore, is linking risk financing and transfer tools with risk prevention, reduction, mitigation and adaptation objectives, so as to improve the overall risk profile.

As mentioned, extreme climate events can have severe financial and economic implications for governments, businesses and households through the direct damage they cause to buildings, equipment and infrastructure, as well as through indirect consequences such as business interruption, loss of employment and output, and decreased fiscal revenues. These impacts are

40 See the Climate Risk Index, one of the longest-running annual climate impact-related indices that analyzes climate-related extreme weather events' degree of effect on countries (Germanwatch Climate Risk Index).

particularly severe for emerging economies, and especially for the poorest households within those countries, due to their more limited capacity to manage climate risks. Developing countries, in fact, are generally viewed as the most vulnerable to climate change due to their lower levels of physical and financial resilience, lower financial coverage through private insurance markets and more limited fiscal flexibility.[41]

Insurance plays a key role in reducing vulnerability by protecting households, businesses and governments from the financial impacts of climate change-related harms. Moreover, insurance has been identified as a useful tool in climate risk management: in addition to financial compensation for losses caused by an extreme weather event, insurance can provide incentives for adaptation, risk mitigation and preparedness before a disaster. In addition to providing the resources necessary to fund post-disaster needs, risk financing and transfer markets can convey signals regarding disaster risks and incentivize cost-effective disaster risk reduction measures.

Risk reduction is key, insofar as the expected impacts of climate change could potentially limit the availability of affordable insurance in the future, given the significant expected increase in risk cost.

Market-based risk financing and transfer mechanisms can play an important role in reducing vulnerability and building resilience to the impacts of extreme climatic events.[42] Working in this direction, the private insurance market becomes a strategic tool for prevention and not just a loss compensation mechanism.

With specific reference to floods and storms, it is also especially important to leverage opportunities to rebuild damaged assets in a more resilient way in the aftermath of major events. A full recognition of the central importance of what was once known as the "building back better" principle (now labelled "building forward more resilient") – which appears to be missing in most systems – would require a radical change of mindset and a completely new approach to the design and implementation of financial management tools – including insurance –, insofar as the amount of financial resources to be made available in case of occurrence of a disaster should not be measured against the *status quo ante,* rather it should be calculated with a view to cover the cost of re-configuring the risk profile and improve resilience going forward.[43]

41 See InsuResilience (n 39).

42 JoAnne Linnerooth-Bayer and others, 'Insurance as a Response to Loss and Damage?' in Reinhard Mechler and others (eds) *Loss and Damage from Climate Change: Concepts, Methods and Policy Options* (Springer 2019) 483.

43 An example of integration of this concept into an insurance system is offered by a recent initiative of the UK Flood Re scheme. In April 2022 the UK Flood Re scheme – a

3. Conclusions

Assuming that the relevance of climate change for the purposes of reparation is determined by its impact on individual and collective rights, it follows that a significant portion of such harm is projected to occur in the future. The adverse impacts of climate change, therefore, can be conceptualized for reparation purposes as an increased risk of damage since climate change produces a "risk difference" that is contingent on several variables. Consequently, the evaluation of climate change-related harms necessitates the capacity to assess and quantify risk and risk differences in monetary terms, which underlines the critical importance of understanding the perspectives of insurance, reinsurance and financial sector players on the modeling, valuation and quantification of climate change-related harms.

Over the past decades, insurance and reinsurance market players worldwide have been investing significant resources in the research, study, modelling, assessment and quantification of climate change-related risks and their potential harmful consequences, with the aim of developing sophisticated climate-risk transfer tools that cater to the needs of households, corporations and policy makers.

Improvements in the scientific knowledge and understanding of climate change, its drivers and its impacts – including the increase in the frequency and severity of extreme weather events – by reducing uncertainty expanded the role of insurance and reinsurance in this field.

In consideration of climate variability and changing weather patterns, statistical analysis based on historic data becomes less reliable and climate risk assessment must be performed adopting a forward-looking approach, which implies significant uncertainties. The predictability of long-term climate trends must be balanced with the uncertainty of climate projections and then translated into the real economic impacts of climate change.

Probabilistic risk models have been developed by the insurance industry (alongside scenario models) to predict and analyze the potential future impacts of climate change. The output of these models converts risk into a metric of potential loss, which in turn allows for comparability of risks across categories, perils and geographic locations. The AAL, in particular, is a powerful

joint initiative between the United Kingdom's (UK) insurance industry and the UK government to promote the availability and affordability of flood insurance – launched a new proposition inspired by the "build back better" principle: participating home insurers will offer customers access to reimbursement costs of up to GBP 10,000, over and above work to repair damage and loss caused by a flood. The funds will pay for the installation of flood resilience measures that will reduce the impact of future flooding.

physical climate risk metric that can have a wide range of possible applications in climate risk management and the domain of reparation for climate change, contributing to the determination of a price for risk and risk differences.

In 2023, upon conclusion of the negotiations at COP28 in Dubai, a decision was adopted to operationalize new funding arrangements, including a Loss and Damage Fund. The purpose of the Fund is to assist developing countries that are particularly vulnerable to the adverse effects of climate change in responding to economic and non-economic loss and damage associated with the adverse effects of climate change, including extreme weather events and slow onset events. The Fund may deploy insurance mechanisms, risk-sharing mechanisms and pre-arranged finance that augments and complements national resources for addressing loss and damage.

Insurance and reinsurance market players are now called upon to provide support in the design and implementation of innovative risk transfer and risk financing solutions aimed at reducing the total costs of climate change and at improving financial resilience of the exposed populations, making the most efficient and effective use of limited available financial resources.

Arden Rowell

Chapter 3: Psychology and the Quantitative Valuation of Climate Loss and Damage

1. Psychological Challenges in Valuing Climate Harms

This section briefly summarizes key takeaways from research in law and psychology that explores the psychology of climate harms. It then flags ways in which the psychological challenges people face in valuing climate harms may interact with the ability of law – and of judges in particular – to effectively estimate those harms.

Past research in the psychology of environmental law suggests that people face systematic challenges in perceiving, understanding, and valuing environmental injuries in general, and climate injuries specifically.[1] This can lead subconsciously to under-perception, under-estimation, and under-valuation of climate harms, even by sincere and otherwise well-informed individuals.[2]

Several of the characteristics of climate harm that trigger undervaluation are shared with other environmental harms. These include:

— diffusion, or the fact that climate harms tend to be spread across space and time;[3]

— complexity, or the fact that climate damage exhibits complex and nonlinear impacts and relationships;[4] and

1 Arden Rowell and Kenworthey Bilz, *The Psychology of Environmental Law* (NYU Press 2021).

2 *Ibid*. 219-261.

3 The temporally and spatially diffuse consequences of climate change trigger a number of phenomena that tend to make climate change be perceived as less serious and less salient. These phenomena include nonidentifiability, the "unavailability heuristic," out-group bias, and present bias. See *ibid*.; for a summary of related psychological research, see also *ibid*. 31-62.

4 Among other factors, the extraordinary complexity of climate change generates a high cognitive and emotional load, creating an incentive to (over)rely on simplifying heuristics and triggering motivated cognition. For a summary of related psychological research, see *ibid*. 63-92.

— nonhuman character, in that many of the harms of climate change accrue to nonhumans and via nonhuman processes.[5]

From a psychological perspective, these characteristics tend to make climate change harms (alongside other environmental harms) prone to neglect. Notably, neglect of such harms is not necessarily purposeful or even conscious.

Climate change exhibits the environmental qualities of diffusion, complexity, and a nonhuman character. Yet climate harms also exhibit other characteristics that make them especially psychologically "wicked" (alongside their economic, political, and ethical wickedness).[6] These include the:

— extraordinary magnitude of many climate harms;[7]
— unprecedented nature of climate change;[8] and
— the moral impacts,[9] many of which relate to questions of reparations.

These characteristics altogether make cognitive and emotional processing of climate harms extraordinarily burdensome for individuals. These burdens, in turn, make decision-making vulnerable to a panoply of psychological heuristics, biases, and motivations. Notably, these processes can interfere with and even obstruct individuals' ability to perceive climate harm; understand

5 The nonhuman impacts of climate create barriers to empathy; furthermore, where empathy is overcome, emotional responses to the overwhelming scope of impacts may trigger denial. Humans may also struggle to process nonhuman processes and impacts via brains that are optimized to process (human) social processes (the so-called "social brain"). For a summary of related psychological literature see *ibid*. 93-116 and Arden Rowell, Kenworthey Bilz and Howard Jyun-Syun Li, 'Environmental Law and Psychology' in Rebecca Hollander Blumoff (ed), *Handbook in Law and Psychology* (Routledge 2025).

6 Rowell and Bilz, *Psychology* (n 1) 219-261; Richard Lazarus, 'Super Wicked Problems and Climate Change: Restraining the Present to Liberate the Future' (2009) 94 Cornell Law Review 1154.

7 The extreme high magnitude of potential impacts exacts a high cognitive and emotional load, and may trigger psychic numbing, while emotional responses may trigger or exacerbate denial and/or motivated reasoning. See Rowell and Bilz, *Psychology* (n 1) 219-261; Jonathan Wiener, 'The Tragedy of the Uncommons: On the Politics of the Apocalypse' (2016) 7(S1) Global Policy 67-80; Cass Sunstein, *Averting Catastrophe: Decision Theory for COVID-19, Climate Change, and Potential Disasters of All Time* (NYU Press 2021); Arden Rowell, 'Regulating Best-Case Scenarios' (2021) 50(4) Environmental Law 1105.

8 The novelty of climate change undermines common tools for debiasing, and may make them seem less credible, in a "tragedy of the uncommons." See Rowell and Bilz, *Psychology* (n 1) 219-261; Wiener (n 7).

9 The disturbing moral quagmire presented by climate change may generate motivated cognition and cognitive distortions, and emotional responses may trigger or exacerbate denial and/or motivated reasoning. *See* Rowell and Bilz, *Psychology* (n 1) 219; Albert Bandura, *Moral Disengagement: How People Do Harm and Live with Themselves* (Worth 2016); Wouter Peeters, Lisa Diependaele and Sigrid Sterckx, 'Moral Disengagement and the Motivational Gap in Climate Change' (2019) 22 Ethical Theory and Moral Practice 425.

complex climate science; attach emotional meaning to widespread, distant, foreign, or nonhuman harms; or value the impacts either of climate change itself or the laws and policies that seek to address it.[10]

Importantly and ironically, the psychological distortions that make climate change hard to process can actually be exacerbated for individuals who feel a sense of personal, causal, or moral connection to climate harms (or who are being encouraged to feel that connection). This is because normal people tend to feel uncomfortable at harming others.[11] As a result, they are prone to engage in a number of (subconscious) mental maneuvers known collectively as "moral disengagement" that minimize their discomfort[12] – but which also have the effect of making climate harms (subjectively) smaller and less concerning. As a result of moral disengagement, a polluter may erroneously undervalue the environmental impacts of their actions not because they are posturing,[13] but because their sincere intuitions about the damage they have caused are distorted by their own responsibility.

How widespread are the psychological phenomena on which this research is based? One thing to note is that intelligence and expertise do not appear to grant immunity to human psychology; judges, for example, still exhibit psychological heuristics and biases in their approach to legal puzzles.[14] That said, one limitation of psychological research is that it has historically depended upon so-called "WEIRD" – Western, educated, industrialized, rich, and democratic – experimental subjects, and that its extension to populations outside those categories is (thus far) less well-studied.[15] Application beyond these populations

10 See Rowell and Bilz, *Psychology* (n 1) 219–261.

11 See *ibid.*; Bandura (n 9); Wouter, Diependaele and Sterckx (n 9).

12 These include minimization, displacement of responsibility, depersonalization and dehumanization, palliative comparisons, and moral justification. See Bandura (n 9); Shaul Shalvi and others, 'Self-Serving Justifications: Doing Wrong and Feeling Moral' (2015) 24(2) Current Directions Psychological Science 125; Wouter, Diependaele and Sterckx (n 9).

13 Arden Rowell and Kenworthey Bilz, 'The Psychology of Pollution Control' (2022) 54 Arizona State Law Journal 899.

14 Psychological research on this point – albeit primarily performed in the United States on domestic courts – finds that, for the most part, judges are subject to the same cognitive, emotional, and motivational challenges as other people. See Chris Guthrie, Jeffrey Rachlinski and Andrew Wistrich, 'Inside the Judicial Mind' (2000) 86 Cornell Law Review 777; Chris Guthrie, Jeffrey Rachlinski and Andrew Wistrich, 'Blinking on the Bench: How Judges Decide Cases' (2007) 93 Cornell Law Review 1; Jeffrey Rachlinski, Chris Guthrie, and Andrew Wistrich, 'Inside the Bankruptcy Judge's Mind' (2006) 86 Boston University Law Review 1227; Andrew Wistrich, Chris Guthrie, and Jeffrey Rachlinski, 'Can Judges Ignore Inadmissible Information? The Difficulty of Deliberately Disregarding' (2005), 153 University of Pennsylvania Law Review 1251.

15 Joseph Henrich, Steven J Heine and Ara Norenzayan, 'Most People Are Not WEIRD' (2010) 466 Nature 29; Rowell and Bilz, *Psychology* (n 1) 140–145.

is thus more likely to falter. Another limitation, common to empirical research of all kinds, is that the findings are only so good as the methods on which they were based. Notably, however, the empirical research above suggests that *non*-empirical intuitive methods – for example, reasoning intuitively about climate perceptions, behaviors, or impacts without recognizing the potential impact of psychology – will be especially prone to subconscious error in regards to climate change harms.

2. Implications of the Psychology of Climate Harm for Litigation

The prior section flagged the psychological tendency to underestimate climate harms. What are the legal and institutional implications of this tendency for climate reparation, and for the possibilities and limits of litigation? This section addresses this question first by considering generalizable implications for law and policy that flow from a recognition that individuals struggle to perceive, understand, and value climate harms. It then sketches implications more specific to loss and damage through a discussion of scenario 1, which is based upon the *KlimaSeniorinnen* case.[16]

a. General Implications

One general takeaway of the research summarized above is that individuals' intuitions about climate harms are limited in important and systematic ways. As noted, such intuitions are prone to incompletion and underestimation, and may be particularly deflated where the estimator knows themselves to have a causal connection to the harm. Intuitive estimations of climate harm should therefore be regarded as presumptively unreliable. This generates potentially troubling implications for the management of climate harms, including that:

- Markets that aggregate individuals' valuations of climate and environmental harms are likely to be systematically distorted, towards failing to recognize and/or minimizing climate harm.
- Bilateral negotiations and settlement agreements based upon the subjective perceptions of harm of both parties may lead to sincere underestimation of climate damage even in circumstances where all parties are acting in good faith.

16 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR).

— Multilateral negotiations (undertaken by humans) may be affected by sincere underestimation of climate harm, especially (though not only) by states with higher emissions/contribution levels.
— Judges, who are human, may also be vulnerable to intuitive undervaluation of climate harms.

It may also have important implications for the relative wisdom of qualitative and quantitative approaches to managing climate harm (as addressed further in the next section).

b. Application to Loss and Damage in Scenario 1 / KlimaSeniorinnen

Teasing out the implications of psychology on the management of climate loss and damage may be easier when applied to specific facts. Consider, on this front, the facts of scenario 1, or the *KlimaSeniorinnen* case, in which a group of elderly people brought suit in the European Court of Human Rights on the grounds that a state – Switzerland – was responsible for causing them climate-related harms in violation of the European Convention of Human Rights. Plaintiffs sought to hold the respondent responsible for its inadequate mitigation measures, as well as a just satisfaction award as reparation.

From an environmental law and psychology perspective, this scenario triggers at least three concerns:

1. **General dampening of perceived incentive to bring suit.** Bringing suit of any kind requires plaintiffs to recognize that they have been harmed – and the greater the perceived harm, the greater the incentive to bring that suit. General underestimation of climate harms acts as a subconscious dampener on perceived harm, however, meaning that the plaintiffs in climate suits must overcome their own individual tendencies to underperceive, underestimate, and minimize climate harms in order to perceive that they have been harmed. The plaintiffs in this (and other) cases may overcome psychological dampening enough to bring suit – but that does not necessarily mean that even they have accurately estimated the full extent of climate harms, and the zealousness of the pursuit of remedy may in many cases be chilled by marginal psychological impacts. Such impacts may help to explain the relative rarity – at least in the past – of claims of this type being brought.
2. **The possibility of sincere (if misguided) polluters.** Decision-makers within Switzerland – or any state – may sincerely underperceive the climate harms that its actions (or inactions) cause. Such sincere underperception is easily misunderstood as political or pretextual posturing, but the psychological research suggests that *in fact* polluters face barriers to

perceiving the extent of the harm caused by their pollution. This can lead them to "over"-pollute,[17] and also may lead to reduced subjective legitimacy for the ECHR of (even an accurate) just satisfaction award. The perceived legitimacy of courts like the ECHR who engage in climate reparations may be impacted because affected states (and their populace) may sincerely perceive even proportionate judicial response as disproportionate. It also problematizes the judicial choice to leave implementation decisions to the responsible state, given that the state's own judgment of the harms it has caused is likely to be compromised.

3. **The danger of undervaluation by all parties and the court.** Courts face intuitive cognitive and psychological challenges in attempting to calculate climate damage, and as noted above, even the plaintiffs may underestimate that damage because of the psychological complexity of the matter. Notably, where all parties may be affected, traditional safeguards such as a neutral arbiter and adverse parties may not be sufficient to ensure that all climate damage is perceived, valued, and addressed. This presents real challenges for courts like the ECHR whose decisions about whether climate action is adequate depend upon of the perceived harm caused by those (in) actions, and may lead to failing to recognize that important thresholds have been crossed, as well as to deflated estimates of damage. While in some cases – as with *KlimaSeniorinnen* itself – the harms may be so significant that actions appear inadequate even given the tendency towards underperception, in aggregate, these impacts will tend to subconsciously reduce the number of times that climate actions are found to be inadequate, as well as lowering the quantity of compensation that appears just.

In the *KlimaSeniorinnen* case, as in other climate reparations cases, legal questions for judges often depend upon the judge's perception of the magnitude of the harm caused. In human rights cases, such determinations will often depend upon determining that a threshold has been crossed, for example that action was inadequate or insufficient (given the harm). For these cases, the risk of underperception of climate harms leads to a risk of underrecognition of human rights. Calculations of loss and damage can also lead to monetary estimates of harm, however, including via awards of just satisfaction. In these cases, the risk of underperception of climate harm leads to a risk of underestimating the quantity of compensation that is just. Both of these concerns are serious, and mean that grappling with the psychology of climate change harm has real legal consequences.

17 See Rowell and Bilz, 'Pollution' (n 13).

3. Responding to the Psychological Challenges of Estimating Climate Harms

How should law respond to the psychological point that people's intuitive estimations of climate harm are likely to be especially unreliable? One easy but dangerous response would be to accept the descriptive findings of psychology, but to reject any prescriptive impact – for example, by concluding fatalistically that there is nothing to be done about the existence of human psychology, so that we might as well continue on with legal and institutional approaches such as we have. This response is dangerous because it would perpetuate systematic underresponsiveness to climate harms generally and climate loss and damage specifically. Another – better – response would be to acknowledge the descriptive findings, and then to seek prescriptions for legal and institutional approaches to addressing the harm of climate change that account for (and where possible counterbalance) the distortions that human intuition can introduce.

What would it look like to prescribe a response to the unreliability of people's intuitions regarding climate harms? One response, which may be particularly relevant to loss and damage where the danger of moral disengagement is especially high, is to systemize reliance upon third parties for the calculation of damages. Note, however, that even third-party intuitions will be subject to the constellation of psychological factors that affect valuation of diffuse, complex, nonhuman harms with extraordinary magnitude and an unprecedented nature. To address the psychological impacts of those characteristics, it will be important to adopt systems that move decision-making beyond reliance upon intuitive judgments of harm.

Developing reflective approaches to valuation of climate harms may, then, require legal valuations of climate harm away from the fast, intuitive systems of psychological processing – what psychologists sometimes call "System I" processes – that are especially vulnerable to intuitive misstep, and towards slower, deliberate "System II" processes that allow people to process information coolly, systematically, and reflectively.[18] One way of doing this is to quantify.[19] The systemized thinking required by quantification can act as a kind of psychological tonic to (some) of the psychological distortions that plague evaluation of climate harms. In this sense, quantified estimates of the harm of climate change may not only be valuable to legal processes from an

18 Daniel Kahneman, *Thinking: Fast and Slow* (Farrar, Straus & Giraux 2013).

19 Arden Rowell, 'Quantitative Valuation in Environmental Law' (2021) 96(4) Notre Dame Law Review 1539.

democratic, instrumental or pragmatic perspective – where they allow, for example, for the calculation of damages – but also from a psychological perspective. For a valuation of climate harm – likely to be so very vulnerable to intuitive distortion – these benefits may be considerable.

This is not to say that quantification of climate harms is a panacea. It is, of course, costly and complicated to develop quantified (and/or monetized) estimates of climate harm – costs and complexities that are only increased by the psychological challenges of the task. And the psychological impact of systemization can only go so far; System II thinking reduces the impact of heuristics and many biases but does not somehow transcend the limitations of human thought; phenomena such as motivated cognition may well still operate.[20] Furthermore, it is clearly the case that some object to quantification – or even more, monetization – on philosophical grounds. Indeed, putting any explicit quantified – much less monetary – value on environmental harm, or on important impacts of climate change such as the loss of human life, is repugnant to many.[21] For these people, the choice to monetize climate damages at all is a questionable ethical choice in itself. Not everyone ascribes to this view, of course; defenders of the ethics of monetization have suggested in the past that the practice is ethically appropriate because public policymakers' decisions impact important risks – including mortality risk and risk to the environment – whether they explicitly monetize those risks or not.[22] On this view, policymakers who refuse to *explicitly* monetize nevertheless *implicitly* value risks in money when they assign (or fail to assign) public or private resources to address those risks. In this sense, the choice is not between monetizing mortality (or environmental) risks *or not,* but rather between monetizing them implicitly or explicitly – and explicit valuation has important democratic[23] and deliberative benefits.[24]

20 Dan Kahan, 'Ideology, Motivated Reasoning, and Cognitive Reflection' (2013) 8(4) Judgment and Decision Making 407.

21 Frank Ackerman and Lisa Heinzerling, *Priceless: On Knowing the Price of Everything and the Value of Nothing* (New Press 2004); Frank Ackerman and Lisa Heinzerling, 'Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection' (2002) 150 University of Pennsylvania Law Review 1553.

22 Cass Sunstein, *Risk and Reason: Safety, Law, and the Environment* (CUP 2004); Cass Sunstein, 'The Limits of Quantification' (2021) 102(6) California Law Review 1369.

23 Cass Sunstein, *Laws of Fear: Beyond the Precautionary Principle* (2005).

24 Sunstein, *Risk* (n 22); Matt Adler and Eric Posner, *New Foundations of Cost-Benefit Analysis* (Harvard University Press 2006).

What does an understanding of the psychology of climate harms add to this debate? Mostly, an additional reason to value the process of systemization that quantification requires. This does not mean, of course, that qualitative approaches to climate harm must always be rejected for every and all circumstances. It does mean, however, that any rejection of quantified approaches – including those based upon ethical grounds – must be strong enough to tolerate the increased psychological hazards of reliance on more intuitive methods.

a. The Impact of Quantification Methods on "How Much" Climate Harm is Valued

Quantifying climate harms may act as a partial tonic to some intuitive distortions in the valuation of climate harm. It also, importantly, allows for the tracking of the impact of others, and for identification of where and how different choices and methods in valuation can predictably affect the substance of that valuation. Indeed, past research on quantified valuation suggests that there are several methodological choices that will predictably drive apparent quantified value up or down.[25] Consider, on this front, this abbreviated "guide":[26]

Choices that Predictably affect Valuations of Climate Impacts

Methods that Drive Valuations UP	Methods that Drive Valuations DOWN
— Increase scope (spatial scope, time period of interest, and/or number of targeted goods).	— Decrease scope (spatial scope, time period of interest, number of targeted goods).
— Adopt a low discount rate.	— Adopt a high discount rate.
— Elicit people's willingness to accept climate losses.	— Elicit people's willingness to pay for climate gains/improvements.
— Emphasize scarcity and uniqueness, as well as perceived ties to identity.	— Dampen perceived scarcity and uniqueness and ties to identity.

These factors can be used as tools for advocacy – by individuals or states wishing to make climate harms seem larger or smaller – or as tools for understanding, as for explaining how it is that different aspects or approaches to climate harms may generate substantially different (quantified) valuations.

How much does it matter that perceived climate harms may be substantially impacted by the methods used to measure them? Past research on quantitative valuation in environmental law suggests that environmental valuations – including climate valuations – are used in several different ways within

25 Rowell, 'Valuation' (n 19).

26 This guide is adapted from *ibid.* 1549.

environmental law and policy.[27] Different uses pose different methodological and informational needs, and are differently sensitive to small changes in either; this means that, depending upon the purpose to which a valuation is put, there will be more or less payoff for engaging with the methods of valuation. More particularly, this research suggests that quantified valuations are routinely used in at least three different ways:[28]

1. to inform damage calculations (such as the calculation of the contributions to and disbursements from a loss and damage fund such as the one in scenario 4, or the calculation of damages such as in scenario 8),
2. to inform stringency (such as whether the next step in mitigation is justified/should have been required, as in scenario 5), and
3. to determine status or whether a threshold has been reached (such as whether state action to prevent climate harm was "adequate," as per scenario 1/*KlimaSeniorinnen*; the yes/no determination of whether a state has been "specially affected" sufficiently to ground standing, as per scenario 7; or whether an absolute principle such as the "no harm" principle has been violated, as per scenario 10).

Of these uses, calculation of damage calculations is the most consistently sensitive to changes in valuation approach and method, because any change in quantified value will change the quantity of damages calculated. Such changes will be scalar, however, rather than discontinuous. The opposite is true for uses of valuation that inform stringency or status determinations. For these uses, whether a change in valuation methodology has a legal impact will depend upon whether the difference between methods justifies either a "jump" to a higher level of stringency or exceeds the threshold necessary to grant status. Attention to the way that a valuation is used may therefore pay dividends: in some cases, and for some uses, the choice of valuation method may change what the law requires.

When it comes to the quantitative valuation of climate harms, then, this research suggests that an important first step in trying to develop a quantitative valuation is to be clear about the purpose for which it will be used – as well as the sensitivity of that purpose to various valuation estimates. This can help match legal decisions with the level and specificity of valuation that is needed. This is helpful both in ensuring that more resources are not invested in quantitative valuation than are needed, and in ensuring that consequential legal decisions also do not rest on insufficiently specific valuations.

27 *Ibid.*

28 *Ibid.*

4. Quantitative Climate Valuations in the US – the Social Cost of Carbon

The above section argued that adoption of quantified estimates of climate harms can be psychologically valuable by encouraging development of reflective, non-intuitive decision-making. That said, quantification can in practice also generate psychological and ethical issues of its own, especially where quantified estimates are transferred across legal and ethical applications. On this front, the US experience regarding quantification of climate harms is potentially useful for several reasons. First, it illustrates a way that litigation has significantly changed climate law and policy (in the United States specifically, though with some relevance to the rest of the world) by requiring that US government agencies account for climate harms in their policymaking. Because US government agencies have been legally required to account for climate harms, and because of US executive policy that requires those harms to be quantified and monetized, the US has invested substantial resources in calculating its quantified and monetized estimate of (global) climate harms. The resulting calculation – called the "Social Cost of Carbon" (SCC) or, occasionally, the "Social Cost of Greenhouse Gases" – is a seemingly helpful starting point for other legal decision-makers when they seek either a monetized estimate of (global) climate harm, or ideas for methods for calculating such estimates. That said, the specific ethical choices that were made to calculate the SCC can be instructive about the ethical decisions that underlie valuations of climate harm. This latter point is particularly important insofar as it illustrates that transferring quantified/monetized estimates of climate harm, such as the US's SCC, necessarily import the ethical choices that underlie them into any new analysis into which they are brought. This may or may not be ethically and legally appropriate, and should at least be done knowingly rather than accidentally.

a. The US Social Cost of Carbon as a Quantified and Monetized Estimate of (Global) Climate Harm

The SCC is a standardized, monetized estimate of the harm caused by each incremental emission of a ton of carbon dioxide, and it is routinely used by US government agencies to inform policymaking in light of climate change. The SCC was first calculated in response to a 2007 legal case – *Center for Biological Diversity v. National Highway Traffic Safety Administration* – which held that it was illegal (arbitrary and capricious) for US agencies to ignore the climate impacts of their actions (even while monetizing the costs and benefits

of other impacts).[29] To avoid having further regulatory actions overturned, then-President Obama directed the creation of an Interagency Working Group (IWG), and told them to calculate a "Social Cost of Carbon" based on the best available science.[30] Notably, because this calculation is understood to be judicially required to satisfy US administrative law requirements, it – unlike much of US climate law and policy – is not entirely subject to changes in the US Presidency. During President Trump's first administration, for example, agencies were still required to use an SCC when quantifying the impacts of proposed government actions[31] – though the methods for monetization were "adjusted" (for example, by being limited to domestic climate impacts, as discussed in some further detail below) to accord with the ethical/political preferences of the administration. When President Biden's administration took over, he then returned calculation of the SCC to his preferred methods (eg by returning to the Obama-era policy of accounting for the global impacts of climate change).[32]

Under the Biden administration, estimates for the SCC ranged from USD 51/ton (by the IWG) to USD 190/ton (under the US Environmental Protection Agency).[33] Historically, the monetized value has ranged even further, falling from as low as USD 3/ton (under the first Trump administration).

From the perspective of an international audience interested in the relationship between litigation and the valuation of climate harm, the SCC is an interesting example of an unusual (but still potentially important) type of litigation impact. Where a monetized estimate of the harm caused by each incremental emission of a ton of carbon dioxide is desired for judicial or other purposes, moreover, the US government's calculation of the SCC can at least seem to be a valuable starting point. The US SCC calculations have, for example, been used by Canada, Germany, the United Kingdom, and Israel in various legal contexts.[34] International uses and applications should, however,

29 *Center for Biological Diversity v National Highway Traffic Safety Administration* 538 F.3d 1172 (9th Cir 2008).

30 Interagency Working Group on Social Cost of Carbon, 'Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866' (2010).

31 Executive Order 13783 (28 March 2017).

32 IWG, 'Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide' (February 2021).

33 EPA, 'Report on the Social Cost of Greenhouse Gases: Estimates Incorporating Recent Scientific Advances' (November 2023).

34 See eg Environment and Climate Change Canada, 'A Healthy Environment and a Health Economy: Canada's Strengthened Climate plan to Create Jobs and Support People, Communities, and the Planet' (2020); The Israel Democracy Institute and the

be made while being aware of the ethical choices that are imbedded within the SCC's calculation (as discussed in more detail below).

b. Ethical Choices Inside Valuations of Climate Damage

Any valuation of climate damage used in any context – including in litigation – rests upon a determination of multiple ethical questions, including the appropriate temporal and geographic scope for the valuation (eg national or international), as well as multiple distributional questions such as how to account for the harms to old versus young, foreign versus domestic, and wealthy versus poor.[35] Although such choices can be implicitly imbedded into qualitative measures of climate harm (and thus may be difficult to disentangle from other qualitative concerns), they can be explicitly identified and traced when incorporated into quantified and monetized estimates of harm such as the SCC.[36] To show how such ethical choices are imbedded into valuations, this section therefore focuses upon how several such choices impact monetized valuation in the SCC. The main takeaways of this section are twofold: first, that it is important to be aware of the ethical choices that undergird climate valuations, whether quantified and monetized or not; and second, that use of a valuation such as the SCC imports whatever ethical choices were used inside of its calculation.

A few examples of the types of important ethical puzzles imbedded in (monetized) valuations may be useful. Consider, on this front, the decision of how much money to assign as a monetary "value" concomitant to the loss of a human life. (Set aside – for the moment – objections to monetization; here we are thinking of "how" to do this, and the choices imbedded in that, rather than "whether.") The typical economic method used in the US for this is called the "Value of a Statistical Life," or VSL, and relies upon calculating how much money people are expected to exchange – in fact, be "willing to pay" – to reduce their own chances of dying by a small increment, for example 1/10,000.[37] This number is then multiplied out to give an average amount of money that

Minister of Environmental Protection, 'Carbon Pricing in Israel' (2022); German Environment Agency, 'Methodological Convention 3.0 for the Assessment of Environmental Costs' (2019).

35 Arden Rowell, 'Ethical Choices Inside Regulatory Cost-Benefit Analysis' (2021) 19 The Georgetown Journal of Law and Public Policy 693.

36 Arden Rowell, 'Foreign Impacts and Climate Change' (2015) 39 Harvard Environmental Law Review 371; Arden Rowell and Lesley Wexler, 'Valuing Foreign Disasters in International Environmental Law' in Jacqueline Peel and Davis Fisher (eds), *Role of International Environmental Law in Disaster Risk Reduction* (Koninklijke Brill 2016) 248.

37 Kip Viscusi, *Pricing Lives: Guideposts for a Safer Society* (Princeton University Press 2018).

people would pay, in aggregate, to prevent the loss of one life. (The US government typically uses a figure of about 10 million USD, based upon a series of studies, mostly of US workers.) US government agencies then use these figures to determine questions like how stringent environmental protections must be to be "cost-justified." If 10 lives would be saved by a regulation, regulators apply the USD 10 VSL to determine that that would be equivalent to a USD 100 million regulatory benefit.

Readers may already be thinking of the ethical choices involved in calculating and applying such a number. There are many.[38] To flag a few, however: whose lives are being valued? Do future generations have the same "value" as the lives of those living today?[39] Is there a difference in the "value" of saving an elderly life, or a child's life?[40] Is there a difference in the value of saving the life of a poor person or a wealthy one (and if so, for which person should more resources be expended)?[41] Should the same "value" apply regardless of whether lives saved are within a state's borders – or those of an allied state?[42] What about for lives within an enemy state?[43]

Climate change can be expected to cause significant loss of life; as a result, valuations of climate harm will typically include some valuation of lives. But similar questions arise when it comes to ecological harm. Consider, on this front, the question of "national" versus "international" valuations of harm. Should valuations of climate damage value harm differently depending upon where – within which political borders – the harm accrues?[44] Are lives, or ecological damage, differently "valuable" depending upon where they are at threat? Are there uses or applications where nations are justified in valuing domestic harms differently than international or "foreign" ones – for example, when it comes to determining the cost-effectiveness of adaptation strategies, or to allocate domestic resources?

38 Rowell, 'Choices' (n 35); Daniel Hemel, 'Regulation and Redistribution with Lives in the Balance' (2022) 89(3) The University of Chicago Law Review 651.

39 Arden Rowell and Cass Sunstein, 'On Discounting Regulatory Benefits: Risk, Money, and Intergenerational Equity' (2007) 74(1) The University of Chicago Law Review 171; Richard Revesz, 'Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives' (1999) 99(4) Columbia Law Review 941; Rowell, 'Choices' (n 35).

40 Symposium: Mortality-risk Valuation and Age (2007), Review of Environmental Economics and Policy.

41 Rowell, 'Choices' (n 35).

42 Arden Rowell and Lesley Wexler, 'Valuing Foreign Lives' (2014) 48(2) Georgia Law Review 499; Rowell and Wexler, 'Valuing Foreign Disasters' (n 36).

43 Rowell and Wexler, 'Valuing Foreign Lives' (n 42).

44 Rowell, 'Impacts' (n 36); Rowell and Wexler, 'Valuing Foreign Lives' (n 42); Rowell and Wexler, 'Valuing Foreign Disasters' (n 36).

These are not merely rhetorical questions. They are questions that must – implicitly or explicitly – be answered in any scheme that attempts to value climate harms, whether qualitative or quantitative. And even quantitative aggregate measures, such as the SCC, can imbed the answers to these questions in ways that may be difficult for even savvy decision-makers in other jurisdictions and fields to detect.[45]

To see how this can work, consider what may be the most "obvious" way that the SCC makes an ethical decision: in deciding whether to include foreign impacts in its calculation, or whether to only estimate the harms of climate change to the United States.[46] This was the primary difference between the executive policies of Presidents Trump and Obama/Biden – and was primarily responsible for the difference between Trump's SCC estimates (as low as USD 3/ton) and Obama-era estimates of about USD 43/ton. (It is also a large enough difference that it was the primary justification Trump's EPA gave for reversing Obama's primary domestic action on climate change mitigation, the Clean Power Plan.)

Other imbedded ethical choices are even less obvious, however. In addition to varying based upon whether domestic-only or global harms were calculated, the SCC also imbeds choices about discount rate as well as the relative value of future and present lives (assuming that future lives are equally valuable to present ones, but that the present value of future life-saving declines according to the discount rate with how far out into the future the life is saved);[47] that old and young lives are equally valuable; and that it is appropriate to "adjust" the value of a statistical life according to the wealth of the nation where the life is lived or lost, so that less monetary value is attached to poor lives than wealthy ones.[48] These are important ethical choices that should be controversial, and it is important that they not be treated casually, or adopted unknowingly.

Again, it is worth recognizing that *any* form of aggregate valuation of climate harm will have to address similar (if not identical) ethical choices. That the SCC was quantified and monetized makes it *possible* to identify these choices – even when they were not explicitly or perhaps consciously addressed by those who were doing the valuing. But the fact that it may be possible to identify the ethical choices imbedded in monetized valuations of climate change does not mean that it is immediately apparent what those choices are, or that transferring those choices to other legal applications is necessarily appropriate.

45 Rowell, 'Choices' (n 35); Rowell, 'Impacts' (n 36).

46 Rowell, 'Impacts' (n 36).

47 Rowell and Sunstein, 'Discounting' (n 39); Rowell, 'Choices' (n 35).

48 Rowell, 'Impacts' (n 36); Rowell, 'Choices' (n 35).

At the least, it is important for legal decision-makers to ask what ethical choices underlie the valuations of climate change on which they rely. In the case of qualitative valuations, those ethical choices may be especially obscure – but even with quantitative valuations, it may require a technical analysis to uncover and understand what ethical choices are imbedded.

5. Conclusion

To be effective, climate reparations law must recognize and grapple with the psychology of climate harms generally, and the psychology of loss and damage specifically. Intuitive estimates of the harm caused by climate change are likely to systematically underestimate that harm, especially where the harm is estimated by the perpetrator of that harm. Where the law fails to address psychological underestimation of climate harms, it can generate insufficient response to climate change; inadequate and unjustly low compensation of damage to those who are harmed; and even failure to protect human rights. One important possibility for addressing intuitive underestimation of climate harms is to move towards deliberative quantitative estimates of harm. While quantitative estimates offer psychological benefits, however, they should be adopted mindfully so that they do not obscure the ethical choices imbedded in their estimation.

Jason Rudall

Chapter 4: Full and Fair Reparation for Environmental Damage – The Story So Far...

1. Introduction

This chapter engages with the law of reparations in the context of environmental damage and has particular relevance to scenario 7. It assesses the legal framework that has emerged and explores the jurisprudence of courts and tribunals in this area with a view to identifying the tools that have been developed and may be helpful for future cases involving reparation for climate change. A special emphasis is placed on the case law of the International Court of Justice (ICJ) concerning environmental compensation, critically appraising the two major decisions that have been handed down in this area. The chapter also argues that just compensation for environmental damage can be both constrained and facilitated by the law of state responsibility. While the principle of full reparation is well-established in international law,[1] its application to situations of environmental damage reveals blind spots, challenges and inequities. But there may also be opportunities to re-calibrate traditional doctrines, methodologies and litigation processes so that they are better suited to the realities of contemporary environmental damage. In this context, I discuss several problems: under-reparation, gravity of wrongful conduct, capacity to pay compensation as well as access to expertise or local knowledge and experience. That said, the best practices of certain courts and tribunals represent green shoots of hope for addressing these issues and the present chapter suggests that they should be cultivated further.

1 See, eg *Factory at Chorzów* (Jurisdiction) [1927] PCIJ Series A, No. 9, 21, and *Factory at Chorzów* (Merits) [1928] PCIJ Series A, No. 17, 47.

2. The Obligation to Repair

It is a fundamental principle of the law of state responsibility that a state is responsible for the consequences of its actions if it breaches its international obligations or causes harm to another state or its citizens, including transboundary environmental harm. As the Articles on the Responsibility of States for Internationally Wrongful Acts (ARSIWA) set out, "every internationally wrongful act of a State entails the international responsibility of that state."[2] Where a state has caused damage that results from an internationally wrongful act, reparation should remedy the harm. In fact, the breach of a primary obligation under international law results in another obligation to repair the damage and/or compensate the victim in a sufficient manner. Importantly, it has been well-established through the case law of international courts and tribunals that an injured party should be put back in the same position as if the illegal act had not occurred.[3]

In its 1928 *Chorzów Factory* case, the Permanent Court of International Justice (PCIJ) set out the foundational precept that "the breach of an engagement involves an obligation to make reparation in an adequate form"[4] and "that reparation must, as far as possible, wipe out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed."[5] The ICJ has since confirmed the principle of full reparation, not least with respect to cases involving the environment.[6] This is also reflected in ARSIWA. Indeed, Article 31(1) ARSIWA provides that "[t]he responsible state is under an obligation to make full reparation for the injury caused by the internationally wrongful act."

The International Law Commission (ILC), which was responsible for drafting ARSIWA, has said that assessments of injury should be "inclusive" and include both material and moral damage.[7] Material damage is understood as "damage to property or other interests of the State and its nationals which is assessable in financial terms" while moral damage "includes such items as individual pain and suffering, loss of loved ones or personal affront

2 Article 1, Articles on the Responsibility of States for Internationally Wrongful Acts (ARSIWA) 2001 (UN General Assembly resolution 56/83 (28 January 2002) UN Doc. A/RES/56/83, annex).

3 *Factory at Chorzów* (Merits) [1928] PCIJ Series A, No. 17, 47.

4 *Ibid*.

5 *Ibid*. 47.

6 See, eg *Gabčikovo-Nagymaros Project (Hungary v Slovakia)* [1997] ICJ Rep 7 [50].

7 ARSIWA (n 2), 91.

associated with an intrusion on one's home or private life."[8] All of this suggests that those assessing environmental damage for the purpose of state responsibility and the calculation of reparation ought to embrace a holistic approach, relying on methodologies that capture the entire spectrum of damage caused.

As is well known, the three main forms of reparation include restitution, compensation, and satisfaction. We now turn to consider one of these modes – compensation – which has been awarded in several significant cases involving environmental damage and is particularly worthy of consideration given its relevance for scenario 7.

3. Adjudicating Compensation

While restitution is the preferred method of reparation under ARSIWA, it may be that this is materially impossible or involves a disproportionate burden for the wrongdoing state, as is often the case with environmental damage. Indeed, many forms of harm to the environment are simply irreversible or the nature of the damage means it may be more appropriate to compensate the harmed state on whose territory the damage has taken place for restoration works.[9]

Compensation for damage resulting in the loss of human life or bodily injury, loss or damage to property and loss of income is permissible under international law.[10] In fact, generally speaking, compensation is often requested and awarded in international litigation.[11] Returning to the *Chorzów Factory* case, the PCIJ stated that compensation should comprise the

> payment of a sum corresponding to the value which a restitution in kind would bear; the award, if need be, of damages for loss sustained which would be covered by restitution in kind or payment in place of it – such are the principles which should serve to determine the amount of compensation due for an act contrary to international law.[12]

While this is the approach that has also been adopted by ARSIWA, there has, in fact, been scant guidance on how to appraise compensation for environmental damage. That said, the ICJ has noted that any assessment of compensation

8 *Ibid*. 92.

9 *Ibid*. 23.

10 Pierre-Marie Dupuy and Jorge Viñuales, *International Environmental Law* (2nd edn, CUP 2018) 322.

11 Rosalind Elphick and John Dugard, '*Jus Cogens* and Compensation' in Dire Tladi (ed), *Peremptory Norms of General International Law (Jus Cogens)* (Brill 2021) 413.

12 *Factory at Chorzów* (Merits) [1928] PCIJ Series A, No. 17, 47.

should start from the submissions of the parties, potentially in separate proceedings from the merits such that it can hear specific evidence that speaks directly to the assessment of damages.[13] What is more, in its *Fisheries Jurisdiction* case, the ICJ said that:

> In order to award compensation the Court can only act with reference to a concrete submission as to the existence and the amount of each head of damage. Such an award must be based on precise grounds and detailed evidence concerning those acts which have been committed, taking into account all relevant facts of each incident and their consequences in the circumstances of the case. It is only after receiving evidence on these matters that the Court can satisfy itself that each concrete claim is well founded in fact and in law.[14]

Other important points to keep in mind when adjudicating compensation for environmental harm are that damages must be subject to causation and remoteness analyses as well as certain evidentiary requirements and principles of accounting, all of which seek to reduce the possibility of speculative damages being awarded.[15] And where the injured party has failed to mitigate damages or is liable for contributory fault, this will likely have an impact on the compensation awarded too.[16]

4. Calculating Compensation

In calculating the amount of compensation due, Article 36(1) ARSIWA notes that the wrongdoer should "compensate for the damage caused … insofar as such damage is not made good by restitution" and Article 36(2) goes on to highlight that "[t]he compensation shall cover any financially assessable damage including loss of profits insofar as it is established." In earlier drafts of ARSIWA, the term "economically assessable" had been used instead of "financially assessable" but it was thought the latter would be broader and cover loss such as the extinction of species that may have had no economic value as such.[17] The ILC has also emphasized that compensation may be for injury caused to the state, its property, citizens, companies or agents, as well as for costs incurred

13 See, eg *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* [2005] ICJ Rep 168; *Certain Activities Carried out by Nicaragua in the Border Area (Costa Rica v Nicaragua) and Construction of a Road in Costa Rica Along the San Juan River (Nicaragua v Costa Rica)* [2015] ICJ Rep 665.

14 *Fisheries Jurisdiction (Federal Republic of Germany v Iceland)* [1974] ICJ Rep 175 [76].

15 ILC, Draft Articles on Responsibility of States for Internationally Wrongful Acts, with Commentaries (2001) *Yearbook of the International Law Commission* (vol II, part two), 105.

16 *Gabčikovo-Nagymaros Project (Hungary v Slovakia)* (n 6).

17 ARSIWA (n 2).

by the state in remedying or mitigating the damage.[18] In some situations, compensation may not be awarded. The ILC has said that the inclusion of the term "financially assessable damage" in Article 36(2) ARSIWA "is intended to exclude compensation for what is sometimes referred to as "moral damage" to a State, ie the affront or injury caused by a violation of rights not associated with actual damage to property or persons."[19] As such, while the ILC has evidently intended that compensation be appraised and awarded in a comprehensive manner, it has also placed relatively clear limits on it.

The limits of compensation are also evident in several cases decided by international courts and tribunals. For example, the ICJ was of the view that compensation would be an inappropriate form of reparation in its *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v. Serbia and Montenegro),* where the Court declined Bosnia's request for compensation.[20] According to the Court in this case, it could not "regard as proven a causal nexus between [Serbia's] violation of its obligation of prevention and the damage resulting from the genocide at Srebrenica," as well as opining that "financial compensation is not the appropriate form of reparation for the breach of the obligation to prevent genocide."[21] The Court also rejected Bosnia's claim for symbolic compensation, expressing the view that, in the context of reparation, Serbia's "non-compliance with the provisional measures ordered is an aspect of, or merges with, its breaches of the substantive obligations of prevention and punishment laid upon it by the Convention."[22] The Court did, however, award satisfaction in the form of a declaration in its judgment.[23]

5. Compensation Awarded by the ICJ

The ICJ has not frequently awarded compensation as a form of reparation. Despite doing so in its first ever case, the *Corfu Channel* case, the Court has not had many occasions to provide further guidance on how compensation should be appraised.[24] As such, this section will focus on the few instances that the Court has provided such guidance.

18 ILC, Draft Articles on the Responsibility of States for Internationally Wrongful Acts (n 15), 99.

19 *Ibid*.

20 *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosnia and Herzegovina v Serbia and Montenegro)* [2007] ICJ Rep 43 [479].

21 *Ibid*. [462].

22 *Ibid*.

23 *Ibid*. [469].

24 *Corfu Channel Case (Compensation)* ICJ Rep 244.

In the aforementioned *Corfu Channel* case, the UK sought compensation for the replacement of a naval ship, damage to another vessel as well as the deaths and injuries of naval personnel that resulted from mine explosions. In its judgment, the Court assessed that the replacement cost of the destroyer at the time of its loss should be the basis for the valuation of compensation for the loss of the naval ship.[25] As for the damage to the other naval vessel, an expert assessment was relied upon by the Court and for the claim relating to the injured or deceased personnel, the Court was guided by "the cost of pensions and other grants made by it to victims or their dependents, and for costs of administration, medical treatment, etc" in arriving at its assessment of compensation.[26]

Interestingly, the ICJ has allowed itself some flexibility in calculating compensation by referring to so-called equitable considerations. In the *Ahmadou Sadio Diallo (Republic of Guinea v. Democratic Republic of the Congo) (Compensation)* case – the second case in which the ICJ awarded compensation and more than 60 years after the *Corfu Channel* case – the Court observed that:

> Quantification of compensation for non-material injury necessarily rests on equitable considerations (...) which above all involves flexibility and an objective consideration of what is just, fair, and reasonable in all the circumstances of the case, including not only the position of the applicant but the overall context in which the breach occurred.[27]

Ultimately, the Court awarded compensation for the non-material injury suffered by Mr Diallo as well as for the material injury he sustained relating to his personal property.[28] It is also interesting to note that the ICJ rejected a claim in this case for loss of earnings as it said there had been a lack of evidence for this claim and that the amount claimed was speculative.[29]

While the contribution of courts and tribunals has been helpful in clarifying certain aspects of the law of reparations, there remain many uncertainties in this area which, as will be seen, present a challenge for judicial actors who encounter novel situations in which compensation is claimed for damage caused by an internationally wrongful act.

25 *Ibid.*

26 *Ibid.* [249].

27 *Ahmadou Sadio Diallo (Republic of Guinea v Democratic Republic of the Congo) (Compensation)* [2012] ICJ Rep 324 [24].

28 *Ibid.* [61].

29 *Ibid.* [49].

6. Breaking New Ground: The ICJ and Compensation for Environmental Damage

Such a novel situation was encountered by the ICJ in its third ever compensation decision. In 2018, the Court had to adjudicate compensation for environmental damage in its *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v. Nicaragua) (Compensation)* case.[30] This was the first time the ICJ was tasked with such an exercise. The approach of the Court and lessons to be learned from this case are particularly relevant for scenario 7 so it deserves special consideration.

Each of the parties in this case put forward significantly different methodologies for calculating the environmental damage, which did not help the Court. Costa Rica argued for an "ecosystem services approach" and Nicaragua advocated that the Court adopt a "replacement costs approach." It was no surprise then that the parties came to very different conclusions on the amount of compensation owed, with Costa Rica estimating that the environmental compensation ought to be as high as USD 6.711 million while Nicaragua suggested it should be as low as USD 188,504.[31]

Under Costa Rica's "ecosystem services approach" the goods and services rendered by the environment form the basis of its valuation. Some of these have quite an easily attainable "direct use value" (eg timber) as they are traded commercially for a price while other goods and services are not or cannot be traded on the market and may be accorded an "indirect use value" (eg flood prevention, cultural significance or disease control). Importantly, ecosystem or environmental services may be partially or completely lost as a consequence of environmental harm.

Under Nicaragua's "replacement costs approach," the cost of replacing ecological services that have been damaged and/or preserving an equivalent area while the affected area recovers was the value it said should be used to calculate the compensation owed. Nicaragua argued that this was the methodology that had been adopted for analogous situations in the past.[32] Nicaragua also said that restoration costs, which are the expenses incurred as a result of remediation works, might also be compensable.[33]

30 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua) (Compensation)* [2018] ICJ Rep 15.

31 *Ibid*.

32 *Ibid*. [40].

33 *Ibid*.

In its decision, the Court emphasized that compensation for damage to the environment was possible under international law.[34] However, the ICJ decided not to choose between the two methodologies put forward by the parties, but rather "[w]herever certain elements of either method offer a reasonable basis for valuation, the Court [would] nonetheless take them into account."[35] The Court chose to assess environmental damage using what it termed an "overall valuation approach."[36] This method involved calculating compensation based on a comprehensive assessment of the impairment or loss of environmental goods and services, rather than determining the value of specific categories of these goods and services and the time required for their recovery. The Court's reasons for selecting the "overall valuation" methodology are also noteworthy. Firstly, it aimed to adopt an approach that best accounted for the connection between Nicaragua's unlawful activities and the harm done to specific environmental goods and services. Secondly, it found this approach to be more suitable than others, given the unique characteristics of the affected area – a protected wetland under the Ramsar Convention with closely interconnected environmental goods and services. Thirdly, the overall valuation method allowed the Court to factor in the natural regeneration capacity of the damaged area. What is more, the ICJ thought it was appropriate that certain related costs and expenses incurred by Costa Rica in the course of its restoration activities ought to be compensable (eg monitoring costs).

To justify the potential uncertainties in valuing environmental damage, the Court referred to the *Diallo* case, which – as indicated above – relied on "equitable considerations" to determine the amount of compensation.[37] This also gave the Court the flexibility to consider the specific contexts and circumstances of the parties involved. Moreover, it referred to the well-known *Trail Smelter* dispute between the United States and Canada,[38] which in turn refers to a US Supreme Court decision[39] stating that, "where the tort itself is of such a nature as to preclude the ascertainment of the amount of damages with certainty, it would be a perversion of fundamental principles of justice to deny all relief to the injured person" and that, as such "it will be enough if the evidence

34 *Ibid*. [42].

35 *Ibid*. [52].

36 *Ibid*. [78]-[79].

37 *Ahmadou Sadio Diallo (Republic of Guinea v Democratic Republic of the Congo) (Compensation)* (n 27) [33].

38 *Trail Smelter (United States v Canada)* (1938 and 1941) 3 UNRIAA 1905.

39 *Story Parchment Company v Paterson Parchment Paper Company* 282 US 555 (1931).

show the extent of damages as a matter of just and reasonable interference, although the result be only approximate."[40]

Before calculating the precise amount of compensation owed, the Court first aimed to assess the existence and extent of the damage and to establish whether there was a direct and certain causal link between the environmental harm and Nicaragua's wrongful actions.[41] Similarly, when evaluating the costs and expenses that Costa Rica claimed to have incurred from its restoration and monitoring activities, the Court emphasized the need for a connection with Nicaragua's wrongful conduct. If such a link was absent, the Court denied compensation.[42]

The Court's judgment is both significant and innovative in awarding compensation for environmental damage. However, it is also notable for its bold statements of principle, methodological choices, some internal contradiction, and for awarding greatly lower valuations for environmental damage than Costa Rica had sought. In fact, the amount awarded was only about 5% of Costa Rica's claim. Without a more detailed explanation of its methodology for valuing environmental damage and the application of its nexus test to the incurred costs and expenses, it is challenging to assess whether the Court was justified in awarding such a low amount. Nevertheless, the Court had another opportunity to clarify several of these issues in a subsequent case involving compensation for environmental harm just four years later.

7. Experts and Equity Gaining Ground

The ICJ also awarded compensation for environmental harm in its *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo (DRC) v. Uganda)* case.[43] As background, the Court previously ruled in favor of the DRC and held that Uganda had violated the DRC's sovereignty and territorial integrity in its 2005 judgment on the merits.[44] There, the Court determined that Uganda had committed acts of aggression against the DRC by deploying troops into its territory without consent and providing support to rebel groups. It concluded that Uganda's actions had inflicted substantial harm on the DRC,

40 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) [2018] (n 30) [35].

41 *Ibid*. [72].

42 *Ibid*. [89].

43 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* [2005] ICJ Rep 168.

44 *Ibid*.

including damage to persons, property, and natural resources. In 2022, the ICJ issued a judgment on the matter of reparations.[45] In short, the ICJ awarded USD 225,000,000 for damage to persons, USD 40,000,000 for damage to property, and USD 60,000,000 for damage to natural resources.[46]

The Court underlined the importance of wiping out all of the consequences of the internationally wrongful act, in line with the principle established in the *Chorzów Factory* case.[47] At the same time it stated that, in cases where there is uncertainty regarding the exact amount of damage caused, it could "award compensation in the form of a global sum, within the range of possibilities indicated by the evidence and taking into account equitable considerations" while also highlighting this "... may be called for where the evidence leaves no doubt that an internationally wrongful act has caused a substantiated injury, but does not allow a precise evaluation of the extent or scale of such injury."[48] The Court observed that other international tribunals, such as the Eritrea–Ethiopia Claims Commission, had similarly awarded global sums or relied on equitable considerations as well.[49]

Regarding the valuation of damage to natural resources, the Court did not adopt the methodology proposed by the DRC and instead placed significant reliance on the Court-appointed expert. Although the ICJ did not give many details, it did say that "the methodological approach taken by the expert report is convincing overall" and that "the approach taken in the expert's report, which is based on estimates derived from reliable economic data, scientific publications, and the case file, produces a more persuasive assessment and valuation of the damage."[50] As the Court ultimately also awarded a "global sum,[51] it remains somewhat unclear what the Court included and excluded in its final valuation. Nevertheless, the ICJ's reliance on a Court-appointed expert and its emphasis on equitable considerations, particularly in light of the fact that Uganda is a developing country, are undoubtedly positive developments in this relatively nascent field of valuing compensation for environmental harm.

45 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda) (Reparations)* [2022] ICJ Rep 13.

46 *Ibid*. [409].

47 *Factory at Chorzów* (Merits) [1928] PCIJ Series A, No. 17, 47.

48 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda) (Reparations)* (n 45) [106].

49 *Ibid*. [107].

50 *Ibid*. [277].

51 *Ibid*. [365].

8. Problems in Compensation for Environmental Damage

a. Under-Reparation

In light of the emerging jurisprudence on reparation for environmental damage explored above, I suggest there are four main challenges that have arisen. First, the scope and character of certain forms of environmental damage, such as climate change, the permanent loss of biodiversity and destruction of ecosystems, the degradation of the atmosphere and ozone layer, can likely never be properly valued nor fully repaired. ARSIWA refers to "financially assessable" damage. But what "financially assessable" means is open to much debate. Does this include, for example, the loss of certain ecosystem services, like carbon sequestration, or non-use values, like the aesthetic importance of nature? As alluded to already, the ILC has indicated that the formulation under ARSIWA is intended to be "inclusive" and this ought to guide any interpretation.[52]

It was highlighted above that the ICJ in *Costa Rica v. Nicaragua* indicated that environmental damage *per se* is compensable. However, there remains uncertainty about the methodology that should be used to value environmental damage. This has not been clarified by the Court's latest decision in *DRC v. Uganda*. In both cases the ICJ adopted so-called "overall valuation" or "global sum" approaches. In doing so, it does not elaborate upon the details of these approaches, except to say that they "can account for the correlation between the removal of the trees and the harm caused to other environmental goods and services,"[53] that they are "dictated by the specific characteristics of the area affected,"[54] that they take "into account the capacity of the damaged area for natural regeneration,[55] or that they allow for an equitable award of compensation within a range of possibilities and including equitable considerations.[56] This makes it difficult to know what methodology the Court would adopt with respect to our scenario 7, except that it may opt for some sort of overall valuation or global sum approach again. And, as it did in *DRC v. Uganda* – but not *Costa Rica v. Nicaragua* – the Court might rely on the findings of a Court-appointed

52 ILC, Draft Articles on the Responsibility of States for Internationally Wrongful Acts (n 15), 91.

53 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) (n 30) [79].

54 *Ibid*. [80].

55 *Ibid*. [81].

56 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* (Reparations) (45) [106].

expert, although it is similarly difficult to say with certainty what the Court found convincing in the Court-appointed expert's evidence.

Assessments of environmental damage must recognize that this form of harm is often gradual, cumulative and catalyzing. In this context, "ecosystems approaches" which recognize that different aspects of the environment are mutually dependent should be elaborated. We should not exclude from view damage that cannot be valued by reference to market value or the loss of environmental goods and services that may have no economic value to human beings. In its resolution on Responsibility and Liability under International Law for Environmental Damage, the *Institut de droit international* suggested that additional criteria should be constructed for the assessment of damage. Indeed, it proposed that "[i]mpairment of use, aesthetic, and other non-use value, domestic or international guidelines, intergenerational equity, and generally equitable assessment should be considered as alternative criteria for establishing a measure of compensation."[57]

Second, there are unique challenges with respect to causation and attribution where environmental damage occurs that must be clarified. For example, it can be very difficult to assess whether harm caused is a direct or indirect result of a given activity. Here, courts and tribunals might learn lessons from the United Nations Compensation Commission (UNCC), which relied on a range of direct and proximate causation standards to deal with problems like these.[58]

Third, another challenge is where environmental harm is caused by multiple actors. It is difficult to assess who has contributed what and, critically, which actors have caused damage that crosses the threshold of significant harm. Even if several states can commit internationally wrongful acts as Article 47(1) ARSIWA envisages, it is still necessary to demonstrate the existence of a causal nexus between the damage and the acts carried out by the accused group of states. The Guiding Principles on Shared Responsibility in International Law recognize that environmental damage is often caused by the contribution of several states.[59] Even where the contribution to harm is negligible, the Principles suggest there may still be an obligation to provide partial reparation for indivisible harm that might be caused. Who receives reparation,

57 Article 25, Institut de Droit international, 'Responsibility and Liability under International Law for Environmental Damage' (4 September 1997) Session de Strasbourg.

58 See, for example, UNCC, 'Report and Recommendations Made by the Panel of Commissioners Concerning Part One of the Fourth Instalment of "F4" Claims' (9 December 2004) UN Doc S/AC.26/2004/16, para 354.

59 André Nollkaemper and others, 'Guiding Principles on Shared Responsibility in International Law' (2020) 31(1) European Journal of International Law 15.

particularly compensation, can be similarly complex. Indeed, that certain types of environmental damage may be experienced by many or even all states and individuals in varying degrees makes this a Herculean task.

Fourth, if an *erga omnes* obligation is violated and damage to areas beyond national jurisdiction has been caused, states not specifically injured may invoke responsibility and call for cessation as well as non-repetition, but they may not seek compensation as they have not suffered any financially assessable damage. This highlights a flaw in the logic of state responsibility. Where, for example, environmental damage leads to irreversible harm or the extinction of species for which no state had a commercial interest, it is unclear who or what should be compensated. Some have called for trusts to be set up in such circumstances, which may offer a practical solution that ultimately serves environmental restoration.[60]

b. Gravity of Wrongful Conduct

Whether the conduct of the parties in a given case should be accounted for in assessments of compensation is another important aspect to clarify. While ARSIWA excludes punitive, expressive or exemplary damages, others suggest it is possible to take account of gravely wrongful conduct in the calculation of compensation. The ILC, the *Institut* and certain courts have also indicated the behaviour of the parties might be relevant to the evaluation of compensation.[61] In *Costa Rica v. Nicaragua,* the ICJ was mindful of the fact that the environmental harm there was to an internationally protected wetland while Judge Dugard in his dissenting opinion suggested the gravity of Nicaragua's wrongful behavior should have been recognized in the assessment of damages by the majority of the Court.[62] In the *Alabama Claims* arbitration, the dissenting opinion of Sir Alexander Cockburn noted that "arbitrators should … take into account not only the loss incurred but the greater or less gravity of the default itself."[63] What is more, in certain arbitral practice, the amount of compensation for expropriated property can of course vary depending on whether the taking was lawful or unlawful.

60 Article 28, Institut de Droit international (n 57).

61 See, for example, ILC, Draft Articles on the Responsibility of States for Internationally Wrongful Acts (n 15), 100; Institut de droit international, 'Rapport final (décembre 1996)' in 67(1) *(Travaux préparatoires) Annuaire de l'Institut de droit international* (Pedone 1997), 339.

62 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) (n 30) [40]-[46] (Dissenting Opinion of Judge *(Ad Hoc)* Dugard).

63 *Alabama Claims of the United States of America v Great Britain* (14 September 1872) 29 UNRIAA 125 [305] (Dissenting Opinion of Sir Alexander Cockburn).

Some scholars also argue that there may be some margin to take behavior into account where the conduct of the party who has caused environmental damage is particularly egregious or deliberate.[64] Others suggest very grave environmental damage ought to be deterred through compensation.[65] Such considerations should encompass the degree of fault, the nature of the breach of an international rule, the severity of the violation or aggravated damages, any intent or negligence.

It should be recalled that gravity is not alien to the law of state responsibility. Indeed it features in other ways under ARSIWA, not least with the violation of peremptory norms. Article 41 ARSIWA provides for a form of aggravated responsibility that triggers particular consequences for the rest of the international community. That said, the ILC has said specifically that "the award of punitive damages is not recognized even in relation to serious breaches of obligations arising under peremptory norms."[66] As a result, on its face, aggravated damages or compensation intended to have a deterrent effect is not permitted under the law of state responsibility. However, some of the anxiety surrounding punitive damages is perhaps no longer justified because, as certain scholars suggest, without an objective metric for quantifying moral or material damages, compensation is likely to be inflated by gravity anyway as adjudicators will inevitably be influenced by the nature of the unlawful act.[67]

In our scenario 7, it is the Amazon that is at stake. It represents the lungs of the Earth, providing a wide range of unique ecosystem services. One might hope the Court considers – formally or informally – that damage to it represents a certain gravity and factors this into its assessment of compensation, as Judge Dugard suggested should have been done in *Costa Rica v. Nicaragua*.[68]

c. Capacity, Equity and the Obligation to Repair

The ICJ has referred to equitable considerations in its case law as a way of giving itself flexibility in the assessment of reparation. But these might also help mitigate the financial impact an award of compensation may have. It is pertinent to note here the *dicta* of the *Eritrea-Ethiopia Claims Commission* that large

64 See, for example, Francisco Orrego Vicuña, 'Responsibility and Liability for Environmental Damage Under International Law: Issues and Trends' (1998) 10 Georgetown International Environmental Law Review 292.

65 Michael Faure and Göran Skogh, *The Economic Analysis of Environmental Policy and Law* (Edward Elgar Publishing 2003) 287.

66 ILC, Draft Articles on the Responsibility of States for Internationally Wrongful Acts (n 15) 111.

67 Elphick and Dugard (n 11) 425-426.

68 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) (n 30) [40]-[46] (Dissenting Opinion of Judge *(Ad Hoc)* Dugard).

amounts of compensation can have a crippling effect on the state obliged to pay. The Commission was "mindful … that these countries are among the poorest on earth" and noted that "both Parties sought amounts that were huge."[69] It observed that the amount claimed by Ethiopia was three times the size of Eritrea's total national product, that "large damages awards might exceed the capacity of the responsible State to pay" and "could result in serious injury to its population," including a detrimental impact on human rights.[70] While the Commission ultimately did not have to decide whether to cap the amount of compensation awarded in light of the situations of the parties, such considerations are novel in the assessment of compensation. Interestingly, in its *DRC v. Uganda* decision, the ICJ – referring to the *Eritrea-Ethiopia Claims Commission's dicta* – said it would take Uganda's capacity to pay and the impact on the needs of the Ugandan population into account when determining the amount of compensation due and the terms of payment. It was ultimately satisfied that "the total sum awarded, and the terms of payment, remain within the capacity of Uganda to pay."[71]

While ARSIWA does not provide explicitly for capacity to be taken into account, ability to pay nevertheless has some precedent in practice. Indeed, one may point, for example, to the reparations agreements concluded after World War II[72] or UN Security Council Resolution 687, which asked the Secretary-General to "develop … mechanisms for determining the appropriate level of Iraq's contribution … taking into account the requirements of the people of Iraq, Iraq's payment capacity … and the needs of the Iraqi economy."[73] What is more, in particular contexts, a growing corpus of scholarship has called for equitable considerations to play a more prominent role in the determination of reparations.[74]

69 *Eritrea-Ethiopia Claims Commission* (17 August 2009) 26 UNRIAA 631 [18]-[21].

70 *Ibid*.

71 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* (Reparations) (n 45) [407].

72 See Argentina, Australia, Belgium, Bolivia, Brazil, etc., Treaty of Peace with Japan (8 September 1951) 136 UNTS 45, art. 14; Conclusions of Protocol of the Berlin Conference of the Three Heads of Government of the USSR, US and UK, Protocol of Proceedings (1 August 1945), s ii(b), para 19; Treaty of Peace with Italy (15 March 1947) 505 UNTS 49, art 74 A (3) and 74 B (3).

73 UN Security Council Resolution 687 (8 April 1991) UN Doc S/Res/687 (1991).

74 See, for example, Elphick and Dugard (n 11) 437; Martins Paparinskis, 'Crippling Compensation in the International Law Commission and Investor-State Arbitration' (2021) 37(1-2) ICSID Review 289, 298; Christian Tomuschat, 'State Responsibility and the Individual Right to Compensation Before National Courts' in Andrew Clapham and Paola Gaeta (eds), *The Oxford Handbook of International Law in Armed Conflict* (OUP 2014) 826.

This is, of course, a complex issue as it may mean that the amount a wrongful actor is obliged to pay is mitigated and that the victim pays for some of the damage itself, but I suggest the inequities that may result from an overly formalistic application of the full reparation principle demand its reassessment in specific contexts, particularly where an impact on human rights might be at stake. In scenario 7 there are two developing countries so equity and considerations of capacity to pay might indeed be relevant for the Court, though Brazil's capacity to pay would of course be different to that of Uganda.

d. Access to Expertise and Local Knowledge

The ICJ's practice on expertise has been notably inconsistent. In *Costa Rica v. Nicaragua,* it is unclear why the Court did not consult experts when assessing the environmental damage. It has this option open to it under Article 50 of the Statute of the ICJ. In fact, in a similar case decided on the same day – *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v. Nicaragua)*–the Court had appointed its own experts.[75] The resort to experts in scientific matters has also been encouraged by the ICJ in the past, particularly in the *Pulp Mills* case.[76] Moreover, although in the dissenting minority in that case, Judges Simma and Al-Khasawneh stressed the importance of referring to experts in cases involving complex scientific matters.[77] Following *Pulp Mills,* scientific experts were resorted to in the *Whaling in the Antarctic* case,[78] as well as in several others since.[79] Further still, in prior and subsequent decisions on compensation, the Court appointed its own experts to assess the environmental damage and amount due, which makes it even more surprising that it did not do so in the *Costa Rica v. Nicaragua* case.

Beyond the ICJ, in the *South China Sea Arbitration Between the Republic of the Philippines and the People's Republic of China,* the Tribunal appointed its own *ex curia* experts so that the Tribunal could form an "independent opinion" on the environmental impact of the activities conducted by China in the South China Sea.[80] The UNCC also drew upon the advice of experts, information

75 *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v Nicaragua) and Land Boundary in the Northern Part of Isla Portillos (Costa Rica v Nicaragua)* (Merits) [2018] ICJ Rep 139.

76 *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep 14 [167].

77 *Ibid*. Dissenting Opinions of Judges Simma and Al-Khasawneh, [3] and [8].

78 *Whaling in the Antarctic (Australia v Japan)* [2014] ICJ Rep 226 [74]-[75].

79 *Construction of a Road in Costa Rica Along the San Juan River (Nicaragua v Costa Rica)* (n 13) [45], [175]-[176] and [204]; *Maritime Delimitation in the Caribbean Sea and the Pacific Ocean (Costa Rica v Nicaragua)* (n 75) [14], [71], [73], and [86].

80 *South China Sea Arbitration Between the Republic of the Philippines and the People's Republic of China,* PCA Case No. 2013-19, 33 UNRIAA 153 [84], [136] and [821].

gathered from site visits, the submissions of the parties involved, responses to interrogatories that had been sent to claimants, as well as retaining legal and actuarial personnel of its own.[81] What is more, several investment tribunals have appointed experts to analyze scientific matters, as in *Perenco v. Ecuador* for example.[82] In the latter case, the Tribunal recognized the difficulty in evaluating environmental damage and compensation on the basis of expert reports provided by the parties. As a result, the Tribunal appointed its own expert. The Tribunal also allowed the parties' experts to comment on the reports of the Tribunal-appointed expert, bolstering the transparency of the approach adopted by the Tribunal.[83] Interestingly, the parties were permitted to make two sets of written pleadings, oral pleadings as well as submit questions to the Tribunal-appointed expert. Further still, during the hearings the party-appointed experts and counsel could hold witness conferences with the Tribunal-appointed expert.[84] These kinds of procedural safeguards help to ensure that legitimacy issues around the use of experts are addressed.

As an alternative or in addition to expert testimony, courts and tribunals should more frequently encourage and facilitate the intervention of affected individuals as a way of obtaining valuable perspectives from local or indigenous peoples that are impacted in various ways by the dispute at stake. While this has typically not been possible at the ICJ, the Court has seemingly opened up to the possibility in recent jurisprudence. For the first time the ICJ allowed for such an intervention in the context of its 2019 advisory opinion on the *Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965*.[85] In this context, a Chagossian – Marie Liseby Elyse – delivered moving video testimony during the proceedings before the Court.[86] This permitted

81 Cymie R Payne, 'Developments in the Law of Environmental Reparations: A Case Study of the UN Compensation Commission' in Carsten Stahn, Jens Iverson and Jennifer Easterday (eds), *Environmental Protection and Transitions from Conflict to Peace: Clarifying Norms, Principles and Practices* (OUP 2017) 346.

82 *Perenco Ecuador Ltd v The Republic of Ecuador and Empresa Estatal Petróleos del Ecuador (Petroecuador)* (11 August 2015) ICSID Case No. ARB/08/6; see also, Jason Rudall, 'The Tribunal with a Toolbox: On Perenco v Ecuador, Black Gold and Shades of Green' 11(3) (2020) Journal of International Dispute Settlement 485-500.

83 *Perenco Ecuador Ltd* (n 82) [588].

84 *Ibid*. See also *Perenco Ecuador Ltd. v. The Republic of Ecuador and Empresa Estatal Petróleos del Ecuador (Petroecuador)* (27 September 2019) Final Award, ICSID Case No. ARB/08/6 [627]-[630].

85 *Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965 (Advisory Opinion)* [2019] ICJ Rep 95; see also Stephen Allen, 'Self-Determination, The Chagos Advisory Opinion and the Chagossians' (2020) 69(1) International and Comparative Law Quarterly 203-220; Philippe Sands, *The Last Colony: A Tale of Exile, Justice and Courage* (Knopf 2023).

86 Allen (n 85), 214.

the Court to hear a first-hand account of the impact that state behavior had on an indigenous population and gave an important voice to stakeholders that are too often overlooked in inter-state proceedings.

In some arbitral proceedings, the appointment of subject-matter experts as arbitrators has precedent and may offer a valuable way for courts and tribunals to have access to specialized expertise on the bench. For example, in *SAUR v. Argentina,* a human rights expert – Professor Christian Tomuschat – was appointed as an arbitrator.[87] Moreover, in the *Indus Waters Arbitration* between Pakistan and India, Professor Howard Wheater – a renowned engineer – was appointed as an arbitrator in the dispute.[88] Further still, courts and tribunals could engage with other judicial, quasi-judicial or non-judicial bodies to develop norms and for guidance, as has been the case in some limited contexts.[89] Indeed, several compelling arguments have been made for more formal or informal dialogue between courts and tribunals and other institutions, particularly those institutions that are more specialized in environmental matters.[90] Such initiatives would help equip courts and tribunals with the necessary tools to properly understand and engage with complex scientific and economic matters, like compensation for environmental damage. And better-informed decisions make truly full and fair reparation much more likely.

9. Conclusion

This chapter has engaged with the legal framework and contemporary jurisprudence on reparation for environmental damage. The nature of certain types of damage, that of cumulative damage resulting from climate change, biodiversity loss or air and marine pollution for example, challenge the traditional precepts of the law of reparations. What is more, although compensation for environmental damage *per se* now appears well-established under international law, certain analytical tools used to value damage to the environment fail to take into account less visible – but no less problematic – environmental

87 *SUAR v Argentina* (22 May 2014) ICSID Case No. ARB/04/4.

88 See *In the Matter of the Indus Waters Kishenganga Arbitration (Pakistan v India)* (20 December 2013) PCA Case No. 2011-01, 31 UNRIAA 1.

89 Ruti Teitel and Robert Howse, 'Cross-judging: Tribunalization in a Fragmented but Interconnected Global Order Symposium – The Normalizing of Adjudication in Complex International Governance Regimes: Patterns, Possibilities, and Problems' (2009) 41 New York University Journal of International Law and Politics 959-990, 989.

90 *Ibid*. 981; on judicial dialogue and comity more generally, see Anne-Marie Slaughter, 'A Typology of Transjudicial Communication' (1995) 29 University of Richmond Law Review 99-137; Anne-Marie Slaughter, 'Judicial Globalization' (2000) 40(1) Virginia Journal of International Law 1103-1124, 1112-1115.

harm. And these tools also have significant blind spots with respect to particularly egregious environmental harm as well as the capacity of states to bear the costs of compensation. Further still, the need for expertise and local knowledge in judicial decision-making has been exposed in recent decisions involving environmental harm. But there are nevertheless valuable tools being developed by courts and tribunals that will help serve fuller and fairer reparation in the future, particularly in the context of reparation for climate change when judicial actors are faced with such cases. It is hoped that these best practices will be propagated.

Viktoriya Gurash

Chapter 5: Interim Reflection

The Intergovernmental Panel on Climate Change (IPCC) has concluded with high confidence that climate change has already caused "widespread adverse impacts and related losses and damages to nature and people that are unequally distributed across systems, regions and sectors."[1] Specifically, climate change has been found to cause both economic and non-economic damage.[2] Some future impacts of climate change are unavoidable and irreversible.[3] However, the exact magnitude of the adverse impacts and related loss and damage will depend on the mitigation and adaptation measures taken.[4] Moreover, climate change is massively inequitable: the majority of CO_2 emissions originate in wealthy countries or are generated in the production of goods consumed by those in rich countries. However, the greatest burden of the costs is, and will continue to be, borne by poorer countries.[5] Against these complexities and uncertainties surrounding the climate change conundrum, the preceding chapters focus on how climate damage can be valued and calculated – using insights from economics and psychology – and how such assessments can inform policymaking, climate litigation, and insurance in managing climate risks.

1. Uncertainty about Climate Harm

All four contributions in this part highlight that, although climate harm is already a current reality, the major brunt of climate change lies in the future, creating uncertainty as to the exact scale and timing of loss and damage. By

1 Hoesung Lee and others (eds), 'Summary for Policymakers' in Hoesung Lee and others (eds), *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change,* 1-34, A.2.6.

2 Damage from climate change have materialized in "climate-exposed sectors, such as agriculture, forestry, fishery, energy, and tourism. Individual livelihoods have been affected through, for example, destruction of homes and infrastructure, and loss of property and income, human health and food security, with adverse effects on gender and social equity" (see *ibid.* A.2.6).

3 *Ibid*. B.3.

4 *Ibid*. A.1, A.2, B.1-B.7.

5 Abhijit V Banerjee and Esther Duflo, *Good Economics for Hard Times: Better Answers to Our Biggest Problems* (PublicAffairs, 2019), 208.

situating the valuation of climate loss and damage within the framework of the scenarios,[6] the authors explore various challenges and potential methodologies – drawing particularly from economic theory, psychology, and law – that may aid in assessing such loss and damage.

Leucci's chapter provides insights into how applying economic theories helps quantify climate losses. While a law and economics approach cannot offer definitive answers, it provides a framework for analyzing issues like the Social Cost of Carbon (SCC) and the projected costs of climate change. Although the SCC has been widely adopted for policymaking, the author cautions that it remains a contentious concept, with ongoing debate over its calculation methods and a wide range of resulting estimates. Monti explains the role of insurance in developing an *ex ante* strategy for reducing vulnerability from the financial impacts of climate-related harm. The author acknowledges that different dimensions of the total costs of climate change (ie mitigation, adaptation, loss, and damage) are linked to one another. For example, higher investments in mitigation would reduce loss and damage and make adaptation less costly. Because climate change mitigation and adaptation efforts and specific measures are still evolving, the associated costs are difficult to calculate with precision. In addition, the barriers to perceiving the real extent of climate harm are rooted in human psychology. Rowell showed that certain characteristics of climate harm make it "especially psychologically 'wicked'," [7] and that such harm may be significantly underperceived by policymakers and judges. Still, international courts and tribunals have developed valuable practices for the assessment of environmental damage in international law, a subject thoughtfully examined by Rudall. The author suggests that these practices should be further refined in the context of compensating for climate-related damage, particularly given its inherent challenges and unpredictability.

This chapter reflects on a specific question, which has emerged from the contributions of the abovementioned authors: to what extent could international adjudication, specifically the International Court of Justice (ICJ) and the European Court of Human Rights (ECtHR), rely on economics and behavioral theories when dealing with climate-related damage? It examines how the determination of climate damage should be approached and elucidated by these international courts, with due consideration to the scenarios that underpin the volume, while highlighting the key insights from the four preceding contributions. Finally, the chapter outlines emerging questions and suggests directions for further scholarly inquiry.

6 See the introductory chapter on model scenarios.

7 Chapter 3, Rowell, 64.

2. Reparations before the ICJ

In scenario 7, the ICJ is called upon to rule on reparations for climate-related loss and damage suffered by Peru due to Brazil's failure to take the required protective measures in respect of its rainforest. Provided that the ICJ finds that Brazil has breached its international obligations, such a breach could have legal consequences, including reparations payments. The scope of reparations under general international law depends on the extent of an injury caused by the internationally wrongful act of a state, as well as the existence of a causal nexus between the act and the injury suffered.[8]

a. Injury Valuation

The notion of injury includes any material or moral damage caused by an internationally wrongful act.[9] The "'material" in material damage refers to the "property or other interests of the state and its nationals which is assessable in financial terms."[10] More specifically, the ICJ has confirmed that "damage to the environment, and the consequent impairment or loss of the ability of the environment to provide goods and services, is compensable under international law."[11] Moral damage concerns suffering of states' nationals, for example because of "loss of loved ones or personal affront associated with an intrusion on one's home or private life."[12] What is important in the context of climate change is that the injury caused by the wrongful conduct should have either already materialized or, if it threatens to occur in the future, that it has been established by the claimant with "sufficient certainty."[13] When addressing climate-related issues, a range of pertinent questions arises, such as: which methodologies for assessing compensation for climate-related damage are recognized within the framework of international law? Which key standards

8 International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, Supplement No. 10 (A/56/10), chp.IV.E.1, November 2001, Article 31; see eg *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) [2018] ICJ Rep 15 [32].

9 International Law Commission, *Draft Articles* (n 8), Commentary to Article 31, para 5.

10 *Ibid*.

11 *Costa Rica v Nicaragua* (n 8) [42].

12 *Ibid*.

13 International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts* (November 2001) Supplement No. 10 (A/56/10), chp.IV.E.1; Fin-Jasper Langmack, 'Remedies for Climate Change – A Decisive Push Towards Paris?' in Daniëlla Dam-de Jong and Fabian Amtenbrink (eds), *Netherlands Yearbook of International Law* 2021, volume 52 (TMC Asser Press 2023) 27.

guide the assessment of material and moral harm in the context of climate-related damage? Could the ICJ take future climate-related harm into account, and, if so, under what circumstance? How should the Court engage with expert knowledge in its evaluation of climate-related harm, and what standards should govern the credibility of such expertise and its incorporation into judicial reasoning?

The preceding contributions offer valuable insights into these questions. Rudall has conducted a thorough analysis of the legal framework and contemporary jurisprudence on reparation for environmental damage, with a particular emphasis on the case law of the ICJ. As discussed by the author, to date, the ICJ, while demonstrating a degree of innovation in awarding compensation for environmental harm, has offered only broad and limited reasoning regarding its methodology. A salient point is that no specific method for valuing compensation for environmental damage is prescribed by international law.[14]

Here, economic methods for quantifying the adverse impact of climate change on a state's environment should be introduced. The contributions by Leucci and Monti suggest that the field of economics has developed methods for valuing climate-related loss and damage. For example, Leucci argues that the SCC could be applied in cases involving transboundary harm and historical emissions resulting from unlawful deforestation, an approach which, as the author explains, is already being put into practice in Brazil. Notably, the National Council of Justice in Brazil has issued Recommendation No. 156/2024, which includes a "Protocol for Judging Environmental Lawsuits" calling for a uniform approach to valuing climate damage associated with deforestation.[15] However, in Brazil there is no standard methodology for calculating the value of a ton of carbon. While some courts adopt the OECD's SCC, others rely on proxy values derived from mechanisms like REDD+, including reference prices set by the Amazon Fund.[16] This lack of a standardized approach has led to considerable disparities in compensation claims, with carbon valuations ranging from USD 5 to approximately USD 60 per ton.[17] In view of this, the economic framework offers a range of tools that can inform the valuation of climate damage. However, economic approaches do not provide objective

14 *Costa Rica v Nicaragua* (n 8) [52].

15 Importantly, the Protocol instructs that courts must not use a price lower than the reference value established by the Amazon Fund (currently USD 5 per tCO_2e). See Trench Rossi Watanabe, 'CNJ Publishes New "Protocol for Judging Environmental Lawsuits" with Parameters for Measuring Impacts Resulting from Climate Change' (12 November 2024).

16 Caio Borges, 'Global Perspectives on Corporate Climate Legal Tactics: Brazil National Report' (British Institute of International and Comparative Law, February 2024), 19.

17 *Ibid*. 19.

truth in this context. Rather, methodologies like the calculation of the SCC depend on broad societal legitimacy and acceptance to function as a credible basis for the consistent assessment of climate damage, including by courts. Therefore, while economic and insurance methodologies are highly valuable for policymaking and managing climate risks, their application in climate litigation proves challenging.

To award compensation, courts must assess damage with precise accuracy in each individual case. The latter is especially problematic for future climate-related damage and the resulting loss, which are not susceptible to sufficiently precise economic quantification, as they depend on current and future mitigation and adaptation measures to address climate change. Therefore, it appears unlikely at present that claims brought before the ICJ seeking compensation for future climate-related loss and damage would have any prospect of success.

Specific methodologies for valuing climate damage may be presented before the ICJ, for example, either through the claimant's submissions or the reports of experts appointed by the Court. The impact of economic methods for valuing environmental damage to the injured state on the ICJ's fact-finding would depend on their scientific quality and relevance to the case at hand. If economic methods are convincing and there is consensus on their validity, the ICJ's engagement with them is essential for the legitimacy of its judgment.[18] Rudall's contribution offers a thoughtful analysis of the challenges arising from the ICJ's most recent case law concerning its engagement with experts in valuing damage to natural resources. For example, in its judgment in *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v. Uganda),* the Court found the methodological approach concerning natural resources presented in the expert report generally convincing.[19] However, as noted by Rudall, given that it ultimately awarded a "global sum," it remains somewhat unclear what specific elements the Court included or excluded in its final valuation.

b. Causation Conundrum in Climate Litigation

The principle of causation in international law is grounded in state sovereignty, with international courts choosing to limit states' responsibility to the

18 Katalin Sulyok, 'Science, Epistemology and Legitimacy in Environmental Disputes – The Epistemically Legitimate Judicial Argumentative Space' (2024) 37(1) Leiden Journal of International Law 139, 144–151.

19 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* (Reparations) [2022] ICJ Rep 13 [277].

consequences they directly cause.[20] Langmack has noted that the "word causality sends shivers down the spine of most environmental lawyers."[21] The IPCC has concluded that "[c]limate change has caused substantial damages, and increasingly irreversible losses, in terrestrial, freshwater, cryospheric, and coastal and open ocean ecosystems."[22] There is strong evidence that climate change is generally causing harm. At the same time, since multiple states and other actors contribute to climate change, the question of individual causation in the climate context remains unsettled in international law. Nollkaemper has demonstrated that, in determining responsibility for climate change, courts have solved the causation puzzle by applying a causation test with substantive obligations to prevent significant harm when determining a breach.[23]

However, this approach is not suitable for allocating compensation for climate change harm. For example, it is unclear which principle the ICJ would apply if a dispute similar to the one in the scenario 7 between Peru and Brazil were to emerge. Based on the science of general causation, it seems very likely that the failure to protect a rainforest is a contributing factor to climate change, and thereby adds to the risk of sea-level rise and the loss of land in Peru. However, Brazil's omission is not the entire cause of this harm. The pertinent question is: what proportion of this harm has been caused by such an omission? In this context, Rudall suggests that the ICJ could draw valuable lessons from the practice of the United Nations Compensation Commission, which employed a range of direct and proximate causation standards to address similar challenges. The author argues that additional guidance may also be found in the *Guiding Principles on Shared Responsibility in International Law*.[24] Moreover, attribution science will be crucial in quantifying the contribution of an individual state's GHG emissions or similar actions – such as the failure to protect rainforests – to specific events such as droughts, heatwaves, or floods.[25] Alongside advancements in attribution science, is there a role for economic methods in solving this "causation puzzle"? For example, would full

20 André Nollkaemper, 'Causation Puzzles in International Climate Litigation' (2024) Current Issues of International Environmental Law and Climate Law 25, 30.

21 Langmack (n 13) 29-30.

22 IPCC (n 1) A.2.3.

23 Nollkaemper (n 20) 39.

24 See André Nollkaemper and others, 'Guiding Principles on Shared Responsibility in International Law' (2020) 31(1) European Journal of International Law 15.

25 Nollkaemper (n 20), 50; see also Elisabeth A Lloyd and others, 'Climate Scientists Set the Bar of Proof Too High' (2021) 165 *Climate Change* 55; Friederike EL Otto and others, 'Causality and the Fate of Climate Litigation: The Role of the Social Superstructure Narrative' (2022) 13(5) Global Policy 736; Petra Minnerop, 'Climate Causality: From Causation to Attribution' in Margaretha Wewerinke Singh and Sarah Mead (eds), *Cambridge Handbook on Climate Change Litigation* (CUP 2025) 415.

reparation by a single state to a victim state be a viable solution from an economic perspective? This inter-disciplinary development is one that demands close attention, as advocated by Leucci and Monti.

3. Just Satisfaction under the European Convention on Human Rights

The European Convention on Human Rights is a special regime, with Article 41 ECHR modifying some aspects of general international law concerning state responsibility.[26] The Convention identifies the notion of "just satisfaction",[27] which includes reparation for pecuniary and non-pecuniary damage, as well as reimbursement of costs and expenses.[28] In the scenarios concerning the ECtHR, the applicants seek reparations for the reduced quality of life caused by heatwaves and the increased risk of mortality that cannot be fully averted (scenario 1), as well as for the adverse impacts on their cultural practices of indigenous communities, alleging that elements of their culture and traditional way of life, as is the case with the Sámi community, are threatened by climate change (scenario 2).

The ECtHR has handed down its first set of climate judgments,[29] in particular *Verein KlimaSeniorinnen Schweiz and Others v Switzerland,* which is the basis for scenario 1. Since the ECtHR has rejected victim status for individuals,[30] and the applicant association did not submit a claim for damages,[31] it remains unclear how the Court will approach human rights issues related to non-pecuniary and pecuniary damages in climate cases. A careful legal analysis of the ECtHR's past remedial practices[32] constitutes a necessary first step.

26 Study Group of the International Law Commission, Report on the Fragmentation of International Law: Difficulties Arising from the Diversification and Expansion of International Law, finalized by Marti Koskenniemi, UN Doc. A/CN.4/L.682 (Apr. 13, 2006), para 150.

27 "Satisfaction" in general international law represents only one of the forms of reparation. Namely, it covers non-pecuniary damage, which is not financially assessable. Such an obligation does not even exist under the Convention. See Octavian Ichim, *Just Satisfaction under the European Convention on Human Rights* (CUP 2014) 18.

28 Council of Europe, European Convention on Human Rights, as amended by Protocols Nos. 11, 14 and 15, ETS No. 005, 4 November 1950, Article 41.

29 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR); *Duarte Agostinho and Others v Portugal and 32 Others* App no 39371/20 (ECtHR); *Carême v France* App no 7189/21 (ECtHR).

30 *KlimaSeniorinnen* (n 29) [527]-[535].

31 *Ibid*. [647].

32 As regards the ECtHR's remedial practice in environmental, see Helen Keller, Corina Heri and Réka Piskóty, 'Something Ventured, Nothing Gained? – Remedies before

a. Non-Pecuniary Damages

The empirical study conducted by Keller, Heri and Piskóty demonstrates that in the environmental context, the ECtHR is willing to grant non-pecuniary damage awards.[33] Specifically, "the Court awarded non-pecuniary damages in 56 out of the 85 judgments surveyed."[34] Although there is no express reference to the causal link in the text of Article 41 ECHR, it remains an essential element in the ECtHR's analysis as "the whole logic of reparation for unlawful conduct implies the existence of causality."[35] The causal nexus for non-pecuniary damages stems from the understanding that moral suffering is an inherent consequence of any violation, with the primary challenge being its *quantification*.[36]

The determination of the precise amount of non-pecuniary damages relies on the standard amounts outlined in tables for exclusive internal use by the ECtHR.[37] The legal research by Fikfak has revealed that the victim is notably absent from the central focus of the Court's analysis in this regard.[38] Conversely, "all state variables have a significant impact on the determination of the quantum: the identity of the country, the qualification of state conduct and the measurement of the frequency of such conduct."[39] The Court seems to prioritize state conduct, assessing damages based on how that conduct is qualified.[40] The viability of such a state-centered approach in the determination of non-pecuniary damages should be tested in the context of climate cases. As Rowell argues, any valuation of climate damage inevitably involves a range of ethical considerations, including distributional questions, such as how to weigh harms experienced by the old versus the young, the domestic versus the foreign, and the wealthy versus the poor. The climate cases will inevitably concern particularly vulnerable individuals in view of their state of health, living conditions, and lifestyles (as in the scenario concerning the

the ECtHR and Their Potential for Climate Change Cases' (2022) Human Rights Law Review 1.

33 *Ibid*. 14.

34 *Ibid*. 14.

35 Ichim (n 27), 24.

36 *Ibid*. 26 (emphasis added).

37 *Ibid*. 48.

38 Veronika Fikfak, 'Non-Pecuniary Damages before the European Court of Human Rights: Forget the Victim; it's All about the State' (2020) 33(2) Leiden Journal of International Law 335, 360.

39 *Ibid*. 360.

40 *Ibid*.

indigenous community). The interdisciplinary approach (law and economics) offers a valuable framework to the discussion of the extent to which an award should redress the individual circumstances of the applicant.

In addition, from the standpoint of economic analysis of law, damages can be viewed as a tool to incentivize states to alter their behavior.[41] In this realm, law, psychology, and economics overlap. Applying specific behavioral assumptions is key to determining which effective remedies will ensure states' compliance with their human rights obligations in the context of climate change.

b. Pecuniary Damages

While pecuniary damage is tied to the right to property protection, the Court grants reparation for pecuniary loss whenever it directly results from the authorities' unlawful actions.[42] The Court is generally reluctant to award pecuniary damages in environmental cases, however.[43] Empirical analysis of the ECtHR's environmental case law has revealed that the Court awarded pecuniary damages in only a small number of the 85 violation judgments surveyed, and in the majority of these cases, the amounts granted were notably smaller than those claimed.[44]

In the climate context, causation is a difficult issue in determining pecuniary damages. In the *KlimaSeniorinnen* case, the Court addressed the issue of causation only in relation to the existence of positive human rights obligations to address climate change. Specifically, the Court held that "each State has its own share of responsibilities to take measures to tackle climate change and that the taking of those measures is determined by the State's own capabilities rather than by any specific action (or omission) of any other State."[45] It considered that "a respondent State should not evade its responsibility by pointing to the responsibility of other States, whether Contracting Parties to the Convention or not."[46] However, while this principle is sufficient to hold a state accountable for breaching its Convention obligations, it is not suitable for determining the exact amount of pecuniary damages. Once again, climate change and the resulting material harm are caused by multiple states, and it is questionable whether the entirety of this harm should be redressed by one

41 Veronika Fikfak, 'Changing State Behaviour: Damages before the European Court of Human Rights' (2018) European Journal of International Law 29(4) 1091, 1107.

42 Ichim (n 27) 98.

43 Keller, Heri, and Piskóty (n 32) 11.

44 *Ibid*.

45 *KlimaSeniorinnen* (n 29) [442].

46 *Ibid*. [442].

state alone. Here, economic analysis as a research method provides useful guidance to judges in evaluating pecuniary damages.

A challenging legal issue concerns the ECtHR's jurisdiction. If the ECtHR has to determine the damage caused by the respondent state, it will inevitably need to engage with the question of responsibility of other states. However, states do not have extraterritorial obligations for climate change.[47] A similar problem might arise before the ICJ, namely, regarding the question of material compensation in a dispute between two states (eg scenario 7).

4. Integration of Loss and Damage under Different International Regimes

Climate-related loss and damage, such as property destruction or loss of life and culture, could be framed both as transboundary environmental harm and as a human rights issue. The same set of consequences are regulated in parallel by two different international regimes: general international law and human rights law. If climate disputes are brought before the ICJ and the ECtHR, these adjudicators can be expected to approach the issue of climate reparation from different perspectives, creating fragmentation in the legal system. The diversity of approaches to this essential issue threatens the cohesion of international law. However, it also creates an opportunity to develop more effective remedies. For example, interdisciplinary methods that combine legal, economic, and scientific expertise offer objective benchmarks for assessing climate-related loss and damage. The preceding chapters demonstrate how these methods can be instrumental in evaluating climate loss and damage.

Given the complexity of climate change, a wide range of tools is needed in crafting an adequate legal response, each requiring careful and nuanced analysis. By acknowledging the numerous dimensions of climate harm – such as transboundary environmental impacts and human rights violations – courts and the international community can create a more unified and effective framework for climate reparations, ultimately contributing to a more sustainable legal approach to combating climate change.

47 *Duarte Agostinho* (n 29) [214].

Part Two
Litigation Strategies, Possibilities and Risks

Jannika Jahn

Chapter 6: Climate Litigation as a Regulatory Tool – Tracing Impact and Success of the German Constitutional Court's Climate Decision

1. Introduction

Prompting regulatory change and behavioral shifts by key actors such as political institutions or corporations is one of the main aims of climate litigation.[1] Environmental adjudication has been classified as a regulatory tool, that is a "tool for achieving regulatory ends"[2]. Domestic climate change litigation, in particular, is a "glocal" regulatory tool, by which civil society can mobilize the courts to enforce global goals in a local setting. The landmark ruling of the German Constitutional Court (GCC or Court) on climate change from 2021 is a case in point. It was hailed for its reinforcement of climate protection through constitutional law. Looking at it now, what has its broader regulatory impact been? Would litigators call it a success in hindsight? The present chapter tackles these questions. It briefly explains the decision of the GCC as an example of rights-based climate litigation (section 2). It analyzes the reaction by the German legislator as direct regulatory impact and the broader, indirect regulatory impact of the decision by prompting and influencing further climate-related proceedings (section 3). Based on this analysis, this chapter addresses the question of what can be qualified as "success" with respect to such constitutional climate litigation and if the GCC's climate decision can be considered a success. The chapter argues that, while regulatory impact is a component of success, success should not be reduced to regulatory impact. Instead, success should also be assessed in terms of mobilization, that is: to

1 See Jacqueline Peel and Hari M Osofsky, 'Litigation as a Climate Regulatory Tool' in Christina Voigt (ed), *International Judicial Practice on the Environment* (CUP 2019), 322.

2 *Ibid*.

what extent the decision empowers civil society to hold the government accountable for implementing its climate protection commitments and to use courts as fora to draw public attention to the topic. Put differently, if the litigants prompt the courts to fulfill their function as guardians of the rule of law and, in particular, if they get constitutional courts to strengthen public control over compliance with climate commitments, then they can be said to have been successful. On this basis, it is submitted that the GCC's decision can be considered a success for the litigants. However, two future tasks remain: convincing constitutional courts to assume their function as arbiters in a "glocal" context and to define corridors for national fair shares in global efforts to mitigate climate change, as well as to intensify constitutional control for the interim results of climate protection commitments (4.).

2. The Climate Decision of the GCC

A group of plaintiffs, mostly young Germans as well as two environmental associations and people from Bangladesh and Nepal filed a constitutional complaint before the GCC.[3] They considered the German Climate Act (Klimaschutzgesetz, KSG) to be insufficient to mitigate climate change. The KSG aimed to create a framework for bringing German greenhouse gas emissions (GHG)[4] in line with the temperature goals of Article 2 Paris Agreement, national CO_2 reduction targets committed to under European Union law[5] and the goal of climate neutrality by 2050[6] to which the Federal Republic of Germany had committed at the United Nations Climate Action Summit in New York on 23 September 2019.[7] To this end, the Act stipulated a reduction of GHG emissions by at least 55% by 2030 relative to 1990 levels.[8] For the time after 2030, the legislator left it to the government to set annually decreasing emission amounts by means of ordinances.[9] The plaintiffs argued on this basis that Germany would not be contributing sufficiently to achieve the goal of limiting global warming to 1.5°C or at least to 2°C above pre-industrial levels and of

3 BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany)*

4 The main part of GHG emissions consists of CO_2, which is why the chapter will refer to CO_2 from now on.

5 Regulation (EU) 2018/842.

6 The benchmark of climate neutrality by 2050 is not explicitly intended by the PA; cf however, art 4.1 PA.

7 German Bundestag, item 19/14337 (22 October 2019), paras 1, 6; BVerfGE 157 (n 3) [3].

8 BVerfGE 157 (n 3), [4].

9 *Ibid*. [5].

climate neutrality by 2050.[10] They emphasized that this would risk the crossing of tipping points[11] with unforeseeable adverse consequences for the climate system and millions of people across the world, particularly in the future. The minors relied in particular on their rights of life and well-being and their constitutionally enshrined liberty rights as young generations. In this regard, the case relates to scenarios 1 and 5 in which the applicants also invoke their rights of life and well-being (cf. scenario 1) and their rights as young generations (cf. scenario 5).

The GCC ruled partly in favor of the minors from Germany. It found that the existing provisions were partly unconstitutional, because the legislator had not defined the GHG reduction path for the post-2030 period.[12] Thus, the legislator did not satisfy the requirement of adopting a transparent pathway for the reduction of GHG emissions in good time. It risked irreversibly offloading major emission reduction burdens onto young and future generations. Due to a lack of evidence, the Court rejected the claim that the ecological minimum or the right to live with dignity in the future were violated by the legislator.[13] It denied the legal standing of ecological associations ("Anwälte der Natur"), as the measures in dispute did not affect them individually.[14]

In its reasoning, the GCC rejected the argument that the legislator had not fulfilled its protective duties to secure the right to life, good health, and property.[15] It acknowledged that German state authorities generally had a duty to protect the right to life and property from environmental hazards, including those connected to climate change.[16] But it did not find that the legislator had violated these duties due to the leeway it enjoyed. Traditionally, the Court affords the legislature broad discretion in choosing how to fulfil its protective duties in order to leave enough freedom to the political process and to pay due regard to residual factual uncertainties.[17] For that

10 *Ibid*. [40ff], [60ff], [71f], [79f].

11 Ove Hoegh-Guldberg and others, 'Impacts of 1.5°C Global Warming on Natural and Human Systems' in Valérie Masson-Delmotte and others (eds), *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-Industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (CUP 2018) 175, 262.

12 *Ibid*. [243]-[266].

13 *Ibid*. [113f].

14 *Ibid*. [136f].

15 *Ibid*. [143].

16 *Ibid*. [147].

17 BVerfGE 77, 170 (29 October 1987) [214f]; BVerfGE 79, 174 (30 November 1988) [202].

purpose, the Court reduces the threshold of constitutional review to the question whether the state has evidently taken unsuitable or insufficient protective measures. In the present case, it did not consider these criteria to be fulfilled.[18] According to the GCC, manifestly inappropriate or insufficient measures would entail not even seeking to achieve climate neutrality or merely seeking to respond to climate change with adaptation methods. Such conduct would not help stop global warming. The Court held that neither scenario was the case here. On the contrary, it emphasized that the legislator had taken climate change seriously by adopting reduction measures that were in line with the Paris Agreement.[19] Further, the Court held that the absolute necessity to limit global warming to 1.5°C had not been proven and that, in fact, considerable scientific uncertainty remained in that respect.[20] Moreover, the Court warned against conflating the duty to protect human life and health with the duty to protect the environment. It qualified adaptation methods as valid means to reduce the risks posed by climate change to human health, even if they did not help protect the environment. Hence, the legislator was free to fulfill its protective duties by adopting adaptation methods.

However, the Court found that the KSG infringed future generations' liberties. To arrive at this finding, the Court creatively interpreted the rights under the Basic Law as intertemporal guarantees of freedom.[21] In short, the argument goes as follows: According to the legislator's own specification, the duty of environmental protection enshrined in Article 20a of the Basic Law requires the legislature to adopt measures that help limit global warming to at least 2°C above the pre-industrial level. This constitutional duty means that the legislature will have to limit individual freedoms that collide with this goal. Therefore, the more lenient the KSG is today, the more stringent it will have to be in the future to achieve net-zero GHG emissions by 2050. CO_2 reduction efforts will foreseeably affect the exercise of every type of freedom because virtually all aspects of human life involve greenhouse gas emissions. Hence, provisions that allow for GHG emissions in the present constitute an irreversible legal threat to future freedom. They entail an interference-like effect *(eingriffsähnliche Vorwirkung)* on the freedoms protected by the Basic

18 BVerfGE 157 (n 3) [152f].

19 The GCC also rejected the plaintiffs' claims that the legislature had not responded appropriately to achieve the reduction goal of 2°C and that the legislature had failed to set suitable measures for achieving the self-imposed goal of reducing emissions by 55% below 1990 levels by 2030.

20 BVerfGE 157 (n 3) [159f]. It further mentioned that uncertainty remained about Germany's GHG budget.

21 *Ibid*. [116f], [182f].

Law.[22] The crux of the decision is that these interference-like effects will have to be proportionate. Therefore, the legislature is obligated to distribute the burdens connected with combatting climate change amongst society fairly over time (so-called intergenerational fairness).

The Court further recognized a special duty of care on the legislator.[23] Based on reliable scientific findings regarding climate change and the remaining CO_2 budget, as reflected in IPCC estimates, it found that the legislature is obliged to take precautionary steps to seek a fair balance between the infringements of current and future freedoms caused by reduction measures, also after 2030.[24] Otherwise, evaluating the impairment of future freedoms from today's perspective entails the risk that wrong assumptions about future developments might lead to wrong conclusions about the constitutionality of future infringements of basic freedoms.

By compelling the German government to implement its own Paris Agreement undertakings in a consistent manner, the GCC gave legal teeth to the self-determined climate commitments. It did so in the following steps. Firstly, the Court clearly stated, based on an in-depth examination of scientific evidence, that climate change is a human-CO_2-driven phenomenon that risks degrading the basis of humans' ecological subsistence. Secondly, the Court "constitutionalized" the global temperature targets under the Paris Agreement by arguing that the legislature had specified the objective of environmental protection under Article 20 Basic Law through the KSG and the temperature target set out therein. Through domestic incorporation and the Constitutional Court's interpretation, the non-binding international targets became constitutional yardsticks for the exercise of all public authority in Germany. At the same time, the Court held that the legislature's discretion in specifying the climate protection objectives under Article 20a Basic Law was bound by scientific evidence. Hence, if subsequent international agreements sought to weaken climate protection, Article 20a Basic Law would still require justification.[25] Thirdly, the Court used a carbon budget for its constitutional scrutiny. It referred to the German scientific advisory board on climate change, which had derived a national carbon budget representing Germany's share from the global carbon budget (as estimated by the IPCC).[26] Fourthly, the Court relied

22 *Ibid*. [183f].

23 *Ibid*. [229].

24 *Ibid*.

25 *Ibid*. [212].

26 *Ibid*. [215 ff.], part. [229].

upon the concept of intertemporal fairness.[27] As a matter of constitutional law, future infringements of individual rights would most probably be justified by climate change-related emergencies. The endeavor to avoid these emergencies from happening in the future is thus a matter of ethics, not a logical consequence of constitutional law. It follows that the Court incorporated an ethical element of fairness and solidarity into the proportionality test.

The Court dismissed the complaints of the plaintiffs from Bangladesh and Nepal on the merits.[28] It found that it is conceivable in principle that the German state would be under a duty vis-à-vis the complainants living abroad to take action against impairments caused by global climate change.[29] However, it did not find a violation in this case.[30] Besides the high threshold for finding an "evident" violation of a positive obligation not having been met, the GCC held that it would be even more difficult to evaluate a violation of positive obligations with respect to people outside of German jurisdiction, as the German state would not have the authority to implement adaptation measures that contribute to safeguarding people's health and life from negative consequences of climate change.[31] With respect to a possible violation of individual liberties, the Court dismissed the plaintiffs' claim, because they were not within German jurisdiction and thus not subject to the German laws that restrict individual liberties in order to reduce CO_2 emissions.[32] The decision to resolve the case doctrinally on the basis of the negative dimension of individual liberties thus narrowed the legal scope for judicial review by persons outside German jurisdiction.

Notably, however, the GCC acknowledged that climate change has global distributional effects.[33] The GCC accepted that the German state is obliged to fulfill its fair share of CO_2 reduction. It referred to the principle of common but differentiated responsibilities and respective capabilities (CBDR-RC) as enshrined in the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement,[34] which guides the sharing of responsibility between states.[35] It found that the German government had to make

27 *Ibid.* [182]-[194], see also [243]-[255].

28 *Ibid.* [173f].

29 *Ibid.* [174]-[175].

30 *Ibid.* [180]-[181].

31 *Ibid.* [178], [181].

32 *Ibid.* [132], [173ff].

33 *Ibid.* [225]

34 *Ibid.*

35 *Ibid.* Cf also Supreme Court of the Netherlands, *Urgenda Foundation v State of the Netherlands,* 13 January 2020, ECLI:NL:HR:2019:2007, [6.1]-[7.3.6].

sure that the temperature target corresponds with the national CO_2 budget and that the national reduction targets take due account of the remaining budget.[36] However, the Court did not scrutinize whether the State's reliance upon the advisory body's estimate of Germany's national budget was based on a methodology which aligned with the principle of CBDR-RC. Instead it left discretion to the legislature in this regard. How this general principle translates into specific fair share is legally unclear. Different approaches have been put forth,[37] such as an equal-per-capita-emissions approach[38] and the grandfathering approach[39] and these yield significantly different results. Until now, no consensus has been reached.[40] In this regard, the GCC left the decision on the "fairness" of the German share as assumed under the German national budget to the legislator.[41]

3. Great Hope, Limited Impact?

The GCC's climate decision was widely praised as ground-breaking in the effort to encourage the legislator to make more efforts to comply with the international climate goals. But what has been its direct regulatory effect – and its indirect regulatory impact?

After the immediate legislative amendment of the KSG in reaction to the decision, environmental non-governmental organizations (NGOs) pooled individuals to file further lawsuits before the GCC against constitutional deficiencies of the KSG and the legislator's omission to enact regulatory instruments to implement the objectives of the KSG (a). Individuals and NGOs relied on the

36 *Ibid*. [215], [229].

37 See Lavanya Rajamani, 'The Principle of Common but Differentiated Responsibilities and Respective Capabilities in the International Climate Change Regime' in Rosemary Lyster and Robert RM Verchick (eds), *Research Handbook on Climate Disaster Law* (Edward Elgar Publishing 2018); Lavanya Rajamani and others, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions within the Principled Framework of International Environmental Law' (2021) 21 Climate Policy 983; cf Benoit Mayer, *International Law Obligations on Climate Change Mitigation* (OUP 2022), 243ff.

38 According to the Court, this was the approach used by the Scientific Advisory Board, BVerfGE 157 (n 3) [225].

39 For an overview, see Anthony Patt and others, 'International Cooperation' in Priyadarshi R. Shukla and others (eds), *Climate Change 2022: Mitigation of Climate. Working Group III contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2022), 14.3.2.3.

40 Critical, Sumudu Atapattu, 'Global South Approaches' in Lavanya Rajamani and Jacqueline Peel (eds), *The Oxford Handbook of International environmental Law* (2nd edn, OUP 2021) 183, 192-193, 195, 198.

41 BVerfGE 157 (n 3) [225], [229].

GCC's decision when filing lawsuits against infrastructure projects in administrative courts (b) or when demanding behavioral change of corporations in civil courts (c). When considering these cases, it becomes clear that the standard of review adopted by the GCC renders the decision's direct regulatory effect notable, but so far limited (d).

a. Legislative Change

The political reaction to the GCC's decision was almost curiously positive. Support for the decision came across the political spectrum. Even the political parties that formed the government and enacted the KSG welcomed the decision.[42] The Social Democrats claimed that this decision could move climate protection in a direction that the Christian Democrats as their coalition partner had not been prepared to take. The opposition hailed the decision as a success for climate protection in Germany, although disagreements as to the regulatory approaches persisted between the Green Party, which favored regulation, and the Free Democrats, who preferred market-based instruments for climate protection. In the final months of the legislative period, the legislature passed the amendment tabled by the government, which adjusted the CO_2 reduction pathway until the achievement of climate neutrality by the end of 2045, including the interim target for 2030. The government thus eliminated the gaps in its previous climate neutrality pathway, which had led the GCC to consider the law partially unconstitutional. Based on the overall assessment of the decision, the government deliberately went beyond the commitments made in the European Union's climate law, which envisaged climate neutrality by 2050.[43]

After the KSG was amended, environmental NGOs identified a remaining gap between the KSG's temperature target and its emission reduction pathways. On the basis of the GCC's decision, they filed a follow-up lawsuit against the government before the GCC. The GCC dismissed this claim as the plaintiffs had not proven this gap.[44] The plaintiffs then turned to the European Court of Human Rights (ECtHR), where the case is still pending.[45]

In 2024, the government abolished the sector-specific goals of the KSG.[46] The intention behind this elimination was to allow for failures in one sector to be compensated for through the emissions reductions achieved in another.

42 For reactions, see Süddeutsche Zeitung, 'Für den Klimaschutz ist das ein Ausrufezeichen' (29 April 2021).

43 German Bundestag, item 19/30230 (2 June 2021), 18.

44 BVerfG 1 BvR 1565/21 et al (18 January 2022).

45 See *Engels v Germany* App no 46906/22 (ECtHR).

46 See now § 4 (1) KSG; see also German Bundestag, item 20/8290 (11 September 2023).

This was a reaction to the fact that the transport sector had not achieved its sector-specific targets. In reaction to this, Fridays for Future and Greenpeace filed a new lawsuit before the GCC, called the "future lawsuit" *(Zukunftsklage)*. A similar complaint was filed by the NGO Deutsche Umwelthilfe.[47] They all argue that the new amendments to the KSG contradict the GCC's ruling of 2021 and that the government is in breach of the Basic Law, as interpreted by the GCC, by failing to put Germany on track to meet climate targets in the building and transport sector.

Applicants have also relied on the GCC's decision to request the GCC to order the legislator to impose specific measures, such as a speed limit on motorways.[48] They argued that a speed limit would be a necessary means to bring the transport sector on track with the German climate targets. The GCC did not share this view.[49] It stated that, to this end, a constitutional complaint would in principle have to be directed against the entirety of the permitted emissions.[50] That is because, as a rule, only the relevant plans as a whole, and not selective actions or omissions by the state, were capable of disproportionately shifting the reduction burdens to the future. Since the applicants had not substantiated that the emissions budget allocated to the transport sector up to 2030 would exceed the national carbon budget, their claim was dismissed.

Apart from the above, two cases concerning laws on the expansion of wind energy creation have been adjudicated by the GCC. At the heart of one case was the law passed in the state of Mecklenburg-Vorpommern which provided people living near wind turbines built by private enterprises the opportunity to share in the profits from those projects. The GCC rejected the constitutional complaint by the companies against this law.[51] It based its decision on the idea that such forms of public participation could improve societal acceptance which would facilitate the expansion of green energy production, thereby contributing to the reduction of CO_2 emissions.[52] In the second case, the dispute concerned a law enacted by the state of Thuringia which prohibited the installation of wind turbines in its forests.[53] While the central question concerned the proper characterization of the law for the purpose of assessing

47 Katharina Wilhelm, 'Wer klagt für das Klima – und warum?' *tagesschau.de* (16 September 2024).

48 BVerfGE, decision of 15 December 2022 – 1 BvR 2146/22, para 1.

49 *Ibid*. [5].

50 *Ibid*.

51 BVerfGE 161, 63 (23 March 2022).

52 *Ibid*. [104]-[105], [141]-[148], [156].

53 § 10 (1) of the Thuringia Forest Act, 21 December 2020 (GVBl <TH> 665).

whether it fell within the regulatory competence of the state legislature or the German federal legislature, the case also involved the conflict between the Thuringian Forest Act and the federal law promoting the expansion of the use of wind power. The GCC resolved the conflict between laws at the federal level and the Thuringian Forest Act against the latter. It reasoned that in light of the German federal legislature's positive obligation to contribute to climate change mitigation (under Article 20 a Basic Law), and the indispensability of the expansion of use of wind power, that the federal law could not be deemed to allow states (especially those with large forest lands) to completely exclude wind energy projects on forest land.[54] In both cases, the GCC relied on its climate decision to buttress the importance of the federal legislative objective of promoting wind energy.

b. Administrative Change

In several administrative court cases, applicants or respondents referred to the climate decision by the GCC to achieve or to oppose the intention to enforce regulatory change. In two cases, for example, the NGO Deutsche Umwelthilfe e.V. succeeded with its complaint before the Highest Administrative Court of Berlin-Brandenburg (OVG)[55] in obtaining an order requiring the government to improve the immediate measures *(Sofortprogramme)* and regular climate measures pursuant to §§ 8 and 9 KSG in several sectors, including the transport sector. The government had argued that the court could only scrutinize whether the government had evidently failed to comply with its obligation to provide climate protection, as otherwise the constitutional leeway granted to the government by the GCC would be impaired.[56] However, the OVG Berlin-Brandenburg stated, as per the decision of the GCC, that government action with regard to the continuous improvement of climate protection fell within its scope of review[57] and that the government, in the exercise of its discretion to adopt the instrument of "immediate measures," would have to orient these towards the interim CO_2-reduction goals as well, and not merely the long-term ones.[58]

54 BVerfG 1 BvR 2661/21 (27 September 2022) [79], with respect to § 9 (3) German Federal Forest Act, interpreted in light of § 35 (1) No. 5 German Federal Construction Act.

55 Oberverwaltungsgericht Berlin-Brandenburg, 30 November 2023, OVG 11 A 11/22 *(DUH and BUND v Germany)*; Oberverwaltungsgericht Berlin-Brandenburg, 16 May 2024, 11 A 31/22 *(DUH v Germany)*.

56 See *DUH v Germany* (n 55) [72]; *DUH and BUND v Germany* (n 55) [33].

57 *DUH v Germany* (n 55) [80].

58 *DUH and BUND v Germany* (n 55) [131].

The government has appealed against both rulings, with the exception of the part relating to land use.[59]

In two cases before the Federal Administrative Court (BVerwG)[60], environmental NGOs did not succeed in convincing the court to order the administration to refrain from authorizing contentious infrastructure projects. The KSG requires authorities to consider the impact of infrastructure projects on the climate when deciding whether to authorize them. In both cases, one concerning the opening of an LNG terminal and the other concerning the extension of a highway, the administration had approved the infrastructure projects despite the foreseeable increase in CO_2 emissions caused by them or, more specifically, by their use.[61] In the LNG terminal case, the BVerwG held that the legislator was not constitutionally bound to strictly prohibit such gas operations, and instead, it could just as well promote CO_2 mitigation by addressing the consumption of gas.[62] In the motorway case, the BVerwG explained that the GCC climate decision did not require that in a balancing of interests, climate protection takes unconditional priority over other societal concerns.[63] It also recalled the GCC's finding that the greater the risk of transgressing the temperature target of 1.5°C or the aim of climate neutrality by 2045 grows, the greater the concern for climate change mitigation becomes.[64] Hence, although the administration had to consider a project's impact on climate change, this concern would not automatically outweigh other societal concerns.[65] On these premises, the court upheld the administrative planning decision.

c. Behavioral Shifts in Litigation Concerning Corporations

The GCC's climate decision has not only been invoked in lawsuits against the state, it has also been relied upon in lawsuits against corporations. For instance, Greenpeace[66] filed lawsuits against Volkswagen in an attempt to have civil courts order Volkswagen to reduce its CO_2 emissions and stop producing cars with combustion engines. While such a lawsuit in the city of Braunschweig

59 See beck-aktuell, 'Urteil rechtskräftig: Ampel muss Maßnahmen zu Klimaschutz nachschärfen' (16 September 2024).

60 BVerwG 9 A 7.21 (4 May 2022); BVerwG 7 A 9.22 (22 June 2023).

61 For the LNG-terminal, see BVerwG 7 A 9.22 (n 60); for the highway, BVerwG 9 A 7.21 (n 60).

62 BVerwG 7 A 9.22 (n 60) [46].

63 BVerwG 9 A 7.21 (n 60) [86].

64 *Ibid*.

65 *Ibid*.

66 See argumentation of the legal counsel.

failed in second instance,[67] similar proceedings in Hamm have not yet been concluded.[68] In these proceedings, the plaintiffs relied on the GCC climate decision to demonstrate the existence and causes of climate change and the risks to humans associated with climate change.[69] They further invoked the decision to argue that the reduction of CO_2 in the transport sector is necessary to avoid future liberties from being disproportionately restricted.[70] They also cite the decision to point out that the remaining uncertainties regarding the exact contribution of Volkswagen's CO_2 emissions to climate change, the specific environmental changes and the resulting disasters and damage should not relieve Volkswagen of responsibility for reducing CO_2 emissions.[71] Increasing the risk of driving climate change and its negative consequences should be sufficient. The Braunschweig Civil Court dismissed the case, pointing to the fact that the GCC's climate decision had not found the legislator to be in breach of its positive climate protection duties.[72] Moreover, it held that the duties that courts may infer from reading civil law in light of constitutional rights could not go further than the state's obligations arising out of constitutional rights.[73] This reasoning has been repeated in several other climate cases that were filed against corporations before civil courts.[74]

d. High-Level Programmatic Impact, But Little Effect on Corporate Actors or the Political Choice of Instruments

The question to be answered now is to what extent the GCC's decision is an example of the regulatory impact of climate litigation.[75] Regulatory impact here refers to any effect on regulation, including legal acts and administrative decisions, and behavioral shifts by corporations. The effect may be a change

67 Oberlandesgericht Braunschweig, 28 June 2024, Az. 2 U 8/23 *(X v Volkswagen)*; for the first instance decision, see Landgericht Braunschweig, 14 February 2023, 6 O 3931/21 (*Kaiser et al (Greenpeace) v Volkswagen).*

68 The complaint was rejected in first instance, Landgericht Detmold, 24 February 2023, 1 O 199/21 *(Allhoff-Cramer v Volkswagen).* The second instance proceedings had not been concluded at the time of writing.

69 For the argumentation of the legal counsel, see n 3.

70 *Ibid*. 30.

71 *Ibid*. 110-112.

72 See n 74, Oberlandesgericht Braunschweig, 28 June 2024, Az. 2 U 8/23 *(X v Volkswagen)*.

73 *Ibid*.

74 See Oberlandesgericht München, 12 October 2023, 32 U 936/23 *(Metz et al v BMW)*; Landgericht Stuttgart, 13 September 2022, 17 O 789/21 *(Metz et al v Mercedes-Benz).*

75 For a theoretical approach to measuring the effectiveness of climate litigation, see Joana Setzer, Nicola Silbert and Lisa Vanhala, 'The Effectiveness of Climate Change Litigation' in Francesco Sindico and others (eds), *Research Handbook on Climate Change Litigation* (Edward Elgar Publishing 2024), 245.

in regulation or conversely, the blockage of regulation. While direct regulatory impact means that a regulator or corporation is directly obligated to regulate, indirect regulatory impact is broader and encompasses indirect legal avenues that lead to or that block a change in regulation. The GCC's decision has had a clear direct, legislative, but so far limited indirect regulatory impact. The direct regulatory impact derives from the constitutional duty that the Court infers from interpreting the constitutional liberties as intertemporal guarantees of freedom: the necessity of taking precautionary measures to prevent a disproportionate shifting of CO_2 reduction burdens into the future,[76] of adopting an innovation-stimulating planning horizon that ensures that the transition to climate neutrality is initiated in good time[77] and of providing clear CO_2-reduction targets that are capable of providing the required orientations.[78] As a result, Parliament had to adopt a carbon neutrality pathway that clearly shows how carbon neutrality is to be achieved by 2050. One could say, the GCC's decision has arguably infused the law with an understanding of "thick" intergenerational fairness, meaning that the temperature targets, which are rendered quantifiable through the CO_2 budget, guide the necessary restrictions of individual liberties. All behavior must be geared towards emitting only as much carbon dioxide as the residual CO_2 budget allows. By contrast, a law of "thin" intergenerational fairness would require environmental protection measures in so far as they are technologically feasible and reasonable. Such a technologically oriented framework would not require the limitation of liberties to reduce CO_2, if there is no available technology that can help achieve emissions reductions in a robust manner. If interpreted along these lines, the legislator would be asked to regulate more than just to oblige corporations and public authorities to use best and newest technologies with respect to energy efficiency.[79]

However, the Court has given the legislator great leeway with respect to the measures that must be taken. Additionally, the Court did not want to make any judgment on the CO_2-budget that the government had endorsed, mentioning that this would include a judgment on matters of "justice" and scientific uncertainty.[80] It is limited in terms of its global dimension, as it does

76 BVerfGE 157 (n 3) [244]-[247].

77 *Ibid*. [248]-[250].

78 *Ibid*. [251].

79 However, the GCC has explicitly refused to read into the Basic Law a self-standing subjective right to intergenerational fairness for young or future generations. The Court conceived of intergenerational fairness as an objective principle flowing from the principle of proportionality; *ibid*. [146].

80 BVerfGE 157 (n 3) [225].

not provide the legislature with clear indications on constitutionally viable interpretations of the principle of CBDR-RC. It is also limited to a high-level programmatic or managerial, rather than a substantive, measure-specific regulatory impact. The GCC climate decision has restricted judicial review to the question whether the overall progress of CO_2 reduction is sufficient to comply with the requirement of intertemporal fairness. Thus, successful judicial scrutiny focuses on whether fundamental programmatic political decisions evidently fail the CO_2 mitigation pathway as set out by the legislator. The strictness of this review intensifies as the remaining national and global carbon budgets shrink.[81] However, the Court did not elevate the interim targets to the constitutional level. It is therefore difficult to assess whether and when the Court would intervene if the government failed to meet the interim targets, but the chance of meeting the overall CO_2 budget would still be possible, despite scientific uncertainties.

The consequence of such an approach is visible in the successive proceedings mentioned above. An appraisal of these select cases, reveals that the GCC climate decision has not led to further judicial decisions ordering the government or corporations to increase their climate protection efforts.[82] The GCC's decision has not served as a legal basis for constitutional claims against the government to enact specific measures in pursuit of climate protection or to oblige the executive when balancing different interests to give higher weight to climate change concerns. Instead, in cases filed against corporations or the government with respect to their duties to endorse an immediate climate program, the GCC's decision was invoked by the respondent parties to argue that the political discretion left to the legislator ought not to be undermined by court decisions. Only in cases where a legislative measure for the expansion of wind power was to be justified did the GCC invoke the climate decision to reinforce the legitimacy of the measure's aim and its relative importance in the balancing of interests. Therefore, one could say, that the GCC's decision has not catalyzed or strengthened low-profile, routine court cases that entail a smaller, but increasingly growing effect in transforming existing regulatory structures. This possibly diminishes the decision's broader regulatory impact, as rather insignificant lawsuits that bring about systemic change through collective routinization have been considered one important avenue

81 *Ibid*. [120], [187].

82 Also critical, cf Thomas Gross, 'Zwei Jahre Klimabeschluss des Bundesverfassungsgerichts' (Verfassungsblog, 18 March 2023).

for climate litigation to bring about effective regulatory change (so-called "butterfly climate litigation"[83]).

The GCC's restraint in climate cases can be explained by its intent to keep within the remit of the judiciary's competence in a democratic state that adheres to the separation of powers. As the GCC noted in its decision, climate protection necessitates societal transformation.[84] In order to achieve greenhouse gas neutrality by 2050, far-reaching changes are indispensable. In today's way of life, almost all behavior is directly or indirectly linked to CO_2 emissions. Not only the operation of large industrial plants, but also everyday behavior contributes to the generation of CO_2 emissions. The purchase of any product creates demand, prompting the CO_2 emissions embedded in its production, transportation and disposal. The necessary social changes caused by the energy transformation lead to economic winners and losers. Steering behavior towards a reduction of CO_2 consumption may hit people with less income harder than those with higher income which is why climate change mitigation measures carry the risk of creating or reinforcing socio-economic divides in society.[85] Related questions of distributive justice require political debate and decision-making. Additionally, there is an element of complexity that prevents courts from interfering with political and administrative decisions. Scientific assessments are necessary to relate each and every single CO_2 emission to the residual CO_2 budget of Germany. It follows that infusing the law with an element of solidarity, such as intertemporal fairness, is one thing. Refining and specifying it in individual cases is another. As a consequence, the GCC, administrative and civil courts exercise restraint with respect to substantive questions of intragenerational burden-sharing and leave them for the legislator and government to decide.

4. Climate Litigation Success

When evaluating the GCC climate decision's regulatory impact, can it be concluded that it evidences successful climate litigation? When appraising its success based on the regulatory impact of climate litigation, the GCC's climate

83 Catalina Vallejo Piedrahíta and Siri Gloppen, 'The Quest for Butterfly Climate Adjudication' in César Rodríguez-Garavito (ed), *Litigating the Climate Emergency* (CUP 2022), 117; see also Kim Bouwer, 'The Unsexy Future of Climate Change Litigation' (2018) 30 Journal of Environmental Law 483.

84 See eg BVerfGE 157 (n 3) [121]-[122].

85 See eg Sanna Markkanen and Annela Anger-Kraavi, 'Social Impacts of Climate Change Mitigation Policies and Their Implications for Inequality' (2019) 19(7) Climate Policy 827 with further references.

decision could be deemed a narrow success in terms of its direct regulatory effect and an even narrower one in terms of its indirect regulatory impact. In the literature on the social mobilization of the law or strategic litigation, success has, however, not been reduced to the fact that later regulatory decisions align with the litigants' objective. Rather, success is viewed as part of a larger picture that inspires social change through litigation.[86] I agree that what is deemed a climate litigation success should not be reduced to the pure regulatory impact of climate litigation, but that success also connotes a broader societal development that has been catalyzed. It is this understanding of success that perhaps captures the most important part of what human rights-based litigation can achieve with respect to the long-term transformative endeavor of climate change mitigation (a). I submit that for the case in point, the greatest success is that the decision has increased the accountability of political actors by making it transparent whether they give effect to intertemporal interests of young and future generations (b). However, two aspects detract from the success: the Court's deference to the legislator as regards the CO_2-budget and the fact that it is unclear when the Court would intervene if interim targets are not met (c).

a. Potential of Human Rights-Based Climate Litigation

A reflection of the potential function that courts have with respect to the challenge of climate change needs specification in order to define what climate litigation success can possibly mean in this regard. If the function is specified, the success of climate litigation can be examined. Some scholars are skeptical about framing climate change mitigation as a human rights problem, because mitigation relates to the cause of climate change, which is a diffuse phenomenon.[87] They consider human rights to be inapplicable in this regard, since the use of fossil fuels is broadly accepted in societies.[88] Conversely, they consider climate adaptation to be a human rights problem, since adaptation relates to the specific effects of climate change, where the state is called upon to protect

86 Peel and Osofsky (n 1) 323 with further references; for the difficulty of defining success, see also Lisa Vanhala, 'The Comparative Politics of Courts and Climate Change' (2013) 22(3) Environmental Politics 447, 451; for a commonly developed goal-oriented understanding of success in human rights-based litigation, see Catherine Corey Barber, 'Tackling the Evaluation Challenge in Human Rights: Assessing the Impact of Strategic Litigation Organisations' (2012) 16(3) The International Journal of Human Rights 411.

87 Alexander Zahar, 'The Limits of Human Rights Law: A Reply to Corina Heri' (2022) 33(3) European Journal of International Law 953; Fanny Thornton, 'The Absurdity of Relying on Human Rights Law to Go After Emitters' in Benoit Mayer and Alexander Zahar (eds), *Debating Climate Law* (CUP 2021), 159.

88 Zahar (n 87).

people from foreseeable damage caused by climate-related environmental hazards.[89] Critical legal scholars further contend that the constitutionalization of environmental concerns and their framing as human rights issues comes with risks. They argue that such a conceptualization would remain largely symbolic.[90] They problematize the intrinsic indeterminacy of rights which can be used to challenge, but also to protect existing structures of privilege.[91] Since either side can invoke and frame grievances in the language of rights, rights may lose their emancipatory power. In fact, companies might foster lawsuits based on climate change-related to urge the development of wind turbines. More profoundly, rights discourse is said to potentially divert the attention away from deeper structural issues of inequality and injustice,[92] issues of great relevance for the problem of climate change. As a consequence, rights could risk depoliticizing the respective debates.[93]

Other scholars find that constitutionalization of environmental concerns is important for their effective protection. As a constitutional concern, environmental interests restrict public authority and private encroachment and compel the state to act affirmatively.[94] In the eyes of several authors, human rights are a suitable means for legally urging governments to take mitigation measures.[95] In particular, they point to the specific vulnerability of certain

89 *Ibid*.

90 On symbolic constitutionalization, Marcelo Neves and Kevin Mundy, *Symbolic Constitutionalization* (OUP 2022).

91 David Chandler, 'Contemporary Critiques of Human Rights' in Michael E Goodheart (ed), *Human Rights: Politics and Practice* (OUP 2016); Makau Mutua, 'Human Rights and Powerlessness: Pathologies of Choice and Substance' (2008) 56 Buffalo Law Review 1027; cf also Peter D Burdon, 'Idealism and Struggle: Co-Opting Legal Rights for Environmental Protection' (2014) 39 Alternative Law Journal 176.

92 Specifically with respect to climate change Lea Raible, 'Expanding Human Rights Obligations to Facilitate Climate Justice? A Note on Shortcomings and Risks' (*EJIL:Talk!*, 15 November 2021); more generally, Paul O'Connell, 'On the Human Rights Question' (2018) 40(4) Human Rights Quarterly 962, 968, 972; Robin West, 'Tragic Rights: The Rights Critique in the Age of Obama' (2011) 53 William and Mary Law Review 713, 720–721.

93 Susan Marks, 'Human Rights and Root Causes' (2011) 74(1) The Modern Law Review 57; Chandler (n 91); cf Samuel Moyn, *The Last Utopia: Human Rights in History* (Harvard University Press 2010).

94 Most prominently Louis J Kotzé, 'Arguing Global Environmental Constitutionalism' (2012) 1(1) Transnational Environmental Law 199, 208 with further references.

95 Taking a differentiated viewpoint Helen Keller and Corina Heri, 'Klimagerechtigkeit durch Klimaklagen? Eine kritische Analyse aus menschenrechtlicher Perspektive' (2022) 1 juridikum 83; Helen Keller and Corina Heri, 'The Future Is Now: Climate Cases Before the ECtHR' (2022) 40(1) Nordic Journal of Human Rights 153; Corina Heri, 'Legal Imagination, and the Turn to Rights in Climate Litigation: A Rejoinder to Zahar' (EJIL:Talk!, 6 October 2022); Benoit Mayer, 'Climate Change Mitigation as an Obligation

groups of people, a criterion which might help overcome the procedural hurdles and accommodate concerns of climate justice.[96] They argue that qualifying climate mitigation as a human rights issue cannot be dismissed merely because people benefit from fossil fuels and therefore choose to continue their practice of energy use.[97]

Indeed, in an individual case, the particular claimant might be specifically vulnerable to future adverse climate impacts or affected by legislative restrictions of liberties. Moreover, it may be concluded that human rights adjudicators or constitutional courts appear as the natural representatives of intertemporal interests of young and future generations. It is their constitutional purpose to protect the rights of those who are not part of the electorate and who therefore cannot ensure that their interests are reflected in democratic majority decisions, as is the case for young people who are not yet part of the electorate, and to uphold the intertemporal promise of human rights protection enshrined in the European Convention on Human Rights (ECHR)[98] or a domestic constitution. The ECtHR has in fact acknowledged this judicial function in the following words in the *Verein KlimaSeniorinnen* case:

> "... democracy cannot be reduced to the will of the majority of the electorate and elected representatives, in disregard of the requirements of the rule of law. The remit of domestic courts and the Court is therefore complementary to those democratic processes. The task of the judiciary is to ensure the necessary oversight of compliance with legal requirements."[99]

However, not all claimants in the successful complaints before the GCC were minors, nor were the claimants in *Verein KlimaSeniorinnen Schweiz v. Switzerland* before the ECtHR, in which the Court granted standing to the association of elderly women. Neither the ECtHR nor the GCC justified the applicants' standing with reference to their specific vulnerability. Rather, the core of their claims was altruistic, in the sense that they argued for preserving liberties for future generations. In view of the fact that both courts based their decisions on the lack of consistency in the designation and implementation of legislative

Under Human Rights Treaties?' (2021) 115(3) American Journal of International Law 409, however excluding extraterritorial jurisdiction.

96 On the procedural issues, Helen Keller and Abigail D Pershing, 'Climate Change in Court: Overcoming Procedural Hurdles in Transboundary Environmental Cases' (2022) 3 European Convention on Human Rights Law Review 23.

97 Heri, 'Legal Imagination' (n 95).

98 *Loizidou v Turkey* App No. 15318/89 (ECtHR) [75].

99 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR) [412].

climate pathways, one could formulate that the courts implement the political will of the present majority to change their behavior for the sake of protecting young and future generations' interests against conflicting political and economic short-term interests[100]. Interpreted in this vein, intergenerational justice remains the aim, but it is conceived as a public interest whose implementation must be supervised. Individual rights are then the necessary tool to open up jurisdiction.

Constitutional courts thus seem to oscillate between a mandate to deliver individual justice and a mandate to deliver constitutional justice, the latter meaning guidance on intergenerational fairness as a common constitutional interest.[101] Constitutional justice does not only serve the rule of law, but is also intrinsically linked to democracy, since the constitutional court thereby ensures that the democratic will of the people is effectively implemented.[102] Fostering transparency of governmental compliance[103] allows the public to hold the government accountable for compliance with their own commitments and to make it more responsive.[104] If the government fails to do comply, this can lead to bottom-up societal pressure to effectively promote climate change mitigation.

In fulfilling this function, a constitutional court acts in the national and global interest. Legally, the GCC is a public institution of Germany and as such accountable to the German people. That does not mean, however, that its judgments must be taken only in the interest of the German population

100 Eve Darian-Smith, *Global Burning: Rising Antidemocracy and the Climate Crisis* (Stanford University Press 2022), 93; Joseph L Sax, 'The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention' (1970) 68 Michigan Law Review 471, 557; Wolfgang Streeck, *Zwischen Globalismus und Demokratie: politische Ökonomie im ausgehenden Neoliberalismus* (Suhrkamp 2021) 480.

101 Cf. the discussion on individual and constitutional justice with respect to pilot judgments of the ECtHR in Steven Greer, 'Constitutionalizing Adjudication under the European Convention on Human Rights' (2003) 23(3) Oxford Journal of Legal Studies 405; Steven Greer and Luzius Wildhaber, 'Revisiting the Debate about "Constitutionalising" the European Court of Human Rights' (2013) 12(4) Human Rights Law Review 655, 664.

102 Cf Sax (n 100).

103 On the relationship between transparency and accountability, see Albert Meijer, 'Transparency' in Mark Bovens, Robert E Goodin and Thomas Schillemans (eds), *The Oxford Handbook of Public Accountability* (OUP 2014) 507.

104 Democratic control and responsiveness are seen as part of representative democracy, cf Mark E Warren, 'Accountability and Democracy' in Bovens, Goodin and Schillemans (n 103) 39, 47; on the different forms of public accountability beyond parliamentary elections, see Jenny M Lewis and Bodil Damgaard, 'Accountability and Citizen Participation' in Bovens, Goodin and Schillemans (n 103) 258; qualifying responsiveness as part of democratic representation, Hanna Pitkin, *The Concept of Representation* (first published 1967, University of California Press 2023) 112ff.

and not meet its global responsibility. This is because the German constitution envisages Germany as part of the global community of states and people, which is open to international cooperation and must be a reliable partner.[105] Furthermore, climate change, as a truly global phenomenon, implies that the German state will only be able to protect the German population from the negative effects of climate change if it lives up to its global responsibility.

b. Success: Increasing Public Accountability of Mitigation Progress

The GCC has been successful in bringing the legislator in line with intertemporal interests. It has given Germany's constitutional law and discourse an intertemporal dimension and subjected climate action to judicial scrutiny by requiring the government to adopt a CO_2-budget approach that makes CO_2-reduction progress measurable. Otherwise, as the GCC has assumed, the government's compliance with its self-determined CO_2 mitigation pathway would not be judicially reviewable on the basis of objectively verifiable grounds. This way, the GCC fulfils the important constitutional court task of improving the accountability of political actors by making transparent whether they give effect to these intertemporal interests. This is an important success, since it helps to make the public discourse on mitigation progress more transparent and thereby accountable and reinforces democratic oversight of climate politics by the people. People are thereby enabled to take informed electoral decisions. Rather than depoliticizing political decisions that have to be taken with respect to climate protection, holding the political actors to account reinforces political debate. The Court was a forum that allowed the litigants to get a lot of media attention which helped to bolster the effect of popularizing and democratizing the public oversight of CO_2 mitigation.

Some courts have endorsed the GCC's decision to adopt the CO_2-budget as a methodological instrument to hold the government to account regarding its progress on CO_2-reduction. As a consequence, the democratic potential entailed in this approach is realized in other jurisdictions as well, which can be deemed another indicator of the success of the GCC's decision. The most prominent decision in this regard is the judgment of the ECtHR in *Verein KlimaSeniorinnen Switzerland et al v. Switzerland*. The ECtHR drew selectively on the GCC's climate decision. It did not adopt the same doctrinal approach. Instead, it solved the case on the basis of positive obligations. When refining the content of these obligations, it specified that ECHR Member States would have to adopt general measures setting out "a target timeline for achieving carbon neutrality and the overall remaining carbon budget for the same time

105 See BVerfGE 148, 296 (12 June 2018) [126f].

frame, or another equivalent method of quantification of future GHG emissions, in line with the overarching goal for national and/or global climate-change mitigation commitments."[106] When specifying the content of these obligations, the ECtHR found that the fulfillment of these obligations has to be ascertainable and measurable.[107] It acknowledged that the choice of the respective methods and instruments should be left to the ECHR Member States' margin of appreciation. However, the Court found that it could scrutinize whether the state provided any such method or instrument to quantify the Member State's remaining carbon budget. Otherwise, the Court would have "difficulty accepting that the State could be regarded as complying effectively with its regulatory obligation under Article 8 of the Convention."[108] The ECtHR was convinced by the reasoning of the GCC that found that it was feasible for each state to define its national carbon budget, based on the principle of CBDR-RC under the UNFCCC and the Paris Agreement.[109] Like the GCC, the ECtHR's review of Switzerland's conduct was premised on the notion that a carbon budget approach is a suitable way to ensure that the state's compliance with its national carbon pathway is transparent and assessable. Similarly, the South Korean Constitutional Court (SKCC) determined that the quantitative targets set out in the South Korean climate protection framework law failed to effectively guarantee gradual and continuous emissions reductions up to 2050, due to the lack of quantitative evaluation methods and standards.[110] Accordingly, the SKCC held that the legislator violated the "principle of prohibition of insufficient protection"[111] and the right to a healthy environment.

c. Limits to Success: No Review of CO_2-Budget or Interim Progress

There are limits to the successes that can be achieved through constitutional climate litigation. As the GCC states in its decision, even if it principally allows complainants from other legal jurisdictions to invoke the rights to life, health, and property protected under the German Basic Law, the constitutional duty of protection cannot have the same content as that owed to persons under German jurisdiction.[112] The reason is that international law's rules on jurisdiction

106 *Verein KlimaSeniorinnen* (n 99) [550(a)].

107 See in particular *ibid*. [550].

108 *Ibid*. [572].

109 *Ibid*. [571], referring to BVerfGE 157 (n 3) [215]–[229].

110 The Constitutional Court of Korea, 'Press release: Do-Hyun Kim and others v. South Korea' (29 August 2024), 8; *Do-Hyun Kim et al v South Korea* [2024] 2020HunMa389, 2021HunMa1264, 2022HunMa854, 2023HunMa846 (Constitutional Court of Korea).

111 *Ibid*.

112 BVerfGE 157 (n 3) [178].

do not allow the German legislature and government to adopt the same measures abroad as within their own jurisdiction. Since the Court interprets protective duties as a combination of mitigation and adaptation, adaptation must be substituted by other means of support, such as climate finance. Moreover, the GCC confines itself to scrutinizing whether the measures adopted were manifestly ill-suited or completely inadequate,[113] without analyzing whether the measures fall significantly short of the protection goal.[114] Here, the GCC maintains that the German legislature would fulfill this duty of protection through "international commitment to preventing climate change and through specific measures aimed at implementing the internationally agreed climate action."[115] A consequence of this interpretation is not only that the duty of protection has a different legal content, but also that constitutional review of Germany's mitigation efforts available to foreign plaintiffs is more limited and less strict than that triggered by individuals under German jurisdiction when invoking their negative liberties.

Moreover, the foreign plaintiffs' success could have been enhanced, had the GCC critically examined the criteria according to which the CO_2 budget is to be determined. German law-making on CO_2 reduction has indirect but foreseeable and potentially existential repercussions on vulnerable people, existing or unborn, in other parts of the world. These may result either from climate-related natural disasters or from the policy changes required by the CO_2 transition. The rationale underlying the CO_2 budget demonstrates how states conceive of their share of CO_2 reduction to be fair with respect to global efforts. Concededly, at present the criteria that international law provides for the fair sharing of burdens are vague. However, they grow increasingly specific under the ongoing scholarly endeavor of interpretation and could grow more authoritative under a growing judicial dialogue in this regard. Moreover, Germany has ratified the UNFCCC and the Paris Agreement. The GCC would thus be in a position to give its interpretation of specific criteria when interpreting what is required under the constitutional objective of environmental protection pursuant to Article 20a Basic Law, read in the light of international law.[116] Instead, the Court leaves it to international cooperation and regards the principle of CBDR-RC as an "*indication* regarding the distribution method."[117] The

113 *Ibid*. [180].

114 *Ibid*. [181].

115 *Ibid*.

116 Cf. Benoit Mayer, *International Law Obligations on Climate Change Mitigation* (OUP 2022), 273ff., arguing that courts could interpret the international principle of equity in this regard.

117 BVerfGE 157 (n 3) [225], italics added by author.

distribution method is a matter of fierce political contestation which explains why the Court leaves discretion to the legislator and government in this regard. However, the GCC could require a *justification* as to whether the method adopted – here the per capita approach – complies with the CBDR-RC principle. Otherwise, focusing merely on the distant future of the bounded nation nurtures the accusation that courts turn a blind eye on the global distributive effects of a problem that can only be tackled by measures that have equally global and potentially detrimental effects on people of other nations.[118]

Another aspect which currently limits the acknowledgment of a full success is that although the Court has intended to contribute towards the initiation of societal transformation, it is currently inconceivable when the Court would decide that the government has to effectively take more stringent or even specific measures. The GCC acknowledged transformation to be a constitutional task for the state and a shared responsibility of private actors.[119] However, administrative and civil courts have not given the concern of climate change mitigation more weight in the balancing of interests with other societal concerns since the GCC's climate decision. According to the Court, when the finite CO_2-budget is increasingly consumed, constitutional law makes it all the more urgent to prohibit any further exercise of freedom involving CO_2-emissions.[120] It follows that if the temperature targets and the goal of climate neutrality will be exceeded with certainty, the concern of climate change must outweigh other interests. However, what happens in the time between? This is unclear at the moment, since the Court has not elevated the interim targets to constitutional status. Hence, while having increased long-term political accountability, the Court's role in enhancing mid-term accountability remains unclear.

5. Conclusion

Meaningful efforts to reduce CO_2 emissions require structural changes in society. The decisions which need to be made concern distributive justice domestically and globally. Judging by their constitutional function, courts are not the first institutions to be entrusted with such decisions. However, as part of the democratic state and as a bastion of the rule of law, they must play their part. The GCC has operationalized intergenerational fairness in prompting the German government to undertake climate action. The decision has attracted

118 Stephen Humphreys, 'Against Future Generations' (2022) 33(4) European Journal of International Law 1061.

119 BVerfGE 157 (n 3) [248].

120 *Ibid*. [186].

much public attention and given climate protection more weight in public discourse. Arguably, it has contributed to public consensus about the need for action, without stifling debate about the manner of such action. However, the constitutionalization that has been achieved through the recognition of climate change mitigation as a human rights matter has not been followed by civil or administrative courts giving more weight to climate protection in the balancing of interests.

What does this mean for rights-based climate litigation? Ultimately, climate-related rights appear to be an imperfect but strategically relevant tool for advancing the interest in climate protection in Germany. They have enabled the GCC to call policy makers to action and to integrate a dimension of intergenerational fairness into law. Moreover, they provide powerful language for challenging existing carbon-intensive lifestyles.[121] However, the reticence of constitutional courts to delimit political discretion in matters concerning distributive justice or the specific design and implementation of the climate neutrality pathway constitute limits that equally limit a possible litigation success.[122] Cross-judicial collaboration and dialogue can increase the potential for climate litigation to be successful. The references between GCC, SKCC and ECtHR show that a transnational dialogue on common legal standards is growing. The resulting bottom-up commitment of governments to climate action by the judiciary may help to tackle the cooperation problem that haunts the international arena and hampers effective global climate protection to date.

121 Peter D Burdon, 'Environmental Human Rights: A Constructive Critique' in Anna Grear and Louis J Kotzé (eds), *Research Handbook on Human Rights and the Environment* (Edward Elgar Publishing 2015) 61, 77; for the aspect of a language of rights, O'Connell (n 92).

122 Cf Mayer (n 37) 273f arguing for courts to engage with questions of ethics.

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Chapter 7: Success in Climate Litigation – the Impacts and Influence of Systemic Litigation against Governments

1. Introduction

The field of climate litigation has grown immensely over the last decade, with numerous cases progressing to judgment in first instance, appeals and apex domestic courts, as well as regional courts. To that end, enough time has elapsed to properly evaluate the impacts of these cases beyond the rulings themselves, and to explore what constitutes "success" in climate litigation. Through a case-study analysis of "framework" or "systemic" mitigation cases, this chapter considers the types of positive, real-world impacts that climate litigation can have to illustrate how success can take many different forms.

Framework climate litigation challenges a government's overall efforts to mitigate climate change.[1] Researchers have found that these types of cases have had "a significant impact on government decision-making, requiring governments to develop and implement more ambitious policy responses to climate change."[2] To date, framework cases have targeted both the ambition of governments' emissions reduction targets and/or the implementation of the policies and measures that governments have adopted to achieve these targets. As of June 2024, claimants around the world have filed over 100 such cases, invoking a wide variety of legal and factual arguments.[3] A range of

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1 Lucy Maxwell, Sarah Mead and Dennis van Berkel, 'Standards for Adjudicating the next Generation of Urgenda-Style Climate Cases' (2022) 13(1) Journal of Human Rights and the Environment 35; Joana Setzer, Catherine Higham and Emily Bradeen, 'Challenging Government Responses to Climate Change Through Framework Litigation' (September 2022).

2 *Ibid*. 1.

3 Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2024 Snapshot' (June 2024).

landmark victories have followed, with courts ordering governments to increase their emissions reduction efforts (eg Switzerland,[4] the Netherlands,[5] Germany,[6] South Korea[7] and Belgium[8]), clarify their climate plans (eg Ireland[9] and the United Kingdom[10]) and implement their existing mitigation targets (eg France[11] and Germany[12]).

The legal basis and background of the plaintiffs in framework cases have taken various forms. This chapter will focus on framework cases that concern human rights and constitutional rights and tort law. Concerning human rights and constitutional rights, many framework cases have sought to rely on human rights or constitutional rights as the basis for claiming that governments have not taken sufficient mitigation action.[13] This aligns with scenario 1, which seeks to compel the national government to achieve higher mitigation ambition on the basis of the right to life (Article 2 of the European Convention of Human Rights (ECHR)) and the right to private and family life (Article 8 ECHR). Scenario 5 also relies on fundamental rights, with an emphasis on the right to a healthy environment, the rights to access to basic needs, property and culture, all of which may also be engaged in this type of framework case.

Some cases have taken the approach of using tort law to argue that governments have a duty of care to mitigate the adverse effects of climate

4 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR) [571].

5 Supreme Court of the Netherlands, *Urgenda Foundation v State of the Netherlands,* 13 January 2020, ECLI:NL:HR:2019:2007.

6 BVerfGE 157, 30 (24 March 2021) (*Neubauer et al v Germany).*

7 *Do-Hyun Kim et al v South Korea* [2024] 2020HunMa389, 2021HunMa1264, 2022HunMa854, 2023HunMa846 (Constitutional Court of Korea).

8 *VZW Klimaatzaak v Kingdom of Belgium et al* [2023] 2022/AR/891 (Court of Appeals of Brussels).

9 *Friends of the Irish Environment CLG v The Government of Ireland, Ireland and the Attorney General* [2020] IEHC 454.

10 *Friends of the Earth et al v Secretary of State* [2022] EWHC 1841 (Admin); *Friends of the Earth et al v Secretary of State* [2024] EWHC 995 (Admin).

11 *Notre Affaire à Tous et al v France* [2021] No 1904967, 1904968, 1904972 1904976/4-1 (Administrative Court of Paris); *Commune de Grande-Synthe v France* no. 427301 (Conseil d'État, 1 July 2021).

12 At the federal level: Oberverwaltungsgericht Berlin-Brandenburg, 16 May 2024, 11 A 31/22 *(DUH v Germany)*; Oberverwaltungsgericht Berlin-Brandenburg, 30 November 2023, OVG 11 A 11/22 *(DUH and BUND v Germany)*; and at the subnational level: Oberverwaltungsgericht Berlin-Brandenburg, 10 November 2022, 10 S 3542/21 *(DUH v Baden-Württemberg).*

13 See also Margaretha Wewerinke-Singh and Lucy Maxwell, 'Human Rights' in Margaretha Wewerinke-Singh and Sarah Mead (eds), *The Cambridge Handbook on Climate Litigation* (CUP 2025) (forthcoming); Sarah Mead, Filippo P. Fantozzi and Lucy Maxwell, 'Systemic Climate Change Litigation' in Francesco Sindico and others (eds), *Research Handbook on Climate Litigation* (Edward Elgar 2024) 87.

change.[14] Situations similar to those in scenario 3, where particularly effected individuals may have already suffered damage or are facing impending threats to their property or business, could rely on tort law to initiate a claim. Although scenario 3 does not include a tortious claim, it is notable that a real claim in Italy has been initiated by individuals and non-governmental organizations on the basis of tort law in respect of the government's mitigation action.[15] In some jurisdictions, human rights violations can also serve as a basis for illustrating a breach of tort law,[16] while others may have specific tortious liability provisions relating to environmental damage.[17]

But what does "impact" and "success" look like in practice? One can best envision the different elements of success in climate litigation as a pyramid (see Figure 1, below). There are both direct and indirect impacts that can be linked back to success in framework cases.

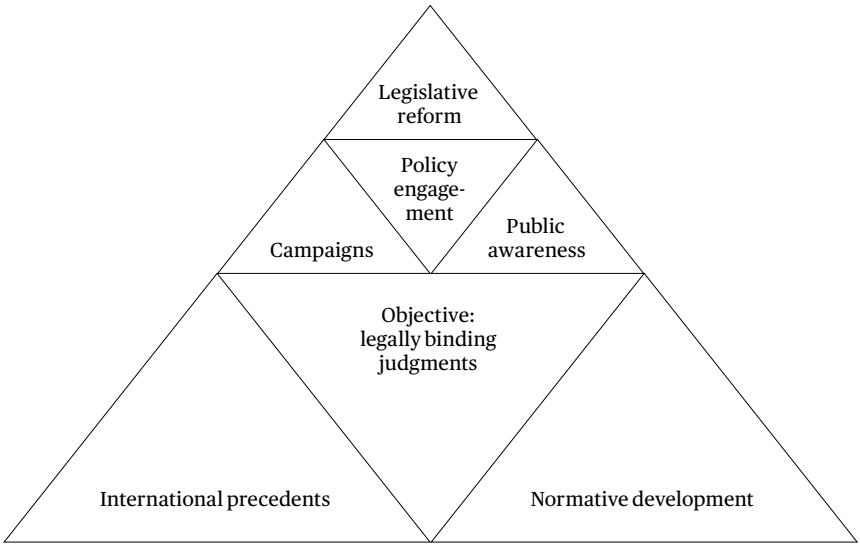


Figure 1: The pyramid above provides examples of how strategic climate litigation can have both direct and indirect impacts that can constitute success.

14 See also Christina Voigt and Joe Udell, 'Duty of Care' in Wewerinke-Singh and Mead (n 13) 223.

15 See *A Sud et al v Italy* [2024] (Civil Court of Rome, n. 39415).

16 For example, see *Klimaatzaak* (n 8), at [282]-[285]. See also Sarah Mead, Filippo P. Fantozzi, Lucy Maxwell (n 13) 83.

17 For example, see *Notre Affaire à Tous,* where the Administrative Court of Paris found that the government's failure to meet its own targets constituted a tortious ecological damage (*Notre Affaire à Tous* (n 11)).

The bottom three triangles of the pyramid concern direct impacts, while the top four triangles concern indirect impacts.

In terms of direct impacts:

— Legally binding judgments: Centered at the base of this figure sits the main objective of any climate litigation case: a legally binding judgment. This outcome can take the form of an order or injunction (to compel a government to do something, or to stop it from doing something) or a declaration (which could concern whether a government has properly complied with its legal obligations). Legally binding judgments play an important role in furthering other impacts at the base of the impact pyramid.

— Normative development: Court judgments have the potential to advance the authority of international environmental principles, such as common but differentiated responsibilities and respective capabilities (CBDR-RC), intergenerational equity and the precautionary principle, as well as the prevailing scientific consensus around climate science. Once one or more courts have accepted principles or scientific standards, others may be more likely to follow suit in cases covering similar issues.

— International precedents: International precedents can be highly persuasive. For example, courts may look to decisions in jurisdictions with a similar legal framework, especially if that court is adjudicating an issue for the first time. This can create a positive feedback loop that supports future climate litigation.

The upper levels of the pyramid encompass the potential indirect impacts of a case. By considering these factors, one can assess success in climate cases more comprehensively:

— Public awareness and campaigns: Litigation cases have the potential to shift the public debate, driving the narrative that climate action is a legal duty. Climate cases are often high-profile disputes that span a number of years, depending on the legal determinations and appeals processes. Accordingly, these cases have the potential to raise the profile of climate issues in the public consciousness and mobilize support for climate action, independent of any eventual determination by the court.[18] Numerous

18 Notably, climate litigation-related campaigns can "[…] *further foster citizens' mobilisation on the need for stronger climate action", particularly in developed countries with significant historical responsibilities and stronger capacity to cut their emissions*." See Filippo P Fantozzi, Sarah Mead and Lucy Maxwell, 'Government Accountability: The Role of Systemic Climate Litigation in Securing a Liveable and Sustainable Future for All' in Fabio Amato and others (eds) '*Migrazioni e Diritti al Tempo dell'Antropocene*' (Editoriale Scientifica 2023) 111.

framework climate cases have led to widespread public mobilization on the urgency of climate action. For example, over two million people signed a petition to support the French climate case,[19] while nearly 60,000 people joined the *VZW Klimaatzaak v Kingdom of Belgium et al (Klimaatzaak)* case as co-claimants.[20]

— Policy engagement and legislative reform: Based on the level of visibility and public support for a particular case, individuals, communities and civil society organizations may find themselves with newfound leverage to engage with the political process to advocate for the adoption of new climate legislation or reforms. If, for example, courts have issued declaratory relief, plaintiffs and wider civil society actors may have the opportunity to work collaboratively with governments to identify the means by which to change law and policy to allow the government to comply with its legal obligations. The International Panel on Climate Change (IPCC) has made clear in its latest report that "climate litigation can affect the stringency and ambitiousness of climate governance."[21]

This chapter first explores the remedies granted, as well as the wider influence of the court decisions, in three landmark framework mitigation cases concerning government ambition – *Urgenda Foundation v State of the Netherlands (Urgenda),*[22] *Neubauer et al v Germany (Neubauer)*[23] and *Klimaatzaak*.[24] *Urgenda* has been selected as a case study, as it was the first successful framework case in Europe and has therefore had the longest amount of time for impacts to become clear and documented. Likewise, *Neubauer* was decided in 2021, allowing enough time for impacts to be identified. This case also has some of the most well-documented and immediate direct impacts of any framework case. *Klimaatzaak* is a slightly more recent case, decided by the Belgian Court of Appeal in 2023. This has been selected to provide examples of impacts after a judgment from a non-apex court. All three case studies are in Europe, where it has been easier to monitor direct and indirect impacts more comprehensively based on desktop research. By focusing on these representative examples, this chapter seeks to illustrate how each case has achieved some or all of

19 Notre affaire à tous, 'Two Million Signatures in Support of French Climate Litigation "Case of the Century"' (13 January 2019).

20 As of 2025, the petition has been signed by over 70.000 co-claimants. See Klimaatzaak, 'The Lawsuit in Which Everyone Wins'.

21 IPCC, 'AR6 Synthesis Report: Headline Statements' (2023).

22 *Urgenda* (n 5).

23 *Neubauer* (n 6).

24 *Klimaatzaak* (n 8).

the direct and indirect impacts described above, and thus achieved success in this complex and rapidly evolving field.

2. Urgenda Foundation v the State of the Netherlands

a. The Case

The Urgenda case was initiated in 2013 by the Urgenda Foundation and 886 Dutch citizens.[25] The claimants alleged that the state's failure to take greater steps to reduce greenhouse gas (GHG) emissions by 2020 was unlawful under Article 6:162 of the Dutch Civil Code, which relates to tortious liability, and Articles 2 and 8 of the ECHR, which respectively protect the right to life and the right to private and family life.

The claimants made two key requests in the original summons:

i) A declaration that the Dutch state is acting unlawfully towards the claimants in the event it does not take appropriate measures to reduce greenhouse gas emissions in the Netherlands to a level of 40%, or at least 25%, below the level of 1990 before 2020; and

ii) An injunctive order for the Dutch state to limit greenhouse gas emissions in the Netherlands to a level of 40%, or at least 25%, below the level of 1990 before 2020.

As part of the injunctive order, the claimants also requested that, within six months of the judgment, the Dutch State present to Parliament a program of measures with corresponding budgets to achieve the prescribed emissions reductions by 2020.

In 2015, the District Court of the Hague ruled in favor of the Urgenda Foundation.[26] It found that the Dutch Government had a legal duty to protect its citizens from dangerous levels of climate change pursuant to its duty of care under the tort of hazardous negligence. It ordered the Government to reduce Dutch emissions by at least 25% compared to 1990 levels by 2020. Notably, the Court emphasized that it remained the prerogative of the Government to determine *how* it would reduce Dutch emissions.

25 *Urgenda* (n 5).

26 The Hague District Court, *Urgenda Foundation v State of the Netherlands*, 24 June 2015, ECLI:NL:RBDHA:2015:7196.

In 2018, the Court of Appeal upheld the injunctive order of the District Court.[27] Importantly, the Court also accepted that the Urgenda Foundation was able to rely on the ECHR and premised the state's obligation to reduce GHG emissions squarely on its positive obligations under Articles 2 and 8 of that instrument.

In 2019, on the basis of its findings in respect of both tort law and human rights law, the Supreme Court of the Netherlands affirmed the findings of the Court of Appeal and upheld the injunctive order for the Government to reduce its national emissions by at least 25% compared to 1990 levels by 2020.[28] The Supreme Court made the unequivocal finding that the state bears individual responsibility to mitigate climate change. This conclusion was derived from the state's binding obligations and non-binding commitments under the UN Framework Convention on Climate Change (UNFCCC),[29] the Paris Agreement,[30] the "no harm" principle, principles of equity and CBDR-RC and soft law sources such as the UNFCCC Conference of the Parties decisions.

b. The Wider Impacts of the Case

Urgenda marked the first time that a national court ordered a government to increase its climate ambition. This case provided an invaluable precedent, both at the national and international levels, that governments can be held accountable in court for insufficient mitigation efforts. Additionally, *Urgenda* greatly influenced the trajectory of climate litigation around the world, with a wave of similar cases filed after the district court decision in 2015.[31]

Nationally, the case led to a tangible transformation in Dutch climate policy. Following the Supreme Court decision, the Government immediately closed one coal-fired power station;[32] pledged to scale down the capacity of its remaining coal-fired power stations by 75%;[33] and unveiled a EUR 3 billion package of measures to reduce Dutch emissions by the end of 2020, in line

27 The Hague Court of Appeal, *Urgenda v the Netherlands,* 9 October 2018, ECLI:NL:GHDHA:2018:2591.

28 *Urgenda* (n 5) [9].

29 United Nations Framework Convention on Climate Change (entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC).

30 Paris Agreement (entered into force 4 November 2016) 3156 UNTS 79.

31 Priyadarshi R Shukla and others (eds), *Climate Change 2022: Mitigation of Climate Change. Contribution of Working Group III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022) 1376.

32 Frans Rooijers, Sander de Bruyn and Thijs Scholten, 'Effects of Closing Three Additional Coal-Fired Power Stations' (*CE Delft,* July 2019).

33 Urgenda, 'Climate Verdict Leads to 75% Reduction in Use of Coal-Fired Plants + €3 Billion for Urgenda's "54 Climate Solutions" Plan' (24 April 2020).

with the Court order.[34] Most of the measures that the Government adopted mirrored proposals from Urgenda's "54 Climate Solutions Plan," which was submitted to the Government on behalf of more than 800 Dutch organizations and businesses.[35]

In 2020, the Government stated that it achieved a 25.5% reduction in greenhouse gas emissions compared to 1990, thus achieving the minimum emissions reductions required by the Court.[36] In 2022, the Government stated that it achieved a 30% reduction below 1990 levels, making strong progress towards its 2030 target (55% below 1990 levels).[37]

The Supreme Court's decision continues to have influence over policy setting and debate in the Netherlands. In 2021, the Dutch Government committed to spending an additional EUR 6.8 billion on climate change measures.[38] The following year, it pledged to make EUR 35 billion available for major climate action, including a hydrogen network and EUR 20 billion to further facilitate economy-wide decarbonization.[39] In 2023, Rob Jetten, the Climate and Energy Policy Minister at the time, noted the following in an interview:

> [E]ver since the verdict the debate is much more about our own responsibility. Politics in the Netherlands was probably also trying to protect Dutch companies that play a huge role in the fossil fuels economy. But it's very useful to use the verdict in my debates with other ministers and Parliament, and tell them there is no choice, we got to do this.[40]

Moreover, in 2023, the Government acknowledged the findings of the Supreme Court in *Urgenda* in separate climate change-related proceedings at the European Court of Human Rights (ECtHR). The Government's observations notably illustrated the role that national courts play in the enforcement of human rights:

34 Jonathan Watts, 'Dutch Officials Reveal Measures to Cut Emissions After Court Ruling' *Guardian* (24 April 2020).

35 Stephen Buranyi, 'Climate Action Under Duress: How Dutch Were Forced Into Emissions Cuts' *Guardian* (4 May 2020).

36 CBS Netherlands, 'Urgenda Reduction Target for GHG Emissions Achieved in 2020' (9 February 2022).

37 CBS Netherlands, 'Greenhouse Gas Emissions 0 Percent Lower in 2022' (15 March 2023).

38 Bart H. Meijer, 'Dutch to Spend Billions on Climate Subsidies Amid Economic Boom' (*Reuters*, 21 September 2021).

39 Euractiv, 'Dutch Government Sworn in With Focus on Climate' (10 January 2022).

40 Al Jazeera English, 'EarthRise: The Case for the Climate: Forcing Systems Change in Court' (26 April 2023).

> In the Urgenda case the Supreme Court explicitly found that the Netherlands is obliged, under Articles 2 and 8 of the [European Convention on Human Rights] to do "its part" in order to prevent dangerous climate change, even if the problem itself is global in nature.[41]

3. Neubauer et al v Germany

a. The Case

In February 2020, the *Neubauer* case began when nine young people filed a complaint with the German Federal Constitutional Court.[42] The claim challenged the provisions of Germany's Climate Protection Act (KSG) that established a GHG emissions reduction target of 55% by 2030 compared to 1990 levels, on the basis that it was insufficient in light of scientific evidence and therefore violated constitutionally protected fundamental freedoms.

The claimants requested that the Constitutional Court make the following orders:

i) That the legislator ensures, within a period of time to be set by the Constitutional Court, that GHG emissions in Germany are kept as low as possible, on the basis of comprehensible forecasts; and

ii) That the federal legislator creates legal provisions, within the period of time to be set by the Constitutional Court, that prohibit Germany from permitting the transfer of emission allocations to neighboring European countries, for as long as EU climate protection law does not provide a level of protection adequate to protect basic rights.

The Constitutional Court determined that it was appropriate to assess whether the legislated GHG emissions reduction measures were "manifestly unsuitable or completely inadequate"[43] in light of the Government's constitutional duty to protect the claimants' human rights from climate-related harms.

Neubauer focused in part on the climate protection required under Article 20a of the Constitution.[44] The Court made clear that "[it] is not, in principle,

41 Government of the Netherlands, 'Observations of the Government of the Kingdom of the Netherlands on the admissibility and merits of application no. 393/20 *Duarte Agostinho and Others v The Netherlands and Others*', [54].

42 *Neubauer* (n 6).

43 *Ibid*. [152].

44 Article 20a states the following: "[m]indful also of its responsibility towards future generations, the state shall protect the natural foundations of life and animals by legislation and, in accordance with law and justice, by executive and judicial action, all within the framework of the constitutional order."

for the Courts to translate the open wording of Art. 20a [...] into quantifiable global warming limits and corresponding emission amounts or reduction targets."[45] However, it concluded that it had the competency to "review whether the boundaries of Art. 20a [...] are respected" and that "[there] is nothing to indicate that Art. 20a [...] is beyond the scope of judicial review with regard to how its regulatory content is interpreted and applied."[46]

The Court then took an approach to the interpretation of the claim that was not directly pleaded by the claimants. The Court did not uphold the claimants' argument that the inadequacy of the 2030 target constituted a violation of the Government's positive obligations to protect their constitutional rights from the harms posed by climate change.[47] The Court also found that the claim regarding the transfer of emissions allowances between European Union (EU) Member States was inadmissible, and that it was insufficiently substantiated.[48]

Despite these findings, the Court went on to assess how the 2030 target would require the *future* imposition of harsh GHG reduction measures post-2030, which it found would violate the claimants' (unspecified) constitutional "freedoms." The Court noted that the legislative objective of the KSG is to limit global temperature rise to well below 2°C, and preferably to 1.5°C, above pre-industrial levels, in accordance with obligations under the UNFCCC and the Paris Agreement. The Constitutional Court took this as the relevant standard under constitutional law and relied on information from the German Advisory Council on the Environment to infer that Germany's remaining carbon budget to limit global average temperature to 1.75°C with a probability of 67% would be "largely used up" by 2030 if the state were to comply with its existing targets. The Government's targets would therefore require a drastic reduction of emissions after 2030, which would then necessitate significant sacrifices and restrictions on personal freedoms in order to stay within Germany's fair share of the carbon budget. The Court ultimately concluded the following:

> [O]ne generation must not be allowed to consume large portions of the CO_2 budget while bearing a relatively minor share of the reduction effort, if this would involve leaving subsequent generations with a drastic reduction burden and expose their lives to serious losses of freedom.[49]

45 *Neubauer* (n 6) [206].

46 *Ibid.*

47 *Ibid.* [142].

48 *Ibid.* [104].

49 *Ibid.* [192].

For this reason, the Court declared that the legislation was partially "unconstitutional insofar as [it] give[s] rise to risks of future impairments of fundamental rights."[50] As such, the Government violated its duty "to ensure that the reduction of CO2 emissions to the point of climate neutrality that is constitutionally necessary under Art. 20a [...] is spread out over time in a forward-looking manner that respects fundamental rights."[51] The Court accordingly ordered Germany to revise its reduction targets from 2031 by the end of 2022.

b. The Wider Impacts of the Case

The Constitutional Court's decision had a dramatic impact on German climate policy. Within a week of the decision, the German Government announced that it would increase its GHG reduction target from 55% to 65% by 2030 (compared to 1990 levels).[52] The more ambitious 2030 goal will require the energy industry to quickly shift towards a more sustainable model. Instead of 175 million tons CO_2 equivalent under the previous target, it will only be allowed to generate 108 million tons.[53] In May 2021, the German Government also disclosed its decision to further accelerate the country's decarbonization through an EUR 8 billion investment in 62 large-scale hydrogen projects.[54]

The Government formally amended the KSG in June 2021. Beyond enshrining the 65% GHG reduction goal into law, it also adopted an intermediate reduction target of 88% by 2040, and brought forward its climate neutrality deadline from 2050 to 2045. The Government further noted that "[t]he Court ruling obliges the state to take action to prevent any future disproportionate restrictions in the fundamental liberties of today's young generation."[55]

Additionally, on 23 June 2021, the Government approved an Immediate Action Program worth EUR 8 billion to help achieve its updated climate goals. The ambition of the program is to generate support for the progressive decarbonization of the industrial sector, as well as for green hydrogen, energy-focused building refurbishments, climate-friendly mobility, and sustainable forestry and agriculture. Through these initiatives, the Government has in-

50 *Ibid*. [243].

51 *Ibid*.

52 Philip Oltermann and Fiona Harvey, 'Germany to Bring Forward Climate Goals After Constitutional Court Ruling' *Guardian* (6 May 2021).

53 Kerstine Appunn, 'Cabinet Decides Climate Law Reform, Tougher Sector Emission Budgets Included' (*Clean Energy Wire,* 12 May 2021).

54 Nikolaus J Kurmayer, 'Germany to Invest €8 bn in Large-Scale Hydrogen Projects' (*Euractiv,* 28 May 2021).

55 Bundesregierung, 'Climate Change Act 2021: Intergenerational Contract for the Climate' (25 June 2021).

vested in "measures that allow for short-term effects" that will reduce greenhouse gas emissions in a verifiable way.[56] The Government also set up a monitoring scheme under which the Council of Experts on Climate Change will present a report of the goals achieved every two years, as well as measures and recorded trends. If the relevant budgets are not met, the Government stated that it "will adjust its approach immediately."[57]

4. Klimaatzaak et al v Belgium

a. The Case

The case of *VZW Klimaatzaak v Kingdom of Belgium et al* was filed in 2015 by Klimaatzaak, a non-profit organization, and 58,000 Belgian citizens against the Belgian Federal Government, the Walloon Region, the Flemish Region and the Brussels-Capital Region.[58] The claimants alleged that the defendant government authorities were in breach of their obligations under Articles 2 and 8 of the ECHR and under the Belgian Civil Code (Articles 1382 and 1383, which concern tortious/extra-contractual liability) because of their failure to adopt adequate emissions reduction measures.

The claimants asked the Court to make a declaration that, "according to the most recent data at the end of the debates, Belgium has not respected or is no longer able to respect the objectives it had set itself with regard to the reduction of GHG emissions by 2020."[59] They also requested that the Court make an injunctive order for the government authorities to reduce the annual GHG emissions from Belgian territory in order to obtain:

i) By 2025, a reduction of 48%, at least 42%, compared to 1990;
ii) By 2030, a reduction of 65%, at least 55%, compared to 1990;
iii) In 2050, net zero emissions.[60]

Finally, the claimants requested that the Court order the government authorities to pay a penalty payment of one million euros for each month of delay if they fail to comply with the requests above.

56 Bundesregierung, '2022 Immediate Action Programme: Additional Funds for Climate Protection' (25 June 2021).

57 *Ibid*.

58 *Klimaatzaak* (n 8).

59 Equal, 'Conclusions de Synthèse'.

60 *Klimaatzaak* (n 8) [573].

In 2021, the Brussels Court of First Instance issued its judgment.[61] It confirmed that Klimaatzaak and the individual co-claimants had standing to bring the claim. The Court found that the Belgian Federal Government and the three regional governments were jointly and individually in breach of their duty of care under the Civil Code. Despite being aware of the risks of dangerous climate change to the country's population, the authorities failed to take necessary action, meaning that they did not act with the prudence and diligence required by Article 1382 of the Belgian Civil Code.[62] Further, and by failing to take sufficient climate action to protect the life and privacy of the claimants, the defendants were in breach of their obligations under Articles 2 and 8 of the ECHR.[63]

However, due to separation of powers considerations, the First Instance Court declined to issue an injunction ordering the government authorities to set the specific emissions reduction targets requested by the claimants.[64] The Court also found that neither European nor international law required the specific reduction targets requested by the claimants, and that the scientific report that they relied on was not legally binding.[65]

In 2023, the Court of Appeals of Brussels issued its judgment and confirmed many of the First Instance Court's findings.[66] In relation to the ECHR, the Court held that the Belgian Federal Government, the Flemish Region and the Brussels-Capital Region (but not the regional government of the Walloon Region) had breached Articles 2 and 8 of the ECHR.[67] The key basis of the Court's findings was that the authorities' emissions reduction targets for 2020 and 2030, and their actions to date to achieve their targets, were not consistent with minimum thresholds evident from scientific and political consensus. In this regard, the Court found it significant that:

i) In respect of the 2013-2020 period, the relevant authorities did not revise their 2020 emissions reduction targets up to 30% (compared to 1990 levels) in line with scientific and political consensus at the time, and failed to achieve an emissions reduction of 30% by 2020;[68] and

61 *VZW Klimaatzaak v Kingdom of Belgium et al* [2021] 2015/4585/A (Brussels Court of First Instance) (17 June 2021) (unofficial translation).

62 *Ibid*. 83.

63 *Ibid*.

64 *Ibid*. 82.

65 *Ibid*.

66 *Klimaatzaak* (n 8) [573].

67 The Court of Appeal considered that, based on an analysis of the facts presented, the Walloon Region had taken sufficient action in respect of its climate policies to fulfill its obligations under the relevant sections of the Belgian Civil Code and the ECHR (*ibid*. [249]).

68 *Ibid*. [176]-[183], [213]-[216].

ii) In respect of the 2021-2030 period, the Court concluded that a 55% reduction target by 2030 (compared to 1990 levels) at the Belgian State level is the "the minimum accepted by the best available science, if the Belgian State is to do its part" to prevent the dangerous threshold in terms of global warming from being crossed,[69] to comply with Articles 2 and 8 of the ECHR.[70]

The Court then went on to assess whether the government authorities complied with their duties under the Belgian Civil Code, cross-referring to its analysis and findings from its assessment of the ECHR. The Court found that the Belgian Federal Government, the Flemish Region and the Brussels-Capital Region breached Articles 1382 and 1383:

i) In the 2013-2020 period, for the same reasons outlined in its assessment of the ECHR.[71]
ii) In the 2021-2030 period, insofar as the upward revision of Belgium's climate ambitions for this period was late and, to date, the policies being actually implemented are not likely to achieve the target of reducing GHG emissions by 55% by 2030 (compared to 1990 levels).[72]

The Court also confirmed that the authorities' positive obligations under Articles 2 and 8 of the ECHR acquired a "sufficiently definite content," which meant that their breach alone constitutes a fault within the meaning of Articles 1382 and 1383 of the Belgian Civil Code.[73]

Ultimately, and for the first time globally since the Dutch courts' decisions in *Urgenda*, the Court issued an injunctive order that included a specified minimum emissions reduction target that must be met in order for the Government to fulfill its legal obligations. In this case, the Court ordered the Government to achieve a reduction of 55% by 2030 (compared to 1990 levels).

The Court determined that it did not have enough evidence at the time of the judgment to conclude with sufficient certainty that the effectiveness of the order would require penalty payments. The Court decided to postpone its decision on the penalty payment requested by the claimants, pending an evaluation of the government authorities' emissions reduction performance between 2022 and 2024 (once data becomes available), as well as Belgium's

69 *Ibid*. [190].
70 *Ibid*. [176]-[183], [213]-[216].
71 *Ibid*. [178]-[179], [182]-[183], [249].
72 *Ibid*. [244].
73 *Ibid*. [246].

updated National Energy and Climate Plan (NECP).[74] Zakia Khattabi, Belgium's then-Minister of Climate, Environment, Sustainable Development and Green Deal, explained that she "was already convinced that we need to strengthen and speed up federal climate policy" but the Court of Appeal's ruling "turn[ed] that conviction an obligation."[75]

b. The Wider Impacts of the Case

At the time of writing, Belgium has not made any formal announcements with respect to updates or changes to its climate policy. Accordingly, the Government is still failing to deliver on its existing emissions reduction targets, which the Brussels Court of Appeal deemed unlawful.

On 23 February 2024, the European Commission released its recommendations in respect of Belgium's NECP.[76] EU Member States must develop and submit NECPs under EU law. These are the main policy documents setting out national plans and measures to jointly achieve emissions reductions and energy-related targets at the EU level.

The European Commission found that there was a "projected gap of 4.4 percentage points to meet the national greenhouse gas target of −47% in 2030 compared to 2005 levels under the [Effort Sharing Regulation]."[77] It also recommended that Belgium "[p]rovide updated projections to show how the existing and planned policies will deliver on the target" and "[c]omplement the information on the policies and measures, clearly spelling out their scope, timeline and, where possible, expected greenhouse gas reduction impact."[78]

At the time of writing, it is premature to assess the final policy impacts of *Klimaatzaak*. While the Brussels-Capital Region and the federal government both decided not to appeal the Court of Appeal's judgment, the Flemish Region filed a cassation appeal with the Belgian Supreme Court in April 2024.[79] The decision to appeal the case has likely had a negative effect on the Belgian federal government's ability to implement the Court of Appeals' order, as collaboration between all three government regions is needed to achieve economy-wide emissions reductions. This is evident from the fact that the

74 *Ibid*. [159].

75 Klimaatzaak, 'Monitoring the Impact of the Climate Case Appeal Verdict' (2024) 8 (unofficial translation).

76 Commission Recommendation of 23.2.2024 on the draft updated Integrated National Energy and Climate Plan of Belgium covering the period 2021-2030.

77 *Ibid*. The Effort Sharing Regulation sets out binding minimum emissions reductions required from each EU Member State by 2030.

78 *Ibid*.

79 See Klimaatzaak, 'The Lawsuit in Which Everyone Wins' (n 20).

Belgian government failed to submit an updated NECP to the European Commission by a 30 June 2024 deadline and, as of February 2025, has still not satisfied this legal requirement.

However, in terms of indirect impacts, the campaign accompanying the case has had a considerable impact within Belgium. The Klimaatzaak organization was founded by a group of 11 concerned citizens in 2014.[80] Five years later, when the Brussels Court of First Instance began proceedings on the merits, over 58,000 people had joined the lawsuit against the Belgian Government, making *Klimaatzaak* the largest climate case in history in terms of the number of claimants involved. The advocacy campaign, which heralded the case as "[t]he lawsuit in which everyone wins,"[81] helped mobilize people in more than 100 municipalities and cities across Belgium during oral proceedings, including an estimated 7,000 supporters who took to the streets dressed as lawyers.[82] Less than four months after the positive first instance ruling, a reported 70,000 people participated in a climate march in Brussels.[83] Such figures reflect a remarkably widespread engagement with climate change issues over a sustained period of time.

5. Discussion of the Impact of the Case Studies and Conclusion

The landmark cases described above are three of the most well-known climate litigation cases to date. However, success in this rapidly evolving field takes many forms. This section will rely on *Urgenda, Neubauer* and *Klimaatzaak* to explain how climate litigation is more than a zero-sum game, but rather a complex landscape where claimants can enhance progress even in the absence of a positive legally binding judgment.

In terms of direct impacts, the *Urgenda, Neubauer* and *Klimaatzaak* cases are success stories in that they showcase the ability of courts to demand from governments ambitious climate mitigation action (eg setting minimum emissions reduction targets, revising intermediate reduction targets, etc), while

80 Civicus, 'BELGIUM: "We Need Systemic Transformation to Stop the Climate Crisis"' (16 February 2024).

81 Klimaatzaak, 'The Lawsuit in Which Everyone Wins' (n 20).

82 Civicus, 'BELGIUM: "We Need Systemic Transformation to Stop the Climate Crisis"' (n 80).

83 The Jakarta Post, 'Tens of Thousands Rally in Belgium Climate March' (11 October 2021).

also providing public authorities with ample room to determine precisely how to meet those obligations.

Regarding normative development, all three cases addressed key issues that have been a consistent theme in framework cases around the world, including the following:

— That states have a human rights obligation to take climate action, whether under constitutional or regional law.[84] Notably, the ECtHR's finding in *KlimaSeniorinnen* that Switzerland has a positive obligation under Article 8 ECHR to adopt and apply regulations and measures capable of mitigating climate change is now applicable to all 46 Council of Europe Member States.[85]

— In framework cases concerning the adequacy of governments' emissions reductions targets that have proceeded to be heard on the merits, courts have had to consider the minimum level of action that governments must take to comply with their legal obligations. The principle of CBDR-RC, which is enshrined in the UNFCCC[86] and the Paris Agreement,[87] has been an important consideration for courts that are considering the targets adopted by developed nations. This principle was taken into account in *Urgenda*,[88] *Neubauer*[89] and *Klimaatzaak*[90] in terms of the Courts' assessment of the governments' respective legal obligations.

— The Court's assessment in *Klimaatzaak* of Belgium's mitigation efforts under the 1.5°C long-term temperature limit of the Paris Agreement demonstrates how legally binding judgments can further normative developments related to best available science. The Court of Appeal's analytical approach is noteworthy as it marked the first time a court in a government framework case substantively relied on the 1.5°C threshold to determine its decision.[91]

— In many framework cases, governments have sought to rely on the "drop in the ocean" argument to shield themselves from liability. Governments have argued that no single state can be held legally responsible for the

84 *Urgenda* (n 5) [9], *Neubauer* (n 6) [243], *Klimaatzaak* (n 8) [573].

85 *KlimaSeniorinnen* (n 4) [545].

86 Paris Agreement (n 30) art 3.

87 *Ibid*. arts 2 and 4.

88 *Urgenda* (n 5) [5.7.1]-[5.7.4]

89 *Neubauer* (n 6) [225].

90 *Klimaatzaak* (n 8) [241].

91 *Ibid*. [191]. For additional details on the role of the 1.5°C limit in *Klimaatzaak*, see April Williamson and Filippo P. Fantozzi, 'Successful Climate Litigation in Belgium: VZW Klimaatzaak v. Kingdom of Belgium & Others' (*Climate Litigation Network*, May 2024), 16ff.

global phenomenon of climate change because no single state is factually responsible for all of the harm or able to solve the problem alone. Courts have overwhelmingly and expressly determined that states cannot rely on this argument, including in *Urgenda*,[92] *Neubauer*[93] and *Klimaatzaak*.[94]

— Many states have failed to set out effective pathways to reach their respective 2050 net-zero targets.[95] Instead, they propose modest short-term emissions reduction targets (such as by 2030), followed by markedly more ambitious targets in the lead up to 2050.[96] Both *Neubauer* and *Klimaatzaak* have addressed this issue, explicitly stressing that governments cannot postpone climate measures such that potentially drastic emissions reductions are needed in the future, as this inaction would disproportionately place the onus on younger generations.[97]

Once one or more courts have tackled normative issues, such as those above, courts in other jurisdictions may look to those rulings as a guide and inspiration for their own cases. This is evident in all three of the case studies:

— The German Constitutional Court in *Neubauer* referred to the Dutch Supreme Court's decision in *Urgenda* numerous times when assessing issues such as (i) how current climate inaction potentially requires drastic future measures,[98] (ii) the inadequacy of adaptation measures to solely address climate impacts,[99] (iii) the risks of tipping points being crossed due to any increase in global temperature above 1.5°C[100] and (iv) with respect to the "drop in the ocean" argument.[101]

— Likewise, the Belgian Court of Appeal in *Klimaatzaak* referred to both *Urgenda* and *Neubauer* in relation to the "drop in the ocean" argument.[102] The Court also referred to *Neubauer* regarding its approach to best available science and the burdens that future generations would have to endure due to climate inaction.[103]

92 *Urgenda* (n 5) [5.7.1].

93 *Neubauer* (n 6) [149], [199], [201]-[202].

94 *Klimaatzaak* (n 8) [181]-[183] and [278].

95 Maxwell, Mead and van Berkel (n 1) 24.

96 *Ibid.*

97 *Neubauer* (n 6) [192]; *Klimaatzaak* Appeal (n 8) [266].

98 *Neubauer* (n 6) [121].

99 *Ibid.* [157].

100 *Ibid.* [161].

101 *Ibid.* [202].

102 *Klimaatzaak* (n 8) [160]-[161].

103 *Ibid.* [201], footnote in [155], [248].

— As a more recent example, *Neubauer's* emphasis on CBDR-RC and equity was expressly cited by the ECtHR in the groundbreaking *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* case to stress the importance of national carbon budgets.[104] *KlimaSeniorinnen* also aligned with *Urgenda* and advanced the principle of CBDR-RC by emphasizing that each state must do "its part" to combat climate change.[105]

Cases may also have impacts on normative developments that are more difficult to track. For instance, shortly after the *Klimaatzaak* decision, where 1.5°C was recognized explicitly for the first time as the relevant threshold for harm, both the ECtHR and the International Tribunal for the Law of the Sea relied on the 1.5°C temperature limit to reach their respective decisions in the *KlimaSeniorinnen* case and the historic Advisory Opinion on climate change and marine protection.[106] Although it is not possible to determine the precise extent that *Klimaatzaak* may have influenced these latter approaches, it is likely that the case helped raise the normative threshold of the climate ambition expected of governments.

In terms of indirect impact, all three cases achieved a huge amount outside of the courtroom. In all three cases, there was notable public mobilization as a result of campaigns accompanying the cases, which has led to wider public awareness and pressure on the governments to update their approach to climate action. As outlined above, both the *Urgenda* and *Neubauer* cases led to significant change to governmental policy in the direct aftermath of the judgments.[107]

Focusing on *Klimaatzaak,* even if the Belgian Supreme Court were to overturn the Court of Appeal ruling, that negative outcome would not wipe away the positive indirect impacts ushered forward by the lower court decisions, notably the associated advocacy campaign and the decade-long level of public engagement with climate change issues.[108] Moreover, as the Klimaatzaak

104 *KlimaSeniorinnen* (n 4).

105 *Ibid*. [442], [545].

106 See eg *KlimaSeniorinnen* (n 104) [105]-[106], [432], [436], [558]; *Request for an Advisory Opinion submitted by the Commission of Small Island States on Climate Change and International Law (Request for Advisory Opinion submitted to the Tribunal),* ITLOS Case No 31 (Advisory Opinion of 21 May 2024) [62]-[65], [241], [243], [250].

107 Notably, the Urgenda Foundation invested in significant raising-awareness efforts to address the government's widespread climate inaction and warn about the risks of dangerous climate change, gathering tangible support from the public. For examples of Urgenda's campaign efforts see the organization's website.

108 The awareness-raising initiatives in support of the claims brought by Klimaatzaak and its co-plaintiffs are available on the campaign website. For example, Klimaatzaak has released a series of videos and statements featuring concerned people from all over Belgium, calling on public authorities to increase their climate mitigation efforts.

organization has already provided inspiration to organizations pursuing government framework lawsuits in other jurisdictions, its influence on the larger climate litigation field has already been secured.[109]

The relevance of considering the indirect impacts of a case becomes clearer when examining the ten model scenarios. These scenarios feature a range of progressive legal arguments and remedial requests, and new climate litigation ground would be broken if any of the claimants prevail on the merits and receive their desired remedy. The novel nature of these scenarios, however, leaves open the prospect that some, or all, of the cases could fail at various stages of adjudication. Given the time, personnel and financial demands required of such efforts, evaluating their effectiveness solely in terms of positive judgments would reduce the lawsuits to a high-stakes, binary endeavor. Fortunately, as the *Klimaatzaak* case indicates, it is not necessary to interpret climate disputes and their respective outcomes through such a narrow lens.

A closer look at scenario 3, as a representative example, provides further insight into how it is possible to brand a climate case as a success despite it failing on the merits. This scenario involves a group of farmers seeking redress against a national government before domestic courts for climate-related impacts in violation of their right to property under Article 1, Protocol No 1 of the ECHR. Certainly, the claimants in this case would hope for a positive judicial ruling, but such an outcome may be difficult to achieve given that an Italian district court recently ruled a government framework case (which concerned the Italian civil code and considered the state's obligations under Articles 2 and 8 ECHR) nonjusticiable, despite the landmark jurisprudence established by *Urgenda* and *Klimaatzaak*.[110]

Accordingly, success in this scenario should be viewed in relative terms, as opposed to absolute ones. For example, if the Italian courts were to grant the claimants standing, but ultimately rule against them on the merits, the

109 For example, *Klimaatzaak* is the first time where a national court has taken into account evidence on procedural and substantive failures in the approval/implementation process of an EU Member State's National Energy and Climate Plan (NECP) to assess whether public authorities are acting unlawfully in the context of climate change. This model can be replicated to support litigation strategies in many other Member States to target overall ambition and/or implementation gaps in domestic mitigation efforts. See: CAN Europe, 'Taking Flawed National Energy and Climate Plans to Court: Lessons Learned from Previous Cases' (22 March 2024), 9ff. The potential to enhance climate accountability through NECP legal requirements has further inspired a transnational campaign, coordinated by CAN Europe, aimed at holding several Member States accountable for their climate and energy shortcomings. See the #FairerClimatePlans campaign.

110 *A Sud* (n 15). As of March 2025, the case is pending on appeal before the Civil Court of Appeals of Rome. In this context, the plaintiffs significantly rely on the legal requirements established in *KlimaSeniorinnen* to point to the Italian State's systemic failures on climate mitigation.

outcome would signal an evolution in climate litigation and likely inspire new cases within Italy and in other jurisdictions. Similarly, campaigners, activists and scholars would justifiably proclaim that the domestic court's ruling indicates a new willingness on the part of the Italian judiciary to consider climate change arguments. Finally, learnings from this case would serve as a basis to improve the prospects of success in future cases across Europe.[111] These representative indirect impacts illuminate the broad scope of success that climate litigation cases can take, even in the face of a negative judicial outcome.

As a final consideration, it is important to recognize some of the limitations of framework cases, and the inherently iterative nature of litigation as a tool to achieve change. A single case is unlikely to serve as the "silver bullet" to ensure *all* government action will comply with its obligations in the future – additional cases will almost certainly be needed to continue to uphold the standards that have been established in an initial case.[112]

For example, *Urgenda* focused on the state's 2020 mitigation action. However, five years after the Supreme Court decision in *Urgenda,* Greenpeace Netherlands and eight Dutch citizens of the island of Bonaire filed a new case against the Dutch State, in respect of its mitigation and adaptation ambition.[113] The case claims that the government's law and policies are not aligned with 1.5°C and need to be significantly overhauled in order for the government to comply with its legal obligations under both tort and human rights law. Initial success, such as in *Urgenda,* may set the legal framework for future cases to be brought that can continue to hold governments accountable for their action going forward. However, to do so, new cases must be brought that reflect the current realities of government action, as well as the latest best available science and evidence. This requires similar levels of time and effort to an initial case on the part of plaintiffs, to ensure that governments are continuously being held accountable.

111 It's noteworthy that "while the case is still pending, the advocacy efforts supporting *A Sud et al v Italy* have already proved to be a powerful tool to put the State's climate failures under the spotlight: years before the court's decision, this initiative gathered significant visibility in the national media through newspapers articles, mainstream news channels and radio interviews." See Filippo P. Fantozzi, Sarah Mead and Lucy Maxwell (n 18) 109ff.

112 Beyond "government framework" cases, courts will also be called upon to scrutinize standards of conduct in the context of corporate and project-based litigation. For example, see The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 12 November 2024, ECLI:NL:GHDHA:2024:2100; *R (Finch on behalf of the Weald Action Group et al) v Surrey County Council and others* [2024] UKSC 20; *Greenpeace Nordic and Nature & Youth v Energy Ministry* [2024] 23-099330TVI-TOSL/05 (Oslo District Court).

113 The Hague District Court, *Greenpeace Netherlands and 8 citizens of Bonaire v the Netherlands,* 25 September 2024, ECLI:NL:RBDHA:2024:14834.

Similarly, although there is no doubt that the *Neubauer* decision set a critically important precedent in framework climate litigation, international political and scientific consensus has continued to develop. For example, the Constitutional Court relied on the German scientific advisory body's findings in relation to Germany's remaining carbon budget for 1.75°C, rather than 1.5°C. Independent analysis since the decision has found that even Germany's new policies are not aligned with 1.5°C – and would lead to 2°C-3°C of warming if all countries were to set targets of an equivalent fair share level of mitigation.[114] These shortcomings are now the subject of follow-up cases. In 2022, nine claimants from the *Neubauer* case filed a lawsuit in the German Federal Constitutional Court claiming that the reduction path in the revised KSG continues to infringe their fundamental rights.[115] The Court refused to hear the case and it is now pending before the ECtHR.[116] Furthermore, a recent federal amendment that has "substantially weakened" the KSG has sparked a new wave of climate lawsuits.[117] In particular, between July and September 2024, several German environmental organizations (including BUND, DUH, Greenpeace and Germanwatch) and thousands of individual plaintiffs (including some of the applicants from the *Neubauer* case – such as the lead claimant Luisa Neubauer) announced a series of constitutional complaints against the German Government, arguing, *inter alia*, that the revised KSG is not ambitious enough to protect people's fundamental rights and freedoms.[118] These developments illustrate that the notion of success may evolve over time, and that litigation can form a strong basis for iterative improvement – and scrutiny – of government mitigation action.

In *Klimaatzaak*, even a year after the judgment, the direct impacts of the case are difficult to identify. This may partially be due to the fact that the case is yet to be heard in the country's apex court, and regional governments may be reluctant to initiate extensive policy changes if there is a chance that the Court of Appeal decision will be overturned. The case has now been proceeding through the Courts for over ten years, and full compliance with the lower

114 William Hare and others, 'Achieving the 1.5°C Limit of the Paris Agreement: An Assessment of the Adequacy of the Mitigation Measures and Targets of the Respondent States in Duarte Agostinho v Portugal and 32 other States' (*Climate Analytics*, 7 January 2022).

115 BVerfG, pending case filed 24 January 2022 *(Steinmetz et al v Germany)*.

116 *Engels v Germany* App no 46906/22 (ECtHR).

117 Germanwatch, 'Taking Germany to Court: Germanwatch, Greenpeace and Over 54,000 Individual Claimants Filed New Constitutional Complaint' (16 September 2024).

118 Isabella Kaminski, '"A Very Bureaucratic Approach to the Most Existential Threat of the Century": Neubauer and the German Climate Case Three Years On' (*The Wave*, 2 October 2024).

Court's orders may not be forthcoming until the case reaches its final conclusion. This illustrates another key risk of framework litigation – although plaintiffs have the potential to secure binding results, the nature of litigation means that cases could take many years to progress through all levels of the court system.

In light of the impacts associated with the case studies in this chapter, it is clear that success can be measured in a myriad of ways, from increased public awareness of climate issues to the enhanced ability of civil society organizations to discuss legislative and policy reforms with public authorities. All three cases had varying levels of direct and indirect impacts, which were complementary and generally positive in respect of galvanizing governmental action. By zooming outward and interpreting those outcomes in a more holistic manner, one can better understand how climate litigation can initiate meaningful change in a variety of ways. Moreover, the limitations of single cases illustrate the nuances of climate litigation as an effective tool for large-scale change. Ultimately, the success of a case is inherently linked to the understanding that it can and, ideally, should have both direct and indirect impacts, and must be used iteratively to generate lasting long-term results.

Charlotte E. Blattner

Chapter 8: *KlimaSeniorinnen* – On Storybook Victories, Double-Victimization, and Success

1. Introduction

In what was probably one of its most eagerly awaited judgments, the European Court of Human Rights (ECtHR), on 9 April 2024, delivered a ground-breaking ruling in the case *Verein KlimaSeniorinnen and Others v Switzerland*.[1] Contrary to widespread predictions and fears about the verdict,[2] the Court addressed climate change head-on as a human rights issue. It delivered a bold ruling by fleshing out human rights guarantees in the context of climate mitigation and corresponding state duties. The Court confirmed the right of individuals to effective protection by state authorities against the serious adverse effects of climate change on their lives, health, well-being, and quality of life, which flows from Article 8 European Convention on Human Rights (ECHR),[3] and concretized the corresponding state duty to protect through a qualified seven-tiered test.[4] Applying this standard to Switzerland, it found by 16 votes to one that the country had failed to comply with its positive obligations due to insufficient goals to mitigate climate change, gaps in regulation, a lack of implementation and enforcement, and insufficient measures.[5] Unanimously, the ECtHR also concluded that Switzerland had violated Article 6(1) ECHR given that domestic courts had not dealt with the merits of the case, failed to consider "the compelling scientific evidence concerning climate change,"[6] and did not take the seniors and their complaints seriously.[7]

1 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR).

2 See eg Alexander Zahar, 'The Limits of Human Rights: A Reply to Corina Heri' (2022) 33(3) European Journal of International Law 953.

3 *KlimaSeniorinnen* (n 1) [519].

4 *Ibid*. [550 ff.].

5 *Ibid*. [558 ff.].

6 *Ibid*. [635].

7 *Ibid*. [636]-[637].

With its ruling, the Court by far exceeded the climate seniors' expectations. As one of the climate seniors, Rosemarie Wydler-Wälti, said in an interview: "[t]his feels like a dream. I'm sure I'll wake up tomorrow and believe this to be a dream."[8] Legal experts and the general public, too, were taken by surprise by this decisive stance taken by the Strasbourg Court,[9] which has proved to be far more courageous and progressive than its previously cautious jurisprudence focused on procedural guarantees and duties might have suggested.[10] Much of this success can be attributed to the strategic nature of the case, which was diligently drafted and managed by a core team of expert lawyers over the decade of its existence.

From the standpoint of litigation, the case constitutes a success across the board. The seniors overcame dreaded admissibility hurdles and secured monumental wins on the merits, concerning both procedural and substantive guarantees. Apart from the part on the general measures requested from the Court,[11] the judgment seems to be a "dream come true" for the seniors.[12]

However, the *KlimaSeniorinnen* case can, in some sense, also be seen as a tragic failure. The story of the climate seniors took a turn for the worse following the pronouncement of the ruling. First the Federal Parliament and then the Federal Council publicly criticized the Court for interpreting the ECHR too broadly and for failing to take into account the newest legal and political developments in Switzerland, which would have in fact shown that it is already acting in accordance with the ruling.[13] They therefore saw no reason to change anything about how Switzerland regulates climate mitigation and how it should implement its laws.[14] So despite being a success in the books, it would

8 Radio Bern, Interview with Rosemarie Wydler-Wälti by Sarah Heinzmann (10 April 2024).

9 Le News, 'Swiss Government Surprised by ECHR Climate Change Ruling' (13 April 2024).

10 See eg Helen Keller and Corina Heri, 'The Future is Now: Climate Cases Before the ECtHR' (2022), 40(1) Nordic Journal of Human Rights 153, 170. See on the "procedural turn" of the ECHR, Oddný Mjöll Arnardóttir, 'The "Procedural Turn" under the European Convention on Human Rights and Presumptions of Convention Compliance' (2017) 15(1) International Journal of Constitutional Law 15.

11 *KlimaSeniorinnen Schweiz* (n 1) [657].

12 Or, in the words of Heri, it is "the case of the century": Corina Heri, 'Strasbourg's 'Case of the Century' – Revolutionary Climate Judgment from the European Court of Human Rights' (*Just Security*, 10 April 2024).

13 Swiss Council of States, 'Erklärung des Ständerates. Urteil des EGMR "Verein KlimaSeniorinnen Schweiz u.a. vs Schweiz"' (22 May 2024); Swiss National Council, 'Erklärung des Nationalrates. Urteil des EGMR "Verein KlimaSeniorinnen Schweiz u.a. vs Schweiz"' (12 June 2024).

14 *Ibid*. 2.

appear that the climate seniors case has fallen short of the much-coveted regulatory ends that strategic cases pursue. Meanwhile, heat-related deaths, caused by anthropogenic climate change, are manifestly on the rise in Switzerland, and the climate seniors continue to be affected most by it.[15] As such, they tragically experienced first-hand that the "success" of climate litigation is constituted by more than achieving a favorable court ruling.

These developments call for a nuanced understanding of what constitutes success in this case, with lessons to be learned for climate litigation more broadly. It is therefore necessary to better understand the procedural backbone of this case, the legal remedies sought and secured, the position of the climate seniors throughout the decade of litigation, an evaluation of what the Court held, and the reception of the ruling in Switzerland and beyond.

The literature on strategic climate litigation is flourishing in parallel to an ever-growing interest in strategic litigation, more broadly.[16] Many of these inquiries seek to differentiate between successful cases and less successful ones, and excavate a blueprint for future cases.[17] Peel and Markey-Towler proposed a "recipe for success," outlining the following criteria for successful strategic climate litigation: carefully selecting plaintiffs to communicate a strategic message with the case; engaging an experienced legal team with a track record of bringing other strategic climate legal interventions; targeting defendants who are widely seen to be lagging in their climate action; tying legal arguments closely to the latest climate science; making innovative legal arguments, including those emphasizing duties of protection; and seeking remedies that

15 In summer 2023, 542 deaths were attributed to the heat: Martina S Ragettli, Axel Luyten and Martin Röösli, 'Monitoring hitzebedingte Todesfälle: Sommer 2023' (27 June 2024) report on behalf of the Swiss Federal Office of Public Health and the Swiss Federal Office for the Environment. On average, 60% of heat-related deaths in Switzerland would not have happened if it was not for anthropogenic climate change: Ana M Vicedo-Cabrera and others, 'The Footprint of Human-Induced Climate Change on Heat-Related Deaths in the Summer of 2022 in Switzerland' (2023) 18(7) Environmental Research Letters 074037.

16 On strategic climate (change) litigation, see eg Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2024 Snapshot' (June 2024) ; United Nations Environment Programme, 'Global Climate Litigation Report: 2023 Status Review' (2023) ; Francesco Sindico and others, *Research Handbook on Climate Change Litigation* (Edward Elgar 2024); Daniel Ziebarth, 'Existing Challenges and Possible Pathways for Case Success in Climate Litigation with Human Rights Claims' (2024) 55 St. Mary's Law Journal 511; Kent Roach, 'Judicial Remedies for Climate Change' (2021) 17(1) Journal of Law & Equality 105; Jacqueline Peel and Hari M. Osofsky, *Climate Change Litigation* (CUP 2015).

17 Eg Lucy Maxwell, Sarah Mead and Dennis van Berkel, 'Standards for Adjudicating the Next Generation of *Urgenda*-Style Climate Cases' (2022) 13(1) Journal of Human Rights and the Environment 35.

extend beyond the situation of individual litigants and contribute to intended policy and regulatory impacts.[18] In what follows, these criteria will be analyzed, disentangled, and reflected upon with a view to the case (though not in the above order), and special attention will be paid to legal remedies throughout all decision-making phases, from the first decisions by the federal authorities to the judgments of domestic courts, up until the Strasbourg Court. Finances will be considered as an additional self-standing criterion. Crucially, successful strategic climate cases are not merely evaluated by "input" criteria, just as a solid recipe with good ingredients does not yet make for a good meal. So, in addition to these "input" or "ingredient" criteria, this chapter evaluates the *KlimaSeniorinnen* case by its outcome ("output" or "outcome" criteria) and its extra-legal effects,[19] with valuable insights to be gained for other climate change cases, and strategic litigation more generally.

Throughout, this chapter employs a qualitative approach to the analysis of the law, judgments, orders by the courts, submission by parties, as well as (where applicable) transcripts from oral hearings. This theoretical enquiry is complemented by a qualitative analysis of two interviews I held with key stakeholders, whose views on strategy, remedy, and justice are central to understanding this case. The first interview was held with five members of the executive board of the *KlimaSeniorinnen* association as a group; the other one with the lead lawyer of this case, Cordelia Bähr.[20]

The chapter begins by disentangling the "input," the "ingredients" of what makes the *KlimaSeniorinnen* case a success (section 2), namely the selection of plaintiffs (a), targeting climate laggards (b), seeking remedies that change the broader policy and regulatory environment beyond litigants (c), tying legal arguments to latest developments in science, policy, and law (d), set-up of the legal team (e), and finances (f). It then turns to the "output" or "outcome" side of this case (section 3), zooming in on its legal impacts (admissibility, declaration of violation, and consequential orders) (a), its impacts on victims (b), and policy impacts (c).[21] The final section briefly summarizes these findings and provides

18 Jacqueline Peel and Rebekkah Markey-Towler, 'Recipe for Success?: Lessons for Strategic Climate Litigation from the *Sharma*, *Neubauer*, and *Shell* Cases' (2022) 22(8) German Law Journal 1484.

19 See also Teresa Weber, 'KlimaSeniorinnen: Changing Legal Opportunity Structures in the Face of the Climate Crisis' (2024) 1(1) Austrian Law Journal 100, 109-110.

20 The interviews were conducted in writing. The one with the KlimaSeniorinnen was done in spring 2022; the one with Cordelia Bähr in spring 2024. Transcripts are on file with the author.

21 These criteria are taken from Helen Duffy, *Strategic Human Rights Litigation: Understanding and Maximising Impact* (Hart 2018).

an outlook on how this case can realistically be assessed without lapsing into either misplaced optimism or excessive pessimism (section 4).

2. Input for Successful Climate Litigation

The *KlimaSeniorinnen* case was inspired by the success of the *Urgenda* case commenced before the District Court of The Hague in 2015.[22] That court held that the Dutch government must protect its citizens from the threats of climate change and must strengthen its precautionary action by reducing its GHG emissions by at least 25% instead of only 17% by the end of 2020[23] – a finding which was later confirmed by the Dutch Supreme Court.[24] Following the success in the Netherlands, Greenpeace Switzerland approached two leading environmental lawyers in Switzerland – Cordelia Bähr and Ursula Brunner – to explore the possibilities of bringing a similar case in Switzerland to challenge inadequate climate policy and legislation.[25]

Unlike in Dutch law, there is no general duty of care in Swiss law that could be invoked to prompt the government to further limit emissions. In what may seem like an overly complicated process, per Swiss law, the very administrative authorities whose alleged inaction was at stake had to first be directly requested to either begin taking the necessary actions or rule that their own lack of action was unlawful.[26] Materially succeeding with this request at that level was unlikely, as authorities tend to consider their own actions and practices to be sufficient – within the bounds of political realities. Hence, several decisions regarding the input of this case, choice of plaintiffs and respondents, strategic framing, innovation in legal argumentation, connection to climate

22 Cordelia Bähr and others, '*KlimaSeniorinnen:* Lessons from the Swiss Senior Women's Case for Future Climate Litigation' (2018) 9(2) Journal of Human Rights and the Environment 194, 201.

23 Urgenda Foundation v The Netherlands (Ministry of Infrastructure and Environment) [2015] Verdict, The Hague District Court C/09/456689/HA ZA 13-1396 (2015).

24 The Hague Court of Appeal, *State of the Netherlands v Urgenda Foundation,* 9 October 2018, ECLI:NL:GHDHA:2018:2591.

25 Bähr and others (n 22) 201.

26 See *Verein KlimaSeniorinnen Schweiz and Others v Federal Council,* Federal Department of the Environment, Transport, Energy and Communications, Federal Office for the Environment and Swiss Federal Office for Energy, 'Request to Stop Omissions in Climate Protection Pursuant to Art. 25a APA and Art. 6 para. 1 and 13 ECHR' (25 November 2016). This tedious process was specifically created to implement the guarantee of procedural rights under the ECHR on the domestic level: see 164 herein; Isabelle Häner, 'Art. 25a' in Bernhard Waldmann and Patrick L Krauskopf (eds), *VwVG – Praxiskommentar Verwaltungsverfahrensgesetz* (Schulthess 2023) 635, 645.

science, set-up of the legal team, and finances needed to be made at an early stage to take this case to success. These elements will be evaluated in turn, one by one, as they emerged and evolved with the case.

a. Selection of Plaintiffs

Under Swiss law, the fact that the climate seniors had to challenge government inaction (rather than action) meant that they faced stricter requirements regarding standing *(Beschwerdelegitimation)*.[27] As set out by the Federal Act on Administrative Procedure (APA) and respective case law, the seniors needed to be specially affected in rights and duties (criterion 1: special affectedness) and have an interest worthy of protection in obtaining a respective decision (criterion 2: interest worthy of protection).[28] In addition, the appellants' interest had to be actual (rather than hypothetical) and practical (thus capable of being remedied). These requirements narrow the pool of people who could potentially get courts to review government (in)action, in order to prevent courts from being flooded by (inadmissible) *actiones populares*.[29] The APA essentially seeks to mediate the fact that, on the one hand, the main climate law in Switzerland, like the CO_2 Act, does not provide for a special right to appeal, and that, on the other hand, all government action must be reviewable for potential human rights violations. The above criteria, by allowing for standing but qualifying it narrowly, essentially balance these two considerations.

Older females in Switzerland were chosen as plaintiffs precisely because they fit these standing requirements. If plaintiffs constituted older people more generally – regardless of sex or gender-, the likelihood of passing the APA requirements would have been slim. The lawyers put forward mounting

27 More concretely, the difference between omissions and actions is tied to the different procedures in Swiss administrative law: decisions by authorities can be appealed in straightforward manner, whereas state action not clothed in decisions, ie real acts *(actes matériels),* can only be appealed after the competent authority was pushed to issue a respective decision. This means that the omissions must first be qualified as real acts in the preliminary legislative procedure and can thereafter be legally challenged by relying on Art. 25a APA. See further on this case, Bähr and others (n 22) 201.

28 Swiss Federal Act on Administrative Procedure (Administrative Procedure Act, APA), SR 172.021, Art. 48(1)(b) and (c).

29 René Wiederkehr, Christian Meyer and Anna Böhme, 'Art. 25a' in René Wiederkehr, Christian Meyer and Anna Böhme (eds), *OFK – Orell Füssli Kommentar* (Orell Füssli Verlag 2022) 374, 381. See for an extensive critique of these requirements in Swiss environmental law more broadly, Meret Rehmann, *Besondere Betroffenheit als Element der Beschwerdebefugnis im Umweltrecht: Reformoptionen aus funktionaler und völkerrechtlicher Sicht* (Dike 2024).

scientific evidence on the fact that climate change, especially heat and heat waves increasing in number and severity, has numerous negative effects on human health, which are especially pronounced for older women who suffer most and most blatantly from premature death.[30] The lawyers also submitted medical certificates proving that the climate seniors, and specifically the individual plaintiffs, suffer significantly from the effects of climate change due to their pre-existing conditions and from additional ailments they endure during the heatwaves. Choice of plaintiffs was also interesting in this case: many were tentative about associations passing the strict requirement of standing both on the domestic and ECHR level.[31] Yet, the lawyers in this case decided to push ahead with both individual applicants and an applicant association that took its task of defending its members' rights seriously.[32] This strategic move later proved to be decisive for the success in this case.

Related to domestic APA requirements, the lawyers considered the likelihood of taking this case to the ECtHR relatively high from the beginning. In terms of strategy, this required setting up the case in such a manner that the road to Strasbourg would remain open and as smooth as possible by, for example, being mindful of the particularities of the ECtHR's admissibility requirements and claiming violations of Convention rights from the beginning.

b. Target Climate Laggard

Switzerland was chosen as the respondent state since it became increasingly obvious that the country was lagging behind in terms of its international commitments to mitigate climate change at that time.[33] Taking the (then) consensus of the "well below 2°C" degree limit, the lawyers pointed to the Intergovernmental Panel on Climate Change (IPCC)'s *Fourth Assessment Report* (AR4) from 2007 that indicated that GHG reductions by 25%–40% (compared

30 Daniela D'Ippoliti and others, 'The Impact of Heat Waves on Mortality in 9 European Cities: Results from the EuroHEAT Project' (2010) 37 Environmental Health: A Global Access Science Source 1. See also Bähr and others (n 22) 203; Ursula Brunner and Cordelia Bähr, 'Klimaverantwortlichkeit der Schweiz' (18 November 2015) expert report commissioned by Greenpeace Switzerland (not public).

31 See eg Keller and Heri (n 10) 157. See, however, for a strong argument in favor of NGO standing, Helen Keller and Viktoriya Gurash, 'Expanding NGOs' Standing: Climate Justice through Access to the European Court of Human Rights' (2023) 14(2) Journal of Human Rights and the Environment 194.

32 See on this the carefully drafted statutes of the KlimaSeniorinnen association: Verein KlimaSeniorinnen, 'Statuten des Vereins KlimaSeniorinnen Schweiz' (15 September 2023).

33 Bähr and others (n 22) 202.

to 1990 levels) are necessary to observe this limit with a 66% chance.[34] Switzerland markedly deviated from this global average by 5%-20% with its 20% reduction goal for 2020 (compared to 1990).[35] Crucially, at the time, the Federal Council had acknowledged the need for an "at least" 40% reduction of GHG emissions among developed countries until 2020 (compared to 1990 levels) to keep global warming at a safe level but explicitly decided against adopting this target, as this would "entail the risk of an excessive burden on the Swiss economy."[36]

c. Seeking Remedies to Change the Broader Policy and Regulatory Environment

For a case to be considered strategic in nature, it must aim to change the broader policy or regulatory environment beyond potential benefits for individual plaintiffs.[37] This criterion can be evaluated by zooming in on legal remedies in particular.

The *KlimaSeniorinnen* case was initiated through an extensive and finely calibrated request from the climate seniors, dated 25 November 2016, to the Swiss Federal Council as the highest executive authority, the Swiss Federal Department of the Environment, Transport, Energy and Communications (DETEC), and its two administrative units – the Federal Office for the Environment (FOEN) and the Federal Office of Energy (FOE).[38] In simplified terms, the climate seniors requested these agencies to:

1. take all necessary actions within their competence to reduce GHG emissions by 2020 in alignment with the "well below 2°C" target;
2. take all necessary mitigation measures within their competence to meet the GHG reduction target as defined under (1.), in particular by initiating a preliminary legislative procedure to effect of (1.);
3. take all necessary actions within their competence to reduce GHG emissions by 2030 in alignment with the "well below 2°C" target;

34 Bert Metz and others (eds), *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate* (CUP 2007) 776.

35 See Swiss Federal Act on the Reduction of CO_2 Emissions (CO_2 Act), SR 641.71, Art. 3(1) (version of 1 January 2022).

36 Swiss Federal Council, 'Botschaft über die Schweizer Klimapolitik nach 2012 (Revision des CO_2-Gesetzes und eidgenössische Volksinitiative "Für ein gesundes Klima")' (26 August 2009) BBl 2009 7433, 7446-7447.

37 Peel and Markey-Towler (n 18) 1495.

38 *Verein KlimaSeniorinnen and Others v Switzerland* App no 53600/20, Request for Just Satisfaction (Article 41 of the Convention), Request for General Measures (Article 46 of the Convention) (13 October 2021).

4. implement all mitigation action within their competence to achieve (1); notably by
   a) making sure the cantons issue state-of-the-art building standards (or prepare new ones themselves) and effectively implement them;
   b) rapidly increasing the CO_2 levy on thermal fuels;
   c) drafting new measures to reduce CO_2 emissions in the transport sector;
   d) comprehensively assessing the effectiveness of measures under the CO_2 Act, and immediately initiating steps to implement the necessary measures for the period ending in 2020.
5. alternatively, issue a ruling declaring that the respective omissions are unlawful.[39]

In a ruling dated 25 April 2017, DETEC declined to follow their request.[40] It issued its ruling on behalf of all the respondents stating, mostly without specific grounds, that the appellants were not affected in their rights as required by Article 25a APA. It also rejected claims to effective legal protection derived from the ECHR. On 26 May 2017, the seniors submitted their appeal against the ruling of DETEC to the Federal Administrative Court.[41] In terms of legal remedies, they asked the Court to refer this case back to DETEC, which should enter their claims, decide anew, and thereby ensure their right to be heard. The Court dismissed the appeal in its judgment of 27 November 2018. After listing a number of climate change effects on physiological, biological, and human systems, the Court found that "different groups are affected in different ways, ranging from economic interests to adverse health effects affecting the general public."[42] Against this background, it concluded (without material assessment) that the climate seniors are "not particularly affected by the impacts of climate change" and would hence not be affected "in a specific and distinct manner" when compared with the general public, as required by the criterion of special affectedness (criterion 1) of the APA.[43]

39 *Ibid*.

40 Swiss Federal Department of the Environment, Transport, Energy and Communications, decision concerning *Request to Stop Omissions in Climate Protection Pursuant to Art. 25(a) APA and Art. 6 § 1 and 13 ECHR* (25 April 2017).

41 Appeal in Matters *Verein KlimaSeniorinnen Schweiz v Federal Department of the Environment, Transport, Energy and Communications (DETEC)* (26 May 2017).

42 Swiss Federal Administrative Court, Judgment A-2992/2017 (27 November 2018) *(Verein KlimaSeniorinnen Schweiz et al v Federal Department of the Environment, Transport, Energy and Communications)* consid. 7.4.2 (unofficial English translation).

43 *Ibid*. 7.4.3.

On 21 January 2019, the climate seniors submitted their appeal to the Federal Supreme Court, and requested that the judgment of the previous court be overturned, and the matter referred back to DETEC for a new assessment.[44] In its judgment dated 5 May 2020, the Supreme Court in essence followed the Administrative Court, but offered a different reasoning. It held that government measures that have, in theory, the potential to sufficiently affect the rights and duties (hence trigger an interest worthy of protection, criterion 2) of the climate seniors have not yet materialized.[45] Referring to the IPCC, it considered that because the 1.5°C warming would prospectively materialize in 2040, the 2°C warming would take place later, hence, "not in the near future."[46] From this it would follow that "there is still a certain amount of time available to prevent global warming exceeding this value" and that, under these circumstances, the seniors' rights would not appear to be threatened (yet) to such an extent that they are "sufficiently affected" within the meaning of the APA.[47]

Later that year, on 26 November 2020, the climate seniors submitted their application to the ECtHR. The climate seniors requested the Court to declare that:

1. all applicants have victim status and their claims are admissible under Articles 34 and 35 ECHR;
2. Switzerland failed to protect the seniors' rights to life and private life under Articles 2 and 8 ECHR, by not adopting the necessary legislative and administrative framework to contribute its share to the 1.5°C limit;

44 Appeal to the Federal Supreme Court [of Switzerland] against Judgment A-2992/2017 of 27 November 2018 of the Federal Administrative Court [of Switzerland] in the case Verein KlimaSeniorinnen Schweiz et al v Federal Department of the Environment, Transport, Energy and Communications (DETEC) (21 January 2019) (unofficial English translation).

45 Swiss Federal Supreme Court, Judgment 1C_37/2019, 5 May 2020 *(Verein KlimaSeniorinnen Schweiz et al v Federal Department of the Environment, Transport, Energy and Communications)* consid. 5.3 and 5.4.

46 *Ibid*. consid. 5.3.

47 *Ibid*. consid. 5.4. This ruling was widely criticized by legal scholars for its lack of coherence with court jurisprudence and disengagement with scientific facts. *See eg* Johannes Reich, 'Bundesgericht, I. öffentlich-rechtliche Abteilung, 1C_37/2019, 5. Mai 2020' [Verein KlimaSeniorinnen Schweiz et al gegen Eidgenössisches Departement für Umwelt, Verkehr, Energie und Kommunikation (UVEK)] (2020) 121 Schweizerisches Zentralblatt für Staats- und Verwaltungsrecht 489. Also the lawyer in this case was surprised by this ruling: "We knew, simply because this is an appeal in climate matters and therefore an application of law in a new and possibly polarizing subject area, that the Swiss Federal Supreme Court could show a certain restraint. However, we were very surprised that the Court came to such a conclusion on the basis of its own fact-finding, without consulting experts and without the federal authorities having argued this – I would not have expected that" (Interview with Cordelia Bähr [n 20]).

3. the seniors' rights to access to Court (Article 6 ECHR) and their right to effective remedy (Article 13 in conjunction with Articles 2 and 8 ECHR) have been violated.[48]

The climate seniors for the first time also requested the Court to

4. award just satisfaction, of 10,000 CHF for each senior applicant (ie four in total) for the physical and mental sufferings they incurred (eg health problems, distress, and anxiety to due heat periods, adjustment to their private and family life).[49]

In addition, they requested the Court to order general measures under Article 46 ECHR, among others, by

5. ordering [Swtzerland] to adopt the necessary legislative and administrative framework to contribute its share to the 1.5°C limit;
6. specifying what Switzerland has to do to that end;
7. setting a binding time limit for Switzerland to achieve these goals and targets.[50]

The general measures under Article 46 ECHR differ from the specific measures the climate seniors demanded from domestic courts. The seniors asked the Court to set goals, targets, timelines, and other elements of climate policy and law that relate to the level of protection (the "what"), but because states are free to determine the means by which to ensure compliance,[51] the climate seniors did not ask the Court for specific measures (eg methane reductions, tighter regulation of traffic, curbing consumption, promoting e-cars, and the like, ie the "how") – measures they had previously asked for on the domestic level.

The Court rarely orders specific measures but the climate seniors argued that Switzerland's failure to ensure stringent climate protection would be systemic (ie there has been a repeated pattern of failure taking place for decades) and given the ongoing breach and rapid increase of global warming, the rights would continue to be violated, even more intensely, in the near future.[52] Hence, in line with the Court's jurisprudence, in this case, "the nature of the violation

48 Application in Matters Verein KlimaSeniorinnen and Others v Switzerland (26 November 2020).

49 *Verein KlimaSeniorinnen*, Request (n 38) 2.

50 *Ibid*.

51 The ECtHR has held consistently that the choice of measures to fulfill positive obligations generally falls within the margin of appreciation; see *Brincat and Others v Malta* App no 60908/11 [101].

52 *Verein KlimaSeniorinnen*, Request (n 38) 2.

found may be such as to leave no real choice as to the measures required to remedy it and the Court may decide to indicate a specific measure."[53] Such exceptional measures were thus argued to be the only means that can ensure timely and sufficient implementation of the Court's judgment.

Overall, the directionality of the legal remedies the applicants claim has not changed over the 10 years this case was litigated. The intention behind the case was to ensure that Switzerland honors its duty to protect the climate seniors. In this respect, this case may differ from others, where claimants shifted strategy to narrow or broaden their demands or respond to shifting political dynamics. This case was devised in strategic manner from the beginning – meaning that it was "filed with the aim of influencing the broader debate around climate action"[54] – and based on an extensive expert report outlining different strategic avenues and their promises and pitfalls,[55] which allowed both the climate seniors and their lawyers to stick to the same strategy throughout these years, and hence maintain a certain level of stability and coherence of their legal claims.

d. Tying Legal Arguments to Latest Developments in Science, Policy, and the Law

Throughout the many years that had passed until the climate seniors reached Strasbourg, their claims have evolved with a view to what Switzerland must do to observe its duty to protect, notably in light of newest developments in science, policy, and the law. These include new scientific evidence on the epidemiological impacts of heat and heatwaves on older women in Switzerland, the adjustment of the global temperature limit and new legal evidence detailing what Switzerland's fair share is to observe the temperature limit.

i. New Scientific Evidence on the Impacts of Climate Change-Related Heat and Heatwaves on Older Women's Health in Switzerland

During the *KlimaSeniorinnen* proceedings, new research was produced showing that vulnerability to extreme heat in Switzerland is particularly pronounced in older women, as opposed to men of the same age range.[56] One of the leading

53 *Oleksandr Volkov v Ukraine* App no 21722/11 (ECtHR) [95], citing *Assanidze v Georgia* App no 71503/01 (ECtHR) [202]-[203]; *Aleksanyan v Russia* App no 46468/06 (ECtHR) [240]; and *Fatullayev v Azerbaijan* App no 40984/07 (ECtHR), [176]-[177].

54 Setzer and Higham (n 16) 7.

55 Brunner and Bähr (n 30).

56 Two studies by Schulte, Röösli and Ragettli and Saucy and others conducted in Zurich and across the whole country estimated that the risk of cardiovascular mortality increases between 13% and 28% at extremely high temperatures, compared to 20°C:

experts in this field, Ana Vicedo Cabrera, was able to examine the newest data in the summer of 2022 and show that among the 600 deaths that occurred due to heat this summer, nearly 50% occurred in women aged 65 years and above, while men of the same age accounted for less than 40%.[57] These studies, some of which were only pre-prints at the time, could promptly be introduced by lawyers into their observations and helped back their arguments through specificity, timeliness, and concreteness.[58]

ii. Adjustment of the Global Temperature Limit

In 2016, when the lawyers initiated the proceedings, they demanded that Switzerland observe the "well below 2°C" degree limit as the dominant consensus of the time. Over the years, they adapted it to the more stringent 1.5°C degree limit, to reflect the changed scientific and political consensus. Based, among others, on the (UNFCCC-commissioned) 2018 IPCC Special Report "Global Warming of 1.5°C,"[59] global efforts to limit climate change to 1.5°C were prominently recalibrated in the Glasgow Climate Pact at Conference of the Parties (CoP) 26.[60] In line with this shifting consensus, the 1.5°C limit became

Apolline Saucy and others, 'The Role of Extreme Temperature in Cause-Specific Acute Cardiovascular Mortality in Switzerland' (2021) 790 Science of the Total Environment 147958; Florian Schulte, Martin Röösli and Martina S Ragettli, 'Heat-Related Cardiovascular Morbidity and Mortality in Switzerland: A Clinical Perspective' (2021) 151 Swiss Medical Weekly w30013.

57 Ana M Vicedo-Cabrera and others (n 15).

58 See further on how evidence and litigation can be better aligned, Rupert Stuart-Smith and others, 'Filling the Evidentiary Gap in Climate Litigation' (2021) 11 Nature Climate Change 651.

59 IPCC, 'Summary for Policymakers' in Valérie Masson-Delmotte and others (eds), *Global Warming of 1.5°C. An IPCC Special Report on the Impacts of Global Warming of 1.5°C above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (CUP 2018) 3.

60 UNFCCC, 'Decision 1/CMA.3, Report of the Conference of the Parties Serving as the Meeting of the Parties to the Paris Agreement on Its Third Session, Held in Glasgow from 31 October to 13 November 2021 [Glasgow Climate Pact]', 8 March 2022 (FCCC/PA/CMA/2021/10/Add.1), para 21: "Recognizes that the impacts of climate change will be much lower at the temperature increase of 1.5°C compared with 2°C and resolves to pursue efforts to limit the temperature increase to 1.5°C," as well as para 22: "Recognizes that limiting global warming to 1.5°C requires rapid, deep and sustained reductions in global greenhouse gas emissions, including reducing global carbon dioxide emissions by 45 per cent by 2030 relative to the 2010 level and to net zero around mid-century as well as deep reductions in other greenhouse gases." See also Martina S Ragettli and others, 'Exploring the Association between Heat and Mortality in Switzerland between 1995 and 2013' (2017) 158 Environmental Research 703.

the standard for the climate seniors to evaluate Switzerland's duty to protect throughout these proceedings.[61]

iii. New Legal Evidence Detailing Switzerland's Fair Share to Observe the Temperature Limit

This stricter temperature limit requires that stricter and more reliable targets are envisaged and taken. One difficulty for the climate seniors was that the previously clear and prescriptive IPCC AR4 report, demanding a reduction of at least 25%–40% by 2020, turned out to be less prescriptive and detailed in the coming assessment cycles (and thus for the coming target years). Whether or not influenced by the climate seniors case (this is unknown), a number of scientific studies were produced in the meantime that began to flesh out targets and timetables of Switzerland as a Paris Agreement member. In 2021, Rajamani et al published a study that drew on the normative pillars of the climate change regime (eg progression and ambition) and international environmental law principles (eg harm prevention and sustainable development) to drill down on states' "fair share" to the global effort in reducing GHG emissions.[62] Using an interdisciplinary approach, they quantified these shares for G20 countries and found that in order to keep the 1.5°C limit within reach in 2100 with a 66% probability, they would have to reach net negative emission levels in 2030.[63] Climate Analytics similarly found in 2021 that Switzerland would have to reduce its GHG emissions by 127% by 2030 (compared to 1990) to be within the "fair share" range and contribute to limiting global warming to 1.5°C in 2100 with a 50% chance.[64] Similar findings were supported by up-to-date calculations of Climate Action Tracker.[65] Based among others on these reports, the lawyers' arguments for what Switzerland would need to do to observe its duty to protect became stricter over the years. Still, there is a significant

61 Since the publication of SR1.5, a global consensus has emerged that a limit of 1.5°C is the relevant benchmark against which the Parties should align their climate protection efforts. Legal scholars refer to 1.5°C as the "new long-term limit," which sets the overall direction of travel for climate policy or climate law: Daniel Bodansky, Jutta Brunnée and Lavanya Rajamani, *International Climate Change Law* (OUP 2017) 229; Béatrice Cointe and Hélène Guillemot, 'A History of the 1.5°C Target' (2023) e384 WIREs Climate Change 1, 1.

62 Lavanya Rajamani and others, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions within the Principled Framework of International Environmental Law' (2021) 21(8) Climate Policy 983, 985.

63 *Ibid*. 997.

64 Ryan Wilson and others, 'A 1.5°C Compatible Switzerland' (*Climate Analytics*, 15 June 2021).

65 Climate Action Tracker, 'Switzerland' (5 December 2024).

range within which the Court could set priorities. Without specifying if Switzerland should target a reduction of eg 108% or 198% by 2030 (compared to 1990 levels) – a point where studies have come to different conclusions –, the seniors merely asked for net negative emissions by 2030, with net negativity covering measures to reduce GHG emissions at home and abroad (ie also financing of reductions abroad).[66] For Switzerland, as one of its lawyers, Franz Perrez, contended at the oral hearing in March 2023, "this is simply not feasible. A fair share cannot be something that is not feasible technically and economically without hampering fundamentally other human rights."[67] Whether this statement can be taken at face value is questionable, as Switzerland has never conducted a comprehensive study to fully consider its reduction duties as stipulated by these key experts on "fair share" nor has it made an effort to evaluate their feasibility.

e. Legal Team

Throughout the decade of its existence, the *KlimaSeniorinnen* case was handled by the same lawyers (hence there was no personnel variability), and these were able to give this case priority despite their regular caseload, which has significantly contributed to the case's success. Given the fact that climate change cases are heavily reliant on input from other disciplines – climate sciences, communication, politics, economics, and others –, making sure that the team behind the case was sufficiently big and broad in terms of expertise was critical. It took several lawyers, scientific experts, people with expert non-governmental organization (NGO) knowledge, and others to contribute to this case – be it to its framework, sources, argumentation, framing, or final wording.

f. Finances

In terms of finance, climate change cases are not a routine matter for lawyers and pose certain risks because they usually tackle questions that are (yet) unanswered and generally underdeveloped. As such, climate change cases – and especially the ones taken to the ECtHR – tend to be lengthy. From the first expert strategy that brought this case to life up until the Court's ruling, 10 years have passed.[68] One can hardly predict several years in advance, in detail, what

66 Verein KlimaSeniorinnen and Others v Switzerland App no 53600/20, Observations on the Facts, Admissibility and the Merits (2 December 2022).

67 ECtHR, Verein KlimaSeniorinnen Schweiz and Others v Switzerland App no 53600/20, Grand Chamber Hearing (29 March 2023); Transcript commissioned by Verein KlimaSeniorinnen Schweiz and Greenpeace Schweiz (May 2023), 28.

68 See for the first expert report, Brunner and Bähr (n 30).

questions will drive the Court's judgment. Sufficient funds are thus needed to diligently manage this case over the course of several years. The climate seniors in this respect had – in comparison to other plaintiffs in climate cases – less to worry about as they were able to rely on funds from Greenpeace.[69] This case has led to costs and expenses totaling CHF 324,249.25 (roughly USD 365,730.23 or EUR 337,238.01), including, mostly, lawyers' fees incurred across all instances (26.1% of all costs before the federal administrative authorities; 9.9% before the Federal Administrative Court; 12.2% before the Federal Supreme Court; and 51.1% before the ECtHR), and court fees of CHF 9,000.00.[70] The costs incurred before domestic authorities and courts are relatively modest since Switzerland never replied to any of the seniors' submissions until the case reached Strasbourg. The one factor driving these costs was the rapid and vast development of scientific, political, and legal evaluations in parallel to this case. With every submission, new evidence had to be incorporated, and requests had to be adapted accordingly. In general, however, public or vertical climate cases, like this one, are relatively modest in financial terms, especially in comparison to horizontal climate lawsuits.[71]

3. Impacts of Successful Climate Litigation

There is no established empirical method to evaluate the success of strategic climate cases.[72] Most legal scholars implicitly assume that winning in Court

69 If these costs were to be covered by the seniors themselves, we might come to a different view on finance ability. As one of the seniors put it: "If we were to lose this case, I would mourn the huge amount of money that had to be spent on this process. Who can afford that anyway? These huge sums of money are in themselves undemocratic" (Interview with the KlimaSeniorinnen [n 20]).

70 See *Verein KlimaSeniorinnen,* Request (n 38).

71 Interview with Cordelia Bähr (n 20). The reason for this is that private actors are usually more risk-averse and willing to invest many more financial resources to avoid a ruling than public actors are. In this case, for example, the Swiss government (or named governmental authorities) did not respond to any of the KlimaSeniorinnen's submissions until this case hit the level of the ECtHR.

72 See for some early discussions, Carissa Wrong, 'Do Climate Lawsuits Lead to Action? Researchers Assess their Impact' (2024) 628 Nature 698; Catherine Higham and others, 'What Does the European Court of Human Rights' First Climate Change Decision Mean for Climate Policy?' (*London School of Economics and Political Science and Grantham Research Institute on Climate Change and the Environment,* 9 May 2024). With a view to the Dutch *Urgenda* case, Mayer even suggests that the case, rather than leading to a decrease in GHG emissions, led to a slight increase of global net GHG emissions (mostly due to carbon leakage): Benoit Mayer, 'The Contribution of *Urgenda* to the Mitigation of Climate Change' (2023) 35(2) Journal of Environmental Law 167. From this, Mayer concludes that "Urgenda has likely caused more harm than good from the

makes a case "successful."[73] Though such wins are likely to satisfy applicants, make for good headlines, and add to the relevance of strategic climate litigation, there are multiple factors which need to be accounted for in evaluating success. On the one hand, there are critical factors that precede a pronouncement of a ruling, such as whether applicants are heard and taken seriously, in and outside courts. On the other, even successful judgments can be neglected, downplayed, and rendered irrelevant in the ensuing media and political discourses. In what follows, drawing on Duffy's work, different levels of impact are evaluated: the legal impact, victim impact, and impact on policy.[74] Though by far not exhaustive, this broader evaluation of impacts allows for a more nuanced understanding of the *KlimaSeniorinnen* case.

a. Legal Impact

The focus of the academic and media debate surrounding this case – and indeed all climate cases thus far litigated at the ECtHR – has often been on its legal effects. Discussions centered on procedural hurdles, on whether the applicants would be able to overcome the Court's strict admissibility requirements, and (to a lesser degree) on the merits of the case.[75] In the following, the three factors dictating the legal success of a case before the ECtHR – ie admissibility, declaratory judgment on violation of Convention rights, and consequential orders (individual or general measures) – will be examined briefly as addressed by the Grand Chamber in the *KlimaSeniorinnen* case. This will

perspective of international action on climate change mitigation" (*ibid*. 184). In doing so, Mayer risks underestimating the long-term ripple effects of this case, such as how it inspires neighboring countries to become more ambitious, prompts civil societies to alert their governments, and significantly contributes to a culture of strong mitigation (as opposed to business as usual). Clearly, such effects are difficult to measure, yet, they cannot be ignored either.

73 See *eg* Ziebarth (n 16) 513.

74 Duffy (n 21) 44ff.

75 Keller and Heri (n 10); Antonio Mariconda, 'Victim Status of Individuals in Climate Change Litigation before the ECtHR: Between Old Certainties and New Challenges' (2023) Italian Review of International and Comparative Law 260; Monica Feria-Tinta, 'The Future Of Environmental Cases in the European Court of Human Rights: Extraterritoriality, Victim Status, Treaty Interpretation, Attribution, Imminence and "Due Diligence" in Climate Change Cases' in Natalia Kobylarz and Evadne Grant (eds), *Human Rights and the Planet: The Future of Environmental Human Rights in the European Court of Human Rights* (Edward Elgar 2022) 172; Corina Heri, 'Climate Change before the European Court of Human Rights: Capturing Risk, Ill-Treatment and Vulnerability' (2022) 33(3) European Journal of International Law 925; Evelyne Schmid, 'Victim Status before the ECtHR in Cases of Alleged Omissions: The Swiss Climate Case' (***EJIL: Talk!,*** 30 April 2022); Corina Heri, 'Climate Change Before the ECtHR's Grand Chamber: The KlimaSeniorinnen Case' (***Oxford Human Rights Hub,*** 10 May 2022).

be preceded by a description of the Court's noteworthy remarks, which set out some general considerations on climate litigation.

i. General Considerations of the Court on Climate Change Litigation

The *KlimaSeniorinnen* case marks the first case handed down by the ECtHR on climate change matters, and this prompted the Court to offer some preliminary comments before turning to its assessment.[76] The Court acknowledged climate change as one of the most pressing issues of our times.[77] It put emphasis on the "widely acknowledged inadequacy" of state action to curb global warming and the fact that this inaction aggravates the impacts, threats, and risks of climate change for human rights.[78] The Court distinguished climate change from "regular" environmental matters, since the source of harm, the precise impacts, affected parties, and chain of effects are not as identifiable.[79] According to the ECtHR, its existing environmental case law thus cannot be applied *tel quel* to climate change.[80] Unlike what some have suggested,[81] the ECtHR does not, on this basis, consider climate action to be nonjusticiable. It clarified, once and for all, that the right to private and family life, Article 8 ECHR, also protects against harmful effects on and threats to life, health, well-being, and quality of life.[82]

ii. Admissibility

The Court considered victim status one of the central questions in climate-related cases,[83] by which the requirement to exclude inadmissible *actiones populares* is reconciled with the necessity of adjudicating individual complaints.[84] In deviation from its case law in environmental matters,[85] the Court

76 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [410f].

77 *Ibid*. [410].

78 *Ibid*. [413], [436].

79 *Ibid*. [416f].

80 *Ibid*. [422].

81 This was notably done by Judge Eicke in his partly consenting and party dissenting opinion, *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20, Partially Consenting, Partially Dissenting Opinion of Judge Eicke [19].

82 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [435].

83 *Ibid*. [459].

84 *Ibid*. [481]-[484].

85 According to its case law, the damage must reach a certain minimum threshold (*Fadeyeva v Russia* App no 55723/00 [69]), pass a "comparative" test (*Galev v Bulgaria* App no 18324/04 [1]; *Kožul and Others v Bosnia and Herzegovina* App no 38695/13 [34]), directly and specifically affect applicants (*Asselbourg and Others v Luxembourg* App no 29121/95, [1]; *Kyrtatos v Greece* App no 41666/98, [53]) and be close in time (*Atanasov v Bulgaria* App no 6046/08, [66]).

denied potential and indirect victim status to the individual applicants.[86] Only those personally and directly affected by impugned failures in the context of climate change can qualify as victims within the meaning of Article 34 ECHR,[87] for which the threshold is "especially high" – with due regard to be paid to the level and severity of risks/consequences, and the absence/inadequacy of measures reducing the harm.[88] The Court, despite recognizing that the individual climate seniors are "particularly susceptible to the effects of climate change"[89] and that heatwaves affect their quality of life, denied them individual victim status for lack of a "critical medical condition" that could still be alleviated by adaptation measures.[90] Given this strict line of jurisprudence, the question arises as to which hypothetical applicants, invoking preventive duties of protection in dealing with the risks of climate change, will ever be able meet the strict criteria of individual victimhood.[91]

Conversely, the ECtHR has, to the surprise of many,[92] and almost in compensatory fashion for these narrow terms on individual admissibility, set the hurdle for associations to obtain victim status comparatively low. It requires them to be lawfully established under domestic law, statutorily authorized to defend human rights against threats posed by climate change, and to represent individuals who are exposed to the specific threats or adverse effects of climate change – although these individuals do not have to be directly affected themselves within the meaning of Article 34 ECHR.[93] Critics complain that the ECtHR has thereby moved too far and too quickly away from its existing, rather conservative case law on the victim status of associations.[94] However, the Court is certainly right in understanding that associations play a key role in climate litigation, which requires significant financial and logistical resources and coordination, and whose outcomes inevitably affect the position

86 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [485].

87 *Ibid*. [487].

88 *Ibid*. [488].

89 *Ibid*. [531].

90 *Ibid*. [533].

91 Linos-Alexander Sicilianos and Maria-Louiza Deftou, 'Breaking New Ground: Climate Change before the Strasbourg Court' (*EJIL: Talk!*, 12 April 2024). Some expect that the pending case *Müllner v Austria* (App no 18859/21) could clear this hurdle: Janine Prantl, 'After Switzerland Comes Austria' (*Verfassungsblog*, 24 May 2024).

92 Heri, 'Strasbourg' (n 12).

93 *Ibid*. [502].

94 Dissenting Opinion Eicke (n 81) [45]; Jeremy Letwin, 'Klimaseniorinnen: The Innovative and The Orthodox' (*EJIL: Talk!*, 17 April 2024).

of many individuals.[95] As such, the Court concluded that the *KlimaSeniorinnen* association fulfilled the criteria specified in paragraph 502 of its judgment, and thereby granted it *locus standi* in accordance with Article 34 in conjunction with Article 8 ECHR.[96] Overall, the case has successfully overcome the victim status hurdle, yet differently than expected, and with challenging and potentially troubling implications for future cases.[97]

iii. Declaratory Judgment on Article 2 ECHR

While the Court recognized that government failure to combat climate change is capable of putting an individual's life at risk, it questioned whether Switzerland's shortcomings had posed a "real and imminent" risk to older females to trigger the applicability of Article 2 ECHR.[98] The Court decided not to examine this point further with regard to the association, as the state's duty to protect in the environmental context under Article 8 ECHR largely overlaps with that under Article 2 ECHR. The individual complaints, by contrast, were declared inadmissible for lack of victim status.[99]

iv. Declaratory Judgment on Article 8 ECHR

In a historic move, the Court held that Article 8 ECHR encompasses a right for individuals to effective protection by the state authorities from serious adverse effects of climate change on their life, health, well-being, and quality of life.[100] The applicability of Article 8 ECHR in climate change contexts is functionally logical, considering that heat waves, extreme weather, rising sea levels, and other adverse effects of climate change have the potential to compromise one's

95 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [497].

96 *Ibid*. [502], [521]-[526].

97 See Corina Heri, 'KlimaSeniorinnen and Its Discontents: Climate Change at the European Court of Human Rights' (2024) 4 European Human Rights Law Review 317, 320-322, 327-328; Weber (n 19) 113 ff.; Letwin (n 94); George Letsas, 'Did the Court in Klimaseniorinnen Create an Actio Popularis?' (*EJIL Talk!*, 13 May 2024). See also Andreas Hösli and Meret Rehmann, 'Verein KlimaSeniorinnen Schweiz and Others v. Switzerland: the European Court of Human Rights' Answer to Climate Change' (2024) Climate Law 1, 5-6.

98 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [512f]. Climate-related threats are real if they are "serious, genuine and sufficiently ascertainable"; they are immediate if there is physical and temporal proximity to the threat (*ibid*. [512]). Moreover, risk to life in the climate-change context must be understood in the light of the fact that there is a grave risk of inevitability and irreversibility of the adverse effects of climate change, the occurrences of which are most likely to increase in frequency and gravity (*ibid*. [513]).

99 *Ibid*. [536].

100 *Ibid*. [519].

health, well-being, life, and life quality – just as natural catastrophes and industrial pollution (emissions, noise, odors, and other disturbances) do.[101] The Court recalled that "the Convention, as an instrument for the protection of human rights, requires that its provisions must be interpreted and applied such as to guarantee rights that are practical and effective, not theoretical and illusory."[102] The relevance of this precedent cannot be underestimated as this jurisprudence confirms that the Court will operate as a critical forum for climate litigation among all member states – a fact that many had openly called into question beforehand.[103]

In a given case, Article 8 ECHR is applicable insofar as there is an "actual interference" of these legal interests or a "relevant and sufficiently serious risk" of such impairment.[104] Drawing on the above criteria for victim status, the Court considered Article 8 ECHR applicable for the complaints lodged by the association, but not for the individual applicants.[105]

Article 8 ECHR, as such, necessarily entails a state duty to protect in the context of climate change. In line with established case law in environmental matters,[106] the Court clarified that states must adopt regulations and measures that ensure effective protection of health and life, and apply these regulations

101 *Ibid*. [516]. The judgment is thus in line with the ECtHR's established jurisprudence in *Çiçek and Others v Turkey* App no 44837/07 [22]; *X and Y v the Netherlands* App no 8978/80; *Powell and Rayner v UK* App no 9310/81 [37ff].

102 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [545]. If the Convention were not interpreted in this dynamic or evolutionary way, the ECHR rights, which are by their very nature openly formulated and transversally applicable, would be gradually deprived of their existence and content. The living instrument doctrine, as such, goes to the heart of addressing climate change impacts and maintaining the functioning of the European human rights system: Ivana Jelić and Etienne Fritz, 'The "Living Instrument" at the Service of Climate Action: The ECtHR Long-Standing Doctrine Confronted to the Climate Emergency' (2024) 36(2) Journal of Environmental Law 141. See further George Letsas, 'The ECHR as a Living Instrument: Its Meaning and Legitimacy' in Andreas Føllesdal, Birgit Peters and Geir Ulfstein (eds), *Constituting Europe The European Court of Human Rights in a National, European and Global Context* (CUP 2013) 106.

103 As Torre-Schaub stated, to open up its forum for climate change cases "is not only a challenge for the Court, but above all an opening up for all Human Rights Law. These climate cases should therefore not be seen as just another environmental case, or as anecdotal developments at the Court, but as the Court's ability and talent to rise to the historic task required." (Marta Torre-Schaub, 'The Future of European Climate Change Litigation' (*Verfassungsblog,* 10 August 2022)).

104 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [520].

105 *Ibid*. [524f], [533].

106 *Jugheli and Others v Georgia* App no 38342/05(ECtHR) [75]; *Di Sarno and Others v Italy* App no 30765/08(ECtHR) [106]; *Tătar v Russia* App no 67021/01(ECtHR) [88]; *Cuenca Zarzoso v Spain* App no 23383/12(ECtHR) [51].

and measures in a timely and effective manner.[107] The scope of this duty is determined by key scientific parameters (as provided eg by the IPCC) and international consensus (UNFCCC and Paris Agreement), such that states

> put in place the necessary regulations and measures aimed at preventing an increase in GHG concentrations in the Earth's atmosphere and a rise in global average temperature beyond levels capable of producing serious and irreversible adverse effects on human rights, notably the right to private and family life and home under Article 8 of the Convention.[108]

When reviewing compliance with these positive obligations, the ECtHR takes into account states' margin of appreciation in accordance with the principle of subsidiarity. States have a narrow margin of appreciation with regard to these aims and objectives, but enjoy a wide margin of appreciation with regard to the choice of means to fulfill them.[109] In assessing whether states remain within their margin of appreciation, the Court considers whether states have

a) adopted general measures specifying a timetable for achieving carbon neutrality and the remaining carbon budget for the same period, in line with the overarching objective of national and/or global commitments to mitigate climate change;
b) set out interim targets and pathways for GHG reduction (by sector or other relevant methods) that are capable for achieving the national GHG reduction goals (ie a);
c) provide evidence that they have complied or are in the process of complying with the relevant GHG reduction targets (ie a and b);
d) update the relevant GHG reduction targets with due diligence and on the basis of the best available science; and
e) act in a timely, appropriate, and consistent manner when devising and implementing the relevant legislation and measures.[110]

These criteria are qualitative in nature (unlike specific quantified percentage reductions, pathways, and timetables) and more conservative than one would assume considering states' narrow margin of appreciation when it comes to the aims and objectives.[111]

107 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [538].

108 *Ibid*. [546].

109 *Ibid*. [543], [546].

110 *Ibid*. [550].

111 In *ibid*., the Court clearly refrained from setting long-term targets, interim targets and trajectories, timetables and other quantitative GHG emissions reductions (otherwise common in climate law and policy), as well as substantive requirements for GHG

In addition to the above five criteria, judges recalled the procedural safeguards that are central to the domestic decision-making process in climate matters:

f) Public authorities must make information available to the public and in particular to (potentially) affected persons that is relevant to the development and implementation of climate goals and measures; this includes information on the results of relevant studies so that (potentially) affected persons can better assess risks; and

g) procedures must be available through which the views of the public and (potentially) particularly affected persons on the regulations and measures (and their omission) are taken into account in the decision-making process.[112]

The Court applied these criteria to Switzerland and – rather than giving it a free pass or time to adapt to these requirements – found that its legal framework is inadequate, that it has failed to comply with its duty to protect, and thus violated Article 8 ECHR.[113] In particular, it pointed to insufficient climate targets (20% instead of 25-40% for 2020 against better judgment), missed climate targets (eg the 2020 target), significant gaps in regulation (between 2025-2030, the critical decade for mitigating climate change), failure to render long-term goals (for 2040 and 2050) legally binding, failure to determine goals and targets *de lege artis* on the basis of (quantified) CO_2 budgets, and a lack of measures foreseen to achieve its targets. In summary, the Court, with the exception of dissenting Judge Eicke, found that Switzerland failed to act in a timely, appropriate, and coherent manner in the drafting, development, and implementation of the relevant legal and administrative framework. In doing so, it has exceeded its margin of appreciation and failed to comply with its positive obligations.[114]

v. Declaratory Judgment on Article 6(1) ECHR

With a view to the applicability of the right of access to court, the Court reiterated its established case law.[115] It narrowed the scope of Article 6(1) to the

budgeting and fair share calculation. Instead, it stated at a higher level that "effective respect for the rights protected by Article 8" requires a "substantial and progressive reduction" of GHG emissions (*ibid.* [548]), that "immediate action must be taken and appropriate interim reduction targets set" (*ibid.* [549]) and that, to this end, measures must be included in a "binding legal framework at national level" (*ibid.* [549]).

112 *Ibid.* [554].

113 *Ibid.* [558f].

114 *Ibid.* [573].

115 Ie there must be a "right of a civil nature" which is valid under national law, and the dispute must be genuine and serious, the outcome of which is directly decisive for the right in question (*Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App

applicants' complaint concerning effective implementation of the mitigation measures under existing law.[116] Subsequently, and with reference to its consideration of victim status under Article 8 ECHR,[117] the ECtHR considered Article 6(1) ECHR applicable to the complaints of the association, taking a broad understanding of the requirement that the outcome of the dispute must be "directly decisive" for the rights invoked. It denied this to the individual applicants due to the "tenuous" or "remote" effects on their rights.[118]

To the extent that the Court declared Article 6(1) ECHR applicable, it considered it to have been violated in such a way and to such an extent that its essence was impaired.[119] Domestic courts in particular neither addressed the issue of standing of the association nor did they seriously engage with the applicants' complaints.[120] The Court also did not refrain from stating that the domestic courts' findings were not based on sufficient examination of the scientific evidence concerning climate change. In particular, the Court was not convinced by their findings that there would still be some time left to prevent global warming from reaching the critical limit.[121]

vi. Consequential Orders – Article 41 ECHR

Despite these ground-breaking victories on admissibility and merits, the Court appeared less prepared to award the applicants the full costs and expenses. It expressed that it was "not convinced" that all the costs and expenses of the proceedings were "necessarily incurred" and considered it reasonable to instead

no 53600/20 [595]). The ECtHR emphasized that Art. 6(1) does not guarantee the right to declare national laws invalid or to compel the legislature to enact certain legislation (*ibid.* [609]). However, Art. 6(1) does apply to those cases in which domestic law opens up legal recourse against certain enactments. The court also emphasized the fact that a right of a civil nature is recognized in the environmental context when the rights to life, physical integrity, and property are at stake (*ibid.* [600f]).

116 *Ibid.* [616]. Ie, insofar as the appellants' applications were aimed at the adoption of specific legislative and regulatory measures (eg mitigation by X%; focus on sectors such as transport), Art. 6(1) ECHR was *not* applicable (*Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [615]). However, with regard to the effective implementation of measures of mitigation, which fall within the remit of the authorities invoked (Federal Council, DETEC, FOEN, SFOE), Art. 6(1) is applicable *(ibid.)*.

117 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [612].

118 *Ibid.* [623f]. For a critique of this, see Charlotte E Blattner, 'Ein bahnbrechender Fall über die menschenrechtlichen Dimensionen nationaler Klimapolitik und -gesetzgebung? Oder doch EGMR "gone rogue"?' (2024) 9 Aktuelle Juristische Praxis 976, 992ff.

119 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [638].

120 *Ibid.* [636f].

121 *Ibid.* [635].

award a lump sum of EUR 80,000. This is somewhat surprising as the lawyers had documented all their fees and expenses, and considering the long and complex history of the case.

vii. Consequential Orders – Article 46 ECHR

Another loss that the KlimaSeniorinnen suffered in this case concerns their request for consequential orders. The Court refrained from proposing specific measures. "[H]aving regard to the complexity and the nature of the issues involved," it held that it was "unable to be detailed or prescriptive as regards any measures to be implemented in order to effectively comply with the present judgment."[122] It considered Switzerland to be better placed to determine the specific measures to be taken, subject to supervision and review by the Committee of Ministers.[123] This assessment is rather disappointing, since the Court made no effort to explore whether applying its case law on Article 46 ECHR would in fact mandate prescribing measures to Switzerland, considering the clear violations on part of Switzerland, and, as will be seen below, Switzerland's view that no measures need to be taken to abide by the ruling.

Consequential orders aside, the *KlimaSeniorinnen* case represents a tremendous success. The Grand Chamber did not shy away from addressing and answering complex and at times unpleasant questions at the intersection of law and science, international climate law and domestic climate law and policy, legislative prerogative and judicial review, and member state discretion and effective human rights protection. The Court appeared clear and prescriptive as regards standards of admissibility and merits, applied its standards consistently to the case, and set a clear course for future cases involving Convention rights for all Member States. Overall, the legal content and impacts of this case are unprecedented.

b. Victim Impact

Given this historic win on the books, how have the victims, ie the climate seniors, perceived this case? This impact can be evaluated from different angles, six of which will be examined in more detail: judicial recognition; vindication; acknowledgment and empowerment; cessation; restoration; and compensation.[124]

122 *Ibid*. [657].

123 *Ibid*.

124 Duffy (n 21) 50ff.

i. Judicial recognition

Success for the climate seniors was always about being heard, about being taken seriously, and about having their complaints thoroughly reviewed by a competent body. Vice versa, they would have qualified this case as a failure if – similar to what they have experienced on the domestic level – their complaints had not been heard, and their basic health needs were not taken seriously. In this sense, the acceptance of the case by the ECtHR and the delivery of the climate seniors' application to Switzerland represented the first step toward countering the sense of helplessness and disempowerment they had experienced.

ii. Vindication

The fact that the seniors were able to rely on mechanisms that forced Switzerland to take a position was positive. Even though the seniors disagreed with Switzerland's position, it was the first time in this decade-old case that Switzerland substantively grappled with the matter. An important procedural step that really brought the potential of this case to become a landmark case to light was the accordance of priority status and relinquishment of jurisdiction in favor of the Grand Chamber.

For the climate seniors, the hearing that took place in Strasbourg in March 2023 was a key moment. For the first time, once-obscure legal processes became palpable; decision-making instances that previously seemed to hide behind benches and paper now became visible and showed their faces; each of the 17 judges made an effort to show up and asked intriguing in-depth questions. To the seniors, this proved that the judges had diligently studied their case, intensely engaged with the arguments, and were aware of their immense responsibility in delivering the judgment. The hearing was also indicative of the fact that the Court would not take this decision lightly and that, accordingly, the seniors were not expecting that they would experience the same level of arbitrariness in the handling of their claims as they had experienced before national courts.

iii. Acknowledgment and Empowerment

Certainly, they would have considered it a failure if the ECtHR would have rejected all claims and thus found no violation at all. In their view, the case qualified as a milestone with the Court's finding of a violation of Article 6. This acknowledgement remedied some of the ills the climate seniors had experienced on the domestic level, eg the fact that Swiss courts never substantively grappled with the case; that they did not take the time to carefully review the science; that they considered the seniors' established basic and

human rights to be on par in terms of affectedness with tourism and water or forest management; or that they glorified the increase in heat and heat periods as a "Mediterranean lifestyle"[125] the seniors should embrace. By acknowledging and labeling domestic proceedings as flawed, the ECtHR restored the seniors' trust in the legal process (at least the judicial one). In this sense, the seniors' experience was one of procedural justice.

iv. Cessation of Ongoing Wrongs and Protection

To the seniors, it was also always clear that a retrospective evaluation of poor decisions by domestic authorities alone would not suffice to assuage their concerns. In essence, the climate seniors considered this case to be the only option for them[126] to get their government to sufficiently contribute to limiting global warming such that they do not have to live in a constant state of fear, anticipating physical and psychological ills from heat and heat periods. As their lawyer Cordelia Bähr succinctly put it:

> The climate seniors want to be protected by Switzerland with the necessary degree of climate protection. They do not want to forego this protection and subsequently be compensated for damages they have incurred. Switzerland seemed to prefer compensation for damages when, in the proceedings before the ECtHR, it argued that the seniors could have filed state liability claims. But that's not what the climate seniors want: Due to the increased mortality risk, being financially compensated for harm will mean they have died already, and the money will be of no use to them. Rather, the climate seniors want to stay alive and be protected preventatively.[127]

So, a finding of violation of Article 8 ECHR represented an immensely grand success to the seniors. The substance and quality of the Court's reasoning also mattered to the seniors. The seniors experienced a high degree of satisfaction as the Court grappled with all of their claims, the underlying science, and Switzerland's international commitments, as the judges acknowledged the harm the seniors had incurred and the threats they are facing, and as the Court dared to meaningfully connect human rights with climate change mitigation.[128]

125 Verein KlimaSeniorinnen Schweiz and Others v Switzerland App no 53600/20, Comments of the Swiss Government on Admissibility and Merits (16 July 2021) (unofficial English translation) [51].

126 As one of the seniors indicated, "change will (soon only?) be possible through the courts" (Interview with the climate seniors [n 20]).

127 Interview with Cordelia Bähr (n 20).

128 Also legal scholars have in this sense argued that "a decision that merits the status of a landmark ruling needs to be based on a coherent and tenable reasoning establishing an interpretative link between international law on climate change and the rights

v. Restoration

The climate seniors knew that no legal orders or measures would bring about restitution, ie to put them back in the situation they would have been in but for the violation. Following the ECtHR's ruling, however, they anticipated that Switzerland would be pressured, for the first time, to assess in a careful and comprehensive manner what human rights obligations it must observe in the context of climate change mitigation.[129] It would have to carefully review its existing laws and policies, scope means to assess it in light of these obligations, and come up with a diligent and science-backed plan of how to rapidly reduce its GHG emissions whilst protecting the most vulnerable members of its society. In this sense, the seniors would experience a form of restoration, as Switzerland's climate law and policy would slowly but surely be put back on a human rights conforming path. The seniors knew all along that their work would not end with the ECtHR's ruling, and that they would have to insist on their rights being observed for many years to come, even with the most positive outcome. As one of their members said: "[w]e are not naïve enough to believe that much will change from one moment to the next; we must continue to monitor and demand the implementation of this decision."[130]

In the seniors' view, it would have been an even bigger success if the Court had ordered the measures Switzerland must take to operate in line with the Convention rights. Doing so would have ensured Switzerland will truly offer the required level of protection and speed up compliance with the Convention. This is particularly relevant considering the urgency of climate change and the irreversibility of the damages it causes, as well as the applicants' heightened interest in timely remedies at this stage of their lives.

vi. Compensation

The fact that the Court declined to award the seniors the full costs and expenses actually incurred seemed a bitter pill to swallow, given the many wins they had secured with this lawsuit. It also appeared somewhat unrealistic on

enshrined in the ECHR" (Johannes Reich, Flora Hausammann and Nina Victoria Boss, 'Climate Change Litigation Before the ECtHR' (*Verfassungsblog*, 16 May 2022)).

129 It is interesting to note that despite the ongoing *KlimaSeniorinnen* case pending at the ECtHR since November 2020, the Federal Council in its newest dispatch on the revision of its CO_2 Act from September 2022 again did not consider basic and human rights (including the seniors') as it reviewed the constitutionality of this revision: Swiss Federal Council, 'Botschaft zur Revision des CO_2-Gesetzes für die Zeit nach 2024' (16 September 2022) BBl 2022 2651.

130 Interview with climate seniors (n 20).

part of the judges to consider CHF 324,249.25 an exaggerated number given the complex and long history of this case. The Court's lengthy judgment of 260 pages itself is a testament to that nature. There is thus little doubt that the judgment did not bring about compensation for the victims.

vii. Symbolic Reparation

The visibility of this case in public discourse added to the seniors' sense of perceived justice. Over the course of its ten-year existence, this case has brought the issue of climate and health to the forefront of public attention. As their lawyer put it:

> This case raised public awareness that climate change actually has a negative impact on human health and that people are actually dying due to man-made global warming, that many people are suffering from global warming, that global warming does not just mean one can go to the swimming pool more often and eat more ice cream. Many people are actually suffering from it.[131]

The media played a key role in raising this awareness, through the many interviews, reports, articles, pictures taken etc. In this context, the seniors noted that the interest of foreign media in this case was noticeably higher than that of domestic ones. Thus, in this respect, reaching the level of the ECtHR proved positive. Science and academia, too, added to the success of this case. Since it was first filed, various new studies have been produced, be it on the health effects of climate-related heat and heat periods, causation, how to calculate fair shares, how to connect human rights with climate change mitigation, how to evaluate effects of climate change policy and law, and many others.

Thanks to this case, various stakeholders have been inspired to follow the seniors' legal strategy. A month prior to the ECtHR's ruling, several farmers and farmers' associations filed a similar request to DETEC, this time claiming that the Government's lax climate laws and policies threaten their economic freedoms and property rights.[132] Outside the courtroom, this case – which is now pending before the Federal Administrative Court following a decision of rejection by DETEC[133] – has mobilized people to become active and vocal for

131 Interview with Cordelia Bähr (n 20).

132 *Yves Batardon et al v Federal Department of the Environment, Transport, Energy and Communications*, 'Request to Stop Omissions in Climate Protection Pursuant to Art. 25a APA' filed 5 March 2024. The respective media coverage by the Kleinbauern-Vereinigung: Annemarie Raemy, 'Bäuer:innen verklagen Bund wegen Untätigkeit im Kampf gegen den Klimawandel' (*Kleinbauern Vereinigung* 5 March 2024).

133 Swiss Federal Administrative Court, *Uniterre et al v Swiss Department of the Environment* (Swiss Farmers Case), filed 23 October 2024 (pending).

more stringent climate protection. The seniors themselves in this respect lead by example. In the words of their lawyer:

> The climate seniors are extremely committed and fight for their rights, invest a lot of time and passion, and have really taken the reins into their own hands. They are omnipresent at various events, in the media and in films. And they put all their heart and soul into it. It's a huge pleasure and a great honor for me to be able to fight for these senior women and hopefully help them secure their rights.[134]

c. Policy Impact

Given the historic win of the *KlimaSeniorinnen* case in Strasbourg, many had assumed that Switzerland will (have to) fundamentally alter its take on climate mitigation, ie that the case would have tangible impacts on Swiss climate law and policy. After all, by virtue of Article 46 ECHR, Member States have undertaken to comply with the final judgments of the Court in all cases in which they are involved. However, the hope for expected policy impacts remains unfulfilled to this day.

Early on, the ruling met with sharp criticism in Switzerland, be it by political parties, major media outlets, or former judges of the Swiss Federal Court.[135] This criticism promptly led to heated debates in the Federal Parliament, with politicians denouncing the Court's judgment as an "interference" and several of them even mocking the climate seniors. Michael Graber from the Swiss People's Party, for example, claimed the climate seniors brought this case "because they are a bit too hot in the summer."[136] Similarly, Jean-Luc Addor, from the same party, dismissed the climate seniors as "just a bunch of [female Baby boomers] who are trying to deny our children the living conditions they have

134 Interview with Cordelia Bähr (n 20).

135 Swiss Radio and Television (SRF), for example, asked its readership: "Do you think it's good when courts interfere in climate policy?" ('EGMR: Schweiz verletzt Menschenrechte bei Klimafragen' (*SRF* 9 April 2024)). The Tages-Anzeiger newspaper spoke of a "dangerous ruling" (Stefan Häne, 'Dieses Klima-Urteil birgt eine Gefahr' (*Tages-Anzeiger,* 9 April 2024)) by "foreign judges" (Iwan Städler and Jaqueline Büchi, 'Ärger über "fremde Richter"? Klimarüge kratzt am Schweizer Selbstverständnis' (*Tages-Anzeiger,* 11 April 2024)). The Aargauer Zeitung spoke of an "undermining of democracy" (Pascal Ritter, 'Übersteuern Richter die Demokratie? Was Sie jetzt über das Klimaseniorinnen-Urteil wissen müssen' (*Aargauer Zeitung,* 9 April 2024)) and former federal judge Meyer spoke of a "crossing of the Rubicon" (Ulrich Meyer, 'Der Menschenrechtsgerichtshof hat den Rubikon überschritten' (*NZZ,* 12 April 2024)). The Swiss People's Party (SVP) in particular described the decision as "brazen interference by foreign judges in Swiss politics" and called (unanimously) for Switzerland to withdraw from the Council of Europe: Swiss People's Party, 'Inakzeptable Einmischung der Strassburger-Richter: SVP-Fraktion fordert einstimmig die Kündigung der EMRK' (17 May 2024) press release.

136 Reuters, 'Swiss Parliament Snubs European Court Climate Ruling' (12 June 2024).

enjoyed all their lives."[137] In view of the increased mortality that older women in Switzerland are already facing today due to anthropogenic climate change,[138] such statements are telling of the level of respect, responsibility, and accountability that Swiss parliamentarians are willing to assume for their actions, and the extent to which they take the claims of their people seriously. Other parliamentarians clearly saw such debates as crossing a red line, and activists gathered outside the parliament building held up signs that read: "betrayed," "shocked," and "alarmed."[139]

The debate culminated in a vote of the Federal Parliament in June 2024 to snub the ECtHR's decision. First the upper and then the lower house of the parliament accused the Strasbourg judges of "inadmissible and inappropriate judicial activism."[140] Among other objections, they claimed that the Court had created a "new human right" (ie a right to climate protection), which would be far removed from the Convention's text and spirit, and that it thereby exceeded the limits of dynamic interpretation.[141] They further suggested that the Court failed to observe the principle of subsidiarity, openly questioned its legitimacy and "observed" (yet threateningly) that this "could lead to a weakening of the effective protection of human rights in Europe."[142] Finally, they called on the Federal Council to inform the Committee of Ministers that Switzerland "sees no reason to follow the Court's judgment"[143] since its previous efforts and new laws and amendments would show it abides by all domestic and international climate-related obligations.

Rosmarie Wydler-Wälti, speaking for the KlimaSeniorinnen in the aftermath of the parliamentary votes, expressed, in light of what she characterised as an appalling move, Switzerland would be unworthy of being considered a constitutional state. She stated: "[t]he declaration is a betrayal of us older women – and of all those who are suffering from the real consequences of

137 Brett Wilkins, '"A Betrayal": Women Elders Rip Swiss Lawmakers' Rejection of Landmark Climate Ruling' (*Common Dreams,* 13 June 2024).

138 See above 2.e.

139 Stuti Mishra, 'Swiss Parliament Rejects Landmark European Court Ruling in Blow to Global Climate Action', (*The Independent,* 13 June 2024).

140 Swiss Council of States (n 13) 1; Swiss National Council (n 13) 1.

141 *Ibid*. and the accompanying debates. Note that the right to climate protection (ie a right that the climate be protected) differs from the right to be protected against the most sweeping adverse effects of climate change. In this sense, the Court emphasized that "no Article of the Convention is specifically designed to provide general protection of the environment as such" (*Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App no 53600/20 [445]). Its ruling is about "the existence of a harmful effect on a person and not simply the general deterioration of the environment" (*ibid*. 446).

142 Swiss Council of States (n 13) 2; Swiss National Council (n 13) 2.

143 *Ibid*.

global warming today and in the future."[144] In a similar vein, Greenpeace Switzerland said that "the declaration is an attempt to continue to prevent human rights climate protection for political reasons, rather than recognizing that climate change is a scientific reality that affects everyone."[145]

In August 2024, the Federal Council, responsible for ensuring the implementation of the judgment, took a stand on the issue. The Council could have called for a more detailed analysis of the judgment and its implications; it could have criticized some parts of the judgment and underlined the importance of others; it could have pushed back on parliament for dishonoring the climate seniors and meddling in the executive's affairs – yet it did none of those things. Whilst reinforcing the ECHR and Switzerland's membership in the Council of Europe (CoE), the Federal Council criticized the Court's "broad interpretation" of the Convention rights, and it too, saw no reason for further adapting its climate law and policy.[146] In addition, the Federal Council communicated the statement in writing and even refrained from holding a press conference. To this day, parliamentary debates are rife with proposals about exiting the CoE due to the ruling. In its most recent session, the upper house rejected a withdrawal but followed MP Andrea Caroni's proposal to call for the introduction of a new Protocol 17 to the Convention, to remind the Court of its "core tasks," strengthen states' margin of appreciation, underline the subsidiary role of the Court, and curb its emerging practice on the *locus standi* of associations.[147]

These recent developments in Switzerland can be interpreted in different ways. A benevolent reading would be that the Federal Parliament, which is not used to judicial review due to the principle of limited constitutional review in Switzerland, has a "natural tendency" to reject condemnation by the ECtHR, too; that the Federal Council chose solidarity with Parliament over respect for the ECHR; and that these idiosyncrasies of the Swiss legal and political system were misused by some to express their political positions, in some instances expressed in ageist and sexist terms.[148] However, considering that

144 Anay Mridul, '"Betrayal": Swiss Parliament Rejects European Court's Landmark Climate Change Ruling' (*Green Queen*, 14 June 2024).

145 Wilkins (n 137).

146 Swiss Federal Council, 'Bundesrat klärt seine Haltung zum EGMR-Urteil über den Klimaschutz' (28 August 2024).

147 This would require approval by member states. Before this happens, the lower house will deal with the matter, which tends to be less conservative. See further on these most recent developments, Andreas Stüdli, 'EMRK-Kündigungsantrag: "Kollege Stark, das ist ein starkes Stück"' (*SRF*, 25 September 2024).

148 See for an argument on why intersectionality should, in principle, help applicants to overcome admissibility hurdles, Angela Hefti, 'Intersectional Victims as Agents of Change in International Human Rights-Based Climate Litigation' (2024) Transnational Environmental Law 1.

even the Federal Council made no inroads to demonstrate respect for the ECtHR ruling, to remind Parliament of the fact that human rights must be respected regardless of political majorities, or to explore ways to implement the judgment, its broad rejection of the judgment is worrisome.[149] As a majority of public law experts expressed, the Council's statement sets a concerning precedent that risks undermining the rule of law in democratic governance.[150] After all, Switzerland undertook to "abide by the final judgment of the Court in any case to which [it is a party]"[151] and to ensure that its domestic law is compatible with the Convention.[152] Though by far not all judgments of the ECtHR are fully implemented, few Member States have openly refused to implement a judgment.[153]

Following the Federal Council's statement, Switzerland submitted its action report to the Committee of Ministers in September 2024, detailing the measures it had taken to give effect to the ECtHR's judgment.[154] This report showed greater respect for the ruling than the Federal Council's statement, and made more substantial effort to detail Switzerland's attempts to meet the ECtHR's human rights standard in the area of climate protection. As laid out in the action report, since the Grand Chamber published its decision, Switzerland has

— awarded just satisfaction to the *KlimaSeniorinnen* association in the amount of EUR 80,000 as set out in the judgment;
— closed the regulatory gap of 2025-2030 by amending the CO_2 Act, which came into force on 1 January 2025;[155] and
— adopted the Federal Act on a Secure Electricity Supply from Renewable Energy Sources by public vote on 9 June 2024, part of which came into force on 1 January 2025,[156] and which is considered to make an important contribution to reducing CO_2 emissions.[157]

149 Such tendencies have been explored by Breuer under the heading of "principled resistance" to ECtHR judgments: Marten Breuer, *Principled Resistance to ECtHR Judgments – A New Paradigm?* (Springer 2019).

150 Mridul (n 144).

151 ECHR, Art. 46(1).

152 ECHR, Art. 1.

153 Mishra (n 139).

154 Action plans or action reports have to be submitted to the Committee of Ministers of the CoE within 6 months of the judgment: Supervision of the Execution of Judgments of the European Court of Human Rights: Procedure and Working Methods for the Committee of Ministers' Human Rights Meetings, 30 March 2016, GR-H(2016)2-final, Appendix III, Rule 3.1.

155 Swiss Federal Act on the Reduction of CO_2 Emissions (CO_2 Act), SR 641.71, Art. 3(1).

156 Swiss Federal Office of Energy, 'Federal Act on a Secure Electricity Supply'.

157 Jürg Rohrer, Natalie Stalder and Muriel Siegwart, 'Stromgesetz: Einfluss auf die Treibhausgasemissionen der Schweiz' (April 2024) study by Zürcher Hochschule für Angewandte Wissenschaften on behalf of Schweizerische Energie-Stiftung.

In taking these measures, the Swiss Government claims that it has satisfactorily executed the judgment, which would justify closing the case, ie removing it from the Committee of Ministers's review.[158] However, with these measures, Switzerland is making changes that appear rather as a cosmetic gesture, and which hardly suffice to respond to the urgency of climate change, the severity of the violation of Convention rights by Switzerland and the critical importance of grounding one's climate laws in well-established climate science.

Responding to the Swiss action report, the Committee of Ministers, acting through the Ministers' Deputies, noted that no further individual measures were required in the case, but also did not close the execution proceedings. Instead, it sought more information from the government concerning mitigation and adaptation measures, procedural safeguards and associations' right of access to a court in climate change litigation.[159] In doing so, it decided to continue monitoring the case, the next meeting of which was scheduled for September 2025.

Six major points remain to be implemented at this point:

1. Switzerland has to determine its carbon budget based on the best available science.[160] Crucially, rather than deducing a carbon budget from its interim targets,[161] the targets must follow the budget (just as in finances, government spending is not determined by expenditure wish lists but by the available budget).
2. Said budget must be based on equity and in accordance with Switzerland's capabilities, as defined by the ECtHR (and irrespective of what parties to the Paris Agreement agreed to).[162] So rather than hiding behind the fact that there is no "one" agreed methodology to develop carbon budgets, and claiming that states can in principle pick and choose their understanding of what "just" and "ambitious" mean,[163] Switzerland's carbon budget

158 Office fédéral de la justice, 'Bilan d'action: Arrêt Verein KlimaSeniorinnen Schweiz et autres c. Suisse du 9 avril 2024 (Grande Chambre)' (27 September 2024).

159 Committee of Ministers, Meeting of Ministers' Deputies, CM/Del/Dec(2025)1521/H46-30, 6 March 2025.

160 *KlimaSeniorinnen* (n 1) [550(a)].

161 Office fédéral de la justice (n 158) 10.

162 *KlimaSeniorinnen* (n 1) [571].

163 Office fédéral de la justice (n 158) 10: "Des critères peuvent être utilisés et combinés, puis pondérés par chaque État. Ils peuvent par exemple concerner la responsabilité historique (généralement au regard des émissions produites dans le passé), les émissions actuelles ou attendues, les émissions par habitant, la performance économique ou les coûts des mesures de protection du climat."

must reflect its "fair share" contribution to mitigating climate change,[164] based on the principle of common but differentiated responsibilities and respective capacities, in the light of different national circumstances (CBDRRC-NC).[165]

3. Based on the revised budget, Switzerland's long-term and interim targets, and the measures needed to achieve them, must be adapted.[166] None of the above changes Switzerland initiated since the ruling have prompted the adoption of more stringent measures, or a review of its reduction targets.
4. Switzerland must still provide evidence showing whether it has duly complied, or is in the process of complying, with the relevant GHG reduction targets.[167] Despite clear expectations formulated in the ruling, Switzerland has offered no transparency regarding its compliance (or lack thereof) with its own targets. In its earlier CO_2 Act, Switzerland had in place interim targets until 2024,[168] the achievement or non-achievement of which has still not been communicated.
5. As part of its due diligence duty, Switzerland must still do better to act in good time.[169] Contrary to what Switzerland communicates in its action report, the government has been delaying key climate protection measures approved by the people for an unusually long time, even after the ruling was handed down.[170]
6. In its three most recent dispatches accompanying proposals for new laws or major revisions in the context of climate protection (such as of the CO_2 Act), the Federal Council has not reviewed their impacts on fundamental rights (such as private or family life) of people likely to be particularly affected by the changing climate – again, despite clear specifications by the Court.[171] Instead, the Council narrowly focused on how these legislative changes will affect economic freedom and property

164 See above 2d).

165 Paris Agreement, Art. 2(2), 4(1) and 4(3).

166 *KlimaSeniorinnen* (n 1) [550(b)].

167 *Ibid*. [550(c)].

168 Federal Act on the Reduction of CO_2 Emissions (CO_2 Act), SR 641.71, Art. 3(1bis) (Switz.) (version of 1 January 2022).

169 *KlimaSeniorinnen* (n 1) [550(e)].

170 Tobias Ochsenbein, 'Trödelt Rösti bei der Umsetzung des Klimaschutzgesetzes?' (*Blick*, 17 June 2024); Philipp Albrecht and Priscilla Imboden, 'Bundesrat will SRG-Gebühr von 300 Franken, die Ukraine soll Schweizer Waffen erhalten – und Rösti verschleppt Klimaschutz' (*Republik*, 20 June 2024).

171 *KlimaSeniorinnen* (n 1) [554].

rights.[172] Admittedly, the dispatches were published before the ruling but no changing practices were indicated in the action report, hence they are likely to be omitted going forward, as well.

Without these critical points being addressed and remedied, it is likely that the climate seniors will undergo some form of secondary victimization due to the lack of policy response. Realistically, Switzerland can be expected to continue reacting evasively to the judgment, gradually introducing small changes only in response to significant pressure. This makes it all the more important that the Committee of Ministers maintains a strong stance at its second meeting on this issue, when it deliberates on whether or not Switzerland is complying with the general measures required by the ruling. In doing so, it will hopefully continue to closely scrutinize the climate seniors', NGOs', and human rights institutions' communication about Switzerland's implementation of the judgment (or lack thereof),[173] to gain a more profound understanding of the problems on the ground, the challenges to implementation, and local knowledge of particular issues.

Looking beyond national borders, there is justified hope that despite Switzerland's unfortunate reaction to the ruling, the *KlimaSeniorinnen* ruling will impact all other CoE member states, who will now have to carefully assess their laws and policies in light thereof, and reinforce their efforts to effectively mitigate climate change for the sake of respecting core human rights.

4. Conclusion

Over the past decade, the Swiss government has done little more than gloss over its lax performance in climate mitigation. In the meantime, a determined group of senior women have invested enormous time, financial, and human resources to identify gaps in Swiss climate law and policy and find creative and meaningful new avenues to start remedying its biggest shortcomings. As the first group in the world to overcome the extremely difficult political and

172 See above n 129.

173 See *eg* Verein KlimaSeniorinnen Schweiz, 'Communication in Accordance with Rule 9 of the Rules of the Committee of Ministers for the Supervision of the Execution of Judgments and of the Terms of Friendly Settlements' (17 January 2025); Greenpeace International and Climate Litigation Network, 'Communication in Accordance with Rule 9.2. of the Rules of the Committee of Ministers Regarding the Supervision of the Execution of Judgments and of Terms of Friendly Settlements' (17 January 2025); Swiss Human Rights Institution, 'Communication in Accordance with Rule 9(2) of the Rules of the Committee of Ministers Regarding the Supervision of the Execution of Judgments and of the Friendly Settlements' (17 January 2025).

legal hurdles before the ECtHR in climate change matters, they obtained a landmark ruling that will be decisive for decades to come. As such, the *KlimaSeniorinnen* case represents one of the most influential cases in the expanding landscape of climate litigation.

Legally speaking, it features all ingredients of what makes a case "successful" and secured tremendous wins in terms of outcome, in particular on admissibility and merits. In the 260-page judgment, the Grand Chamber took a fundamental stance on the role of the court in climate litigation. For the first time, it confirmed the right of individuals to effective protection by state authorities against the serious adverse effects of climate change on their lives, health, well-being, and quality of life, which flows from Article 8 ECHR. The Strasbourg Court firmly established that Switzerland's law and policies fall short of its positive obligations and found a violation of Article 8 ECHR. The ECtHR also found a violation of Article 6(1) ECHR, as the domestic authorities and courts did not deal with the case in substantive manner. Given the sincerity, clarity, and depth of the judgment, the climate seniors, for the first time in this decade-old case, experienced a sense of judicial recognition, vindication, acknowledgment and empowerment, as well as a sense of closure and restoration (though not compensation).

With its judgment, the ECtHR gave Switzerland an uncomfortable gift on the 50th anniversary of its ratification of the ECHR that both its legislature and executive seem unwilling to accept. In its official statement, the Federal Council openly criticized the Court for interpreting the Convention too broadly, accused it of failing to consider its newest legal and political developments, and stated that no further measures will be taken in response to the ruling. This was accompanied by ageist and sexist remarks about the climate seniors both in the media and in political discourse, and topped off with a rather evasive action report that seems to display Switzerland's disregard for the judgment more than its respect for it. The *KlimaSeniorinnen* case, at this stage, has a bitter aftertaste, as Judge Eicke tragically predicted in his dissent,[174] yet with important lessons to be learned for climate litigation more generally. Firstly, climate change cases that are successful in Court do not necessarily lead to tangible positive changes in law and policy.[175] Second, the likelihood that judgments by domestic courts will bring about such change may be higher, depending on the authority and domestic acceptance of ECtHR rulings. Thirdly,

174 Dissenting Opinion Eicke (n 81) [69].

175 The same unsatisfactory ending can be identified in the *Leghari* case: Waqqas Ahmad Mir, 'From Shehla Zia to Asghar Leghari: Pronouncing Unwritten Rights Is More Complex than a Celebratory Tale' in Jolene Lin and Douglas A. Kysar (eds), *Climate Change Litigation in the Asia Pacific* (CUP 2020) 261.

domestic discourse following a ruling brings to the fore the dominant problems that afflict a country, in this case disregard for climate-related dimensions of human rights, an unwillingness to consider and involve especially vulnerable groups, and an open refusal to do better when it comes to mitigating climate change. Fourthly, and related to this, lack of policy impact may lead to a double-victimization of affected people. Finally, and most importantly, regardless of its effects in Switzerland, the *KlimaSeniorinnen* case is bound to alter the course of climate law and policy within and beyond Europe, and, as such, make history for decades to come.[176] It remains to be hoped that, despite these regrettable events and bitter learning moments, the spirit of the climate seniors will endure; that stakeholders from various fronts become interested and active in shaping government actions that impact human rights and the climate alike; and that experts from different disciplines will address the complexity of this case to show how the victim and policy implications can be better managed and secured in the future.

176 As Heri argued: "The Court used KlimaSeniorinnen as an opportunity to outline its approach to climate cases in general, handing down a judgment tha[t] in some ways resembles a handbook for decision-making in future climate cases" (Heri, 'KlimaSeniorinnen' [n 97] 324).

Hazhar Jamali

Chapter 9: Interim Reflection

The past decade has marked a significant shift in the global response to climate change, with rights-based litigation emerging as a powerful tool to hold governments and corporations accountable for environmental harm.[1] Courts at national and international levels have begun to recognize the legal obligations of states and private actors to mitigate climate change and protect human rights.[2] The contributions analyzed in this part all touched upon the notion of "success" in various climate change cases. Williamson, Udell and Fantozzi delved into the success and impact of climate change litigation in national jurisdictions, including the Netherlands,[3] Germany,[4] and Belgium.[5] Jahn provided a detailed analysis of the German Constitutional Court's (GCC) decision in the *Neubauer* case,[6] and reflected on when and how a case can be regarded as "successful" for litigants. Next, Blattner examined the *KlimaSeniorinnen* judgment of the European Court of Human Rights (ECtHR), addressing the intricate details of how the case was strategically pursued from beginning to end, and shedding light on its outcome. However, while the legal victories in these and many other climate cases are often celebrated, their broader impact remains a subject of critical inquiry. In other words, important questions persist regarding the limits and potential of a rights-based approach in addressing

1 Craig Martin, 'Drops in the Ocean: The Hidden Power of Rights-Based Climate Change Litigation' (2024) 56 Case Western Reserve Journal of International Law 151; Misato Sato, Glen Gostlow, Catherine Higham, Joana Setzer and Frank Venmans, 'Impacts of Climate Litigation on Firm Value' (2024) 7 Nature Sustainability 1461.

2 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR); Supreme Court of the Netherlands, *Urgenda Foundation v State of the Netherlands,* 13 January 2020, ECLI:NL:HR:2019:2007; *Asghar Leghari v Pakistan* WP No 25501/2015 (Lahore High Court, 25 January 2018); UN Committee on the Rights of the Child, *Sacchi et al v Argentina et al,* 22 September 2021, UN Doc CRC/C/88/D/104/2019 et al; Advisory Opinion OC-23/17 on the Right to a Healthy Environment (Inter-American Court of Human Rights, 15 November 2017); BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany)*; *VZW Klimaatzaak v Kingdom of Belgium et al* [2023] 2022/AR/891 (Court of Appeals of Brussels); UN Human Rights Committee, *Billy et al v Australia,* 22 September 2022, UN Doc CCPR/C/135/D/3624/2019.

3 *Urgenda* (n 2).

4 *Neubauer* (n 2).

5 *Klimaatzaak* (n 2)

6 *Neubauer* (n 2).

climate change. Against this backdrop, it is essential to question what success means in climate litigation, identify gaps in current legal frameworks, and consider the evolving role of courts in addressing the crisis of climate change. This reflection chapter shall do just that.

1. Success in Climate Litigation: A Multidimensional Analysis

The notion of success in climate litigation is inherently complex and multidimensional, requiring an evaluation that moves beyond the simplistic binary of legal victory or defeat. Success in this context should be understood not only through a legal lens but also from a socio-political perspective. Each of these dimensions plays an important role in determining the effectiveness of litigation as a tool for climate governance and accountability. A court ruling in favor of plaintiffs does not automatically translate into meaningful policy change, while an unsuccessful case does not necessarily mean that the litigation project was a failure given that it may have sparked broader public engagement with the regulatory challenge and meaningful discourse on solutions. Examining the notion of success in climate litigation requires a detailed reflection on its immediate legal outcomes, the broader regulatory shifts they provoke, and their ability to generate societal awareness and pressure for climate action.

Legal success often provides the most immediate and tangible indication of climate litigation's effectiveness. A court decision recognizing state or corporate responsibility for climate harm is typically viewed as a victory. This is illustrated by the cases discussed in the chapters within this section, and many more climate change cases across different jurisdictions.[7] Most of these climate change case victories have challenged government climate policies, whether in relation to the rights of children,[8] indigenous communities,[9] or older[10] or even future generations.[11] They have resulted in changes to policy and law as explained by the authors in their contributions (eg adoption of more ambitious emission reduction targets).[12] Such outcomes call for immediate

7 For an overview of a rights-based climate change cases see CRRP, 'Climate Litigation Database'.

8 *Herrera Carrion et al v Ministry of the Environment et al*, Provincial Court of Justice of Sucumbío (Ecuador), No: 21201202000170 (29 July 2021).

9 *Billy* (n 2).

10 *KlimaSeniorinnen* (n 2).

11 *Neubauer* (n 2).

12 See chapter 7, Williamson, Udell and Fantozzi.

and direct regulation or amendment of laws in order to remedy existing lacunae. Nevertheless, closer scrutiny is warranted as changes in law or regulation do not always result in substantial policy impact. As Jahn argues, court decisions often prompt legislative and administrative changes but do not always translate into immediate or substantive policy shifts. The GCC climate decision[13] illustrates this challenge. The ruling mandated clearer reduction pathways and strengthened intergenerational fairness. Although legislative amendments followed, their implementation remains questionable and subsequent lawsuits (based on the GCC's findings in the *Neubauer* case) have so far largely failed to hold the government accountable or compel stronger action.[14] Thus, evaluating the broader regulatory and indirect impact of climate change cases is essential to maximize the effectiveness of a rights-based approach to climate change when a lawsuit is dismissed or its direct regulatory impact is very tangible.

Elsewhere, Peel and Osofsky have created a framework suggesting that climate litigation's effectiveness should be measured through not only its direct regulatory impacts (as discussed above), but also indirect ones.[15] Indirect impacts include how judicial decisions stimulate public engagement, mobilize civil society, and empower various stakeholders. This is clearly illustrated by the *KlimaSeniorinnen* judgment, which, as Blattner argues, has inspired stakeholders – such as farmers – to initiate additional domestic climate lawsuits and has encouraged broader public activism demanding stronger climate protections. Indeed, these indirect effects significantly shape the trajectory of direct regulatory response. For example, although the Swiss government initially opposed the European Court of Human Rights's (ECtHR) ruling – both chambers of the Swiss parliament even passed a declaration advising the government against compliance and claiming the Court had exceeded its authority[16] , considerable public pressure and media coverage eventually led the government to adopt a softer tone and proceed with some policy and legislative reforms. These have been acknowledged by the Council of Ministers, albeit along with a recognition of ongoing shortcomings.[17] Similar patterns have emerged in other jurisdictions. Studies indicate that media and political attention following the *Urgenda* judgment notably shaped public

13 *Neubauer* (n 2).

14 eg BVerwG 9 A 7.21 (4 May 2022); BVerwG 7 A 9.22 (22 June 2023).

15 Jacqueline Peel and Hari M Osofsky, *Climate Change Litigation: Regulatory Pathways to Cleaner Energy* (CUP 2015) 37, 47, 154.

16 Swissinfo, 'Swiss Parliament Rejects European Climate Ruling' (12 June 2024).

17 Committee of Ministers, Verein KlimaSeniorinnen Schweiz and Others v Switzerland App no 53600/20, CM/Del/Dec(2025)1521/H46-30 (Council of Europe, 6 March 2025).

discourse on climate policies.[18] In fact, and as argued by Williamson, Udell and Fantozzi, the *Urgenda* judgment has been a driving factor behind many other climate change cases in different jurisdictions.

However, caution must be exercised when analyzing individual cases. Focusing solely on high-profile cases risks overlooking routine or less visible climate litigation, which may provide different insights into what constitutes success or effectiveness. This is especially true for cases in the Global South, where litigation outcomes may differ from high-profile cases in the Global North. For instance, in Colombia, despite having a robust legal framework for climate change, a persistent challenge lies in the ineffective implementation and enforcement of relevant statutes and case law.[19]

Consequently, the notion of success in climate litigation should be understood broadly. Beyond immediate judicial outcomes, the broader social and public impacts of litigation must also be considered. Even when courts rule against plaintiffs or when governments resist climate commitments, litigation can significantly mobilize public support, raise climate awareness, and enhance accountability efforts. Indeed, Blattner highlights this as a primary objective of strategic litigation, emphasizing systemic change not only through courtroom victories but also by influencing public narratives and galvanizing activism.

2. Gaps in Current Legal Frameworks

Identifying gaps in current legal frameworks for climate litigation is essential to understanding the limits of rights-based climate litigation. While litigation has been an important tool in establishing climate accountability, existing legal structures are often ill-equipped to address the complexity of climate change, particularly in the areas of enforcement, jurisdiction, corporate responsibility, and the integration of scientific evidence into legal reasoning.

One major gap in climate litigation is the enforcement of court rulings. Even when courts rule in favor of plaintiffs, governments and corporations frequently resist compliance or implement only minimal or limited changes. This can be highlighted by high-profile cases like *KlimaSeniorinnen*[20] but also

18 Benoit Mayer, 'The Contribution of *Urgenda* to the Mitigation of Climate Change' (2023) 35 Journal of Environmental Law 167.

19 Maria Antonia Tigre, 'Climate Litigation in the Global South: Mapping Report' (Columbia Law School, Sabin Center for Climate Change Law 2024), 107; Natalia Urzola and Juan Sebastián Castellanos, '"La Acción de Cumplimiento" as a Legal Mechanism to Implement Colombian Climate Change Laws' (*Climate Law. A Sabin Center Blog*, 12 November 2023).

20 Committee of Ministers (n 17).

in the Global South (eg Chile, Ecuador) where we have seen that states have been unwilling or unable to implement courts' prescribed remedies.[21]

However, this does not mean that states are always unwilling to address human rights violations caused by climate change. Instead, a key challenge for states lies in balancing climate mitigation measures with economic considerations and individual freedoms. This is precisely what Jahn argues in her analysis, explaining that the GCC ruling recognized that nearly all aspects of daily life contribute to carbon emissions, making it difficult to implement strict reduction policies without impacting economic growth or restricting other fundamental rights. This reflects a broader dilemma in climate litigation: how can states fulfill their climate obligations without disproportionately burdening certain social groups or economic sectors? The challenge is not just about compliance, but also about ensuring fairness in the distribution of climate mitigation responsibilities while maintaining economic stability and protecting individual rights.

The extraterritorial application of human rights remains another major challenge in climate litigation, as courts are generally reluctant to hold states and corporations accountable for cross-border emissions and environmental harm.[22] Since climate change is inherently a global issue, its impacts are not confined to national borders, yet most legal systems operate within strict territorial limits. This was evident in the *Duarte Agostinho* case before the ECtHR, where Portuguese youths sought to hold multiple European states responsible for their contributions to climate change.[23] The case was dismissed partly due to the question of extraterritorial responsibility, as states argued that they could not be held responsible for the human rights of individuals beyond their borders, illustrating the difficulty in addressing shared but diffused responsibility across multiple jurisdictions.

This problem is especially acute in regions like Africa, which face some of the most severe climate impacts despite contributing minimally to global emissions. Most major emitters are not located in Africa, yet the continent

21 Lorena Zenteno Villa, 'Exploring Institutional Barriers to Effective Human Rights-Based Climate Litigation in Latin American Courts – Lessons from Chile and Ecuador' (2024) 16 Journal of Human Rights Practice 258.

22 It should be noted that the notion of the extraterritorial application of human rights in the climate change context has been acknowledged and recognized by some international human rights bodies, including the Inter-American Court of Human Rights in its Advisory Opinion OC-23/17 (2017) and the UN Human Rights Committee in its decision in the case of *Teitiota v New Zealand,* 23 September 2020, UN Doc CCPR/C/127/D/2728/2016. In these cases, both bodies recognized that states may bear responsibility for environmental harm that affects individuals beyond their borders, particularly when such harm threatens fundamental human rights.

23 *Duarte Agostinho and Others v Portugal and 32 Others* App no 39371/20 (ECtHR).

bears a disproportionate share of the consequences.[24] At the same time, limited jurisdictional reach prevents many affected communities from seeking legal redress. The African Court on Human and Peoples' Rights can only hear cases from individuals in a handful of states, restricting access to climate justice and allowing both state and corporate actors to evade accountability.[25] Without stronger regional and international mechanisms for adjudicating transnational climate claims, climate litigation remains constrained by jurisdictional gaps, leaving many vulnerable populations without legal remedies for environmental harm.

Another key gap in legal frameworks is the integration of scientific evidence into climate litigation. Courts primarily rely on legal precedents and statutory interpretation, yet climate science is constantly evolving, making it difficult to establish fixed legal standards for climate responsibility. Cases like *Neubauer* and *KlimaSeniorinnen* have heavily relied on scientific reports from the Intergovernmental Panel on Climate Change and other expert bodies. However, courts often struggle with how to weigh and apply scientific findings within a legal context, leading to inconsistent rulings. A clear example of this challenge is the 2024 appeal ruling in *Milieudefensie et al v Shell,* where the Dutch Court of Appeal partially overturned the earlier decision requiring Shell to reduce its emissions by 45% by 2030.[26] The court argued that while climate science demonstrates the urgent need for emissions reductions, there is insufficient consensus to impose such a specific target on Shell as a matter of binding legal obligation. This reflects a broader issue: some courts accept scientific projections as a valid basis for climate-related legal duties, while others dismiss them as speculative or lacking legal certainty. Thus, the lack of standardized legal methodologies for integrating climate science into judicial reasoning contributes to fragmented rulings and uncertain legal precedents. Establishing clearer legal frameworks for evaluating scientific consensus, probability thresholds, and risk assessments would improve the credibility and consistency of climate litigation, ensuring that courts can effectively adjudicate responsibilities in the face of an escalating climate crisis.

Overall, while climate litigation has made significant progress in establishing accountability for climate inaction, current legal frameworks still

24 Heba Bedair, Mubaraka S Alghariani, Esraa Omar and others, 'Global Warming Status in the African Continent: Sources, Challenges, Policies, and Future Direction' (2023) 17 International Journal of Environmental Research 45.

25 Faix Martin and Jamali Ayyoub, 'Is the African Court on Human and Peoples' Rights in an Existential Crisis?' (2022) 40 Netherlands Quarterly of Human Rights 56.

26 The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 12 November 2024, ECLI:NL:GHDHA:2024:2100.

contain substantial gaps that limit its effectiveness. Strengthening enforcement mechanisms, clarifying jurisdictional authority in transnational cases, improving corporate liability standards, and integrating scientific evidence more effectively are all critical areas that require further inquiry and reform. Without these improvements, despite being an important tool in addressing the urgent challenge of global climate change, litigation risks falling short of its full potential.

3. The Evolving Roles of Courts in Climate Justice

The role of courts in climate governance has undergone a profound transformation, with growing recognition of climate change as a human rights issue. This shift enables individuals and communities to challenge state policies that threaten fundamental rights. This recognition is particularly important considering the legal limitations in Global North jurisdictions – such as the lack of explicit recognition of the right to a healthy environment in instruments like the European Convention on Human Rights. These gaps highlight the crucial role courts play in interpreting existing rights expansively to address climate-related harms. This judicial function becomes even more critical in regions like Africa, where structural inequalities and limited access to justice present additional barriers to enforcing environmental and human rights protections.

Courts have also played an important role in shaping state responsibility in the face of the climate crisis. One of the most notable defenses states have used is the "drop in the ocean" argument, which claims that a single state's emissions are negligible compared to global totals and that national-level mitigation efforts will have little impact.[27] Historically, this argument has been invoked to contest the justiciability of climate cases and to argue that courts should defer to political and diplomatic solutions. However, courts have increasingly rejected this reasoning, affirming that every state has an independent duty to take meaningful action to reduce greenhouse gas emissions.[28] This shift reflects the judiciary's evolving role in interpreting the law in a way that ensures that climate action is recognized as a legal duty rather than a discretionary policy choice.

27 Craig (n 1).

28 For example, in the *Urgenda* case, the Dutch Supreme Court explicitly dismissed this argument, ruling that each country bears responsibility for meeting its fair share of global climate targets. The court relied on the no-harm principle and international obligations under the UNFCCC and the Paris Agreement to assert that a state's duty to mitigate climate change is not diminished by the actions or inactions of other nations.

The willingness of courts to impose binding climate obligations on governments also signals a departure from traditional judicial restraint. Historically, courts have been reluctant to intervene in policy matters, often deferring to legislative and executive branches. This is still sometimes the case, as for example recently the Swedish Supreme Court rejected a climate change lawsuit while emphasizing that policy decisions are the domain of the legislative and executive branches.[29] However, climate litigation is changing this dynamic by compelling governments to adopt more ambitious policies as we have seen in many other successful climate change cases, like the *Urgenda* judgment.[30]

Thus, the increasing role of courts in climate governance highlights the evolving nature of climate litigation as a crucial mechanism for accountability, policy change, and public engagement. While legal victories in climate cases demonstrate the power of a rights-based approach, the broader impact of litigation extends beyond judicial rulings to shape public discourse, mobilize activism, and influence regulatory frameworks. However, significant gaps remain in enforcement, jurisdiction, and the integration of scientific evidence into legal reasoning, underscoring the limitations of current legal frameworks. Courts are becoming key actors in addressing climate change, yet their effectiveness hinges on overcoming structural challenges and ensuring that legal interventions translate into meaningful climate action. As litigation continues to evolve, a multidimensional understanding of success – one that includes legal, political, and societal effects – remains essential in assessing the role of courts in advancing global climate accountability.

29 Supreme Court of Sweden, *Action Regarding Climate Change* (19 February 2025, Ö 7177-23).

30 In *Urgenda,* the Dutch Supreme Court ruled that the state had a legal duty to reduce greenhouse gas emissions by at least 25% by 2020, setting a precedent for judicially enforceable climate targets (*Urgenda* [n 2]).

Part Three
Critical Perspectives on Remedies and Implementation

Yusra Suedi*

Chapter 10: The Quest for Reparations in the International Climate Regime – Hopes and Hurdles

1. Introduction

The term "climate reparations" has become widespread. A legal interpretation indicates that this term covers any form of reparation – whether restitution, compensation and satisfaction in accordance with the International Law Commission's Draft Articles on State Responsibility for Internationally Wrongful Acts (ARSIWA)[1] – for breaches of any obligations related to combatting climate change. However, the term has been politically appropriated to more narrowly denote the quest for compensation for the damage caused by greenhouse gases (GHG) over the last two centuries, as an expression of the pursuit of climate justice.[2] Climate justice strives for the equitable distribution of burdens and responsibilities related to climate change imposed on vulnerable people and communities (youth, Indigenous peoples and developing countries – especially Small-Island States). On the inter-state level, this has typically taken the form of one or more Global South state(s) making direct claims against one or more Global North state(s). For the purposes of this chapter, Global South nations are those with a lower level of economic and industrial development compared to the industrialized nations that make up the Global North.[3] Of the

* Thanks to Myrto Stavridi and Ireoluwatomiwa Fagbemi for their assistance. Any eventual errors are my own.

1 ILC, 'Draft Articles on Responsibility of States for Internationally Wrongful Acts, with commentaries' (November 2001) Supplement No. 10 UN Doc A/56/10, art 34.

2 Oliver Slow, 'US Refuses Climate Reparations for Developing Nations' *BBC* (14 July 2023); Somini Sengupta, 'Calls for Climate Reparations Reach Boiling Point in Glasgow Talks' *The New York Times* (11 November 2011).

3 Global South nations are those with a lower level of economic and industrial development compared to industrialized nations. According to the UN Trade and Development (UNCTAD), these would be as follows: Africa, Latin America and the Caribbean,

10 model scenarios,[4] scenarios 6 and 7 present inter-state disputes opening the door to claims for climate reparations. However, as pointed out by Natarajan in this volume, the scenario of a Global South state seeking climate reparations from a Global North state for historical emissions is not considered.[5]

This chapter fills this gap by examining the quest for climate reparations, politically understood, within the international climate regime. It argues that while this pursuit may generate hope by increasing pressure on relevant states to offer reparations through cooperative and contentious avenues, it also presents noteworthy challenges. First, it discusses the historical political hurdles for loss and damage to be recognized, and frustrations in the operationalization of the Loss and Damage Fund (2). It then turns to challenges seeking climate reparations before the International Court of Justice (ICJ): contentious litigation before the Court presents several obstacles at the stage of jurisdiction and admissibility and an advisory opinion may not squarely address the question of reparations to the extent desirable (3). Finally, it considers that the available reparations under the ARSIWA provide unsatisfactory options for climate justice (4). Section (6) concludes.

2. Negotiating Reparations in the International Climate Regime

Loss and damage (with lowercase letters) has been defined by the Subsidiary Body for Implementation of the United Nations Framework Convention on Climate Change (UNFCCC) as "actual and/or potential manifestation of impacts associated with [anthropogenic] climate change in developing countries that negatively affect human and natural systems."[6] It arises when slow onset events and extreme weather events caused by climate change – such as "sea level rise, increasing temperatures, ocean acidification, glacial retreat and related impacts, salinization, land and forest degradation, loss of biodiversity and desertification"[7] – are too severe to be reduced by adapta-

Asia (excluding Israel, Japan, and South Korea), and Oceania (excluding Australia and New Zealand): UNCTAD, 'Classifications'.

4 See the introductory chapter on model scenarios.

5 See chapter 11, Natarajan, 237.

6 UNFCCC, 'A Literature Review on the Topics in the Context of Thematic Area 2 of the Work Programme on Loss and Damage: A Range of Approaches to Address Loss and Damage Associated with the Adverse Effects of Climate Change' (15 November 2012) UN Doc FCCC/SBI/2012/INF.14, para 2.

7 UNFCCC COP, 'Decision 1/CP.16 The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention' (15 March 2011) UN Doc. FCCC/CP/2010/7/Add.1, para 25, fn 3.

tion.[8] Acknowledging this, certain countries have consistently sought for greater acknowledgement for loss and damage in their pursuit of climate justice and climate reparations, ie compensation for this harm. Yet, this has been met with political hurdles and frustrations, exposed in this section. It is argued that such hurdles and frustrations instigated the political desire for climate reparation through litigation.

First, there were significant political hurdles for loss and damage to be recognized. This is identifiable from the dawn of the quest for reparations, which can be traced back to post-1990 efforts by small island states. In 1991, the then-newly formed Alliance of Small Island States (AOSIS) proposed the establishment of an international insurance pool based on the polluter pays principle, "to compensate the most vulnerable small island and low-lying coastal developing countries for *loss and damage* resulting from sea level rise.".[9] It also wanted the UNFCCC to mention that it is "without prejudice to (...) rules governing international liability for damage to people, property and the environment."[10] Such proposals were rejected, but the intention to "give full consideration (...) to actions related to funding [and] insurance" to meet the needs of developing countries was retained in Article 4.8 UNFCCC,[11] also echoed in Article 3.14 of the Kyoto Protocol (1997).[12] AOSIS still attempted to connect loss and damage with compensation at COP14 (in 2008), where it proposed the establishment of a "Multi-Window Mechanism to address loss and damage," in which insurance and compensation were separated: the insurance component would help manage financial risk, while the compensation component would "address the progressive negative impacts of climate change (...) which result in loss and damage."[13] This was not reflected in the outcome

8 UNFCCC COP, 'Decision 2/CP.19, Warsaw International Mechanism for Loss and Damage Associated with Climate Change Impacts' (31 January 2014) UN Doc FCCC/CP/2013/10/Add.1, pmbl para 4 (loss and damage "in some cases involves more than that which can be reduced by adaptation").

9 Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, 'Negotiation of a Framework Convention on Climate Change: Elements Related to Mechanisms' (17 December 1991) UN Doc A/AC.237/WG.II/CRP.8, 2 (emphasis added).

10 Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, 'Set of Informal Papers Provided by Delegations, Related to the Preparation of a Framework Convention on Climate Change: Note by the Secretariat' (18 June 1991) UN Doc A/AC.237/Misc.1./Add.3, 22.

11 United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC).

12 Kyoto Protocol to the UNFCCC (adopted 11 December 1997, entered into force 16 February 2005) 2303 UNTS 162.

13 Ad Hoc Working Group on Long-term Cooperative Action under the UNFCCC, 'Ideas and Proposals on the Elements Contained in Paragraph 1 of the Bali Action Plan' (10 December 2008) FCCC/AWGLCA/2008/Misc.5/Add.2 (Part I), 14.

decision, nor in the breakthrough Warsaw International Mechanism for Loss and Damage (WIM) established in 2013.[14] The uphill battle continued, with resistance persisting at COP26 in Glasgow with the failure to establish the G77 and China's Glasgow Loss and Damage Facility. However, COP28 (2023) was finally marked by the establishment of a Loss and Damage Fund,[15] following its "consideration, for the first time" in the preceding COP27 (2022) Sharm El-Sheikh Implementation Plan.[16]

At this point it was undeniable that "loss and damage" was a strand separate from mitigation and adaptation, thereby drawing more attention to concerns of vulnerable countries and communities in the multilateral climate regime. While this was largely considered as a win for at least some,[17] shortcomings of the Fund sustained the frustrations resonating across the Global South that have increased the appeal of litigation for climate reparations. Three sources of frustration are developed below.

First, contributions to the Fund are voluntary, marked by the wording "*[i]nvite* financial contributions with developed country Parties continuing to take the lead to provide financial resources for commencing the operationalization of the Fund."[18] This gives high polluting states the option to compensate for the damage they have inevitably caused, downplaying the urgency and the necessity of such contributions. The optional nature of contributions might explain the status of the Fund: the pledges made,[19] amounting to approximately 725 million US dollars, largely fall short of certain estimates of loss and damage, which – as both scholars[20] and the European Parliament have

14 Decision 2/CP.19 (n 8).

15 UNFCCC COP, 'Decision 2/CP.27, Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, Including a Focus on Addressing Loss and Damage' (17 March 2023) UN Doc FCCC/CP/2022/10/Add.1.

16 UNFCCC COP, 'Decision 1/CP.27, Sharm el-Sheikh Implementation Plan' (17 March 2023) UN Doc FCCC/CP/2022/10/Add.1 para 24.

17 UNFCCC Press, 'COP28 Agreement Signals "Beginning of the End" of the Fossil Fuel Era' (13 December 2023); Nina Lakhani, '$700m Pledged to Loss and Damage Fund at COP28 Covers Less than 0,2% Needed' *Guardian* (6 December 2023).

18 UNFCCC COP, 'Decision 1/CP.28, Operationalization of the New Funding Arrangements, Including a Fund, for Responding to Loss and Damage Referred to in Paragraphs 2-3 of Decisions 2/CP.27 and 2/CMA.4' (15 March 2024) UN Doc FCCC/CP/2023/11/Add.1, para 13 (emphasis added).

19 UNFCCC, 'Pledges to the Loss and Damage Fund (as communicated by the COP28 Presidency)'.

20 Anil Markandya and Mikel González-Eguino, 'Integrated Assessment for Identifying Climate Finance Needs for Loss and Damage: A Critical Review' in Reinhard Mechler and others (eds), *Loss and Damage from Climate Change: Concepts, Methods and Policy Options* (Springer 2019) 349.

estimated – cost developing countries "US$290 billion and US$580 billion annually, rising to between US$1 132 billion and US$1 741 billion by 2050."[21] The COP28 decision adopting the Loss and Damage Fund is unhelpful in omitting such information, as well as financial targets, calculations or specifics.[22] Litigation, in contrast, would force liable states to pay their compensation if so ordered by a court, and would involve calculations on the basis of damage accrued.

Second, the decision to establish the Loss and Damage Fund lacks strong language indicating that developed countries, and specifically highest polluting states, are the ones to contribute. It instead provides that they are invited to *take the lead,* indicating that other states are welcome to contribute to the Fund as well. Paragraph 20(h)(i) of the decision confirms that the Fund may receive contributions "from a wide variety of sources."[23] In this sense, it is no different to the failed 2010 Green Climate Fund,[24] which "[i]nvite[d] Parties," broadly speaking, "to make financial contributions for [its] start-up."[25] This framing as an open fund that anyone may or may not contribute to reflects a shift from the principal approach characterizing climate justice: to pursue the equitable distribution of burdens and responsibilities by imposing more obligations on those most responsible for climate damage, on the basis of their liability. Instead, the open voluntary call aligns with the Global North's framing of loss and damage as an issue of cooperation as opposed to punishment. This dilutes its objective and renders it similar to the plethora of other existing funds with similar cooperative objectives, thereby providing no special incentive for states to contribute to this one as opposed to others.[26] The USA, for example, contributed USD 3 billion to the Green Climate Fund during COP28

21 Liselotte Jensen and Paulina Jabczyńska, 'Understanding Loss and Damage: Addressing the Unavoidable Impacts of Climate Change' (*European Parliamentary Research Service,* July 2022), 5.

22 Shannon Gibson, 'Don't Applaud the COP28 Climate Summit's Loss and Damage Fund Deal Just Yet – Here's What's Missing' (*The Conversation,* 6 December 2023).

23 Decision 1/CP.28 (n 18) para 54.

24 Decision 1/CP.16 (n 6) para 100; Fiona Harvey, 'Rich Countries Hit $100bn Climate Finance Goal Two Years Late, Data Shows' *Guardian* (16 November 2023).

25 UNFCCC COP, 'Decision 3/CP.17 Launching the Green Climate Fund' (15 March 2012) UN Doc FCCC/CP/2011/9/Add.1, para 25.

26 UNFCCC Press Release, 'COP28 Agreement' (n 17) ("[t]he Green Climate Fund (GCF) received a boost to its second replenishment with six countries pledging new funding at COP28 with total pledges now standing at a record USD 12.8 billion from 31 countries, with further contributions expected. Eight donor governments announced new commitments to the Least Developed Countries Fund and Special Climate Change Fund totaling more than USD 174 million to date, while new pledges, totaling nearly USD 188 million so far, were made to the Adaptation Fund at COP28").

compared to only USD 17.5 million to the Loss and Damage Fund.[27] Litigation for climate reparations, in contrast, places liability at the front and center of the process. It would clearly position an injured state against a defendant state, identifying where responsibility lies and ordering compensation accordingly. Litigation in pursuit of climate reparations also represents a contentious and adversarial process in international relations that steers away from cooperative discourse and better captures the emotional underpinnings of the climate justice movement.[28]

Third, the prospects of developed countries taking a role of accountability through the framework of the Loss and Damage Fund are further downplayed by the role of the World Bank as "interim trustee"[29] responsible for "operationaliz[ing] the Fund,"[30] and the "host of the Fund's secretariat."[31] While this was vehemently pushed by the USA and other developed nations,[32] it was largely contested by developing states.[33] Indeed, the World Bank was "created and controlled by the Global North"[34], with the USA acting as its largest shareholder[35] and therefore holding the greatest voting power.[36] Antony Anghie has argued that it historically created "a far-reaching system that furthered the neo-liberal project, profoundly affecting the economic sovereignty of developing countries" who felt they had "no alternative but to subscribe to

27 Green Climate Fund, 'COP28: Green Climate Fund Reaches Record Funding Level' (3 December 2023); Angela Dewan, Ella Nilsen and Rachel Ramirez, 'Nations Pledge Millions to New Climate Damage Fund at COP28, US Criticized for its Small Contribution' *CNN* (30 November 2023).

28 Justine Bendel and Yusra Suedi, 'State-to-State Procedures before Environmental Compliance Committees: Still Alive?' in Christina Voigt and Caroline Forster (eds), *International Courts versus Non-Compliance Mechanisms: Comparative Advantages in Strengthening Treaty Implementation* (CUP 2024) 127 ("[t]his is because the process of one State complaining about another State before a third party (judicial, quasi-judicial or non-judicial) is perceived negatively in international relations"); See generally, Anne Saab, 'Discourses of Fear on Climate Change in International Human Rights Law' (2023) 34 European Journal of International Law 113.

29 Decision 1/CP.28 (n 18) para 15.

30 *Ibid*. para 19.

31 *Ibid*. para 15.

32 Megan Rowling, 'Tensions Soar Over New Fund for Climate "Loss and Damage" ahead of COP28' *Reuters* (23 October 2023).

33 *Ibid*.; Alliance of Small Island States, 'Statement at Pre-COP28 Plenary Roundtable: Building Global Solidarity: Operationalizing Loss and Damage Fund and Funding Arrangements' (31 October 2023).

34 Antony Anghie, 'Rethinking International Law: A TWAIL Retrospective' (2023) 34 European Journal of International Law 7, 104.

35 World Bank, 'Investor Brief' (2017), 2 ("[t]he U.S. is the largest shareholder of the World Bank with 17.25% of its capital shares").

36 World Bank, 'Voting Powers'.

these regimes in order to achieve the development for which they had always yearned and that neo-liberalism had promised to deliver".[37]

The combination of the historical political hurdles for loss and damage to be recognized, together with the frustrations in its operationalization, have enhanced the appeal of litigation for climate reparations. The dichotomy between the Global North and Global South reflected in the above analysis is a snapshot of wider tensions characterizing the international climate regime at large and originating in colonialism.[38] Indeed, in its 2022 report, the Intergovernmental Panel on Climate Change (IPCC) listed "historical and ongoing patterns of inequity such as colonialism" as an explanation for the substantial differences in vulnerability of ecosystems and people to climate change among and within regions.[39] On 25 October 2022, the then-newly-appointed UN Special Rapporteur on contemporary forms of racism, racial discrimination, xenophobia and related intolerance published a report explaining the connection between the climate crisis and "the historic and contemporary racial legacies of colonialism and slavery.".[40] Such perspectives reinforce the notion of "loss and damage" and its desire to shed light on historical injustice, thereby building a greater case for climate reparations. This aligns with the broader political movement for colonial reparations, wherein former colonies are increasingly demanding compensation from Western nations, with notable progress seen in recent initiatives such as those in New Zealand.[41] To this end, the CARICOM (Caribbean Community) famously adopted a Ten-Point Plan for Reparatory Justice in 2014.[42] These rife and unresolved tensions somewhat create the backdrop to the polarized nature of climate negotiations, and explain the desire to turn to adversarial means of resolution through litigation. Indeed, as Wewerinke-Singh and Tigre have put it: "[t]he sharp North–South

37 Anghie (n 34) 16.

38 See eg Gurminder K Bhambra, and Peter Newell, 'More Than a Metaphor: "Climate Colonialism" in Perspective' (2023) 2 Global Social Challenges Journal 179; Farhana Sultana, 'The Unbearable Heaviness of Climate Coloniality' (2022) 99 Political Geography; Martin Mahony and Georgina Endfield, 'Climate and Colonialism' (2018) 9 WIREs Climate Change; Kerstin Reibold, 'Settler Colonialism, Decolonisation, and Climate Change' (2023) 40 Journal of Applied Philosophy 577.

39 Hans-Otto Pörtner and others (eds), '2022: Summary for Policymakers' in Hans-Otto Pörtner and others (eds), *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022) 3, B.2.4.

40 E Tendayi Achiume, 'Report of the Special Rapporteur on Contemporary Forms of Racism, Racial Discrimination, Xenophobia and Related Intolerance on Ecological Crisis, Climate Justice and Racial Justice' (25 October 2022) UN Doc A/77/549, 2.

41 Ben McKay, '"Momentous": Ardern Issues Historic Maori Apology and $155m in Redress' *The Sydney Morning Herald* (5 December 2022).

42 CARICOM, 'Ten Point Plan for Reparatory Justice' (2014).

divide in debates around L&D under the UNFCCC has left the concerns of vulnerable States largely unaddressed. This neglect has led to the exploration of other avenues of redress for climate harm outside of the UNFCCC by vulnerable States."[43]

In sum, the longstanding small island state fight for loss and damage in multilateral negotiation fora has been fraught with difficulties and disillusionments. This indicates that while facilitative channels framed by the UNFCCC loss and damage regime certainly create pressure for states in the Global North, they have yet to be proven as the ideal venue to achieve climate justice via reparations. These observations encouraged such states to consider litigation avenues discussed below.

3. The International Court of Justice: Arbiter of Climate Reparations?

While efforts to secure climate reparations through facilitation have been pursued, the challenges encountered have intensified the push to seek reparations through litigation. This section explores the prospects of this endeavor before the ICJ, whose jurisdiction *ratione personae* is limited to states, and whose jurisdiction *ratione materiae* allows for dispute resolution around multilateral environmental treaties. It explains why an advisory opinion may not squarely address the question of reparations to the extent desirable. It then discusses the jurisdictional hurdles before the ICJ in the context of contentious cases.

a. The Remedial Limitations of an Advisory Opinion

On 29 March 2023, the UN General Assembly, spearheaded by small-island state Vanuatu, requested an advisory opinion from the ICJ on the obligations of states concerning climate change. This move may prompt questions as to why a contentious avenue was not pursued. In this context, states could have directly approached the ICJ to seek a determination on reparations, as has been done in three notable cases: *Chorzów,*[44] *Diallo*[45] and *DRC*

43 Maria Antonia Tigre and Margaretha Wewerinke-Singh, 'Beyond the North-South Divide: Litigation's Role in Resolving Climate Change Loss and Damage Claims' (2023) 32 Review of European, Comparative & International Environmental Law 439, 440.

44 *Factory at Chorzów (Germany v Poland) (Claim for Indemnity)* (Merits) [1928] PCIJ Series A No 17.

45 *Armed Activities on the Territory of the Congo (Democratic Republic of the Congo v Uganda)* (Reparations) [2022] ICJ Rep 13.

v Uganda.[46] Furthermore, an advisory opinion is more reflective of a cooperative effort from the UN General Assembly, consisting of both Global North and South states, while a contentious case would better mark the adversarial pursuit for liability in the context of climate reparations.

The advisory route was likely chosen in the spirit of the overarching facilitative nature of environmental mechanisms. Indeed, while multilateral environmental agreements (MEAs) have established compliance-monitoring committees allowing a state to seize another out of concern for the latter's compliance or implementation of environmental provisions, this has sparsely been used and was vehemently opposed for inclusion in negotiations to establish the Paris Agreement Implementation and Compliance Committee (PAICC).[47] It reflects the overarching preference in the international community for a facilitative rather than an adversarial approach in the environmental context, which likely watered down any desire for developing states to pursue bilateral litigation for climate damage. Despite the frustrations felt by small island states illustrated above (section 1), they were likely dissuaded to pursue this avenue. This is suggested by the former Prime Minister of Vanuatu's statement before the UN General Assembly that "[a]n advisory opinion is a constructive and *unconfrontational* route to pursue such an initiative."[48] Such political circumstances point to the power imbalance between major high-emitting countries and smaller, climate-vulnerable nations, further discussed by Natarajan in this volume.[49]

However, an advisory opinion also yields no guarantee of reparations being clearly spelled out. The question posed by the UN General Assembly in its request for an advisory opinion from the ICJ captures the spirit of climate justice, asking what are "the legal consequences under these obligations for States where they, by their acts and omissions, have caused significant harm" towards small island developing States in particular, as well as "[p]eoples and individuals of the present and future generations affected by the adverse effects of climate change?"[50] Akin to many other requests for advisory opinions from the ICJ in the past, this request focuses on "legal consequences" – an open

46 *Ahmadou Sadio Diallo (Republic of Guinea v Democratic Republic of the Congo)* (Compensation) [2012] ICJ Rep 324.

47 Bendel and Suedi (n 28).

48 UNGA, 'Report of the International Court of Justice' (29 March 2023) UN GAOR 77th Session UN Doc A/77/PV.64, 2 (emphasis added).

49 See ch 11, Natarajan.

50 Request for Advisory Opinion on the Obligations of States in Respect of Climate Change, transmitted to the Court pursuant to UNGA Res 77/276 (29 March 2023) UN Doc A/RES/77/276.

invitation to engage with part two of the ARSIWA, which opens with Article 28 stating that "[t]he international responsibility of a State which is entailed by an internationally wrongful act in accordance with the provisions of part one involves *legal consequences* as set out in this part," and continues with Article 31's assertion that "[t]he responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act."[51]

The present chapter was finalized before the ICJ's advisory opinion on climate change was issued. However, in the past, the Court has debated on whether it is appropriate for the law of state responsibility to be pronounced at all in an advisory opinion. In *Chagos,* where the Court ordered cessation,[52] Bordin describes that the Court was criticized "for either over-reaching or under-reaching,"[53] with Judges such as Tomka and Gevorgian arguing that there was no need to decide on matters of State responsibility at all[54] and others such as Cançado Trindade and Salam arguing that the Court should have dealt with the issue of reparations owed to the displaced Chagossians more squarely.[55] Reasons for this relate to questions of judicial propriety, judicial function and non-circumvention of the consent principle in advisory proceedings.[56] There is therefore a risk that the ICJ will be vague when answering the question of legal consequences[57] – even more so in this context because of the sensitive political backdrop explained above (section 1) against which the request is being made, which the ICJ would not wish to fuel.

51 ARSIWA (n 1) art 31.

52 *Legal Consequences of the Separation of the Chagos Archipelago from Mauritius in 1965* (Advisory Opinion) [2019] ICJ Rep 95 [178], [182] ("[t]he Court concludes that the United Kingdom has an obligation to bring to an end its administration of the Chagos Archipelago as rapidly as possible").

53 Fernando Lusa Bordin, 'State Responsibility in Advisory Proceedings: Thoughts on Judicial Propriety and Multilateralism in the Chagos Opinion' in Thomas Burri and Jamie Trinidad (eds), *The International Court of Justice and Decolonisation: New Directions from the Chagos Advisory Opinion* (CUP 2021), 98.

54 *Chagos Archipelago* (n 52) Declaration of Judge Tomka [8]; *Chagos Archipelago* (n 52) Declaration of Judge Gevorgian [5].

55 *Chagos Archipelago* (n 52) Separate Opinion of Judge Cançado Trindade [256]; *Chagos Archipelago* (n 52) Declaration of Judge Salam [6].

56 See Yusra Suedi, 'Advisory Jurisdiction and Non-Circumvention: The Thin Line between Advisory and Contentious Proceedings' (2025) 24 The Law & Practice of International Courts and Tribunals 31.

57 Malgosia Fitzmaurice and Agnes Viktoria Rydberg, 'Using International Law to Address the Effects of Climate Change' (2023) 4 Yearbook of International Disaster Law Online 281, 302-303.

b. The Contentious Avenue

The contentious avenue was deliberately avoided at least partly due to the political prioritization of facilitative measures. However, it was also likely avoided due to four jurisdictional hurdles explained below. This indicates that even if states were to opt for this avenue before the ICJ, new challenges would arise that are worthy of consideration.

First, it is difficult to identify a provision in a relevant international treaty that a state could argue has been breached. Voigt has observed that "[i]t is difficult to identify specific state obligations on the basis of the general obligations included in the Convention."[58] There is more potential with respect to the Paris Agreement – however, in Paris at COP21, the US's ratification hinged in part on the absence of any reference to "liability and compensation," with other developed nations being averse to it as well. Article 8 of the Paris Agreement therefore acknowledges loss and damage and the Warsaw Mechanism as a means of "enhancing understanding, action and support (...) on a cooperative and facilitative basis,"[59] with an annexed Decision 1/CP.21 "agree[ing] that Article 8 of the Agreement does not involve or provide a basis for any liability or compensation."[60]

Indeed, liability and compensation has historically been a thorny issue, first finding expression in Principle 13 of the 1992 Rio Declaration, which promised that "[s]tates shall also co-operate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction." However, Fitzmaurice commented that:

> During the negotiations, there was also a general divide between developing States (as represented by the Group of 77 and China) and developed States concerning the scope of liability for environmental damage. Initially, Australia, Canada, the US, and the EU objected to the inclusion of this principle as proposed by developing States. Developing States argued that after the Stockholm

58 Christina Voigt, 'State Responsibility for Damages Associated with Climate Change' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021) 171.

59 Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) 3156 UNTS 79.

60 UNFCCC COP, 'Decision 1/CP.21 Adoption of the Paris Agreement' (29 January 2016) UN Doc FCCC/CP/2015/10/Add.1, para 51.

> Declaration there had been no action in the establishing of law in the field of liability for environmental damage.[61]

Still, decision 1/CP.21's paragraph 51 does not legally exclude climate litigation in pursuit of compensation for loss and damage.[62] Further, while Article 8 may not "provide a basis for" liability and compensation, other clauses of the Paris Agreement may do so. Beyond this, Voigt has argued that the Paris Agreement is justiciable, with normative elements that inform the interpretation of other international treaties and norms for the purposes of climate litigation – for example, the due diligence standard contained in customary international environmental law.[63]

A second hurdle explaining why the contentious route was not pursued by small islands states relates to consent to jurisdiction. Article 14(1) UNFCCC asserts that parties "shall seek a settlement of the dispute through negotiation or any other peaceful means of their own choice" if a dispute arises, mirrored by Article 24 of the Paris Agreement.[64] Yet at the time of writing, only the Netherlands has accepted the Court's jurisdiction over disputes related to either treaty.[65]

Article 14(2)(a) UNFCCC, described by Bodansky as a "compromise, modelled on the dispute settlement provisions of other international environmental agreements,"[66] further offers the avenue of a dispute being resolved by the ICJ only if a state recognizes its jurisdiction "as compulsory *ipso facto* and without special agreement, in relation to any Party accepting the same obligation."[67] The Paris Agreement refers to the same provision.[68] Therefore,

61 Malgosia Fitzmaurice, 'Principle 13' in Jorge E Viñuales (ed), *The Rio Declaration on Environment and Development: A Commentary* (OUP 2015), 354.

62 Daniel Bodansky, 'The Legal Character of the Paris Agreement' (2016) Review of European Community & International Environmental Law 25, 148; Jutta Brunnée, 'COPing with Consent: Law-Making Under Multilateral Environmental Agreements' (2002) 15 Leiden Journal of International Law 1, 32; MJ Mace and Roda Verheyen, 'Loss, Damage and Responsibility after COP21: All Options Open for the Paris Agreement' (2016) Review of European Community & International Environmental Law 197, 205.

63 Christina Voigt, 'The Power of the Paris Agreement in International Climate Litigation' (2023) 32 Review of European, Comparative & International Environmental Law 237.

64 UNFCCC (n 11) art 14.

65 UNFCCC, 'Declarations by Parties'; see United Nations Treaty Collection for the status of the Paris Agreement.

66 Daniel Bodansky, 'The United Nations Framework Convention on Climate Change: A Commentary' (1993) 18 Yale Journal of International Law 451, 548.

67 UNFCCC (n 11) art 14.

68 Paris Agreement (n 59) art 24.

only two states having accepted the Court's compulsory jurisdiction under Article 36(2) of the ICJ Statute would be able to litigate. This is limiting, as many of the biggest polluters such as China, the USA or Russia do not subscribe to such jurisdiction.[69]

A third potential issue relates to standing, "an entitlement of an entity to be a party to judicial proceedings concerning contentious cases.".[70] A state would normally have to establish a direct legal interest to sue, unless it can be proven that their interest in fact derives from a common interest to uphold an obligation *erga omnes partes* related to climate protection. Indeed, it has now been firmly established by the ICJ that "any State party to [a convention whose provisions give rise to obligations *erga omnes partes*] may invoke the responsibility of another State party, including through the institution of proceedings before the Court, with a view to determining the alleged failure to comply with its obligations *erga omnes partes* under the Convention and to bringing that failure to an end."[71] However, this principle has so far been applied only to obligations arising from specific treaties *(erga omnes partes),* rather than broader obligations owed to the international community as a whole *(erga omnes),* which are rooted in customary international law.[72] While certain provisions in the UNFCCC and Paris Agreement might give rise to obligations *erga omnes partes,* the Court has not had the opportunity to confirm this. Indeed, the established practice has only been tested with respect to genocide[73] and torture,[74] two of a small catalogue of examples offered by the ICJ in *Barcelona Traction,* which did not include any environmental rights as a product of its time.[75] It is therefore unclear at this stage whether an obligation *erga omnes partes* could derive from a treaty relating to climate change for the purposes of inter-state ICJ litigation – although this is certainly possible, considering the *Whaling* case where the Court tacitly accepted Australia's

69 ICJ, 'Declarations Recognizing the Jurisdiction of the Court as Compulsory'.

70 Giorgio Gaja, 'Standing: International Court of Justice (ICJ)' in Hélène Ruiz Fabri (ed), *Max Planck Encyclopedia of International Procedural Law* (2018), para 1.

71 *Application of the Convention on the Prevention and Punishment of the Crime of Genocide (The Gambia v Myanmar)* (Preliminary Objections) [2022] ICJ Rep 477 [112].

72 Institut de droit international, 'Resolution. Obligations Erga Omnes in International Law' (2005), art. 1.

73 *Genocide (The Gambia v Myanmar)* (n 71).

74 *Questions Relating to the Obligation to Prosecute or Extradite (Belgium v Senegal)* [2012] ICJ Rep 422; *Application of the Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment (Canada and the Netherlands v Syrian Arab Republic)* (Provisional Measures) [2023] ICJ Rep 587, 219.

75 *Barcelona Traction, Light and Power Company, Limited (Belgium v Spain)* (Second Phase Preliminary Objections) [1970] ICJ Rep 3 [33]-[34].

claim that it sought to uphold its collective interest[76] to uphold *erga omnes partes* obligations emanating from the International Convention for the Regulation of Whaling (ICRW).[77] If a case were brought and not dismissed on other jurisdictional grounds, as was the case in the *Marshall Islands* cases,[78] it could be an opportunity to develop the Court's jurisprudence on this question.

A fourth potential jurisdictional issue at this stage is the *Monetary Gold* principle, stemming from an ICJ case of the same name[79] and holding that the rights, responsibilities or legal position of absent third states cannot be ruled on in a bilateral dispute if they constitute the "very subject matter" of the dispute.[80] Certain scholars have argued that this would render an inter-state climate case inadmissible due to the difficulty of identifying "how the specific contribution of one State towards climate change can be untangled from that of other States."[81] As McGarry and Zargarinejad observe, *Monetary Gold* has been invoked in a number of cases but rejected as the non-parties' interests did not comprise "the very subject matter of the dispute," with the exception of *East Timor*.[82] Similarly to the issue of standing above, it is unclear what position the Court would take in unchartered waters.

In sum, the four jurisdictional challenges explained in this section do not bar the possibility of a contentious case being brought before the ICJ in pursuit of climate reparations. Rather than excluding the option entirely, they

76 *Whaling in the Antarctic (Australia v Japan: New Zealand intervening)* (Verbatim Record) CR 2013/18 (9 July 2013) [51].

77 Malgosia Fitzmaurice, *Whaling and International Law* (CUP 2015), 110; James Crawford, 'Responsibilities for Breaches of Communitarian Norms: An Appraisal of Article 48 of the ILC Articles on Responsibility of States for Wrongful Acts' in Ulrich Fastenrath and others (eds), *From Bilateralism to Community Interest: Essays in Honour of Bruno Simma* (OUP 2011), 236; James Crawford, *State Responsibility: The General Part* (CUP 2013), 373.

78 *Obligations Concerning Negotiations Relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v United Kingdom)* (Preliminary Objections) [2016] ICJ Rep 833 [58]-[59].

79 *Case of the Monetary Gold Removed from Rome in 1943 (Italy v France, United Kingdom of Great Britain and Northern Ireland and United States of America)* (Preliminary Question) [1954] ICJ Rep 19.

80 *Ibid*. 32.

81 Nataša Nedeski, Tom Sparks and Gleider Hernández, 'Judging Climate Change Obligations: Can the World Court Raise to the Occasion? Part II: What Role for International Adjudication?' (*Völkerrechtsblog,* 30 April 2020). See Benoit Mayer, *The International Law on Climate Change* (CUP 2018), 240; Jefferi Hamzah Sendut, 'Inter-State Climate Change Litigation and the Monetary Gold Principle' (*Opinio Juris,* 5 January 2021).

82 Brian McGarry and Nasim Zangarinejad, 'All that Glitters is Not Monetary Gold: Indispensable Parties and Public Interest Litigation before International Tribunals' in Justine Bendel and Yusra Suedi (eds), *Public Interest Litigation in International Law* (Routledge 2023), 144-45.

create opportunities for creative lawyering and risk, as the Court's case law with respect to many of these issues has not been firmly established. Risking litigation without the guarantee of surpassing these hurdles and achieving victory is certainly characteristic of public interest litigation.[83] However, these obstacles, coupled with a possible reluctance to create more political strain by suing, might explain why small island states resorted to requesting an advisory opinion instead.

4. Reparation: Which Options Are Most Suitable?

Whether a contentious case is filed or an advisory opinion requested, the framework established by the ARSIWA determines the possibilities for climate reparations. This section argues that the reparation possibilities under ARSIWA may not be suitable for the overall objectives of climate justice. As mentioned in the introduction, the term "climate reparations" has been politically appropriated to more narrowly denote the quest for compensation for the damage caused by GHG over the last two centuries, as an expression of the pursuit of climate justice. However, this does not limit the request made by a litigating state to compensation. ARSIWA's Article 34 provides that reparation takes the form of "restitution, compensation and satisfaction,"[84] and the ILC has said that "[t]he question of cessation often arises in close connection with that of reparation (...)."[85] For these reasons, this section considers all legal consequences ensuing from the establishment of an internationally wrongful act denoting climate damage. It first discusses compensation given the primacy of this in the pursuit of climate reparations, before turning to other forms of reparation, as well as cessation.

a. Compensation

Compensation is considered "insofar as such damage is not made good by restitution,"[86] as is the case for much of climate damage. Despite the suggestion that it is subsidiary to restitution (discussed below), compensation is "perhaps the most commonly sought in international practice"[87] given that, as the ILC

83 Yusra Suedi and Justine Bendel, 'Public Interest Litigation: A Pipe Dream or the Future of International Litigation' in Justine Bendel and Yusra Suedi (eds), *Public Interest Litigation in International Law* (Routledge 2023), 47.

84 ARSIWA (n 1) art 34.

85 *Ibid*. commentary (7) to art 30.

86 *Ibid*. art 36.

87 *Ibid*. commentary (2) to art 36.

explains, restitution is "despite its primacy (…) frequently unavailable or inadequate."[88] Compensation has indeed become colloquially employed as a synonym to the legally broader term "reparation," and the idea of "climate reparations" often indicates compensation in non-academic writings.[89]

Compensation has, generally speaking, been challenging for the Court to order. In the sparse occasions where it has done so, it has offered little to no explanation as to how it arrived at the figures presented – despite both Costa Rica and Nicaragua making lengthy arguments as to which methods of calculation should be employed for environmental damage in *Certain Activities*.[90] However, climate reparations create further challenges: what date does one start calculating damage from – the industrial revolution? Should current governments be responsible for decisions of previous governments? How can this be calculated in light of the shared responsibility of states? Scholars have argued *de lege ferenda* that "[e]ach international person sharing responsibility is under an obligation to make full reparation," but this has yet to be established by the Court.[91]

Beyond these challenges, the general requirement in the ARSIWA to provide "full" reparations generates further complexity in any hypothetical calculation. Article 31(1) ARSIWA provides that "[t]he responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act."[92] This provision finds its origins in a famous *Chorzów* case, where the Court clarified that, "[t]he essential principle contained in the actual notion of an illegal act (…) is that reparation must, as far as possible, wipe out all the consequences of the illegal act and reestablish the situation which would, in all probability, have existed if that act had not been committed."[93] As Mayer affirms, "it implies that the scope of reparation should be determined exclusively on the basis of the injury."[94] The injury, ARSIWA specifies, "includes any damage, whether material or moral, caused by the internationally wrongful act of a State."[95] This raises challenging questions with respect to how to calculate damages for climate reparations. As mentioned above, loss

88 *Ibid*. commentary (3) to art 36.

89 Slow (n 2); Michela Moscufo, 'Are Climate Reparations Finally on the Way for Vulnerable Countries?' *Al Jazeera* (28 August 2023).

90 *Certain Activities Carried Out by Nicaragua in the Border Area (Costa Rica v Nicaragua)* (Compensation) [2018] ICJ Rep 15.

91 André Nollkaemper and others, 'Guiding Principles on Shared Responsibility in International Law' (2020) 31 European Journal of International Law 15, 19 (principle 10).

92 ARSIWA (n 1) art 31(1).

93 *Chorzów Factory (Germany v Poland)* (n 44) 47.

94 Benoit Mayer, 'Less-than-Full Reparation in International Law' (2016) 56 Indian Journal of International Law 463, 464.

95 ARSIWA (n 1) art 31(2).

and damage has been estimated in the billions annually. Certain scholars have also argued against crippling compensation.[96]

This therefore raises questions as to whether compensation could ever be offered in the "full" manner required. While Mayer argues that this requirement is seldom met,[97] it significantly complexifies the pursuit of compensation for climate damage before the ICJ. Mayer proposes a "partial" or "symbolic" compensation instead – although this does not entirely resolve complexities mentioned above.[98] Jason Rudall fleshes out the numerous hurdles and considerations in his contribution to this collection.[99]

b. Restitution and Satisfaction

Another form of reparation is restitution, which serves "to re-establish the situation which existed before the wrongful act was committed," according to the ILC.[100] The obvious issue is that it is physically impossible to restore much of the environmental damage resulting from acts or omissions of states contributing to climate change. The very movement of loss and damage is premised on the acknowledgement that adaptation measures cannot always be applicable. Effects such as storms, drought, rising oceans and loss of species[101] cannot be reestablished. Yet, this is in fact the form of reparation that suing individuals or states would want the most.

The third form of reparation to consider is satisfaction, where an injury "cannot be made good by restitution or compensation."[102] If the challenges above were acknowledged by the ICJ, this would be the remaining possibility in the realm of reparations. Developed states largely responsible for the climate crisis would therefore need to "acknowledge the breach, express regret, formally apologise or another appropriate modality," according to Article 37(2) ARSIWA.[103] Apologies have increasingly been issued by developed states for historic colonial wrongs[104] and, given the abovementioned connection

96 Martins Paparinskis, 'A Case Against Crippling Compensation in International Law of State Responsibility' (2020) 83 The Modern Law Review 1246.

97 Mayer (n 94).

98 Benoit Mayer, 'Climate Change Reparations and the Law and Practice of State Responsibility' (2017) 7 Asian Journal of International Law 185.

99 See chapter 4, Rudall.

100 ARSIWA (n 1) art 35.

101 UN, 'Causes and Effects of Climate Change'.

102 ARSIWA (n 1) art 37.

103 *Ibid*. art 37(2).

104 AP, 'France Apologizes to Algerians who Fought for Colonizers' (20 September 2021); Reuters, 'Germany Apologises for Colonial-Era Genocide in Namibia' (28 May 2021).

between colonialism and climate damage, would also be suitable as a form of redress. This alone, however, would undermine the climate justice movement's pursuit of meaningful political change and equity.

c. Cessation

Finally, it is worth looking at the request for cessation as, while this is not one of the three forms of reparation above, it is still often requested before the ICJ alongside at least one of them. Cessation is the principal legal obligation flowing from an establishment of an internationally wrongful act, coupled with non-repetition.[105] It is the obligation for a state responsible for an internationally wrongful act to "cease that act, if it is continuing."[106] It therefore covers continuing wrongful acts as well as repeated ones.[107] The ILC defines a continually wrongful act as one which "occupies the entire period during which the act continues and remains not in conformity with the international obligation, provided that the State is bound by the international obligation during that period."[108]

The request for cessation also gives rise to certain challenges. In pursuing climate litigation, litigating states would likely want a noteworthy reduction of GHG emissions by polluting states. However, it is unlikely that this can be accomplished immediately or even in the short term.[109] States are therefore bound to fail to meet this request at the outset. On the other hand, as Sparks argues:

> An obligation of cessation attaching to emissions of [GHG] over and above a certain future share of global emissions, though more achievable and reasonable, runs the risk either of being unduly deferential to a State's own assessment of its position and prospects (and thus of recreating the weaknesses of the Paris Agreement), or of being subjected to the critique that in setting definite standards, the ICJ is straying into judicial legislation and overriding the treaty-making competence of States.[110]

Another issue raised with invoking cessation is its potentially hollow effect if we consider the shared nature of state responsibility in the climate context.

105 ARSIWA (n 1) art 30.

106 *Ibid*. art 30(a).

107 *Ibid*. commentary (3) to art 30.

108 *Ibid*. commentary (3) to art 14.

109 Christina Voigt, 'State Responsibility for Climate Change Damages' (2008) 77 Nordic Journal of International Law 1, 18 ("[h]owever, the reduction of GHG emissions or the restoration of sinks is not an exercise that can be accomplished in a short time").

110 Nedeski, Sparks and Hernández (n 81).

If other contributors to the harm are not ordered to do the same because the case was only brought via judicial channels against one state, will this have any effect? The so-called "drop in the ocean" argument invoked by states such as Australia in *Daniel Billy v. Australia* has been rejected by the UN Human Rights Committee.[111] Even if the Court followed suit, the shared responsibility will practically imply that its judgment will have the symbolic and political effect of signaling to other states not parties to the dispute that they are in breach and must cease their wrongful acts, without compelling them to do so through a binding decision. This, too, would be in the spirit of public interest litigation and its strategic motives.[112] These initial problems with cessation, however, are not to be overlooked insofar as the main objective of litigation is to require states to cease their wrongful acts harmful to the climate.

5. Hope Despite Hurdles?

Despite the hurdles exposed in the above analysis, hope can still be found in two key perspectives.

The first perspective highlights the importance of collective action. While this chapter elucidated the omnipresent opposition of cooperative and contentious measures, the most effective approach towards ensuring full compliance with climate obligations is collective action: to combine all available methods and pursue every viable option. The analysis above therefore does not suggest that these measures should be avoided; rather, it shows that the best possible chance is through a concerted effort of both cooperative and contentious strategies, as their combination creates stronger collective pressure.

Cooperative measures, particularly in the form of multilateral negotiations, may not immediately result in climate reparations, but they send a powerful signal of the global desire for such accountability and continue to push high-emitting states toward that outcome. These negotiations exert pressure in several key ways: first, they lead to the creation of multilateral treaties and agreements, such as the UNFCCC and the Paris Agreement, which lay the legal groundwork for future litigation by establishing potentially justiciable provisions conveying climate-related obligations.[113] Second, negotiations can

111 UN Human Rights Committee, *Billy et al v Australia*, 22 September 2022, UN Doc CCPR/C/135/D/3624/2019 [4.2], [4.3], [6.3], [7.10].

112 Nedeski also raises further questions about what can be claimed from which responsible actor, and to what extent is this influenced by the fact that the underlying primary obligation is shared if shared responsibility were to be established: Nataša Nedeski, *Shared Obligations in International Law* (CUP 2022), 144-78.

113 See section 2 above.

expose failures in commitments or actions, which can prompt states to seek international, regional or domestic litigation as a means of enforcing accountability. Third, they encourage states to work through their differences diplomatically, motivated by the potential of legal action or the threat of being held accountable in court. Ultimately, these cooperative efforts contribute to a broader framework that pushes for legal accountability on the climate crisis.

Adversarial means are also increasingly solicited to pressure certain states further into compliance with their climate obligations as the urgency of the climate crisis becomes more acute. Such litigation would fall squarely in line with public interest litigation, where courts are seized as "forums of protest" against all odds in the strategic pursuit of the wider aim of political change through, for instance, media attention, shaming or political pressure.[114] Public interest litigation offers a source of hope for two key reasons. First, its emphasis on process rather than immediate outcomes ensures its continued relevance as the climate crisis deepens. As Jeßberger and Steinl aptly note:

> [A]chieving the objectives behind the specific case or process significantly outweighs, in the eyes of the actors pursuing litigation, the immediate outcome of that case or process. In other words, the strategic goals steer the litigation rather than the conventional other way around. A potential control question for litigants in this sense could be: Even in case of a legal loss, would it still be worth the litigation effort?[115]

This type of litigation is not merely about securing legal victories; rather, it is a strategic tool aimed at pressuring states to reconsider and ultimately change their behaviors.[116] This means that regardless of legal outcomes, it will remain a persistent force that can gradually influence state actions, including in the context of negotiation.[117] Its potential to drive systemic change makes it an enduring and vital mechanism in the fight against climate inaction.

Second, courts such as the ICJ accommodate the practice of public interest litigation in their procedures. The most obvious example is that *actio popularis* is now an accepted and prevalent practice before it, with states

114 See Suedi and Bendel (n 83).

115 Florian Jeßberger and Leonie Steinl, 'Strategic Litigation in International Criminal Justice: Facilitating a View from Within' (2022) 20 Journal of International Criminal Justice 379, 385.

116 See Michael Ramsden, 'Strategic Litigation before the International Court of Justice: Evaluating Impact in the Campaign for Rohingya Rights' (2022) 33 European Journal of International Law 441.

117 See eg *ibid.*

parties to certain conventions invoking the responsibility of others[118] – a practice not permitted before 2012.[119] Given the political pressures surrounding the climate crisis and its urgency, it is possible that the ICJ could adopt a more accommodating approach to its rules and practices on jurisdiction and admissibility should such cases arrive on its docket.[120]

Hope for climate reparations can also be found in a perspective beyond the state. While this chapter has focused on inter-state mechanisms leading to climate reparations, the observations made also indicate that the pursuit of climate reparations should not be limited to the state level. This collection features several scenarios presenting valuable alternative paths, via regional human rights courts (scenarios 1, 2, 3 and 5), UN treaty bodies (scenario 4) or domestic litigation (scenarios 8, 9 and 10). While these pathways are not without their complexities, they share a key advantage: they grant a more significant role to non-state actors. Unlike inter-state litigation, which is limited to states as parties, regional human rights courts and UN treaty bodies allow individuals, NGOs, and other non-state actors to bring claims.[121] This expands access to justice for vulnerable groups and communities most affected by climate change. Such forums also allow such actors to bypass potential reluctance from states to litigate against one another.

Domestic litigation holds other important advantages. The first is that domestic courts can arguably hold states more effectively accountable for their climate obligations due to the presence of internal enforcement mechanisms that oversee the implementation of judicial decisions, ensuring accountability and reducing the risk of non-compliance. This direct link between domestic litigation and enforcement makes these proceedings a powerful tool for driving tangible climate action. The second is that domestic courts provide a unique avenue for holding corporate actors accountable for their contributions to climate change, an option often unavailable in international courts, which target states. By targeting corporations directly, domestic litigation helps bridge the accountability gap left by international legal frameworks, emphasizing the shared responsibility of non-state actors in combating the climate crisis.

Domestic legal proceedings can complement international cooperative and contentious efforts, creating a synergistic approach to addressing climate

118 *Genocide (The Gambia v Myanmar)* (n 71) para 112.

119 *Belgium v Senegal* (n 74).

120 For an overview of procedural challenges for public interest litigation, see Suedi and Bendel (n 83).

121 For a study on the invisibility of individuals before the International Court of Justice, see Yusra Suedi, *The Individual in the Law and Practice of the International Court of Justice* (CUP 2025).

change. For instance, the ICJ's advisory opinion on climate change obligations aims to clarify states' obligations under international law.[122] This clarification can serve as a critical reference point for domestic courts, providing a legal threshold for evaluating cases of domestic climate litigation.[123] By aligning domestic decisions with international legal principles, domestic courts can strengthen the enforcement of climate obligations at the national level while reinforcing global norms. This interplay between domestic and international mechanisms not only enhances accountability but also ensures a more cohesive and comprehensive response to the climate crisis. All avenues – domestic, regional, international, cooperative and contentious – should therefore be pursued in concert. All judicial proceedings come with their own challenges, mapped out across this volume, but it is the culmination of efforts that can lead to progress in climate justice.

6. Conclusion

This chapter presented a complex picture of the international climate regime and its prospects for offering climate reparations. The long-standing hurdles for loss and damage to be recognized, frustrations in the operationalization of the Loss and Damage Fund, jurisdictional and remedial limitations through ICJ litigation and limitations ensuing from the ARSIWA framework on legal consequences all indicate that the inter-state pursuit for climate reparations is a difficult endeavour.

However, these obstacles do not render the pursuit futile. Instead, they underscore the need for innovative and multifaceted strategies that leverage the strengths of different legal mechanisms. The growing prominence of public interest litigation, domestic and regional courts, and cooperative efforts within the international community demonstrates that progress, while incremental, is possible. These avenues not only hold states accountable but also foster an evolving legal and political landscape that is increasingly responsive to the demands for climate justice. By combining these approaches, the international climate regime can continue to build momentum toward more robust mechanisms for accountability and ultimately, climate reparations.

122 UNGA Res 77/276 (n 50).

123 See eg Written Statement of the Kingdom of Spain, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (March 2024), para 5.

Usha Natarajan

Chapter 11: Climate Reparations as Truth

1. Introduction

The last time there was this much carbon dioxide in the Earth's atmosphere was three and a half million years ago, long predating the advent of the human species.[1] Climate change today is caused by injustice, with the lifestyles of the wealthy few underpinned by global warming and collapsing ecosystems across the world.[2] The richest 20 percent of people consume 80 percent of the world's natural resources and generate over 90 percent of its pollution and waste.[3] Most of the rich live in the Global North and most of the poor in the Global South.[4] To provide one example, two states within the United States, Texas and New Jersey, with a combined population of 37 million, emit as much carbon dioxide as the 1200 million people in the 49 countries in sub-Saharan Africa.[5]

1 Matteo Willeit and others, 'Mid-Pleistocene Transition in Glacial Cycles Explained by Declining CO_2 and Regolith Removal' (2019) 5 Science Advances 1.

2 Anthropogenic climate change (climate change caused by human influences as opposed to natural processes) is caused by increased greenhouse gases in the atmosphere from activities such as burning fossil fuels and changing land use patterns.

3 UNDP, *Human Development Report 2019: Beyond Income, Beyond Averages, Beyond Today: Inequalities in Human Development in the 21st Century* (UNDP, 2019) 179; UNDP, *Human Development Report 2007-8: Fighting Climate Change: Human Solidarity in a Divided World* (Palgrave Macmillan 2007) 43; UNDP, *Human Development Report 1998: Consumption for Human Development,* 47-50 (OUP 1998).

4 Countries of the Global North were collectively responsible for 92 per cent of global emissions exceeding the safe planetary boundary of 350ppm: Jason Hickel, 'Quantifying National Responsibility for Climate Breakdown' (2020) 4 The Lancet: Planetary Health E399.

5 Mengpin Ge, Johannes Friedrich and Leandro Vigna, '4 Charts Explain Greenhouse Gas Emissions by Countries and Sectors' (*World Resources Institute,* 6 February 2020); Choose Energy, 'Carbon Dioxide Emissions by State' (29 January 2025); *Human Development Report 2019* (n 3) 179; US Census Bureau, 'Annual Estimates of the Resident Population for the United States, Regions, States, District of Columbia, and Puerto Rico: April 1, 2020 to July 1, 2024'.

Disparities on such a scale are not happenstance, they are systemic, with laws and institutions playing a central role in structuring longstanding inequity by insulating the rich and powerful from the harmful consequences of their actions. As the impact of climate change is borne by others, there is no immediate incentive for the rich to change their behavior. The poor contribute very little to climate change but are on the frontlines of environmental harm because of their vulnerable geographic locations, lack of resources and regulatory capacity to protect themselves, ongoing extraction of their natural resources and labor to fuel an unequal global economy, and a systemic transfer of pollution from the rich to the poor.[6] As laws and institutions structure and regulate this global climate apartheid,[7] opportunities for litigation for climate reparations could potentially be exploited by the rich and powerful toward further accumulation, in a morbid echo of French reparations extracted from Haiti in the wake of Haiti's hard-won independence from French colonialism and slavery.[8]

For those unfamiliar with the iniquitous history of reparations in Haiti, a brief retelling may help to contextualize contemporary concerns about climate reparations: in 1791, Dutty Boukman and Cécile Fatiman spurred a mass uprising of enslaved peoples across the French plantations of Saint-Dominique, the French part of the island of Hispaniola in the Caribbean Sea. They began a rebellion subsequently led by Toussaint L'Ouverture and after him Jean-Jacques Dessalines until, on New Year's Day 1804, Dessalines declared independence from France and renamed their country Hayti (now Haiti) from the Indigenous Taíno word for land of mountains. The peoples of Haiti had achieved the first successful Third World revolution. This provoked concerted opposition from imperial and slave-owning powers such as France, England, Spain, and the newly independent United States.[9] In 1825, France sent a fleet of warships to Haiti to demand 150 million francs in reparations for the loss of its richest colony and enslaved labor. This amount was six times

6 See Usha Natarajan and Kishan Khoday, 'Environment' in Jean d'Aspremont and John Haskell, *Tipping Points in International Law* (CUP 2021) 132.

7 *Ibid*.

8 See Kim Oosterlinck and others, 'A Debt of Dishonor' (2022) 102 Boston University Law Review 1247.

9 See CLR James, *The Black Jacobins: Toussaint L'Ouverture and the San Domingo Revolution* (Knopf Doubleday Publishing Group 2023, first published 1938); Cedric J Robinson, *Black Marxism* (3rd edn, UNC Press 2020); see also Toussaint L'Ouverture, Jean-Bertrande Aristide (ed), *The Haitian Revolution* (rev edn, Verso 2019, first published 2008); Michel-Rolph Trouillot, *Silencing the Past: Power and the Production of History* (Beacon Press 1995); Marlene L Daut, *Awakening the Ashes: An Intellectual History of the Haitian Revolution* (UNC Press 2023).

Haiti's annual revenue and double what the United States had paid France in 1803 for the Louisiana Purchase. Haiti agreed to pay France in exchange for political recognition of its independence. To pay, Haiti borrowed from French banks and fell into a debt trap that persists today. From 1825 to 1947, Haiti paid off the debt with eighty percent of its wealth (21 billion US dollars), leaving Haiti with a legacy of economic disarray. Overall, Haitians ended up paying more than twice the value of the indemnity. Neither France nor Citibank, which bought the debt, have apologized for this plunder. In more than two centuries of independence, Haiti has been subject to relentless military and economic subjugation by France and the United States, with no end in sight. In 2003, Haiti called on France to pay 21 billion US dollars in reparations, and in the subsequent year the Haitian government was overthrown in a coup backed by France and the United States and replaced by a military junta that renounced Haiti's demand for reparations.[10]

This précis serves to illustrate that calls for reparations can differ widely in nature, with the greedy, exploitative, and overentitled better placed to obtain reparations compared with the exploited, deserving, and needy. Hence, it is important to keep in mind the myriad multiplying forms that contemporary litigation for climate reparations could take, providing prospects for a wide panoply of actors and interests.[11] This chapter is interested in whether litigating for climate reparations can aid the cause of climate justice; that is to say, whether litigation can help those who are facing climate harms that they did not cause. Climate justice advocates tend to look beyond victory or defeat in a single case but rather litigate tactically if a particular case may be a helpful part of a broader advocacy strategy for systemic change. Part 2 begins with the crucial question of what reparations mean and who decides. Haiti's history illustrates how reparations mean different things to different peoples. For those concerned with justice, the struggle to define reparations goes to the heart of the matter. To quote Mari Matsuda:

> Reparations is not, then, equivalent to a standard legal judgment. It is the formal acknowledgment of historical wrong, the recognition of continuing injury, and the commitment to redress, looking always to victims for guidance.[12]

10 Kim Oosterlinck and others (n 8); Marlene L Daut, '200 years ago, France Extorted Haiti in One of History's Greatest Heists – and Haitians want Reparations' *Miami Times* (Miami, 17 April 2025); Constant Méheut and others, 'Demanding Reparations, and Ending Up in Exile' *New York Times* (New York City, 20 May 2022).

11 See chapter 12, Nordlander, 267.

12 Mari J Matsuda, 'Looking to the Bottom: Critical Legal Studies and Reparations' (1987) 22 Harvard Civil Rights-Civil Liberties Law Review 323, 397.

This quote aptly prefigures this chapter's main argument that among other things reparations must tell the truth about mass suffering and its causes. Parts 3 and 4 outline some thoughts on the limits and possibilities offered by climate litigation for obtaining such reparations. Part 3 considers the challenges of accessing courts, as well as the difficulties of identifying, measuring, and providing adequate compensation for climate-related harms. Part 4 considers the extent to which courts may provide opportunities for truth telling for those usually silenced, and how such voices help reshape narratives of climate justice and contribute to transnational solidarity and movement building.

2. What are Climate Reparations?

Climate change does not play out on a level playing field. It is the inevitable by-product of five centuries of European settler colonialism, genocide, slavery, apartheid, and plunder of labor and resources of the non-European world to fuel European accumulation and industrialization while erasing alternative development pathways. Neither Western Europe nor its vast settler colonies across the globe have made reparations for these enduring harms. It is against this background of legal and institutionalized unaccountability and irresponsibility that the issue of climate reparations has arisen across the Global South in recent decades. As Riley Case observes:

> These two framings of reparations – for ecological and racial injustices – are not being discussed together in international legal scholarship. However, the climate reparations claim is rooted in the understanding that ecological harms arise from imperial relations that ground the broader appeal … these reparations claims are indissociable, which provides insights into meanings of reparations.[13]

As such, climate reparations do not merely demand a just redistribution of wealth.[14] They are a demand for a redistribution of authority and knowledge production so that everyone will live in a future free from imperialism.[15] The

13 Sarah Riley Case, 'Looking to the Horizon: The Meanings of Reparations for Unbearable Crises' (2023) 117 AJIL Unbound 49, 50.

14 As Robin Kelley observes, reparations are 'never entirely, or even primarily about money'; Robin DG Kelley, *Freedom Dreams: The Black Radical Imagination* (rev edn, Beacon Press 2002)114, as quoted in Riley Case, *Ibid*.

15 Riley Case describes reparations as redistributing "authority and meaning-making across law, economics, cosmology, and ecology, with a view to ending racial capitalism. Not only do reparations address the plight of oppressed peoples, they construct a future free of imperialism for everyone"; *ibid*. 52–53.

goal of climate reparations is not only to look to the past to rectify oppressions that have already taken place but crucially to do so in a counterhegemonic manner that ensures a just future.[16] For this reason, reparations demand much more than traditional legal remedies such as cessation, non-repetition, and compensation, entailing in addition to these some significant structural change.[17]

With this goal in mind, this chapter posits that reparation entails first and foremost the capacity to tell the truth. Thus, Matsuda asks for "the formal *acknowledgment* of historical wrong, the *recognition* of continuing injury, and the *commitment* to redress, *looking* always to victims for guidance."[18] Victims guide us to the truth, without which it is impossible to comprehend the nature and scope of harms done. Such comprehension is a necessary first step to ceasing harm and making redress.

As the wealthy and powerful have disproportionate influence over laws and institutions, they tend to use laws for efficient extraction of resources and labor, whilst obfuscating legal responsibility for harms and silencing victims. In contrast, reparations require legal systems that do not obfuscate facts, and legal discourses that do not render mass suffering unspeakable. Thus, a demand for reparations radically subverts and upends dominant legal systems, because such a demand dismantles the myth of legal equality and entails an acknowledgment of systemic legal silencing as a first step. For this reason, France and the United States responded with swift violence to Haiti's reparations demand on 7 April 2003. When Haitian President Jean-Bertrand Aristide spoke his truth on the two hundredth anniversary of L'Ouverture's death in a French prison, imperial nations heard not only a demand for 21 billion US dollars but foresaw a reckoning for the countless harms they wreak globally and thus hastened to depose Aristide.[19]

The truth is that rich continually rob the poor of what the rich are incapable of reinstating, and the poor have had to learn to live with irreparable loss. Even if law one day provides recompense for the injustices of colonialism, genocide, slavery, apartheid, and climate change, it can only be partial, which

16 *Ibid*. 52.

17 This distinction is explained by Mason-Case and Dehm; Sarah Mason-Case and Julia Dehm, 'Redressing the Historical Responsibility for the Unjust Precarities of Climate Change in the Present' in Benoit Mayer and Alexander Zahar (eds), *Debating Climate Law* (CUP 2021) 170, 171 at fn 2.

18 Matsuda, 'Looking to the Bottom' (n 12) 397.

19 Méhuet and others, 'Demanding Reparations' (n 10); Noam Chomsky, Paul Farmer, and Amy Goodman, *Getting Haiti Right This Time* (Common Courage Press 2004); Peter Hallward, *Damming the Flood: Haiti, Aristide, and the Politics of Containment* (Verso 2007); Randall Robinson, *An Unbroken Agony: Haiti, from Revolution to the Kidnapping of a President* (Basic Books 2007).

does not render such compensation unnecessary. Achille Mbembe reminds us that to compensate does not mean to erase the wrong; it does not erase the need to remind, remember, and honor the truth.[20] And Kwame Appiah tells us that, at its heart, restitution is about offering to repair a relationship.[21]

In this deeper sense, reparations require ceding space to, lifting up, and allowing victims to speak their truth; and cultivating the capacity to listen to those systemically silenced within legal systems due to their species, gender, class, culture, race, sexuality, abilities, and other vectors of injustice. The subsequent parts of this chapter consider the challenges and opportunities that litigation offers for such truth-telling about climate change. Redressing deeply unequal relations with attentiveness and care is not just essential for climate reparations, it is necessary for stemming climate change. Injustice is the root cause of anthropogenic climate change, with the actions of the rich few placing human survival in unprecedented jeopardy. Climate change today provides humans with a daily reminder that truth is not only indispensable to the rule of law, it is also a condition for the survival of our world.[22]

3. Some Challenges when Litigating for Climate Reparations

Looking to courts for climate reparations raises some fundamental contradictions. Courts are designed to maintain and preserve the legal system that created them, yet a demand for reparations asks courts to remedy the systemic injustice that courts are part of. This Part considers some ways in which this paradox manifests, from the difficulty of making climate litigation about climate justice, to the unjust outcomes of legal indeterminacy and epistemic homogeneity.

a. Climate Litigation for Climate Justice

Whether in international, regional, or domestic courts, the adjudication process skews toward creating legitimacy for the powerful but is not as easily claimed directly by subalterns in greatest need of protection. Courts inevitably

20 Achille Mbembe, 'Thoughts on the Planetary: An Interview with Achille Mbembe' in Jaco Barnard-Naude (ed), *Decolonising the Neoliberal University: Law, Psychoanalysis and the Politics of Student Protest* (Birkbeck Law Press 2021).

21 Kwame A Appiah, '*Comprendre les réparations: Une réflexion préliminaire*' (2004) 25 *Cahiers d'études Africaines* 173.

22 Usha Natarajan, 'Climate, Conflict and International Law in the Middle East and Beyond' (2020) 114 *ASIL Proceedings* 160, 164.

favor the middle classes as they can use justice systems most advantageously.[23] Access to judicial systems is often beyond the direct reach of grassroots politics, which then need elite legal professionals to act as intermediaries. Quick to master the discourse and the professional opportunities such litigation provides, such experts often contribute to undermining any radical or emancipatory truth telling potential by trimming subaltern narratives to fit within dominant legal parameters.[24] While challenging for subalterns to mobilize effectively, courts have frequently proved useful to imperial and undemocratic agendas.[25]

As this chapter is concerned with climate justice, it considers to what extent climate litigation allows victims an opportunity to tell the truth about the causes and consequences of climate change. As the vast majority of people and places on the front lines of climate change are in the Global South, this chapter considers whether climate litigation has potential to redistribute power, knowledge, and wealth from the North to the South. Of the ten model scenarios presented at the beginning of this edited collection, such potential is least evident in situations where citizens of high emitting Northern states – who have themselves participated in and benefitted from their state's high emissions – litigate against their own states for damages.

Scenarios 1 and 3 fall into this category. Scenario 1 draws on the *KlimaSeniorinnen* case, where a Swiss association of elderly women alleged before the European Court of Human Rights that Switzerland was partly responsible for violating their human rights due to adverse impacts of climate change stemming from Switzerland's inadequate mitigation measures. The association sought reparations for existing and future harm. The Court did not provide reparations beyond covering the costs of the action, but importantly the Court held that Switzerland *was* obliged to mitigate and adapt to climate change.[26] Notably, a similar claim was made before the same Court by a group of Portuguese children against 33 European states including Portugal, which the Court ruled inadmissible on grounds of jurisdiction and non-exhaustion of domestic remedies.[27] In both these cases, the Court was uninterested in whether claimants themselves contributed to or benefited from their state's emissions,

23 Malcolm Langford, 'Critiques of Human Rights' (2018) 14 Annual Review of Law and Social Science 69, 81.

24 *Ibid*. 80.

25 Usha Natarajan, 'Who Do We Think We Are? Human Rights in a Time of Ecological Change' in Usha Natarajan and Julia Dehm (eds), *Locating Nature* (CUP 2022) 200, 206.

26 European Court of Human Rights, Verein *KlimaSeniorinnen Schweiz and Others v Switzerland*, No 53600/20, Judgment (Grand Chamber) of 9 April 2024.

27 European Court of Human Rights, *Duarte Agostinho and Others v Portugal and 32 Other Member States*, No 39371/20, Decision (Grand Chamber) of 9 April 2024.

but from a climate justice point of view it may be worth considering whether children in the Global North bear less responsibility than adults in this regard. Scenario 3 contemplates a group of Italian farmers litigating against their state before a domestic court for human rights violations allegedly resulting from Italy's lack of mitigation and adaptation to climate change and the resultant serious harm to farmers and farmlands. A group of Swiss farmers have since brought precisely such a case before a domestic administrative tribunal, which the farmers lost in the first instance due to lack of standing as they could not show a harm more intense than that experienced by the rest of the population.[28] However, their appeal is underway, relying among other things on the *KlimaSeniorinnen* case as well as the severity of harm experienced by the farming community, with this appeal pending at the time of writing.[29] Again, from a climate justice perspective, it may be worth considering to what extent European farmers have contributed to and benefited from their state's emissions.

This chapter does not devalue the climate litigation that citizens and residents of the Global North undertake against their states of citizenship and residence. When litigants anywhere succeed in getting high emitting states to reduce greenhouse gas emissions and other global environmental harms, they contribute significantly to the global common good. However, this chapter argues that climate reparations demand much more than this. Reparations demand telling the truth about the racialized, gendered, cultural, and economic hierarchies that produced these harms so that redress and reparations dismantle these hierarchies instead of obfuscating, reproducing, and entrenching them. Litigation for such reparations would seek avenues for direct or indirect redistribution from North to South of not only financial, scientific, and technological resources but also power and agency. It is in this sense that environmental justice movements across the Global South use litigation, among other tactics, to disrupt and productively enhance global debates with their long-silenced multitude subaltern perspectives on what climate justice and reparations looks like.

As part of the Third World Approaches to International Law or TWAIL movement, I have written elsewhere about the terms Third World and Global South and the diverse ways our movement deploys these concepts.[30] For the

28 Swiss Department of Environment, Transport, Energy, and Communication, *Uniterre et al v Swiss Department of the Environment*, 20 September 2024.

29 *Swiss Federal Administrative Court, Uniterre et al v Swiss Department of the Environment (Swiss Farmers Case),* filed 23 October 2024 (pending).

30 Usha Natarajan, 'Environmental Justice and the Global South' in Sumudu Atapattu and others (eds), *Cambridge Handbook of Environmental Justice and Sustainable Development* (CUP 2021) 39, 39–44; Usha Natarajan, 'TWAIL and the Environment' in Andreas

purposes of this chapter, suffice to say the Global South refers to the world outside Western Europe and its settler colonies. As such, it includes the South within the North,[31] which are the Indigenous and Tribal nations that assert their sovereignty and self-determination despite longstanding European settler colonialism, conquest, and oppression. Of the ten model scenarios, the following six potentially raise North to South redistributive claims:

— Scenario 2 where Indigenous claimants litigate against their colonizers in the Global North.
— Scenario 4 where the claimant asks (among other things) for the Committee on Economic, Social and Cultural Rights to establish a global loss and damage fund.
— Scenario 6 where a Small Island State makes a claim against the Flag State before ITLOS for an oil tanker spill that harmed the maritime environment (contingent on the identities of the two states).
— Scenario 8 where four Indonesian claimants take a Swiss corporation to a Swiss court for corporate activities in Indonesia causing climate loss and damage and requiring adaptation.
— Scenario 9 where its shareholders bring a Swiss civil action against Swiss financial giant UBS for exposing shareholders to risk via carbon intensive investments (contingent on shareholder nationality).
— Scenario 10 where an Indigenous community from Norway makes a claim against United States fossil majors in US courts under the US Alien Torts Act.

None of the ten model scenarios envision a situation where claims are made directly against a state or states in the Global North for the environmental damage they have wreaked across the Global South. Instead, Scenario 7 envisions litigation *against* Brazil, a state in the Global South, by Peru, another state in the Global South. Brazil possesses rainforests that are crucial carbon sinks, which it has allegedly failed to protect from deforestation and forest fires. Peru alleges transboundary harm as a result of deforestation and claims specially affected status. While a state that is specially affected by climate change is more likely to be in the Global South, such a claim could conceivably also be made by Northern states that are low-lying or Arctic or harmed in some other way. These types of claims are the most worrying from a climate

Philippopoulos-Mihalopoulos and Victoria Brooks (eds), *Research Methods in Environmental Law* (Edward Elgar Publishing 2017) 207, 208–11.

31 Amar Bhatia, 'The South of the North: Building on Critical Approaches to International Law with Lessons from the Fourth World' (2012) 14 Oregon Review of International Law 131.

justice perspective given that they allocate both the blame and the burden of remedy squarely to the Global South; especially in a world where no such scenarios are envisioned against Northern states that are responsible for most global emissions, historic and contemporary.

While climate litigation from the North against the South is inherently problematic given grossly unequal carbon footprints, South–South litigation also has its climate justice challenges. For example, Scenario 5 envisions a claim by an Indigenous community against Mexico at the Inter-American Commission of Human Rights for failing to mitigate emissions and thereby harming the collective human rights of their community as well as future generations. At first glance, such a claim may seem subject to similar critique as the three aforementioned cases at the European Court of Human Rights. However, unlike Western Europe, most states in the Americas do not have high total or high per capita carbon footprints, with the notable exceptions of Canada, Trinidad and Tobago, and the United States. Moreover, many Indigenous communities across the Americas do not participate in and benefit from their state's emissions to the same extent as non-Indigenous citizens. Rather, Indigenous communities suffer from an unequal access to natural resources and are disproportionately harmed by environmental change, and thus their claims are very much grounded in climate justice.

Unfortunately, such litigation has brought only limited benefits to victims, as they are unable to stem large scale Northern corporate extraction that profits from the violations of Indigenous rights. For instance, the comparable case of *Inhabitants of La Oroya v Peru* at the Inter-American Court of Human Rights ruled that Peru must provide diverse forms of reparations to the Indigenous community.[32] It took twenty years of litigating for Indigenous communities to obtain the *La Oroya* judgment and corporate harm continued unabated during this time. In wake of this judgment, Peru faces legal and institutional difficulties in providing effective reparations given the dependency of the Peruvian economy on extractivism from the Global North.[33] In contrast, Northern corporate investors can subject Peru to an investor–state dispute settlement (ISDS) process that provides rapid and enforceable remedies if

32 *Inhabitants of La Oroya v Peru* (Inter-American Court of Human Rights Series C No. 511, 27 November 2023).

33 Areli Valencia, *Human Rights Trade-offs in Times of Economic Growth: The Long-Term Capability Impacts of Extractive-Led Development* (Palgrave Macmillan 2016); José Saldaña, 'People from La Oroya vs Peru, Inter-American Court of Human Rights: How Effective is International Law to Protect the Environment in Extractive Contexts?' (*EJIL:Talk!,* 11 April 2024).

Peru's environmental regulations infringe on projected corporate profits.[34] From independence onwards, postcolonial states have been fighting a losing war against Northern investors on the battleground of investment law.[35]

The Advisory Opinion sought by the UN General Assembly from the International Court of Justice foreshadows the potential for claims to be made directly against a state or states in the Global North for the environmental damage they have wreaked across the Global South.[36] This scenario should be kept in mind given its centrality to the climate justice concerns of this chapter. While climate reparations should potentially encompass a range of public and private actors, given the causes of the climate crisis past and present, the responsibility of rich states towards poor states remains central. After considering the obstacles and risks involved, Suedi ultimately advocates for such litigation and underscores the importance of state-based demands on the international level.[37]

While South–North international efforts are paramount for climate justice, domestic litigation to hold private actors accountable for their contributions to climate change are also important given that just ninety companies are responsible for two-thirds of global emissions since the industrial revolution.[38] Dehm observes that,

> based on cumulative emissions between 1988 and 2022, the 21 largest fossil fuel companies owe USD 5.4 trillion in reparations between 2025 and 2050, or USD 209 billion annually. The super-profits made by the fossil fuel industry between 2000 and 2019 could cover the costs of climate-induced economic losses in 55 of the most climate vulnerable countries nearly 60 times over.[39]

34 Saldaña (n 33).

35 Muthucumaraswamy Sornarajah, *Resistance and Change in the International Law on Foreign Investment* (CUP 2015); Nicolas Perrone, *Investment Treaties and the Legal Imagination: How Foreign Investors Play By Their Own Rules* (OUP 2021).

36 *Obligations of States in Respect of Climate Change* (Request for Advisory Opinion pursuant to UNGA Resolution 77/276 of 29 March 2023), 2023 ICJ General List No 187.

37 See chapter 10, Suedi, 225–228.

38 Richard Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010' (2014) 122 Climatic Change 229.

39 Julia Dehm, 'Beyond Climate Due Diligence: Fossil Fuels, "Red Lines" and Reparations' (2023) 8 Business and Human Rights Journal 151, 178, citing Marco Grasso and Richard Heede, 'Time to Pay the Piper: Fossil Fuel Companies' Reparations for Climate Damages' (2023) 6 One Earth 459; see also Lyndsay Walsh and Teo Ormond-Skeaping, 'The Cost of Delay: Why Finance to Address Loss and Damage Must be Agreed to at COP27' (24 October 2022).

When it comes to demanding such reparations in domestic courts, as Nordlander observes, there are legal and practical obstacles for litigants in poor states to access courts in rich states.[40] Scenarios 8 and 10 contemplate such action. Scenario 8 considers litigation by individuals in the Global South against Northern corporations in Northern courts. The two real life counterparts to this Scenario are, firstly, *Luciano Lliuya v RWE AG,* where a Peruvian farmer's claims against the German corporation RWE were dismissed by a German court;[41] and, secondly, *Asmania et al v Holcim,* where the claims of four Indonesians against Swiss corporation Holcim in a Swiss court are still pending.[42] Scenario 10 considers claims by an Indigenous community in Norway against US corporations ExxonMobil and Chevron in US Courts under the Alien Torts Statute (ATS). The US Supreme Court in *Jesner v Arab Bank* curtailed corporate accountability of foreign corporations under the ATS. The case left room for ATS claims against US corporations but emphasized a high burden of proof and a requirement that the issue be of concern to the US.[43] The prospects of success in any such a case are further diminished by the return to the US Presidency of the rabidly anti-environmental Trump administration as well as its judicial appointees that constitute a majority in the US Supreme Court.

b. Legal Indeterminacy and Epistemic Homogeneity

If climate litigation is successfully launched in the cause of climate justice and truth-telling, such cases must then reckon with the limits of the legal concepts available to them with which to articulate their justice claims and speak their truths. Legal concepts that lack clarity or have a wide scope of indeterminacy leave some room for just solutions but tend to skew toward the powerful, who are best positioned to exploit legal imprecision. Some of the concepts involved in articulating a notion of climate loss and damage suffer from such fuzziness. I have written elsewhere about six assumptions underlying the legal notion of climate loss and damage that merit scrutiny: that climate change is a) identifiable, b) calculable, c) compensable, d) attributable; and that e) the concept of loss and damage for climate change may help deter irresponsible behavior, and f) make a much-needed gesture towards fairness. Upon close examination, I concluded that all six assumptions reduce nature to its commodification and

40 See chapter 12, Nordlander, 257.

41 Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

42 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG).*

43 *Jesner v Arab Bank, PLC,* 584 US 241 (2018).

exchange value, thus reproducing Western modern law's harmful relationship with the natural environment. For similar reasons, there are risks that climate justice litigation may have unintended consequences, including that of potentially exacerbating climate change. These risks should be taken seriously because they echo existing patterns in international environmental law where, after five decades of sustained attention, the global environment has consistently deteriorated.[44]

Without revisiting each of these six issues in depth, it may be helpful to outline some aspects pertinent to climate reparations litigation. In both the natural and the social sciences, several gaps persist when it comes to identifying climate loss and damage.[45] Moreover, loss is an experience that cannot be understood without nuance and sensitivity to the nature of people's lives and the humility to allow those people to speak for themselves. What matters to societies and individuals shapes what they consider a loss. Loss gets its meaning through lived and place-based experience. Perspectives from human geography, psychology, philosophy, economics, and ecology reveal that loss is relational and dynamic as people make trade-offs between different value priorities.[46]

Within my discipline of international law, accommodating diverse, changing, ambiguous, and contradictory understandings of loss poses a challenge because international law is wedded to a constructed universality. Modern international law has its origins in the works of sixteenth century European jurists, when the colonial encounter with 'new worlds' motivated European legal reasoning to encompass all peoples and places under its imperial gaze.[47] Since then, international laws and institutions have continued to serve largely as a vehicle for Eurocentric interests writ large.[48] For this reason, some scholars have argued that international law is incommensurable

44 Usha Natarajan, 'Measuring the Immeasurable: Loss and Damage from Climate Change in International Law' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change and Loss and Damage* (Edward Elgar Publishing 2021) 60.

45 *Ibid*. 65.

46 Olivia Stevenson, Charlotte Kenten and Avril Madrell, 'Now the End is Near: Enlivening and Politicizing the Geographies of Dying, Death and Mourning' (2016) 17 Social & Cultural Geography 153; Pauline Boss and Donna Carnes, 'The Myth of Closure' (2012) 51 Family Process 456; Jan Zwicky, *Lyric Philosophy* (3rd edn, University of Toronto 2014); Jef De Mot, 'Pure Economic Loss' in Michael Faure (ed), *Encyclopedia of Law and Economics Vol 1: Tort Law and Economics* (2nd edn, Edward Elgar Publishing 2009); Ashlee Cunsolo and Neville R Ellis, 'Ecological Grief as Mental Health Response to Climate Change-Related Loss' (2018) 8 Nature Climate Change 275.

47 Antony Anghie, *Imperialism, Sovereignty and the Making of International Law* (CUP 2005) 13–31.

48 Peter Fitzpatrick, *The Mythology of Modern Law* (Routledge 1992).

with difference.[49] International law continuously justifies and dynamizes itself by the selective assertion of universal values, adopting a professed position of external objectivity that possesses the capacity to detect such values. This is then followed by the identification of those places and people that remain unaware of such values despite their putative universality, necessitating the creation of more international laws to enlighten them.[50] Making space for the diverse types of loss that are encompassed by demands for climate reparations poses a fundamental challenge for law and other western modern disciplines that operate in accordance with similar homogenizing logics.[51] For courts, the question of identifying climate loss and damage usually arises early, because in many jurisdictions the risk or experience of direct harm is necessary to obtain legal standing before a court. In the climate context, jurisprudence and scholarship often focus on challenges of causality and attribution, rather than first interrogating their presuppositions about what constitutes a climate harm. Instead, if courts would begin with looking to victims to understand what constitutes a climate harm, then a broader range of cases would achieve standing, thereby creating more space for truth-telling that may in turn broaden judicial appreciations of causality and attribution.

Once a climate harm is identified, quantifying it poses further challenges. Attempts to calculate economic value usually involve assessing the services that nature provides to humans. For instance, in Scenario 6, where an oil tanker spill has harmed an island state's maritime environment, *restitutio in integrum* is impossible so the island state demands from the tanker's flag state financial reparation calculated based on ecosystem goods and services. However, with a view to not reproducing existing environmental problems, it would be wise to reflect on the harmful consequences of anthropocentrism and contemplate the implications for the non-human realm as well. Even if a court confines itself to human harms, it is not possible to fully understand climate impacts for humans without understanding the consequences for nature as a whole. Human life is inextricably intertwined with all other life, and calculating loss from the human standpoint alone has proven shortsighted and inaccurate. Admittedly, calculating value from the point of view of nature

49 Annelise Riles, 'Aspiration and Control: International Legal Rhetoric and the Essentialization of Culture' (1993) 106 Harvard Law Review 723; Dianne Otto, 'Subalternity and International Law: The Problems of Global Community and the Incommensurability of Difference' (1996) 5 Social and Legal Studies 337.

50 Fitzpatrick (n 48); Anghie (n 47).

51 Natarajan, 'Measuring the Immeasurable' (n 44) 66.

holistically may prove to be insurmountably complex even for scientific experts and environmental economists, let alone for judges.[52]

Quantifying losses from climate change is not only difficult, it augments the longstanding divorce of economy from ecology. Even if such an assessment can be undertaken, should we be quantifying the conditions for life on earth, for the survival of species, for future generations, for happiness, and all the innumerable "services" that a stable climate enables? Assigning monetary value may lead to such an evaluation gradually obscuring and superseding all the other ways in which we appreciate nature, reducing nature to no more than a natural resource and a service provider. Such perceptions of nature have already played their role in producing climate change and other environmental harms. Solutions that involve more thoroughly commodifying nature, and more effectively capturing it within the limitless exploitation of globalized capitalism, create more problems than they solve.[53]

Beyond the loss of a healthy environment, climate change produces many other types of harm that are also incalculable. Hence, the contemporary loss and damage debate in the context of climate change increasingly engages with non-economic loss. There is broad acknowledgement that it is at worst unethical, and at best distasteful, to assign monetary value to the loss of life, country, family, home, land, livelihood, tradition, culture, and future. Yet, litigating to compensate for such types of damage inevitably requires engaging in this difficult task. While similar challenges have been surmounted in domestic tort law, the logic applicable to domestic tort law may be misleading when applied internationally in the context of climate change because the types of loss and damage are different in scope and scale to an extent incomparable in human experience.

If a court nevertheless determines such calculation to be a worthwhile endeavor, who decides what counts and how to count it? People value and count different things in different ways[54] and, as previously discussed, law is a discipline that has had difficulty valuing a diversity of worldviews.[55] For example, Scenario 2 draws inspiration from the *Billy et al v Australia* complaint made by Indigenous Torres Strait Islanders to the UN Human Rights Committee that Australia violated the Islanders' human rights under the International Covenant on Civil and Political Rights, including their right to

52 *Ibid*. 69.

53 *Ibid*.

54 Luis Eslava, Usha Natarajan and Rose Parfitt, '(Post) Revolutionary Interlinkages: Labor, Environment and Accumulation' (2013) 4(1) Transnational Legal Theory 108.

55 Natarajan, 'Measuring the Immeasurable' (n 44) 69.

culture.[56] In their culture, maintaining ancestral graveyards and visiting and communicating with deceased relatives is a sacred and formative part of daily life and ritual. Amid a long list of harms, increased flooding as a result of climate change has not only destroyed their graveyards, but has left ancestral human remains scattered across their islands, creating horrific trauma across the community. While the Committee asked Australia to compensate through meaningful consultation to assess community needs in the present and future, it is not easy to envision adequate redress for such painful ordeals.

In cases where loss and damage are at an unprecedented scale, another challenge when it comes to litigating for adequate compensation is the segregation of environmental concerns from other aspects of public and private law. Disciplinary fragmentation predetermines legal priorities and the most favorable grounds for bringing a case. Such fragmentation prevents humane and orderly responses to climate change. Turning for example to the issue that provokes the greatest panic among rich states, it is estimated that hundreds of millions of people are in the process of being displaced across the Global South because of climate change.[57] International law currently addresses population movement in such shortsighted ways that it cannot conceive of a shift in the planet's habitable zones. Refugee law provides international protection only for a tiny category of people who face specific extreme forms of discrimination (0.43 per cent of the global population has refugee status).[58] Everyone else crossing an international border is dependent on the discretion of host states for permission to remain. Such a legal framework obfuscates the mass protracted displacement habitually produced by dominant development patterns so systemically destructive that they foment conflict, insecurity, inequality, drought, famine, desertification, environmental toxicity, and of course climate change.[59] Yet attempts to provide redress through international environmental law for those displaced by climate change, including extreme cases where entire sovereign territories are submerging, have been evaded by rich states.[60] Attempts to provide redress through international laws for

56 UN Human Rights Committee, *Billy et al v Australia*, 22 September 2022, UN Doc CCPR/C/135/D/3624/2019.

57 IOM, *Global Data Institute Thematic Brief #1: Evidence Summary on Climate Change and the Future of Human Mobility* (IOM 2022).

58 UNHCR, *Global Trends: Forced Displacement in 2023* (UNHCR 2023).

59 Ibrahim Awad and Usha Natarajan, 'Migration Myths and the Global South' (2018) 30 Cairo Review of Global Affairs 46.

60 Elisa Calliari, 'Loss and Damage: A Critical Discourse Analysis of Parties' Positions in Climate Change Negotiations' (2016) 21(6) Journal of Risk Research 725; Reinhard Mechler and Thomas Schinko, 'Identifying the Policy Space for Climate Loss and

asylum and migration are if anything even less promising.[61] As international laws are disproportionately shaped by those causing climate change, they are reluctant to contemplate even monetary compensation for climate loss and damage, let alone more adequate and sustainable forms of recompense.

Yet, historically, many species including humans survived climate change by moving. That is to say, species adjusted to the shifting of their habitable zones by moving along with them. Today, we face climate change on a greater scale than humans have encountered in the past. But our world is now partitioned into sovereign territories with controlled borders, and rich states are strengthening these controls, so people cannot move easily. How can one compensate for the loss of homelands, especially in extreme cases where entire homelands are lost to rising seas? According to the Intergovernmental Panel for Climate Change, the Bahamas for instance will be completely submerged by 2070. In legal terms, how can a state's sovereignty and self-determination be maintained or restored when its territory is entirely lost due to the wrongful acts of other states? Adequate recompense for such profound and total loss is impossible. Certainly, monetary compensation alone is inadequate, because what is needed is another home. One that is welcoming and that provides a renewed sense of safety, belonging and significance – a real home where one is not treated as an interloper or charity case. Beyond providing asylum, states responsible for climate change should cede territory to these ends to ensure the restoration of sovereignty and self-determination.[62] In a world where the United Kingdom felt legally capable of handing over a significant portion of the trust territory of Palestine to European Jews to form the state of Israel as compensation for harms inflicted by Europeans, it is neither unrealistic nor unprecedented to demand that rich states instead cede parts of *their own territory* to recompense those whom they have harmed. If Scenario 7 can envision climate reparations from a state in the Global South for transboundary harm from deforestation, we can envisage the same laws of state responsibility as providing the foundation for a broader range of South to North legal demands to hold the North accountable for its irresponsibility on a planetary scale.

Damage' (2016) 354(6310) Science 290; Andrew Baldwin and Giovanni Bettini (eds), *Life Adrift: Climate Change, Migration, Critique* (Rowman & Littlefield 2017).

61 UNGA Res 73/151 (10 January 2019) UN Doc A/RES/73/151; Global Compact for Safe, Orderly and Regular Migration, GA Res 73/195 (11 January 2019); Baldwin and Bettini (n 60).

62 On migration, colonial history, and climate change, see Maxine Burkett, 'Climate Migration and the Deep Roots of Climate Justice' (2021) 93 Temple Law Review 653; Carmen G Gonzalez, 'Migration as Reparation: Climate Change and the Disruption of Borders' (2020) 66 Loyola Law Review 401.

While it is not always straightforward to identify, quantify, and provide adequate compensation for climate harms, climate litigation may still be worthwhile if it promotes greater responsibility, fairness, and justice amid some individuals and communities. But reparations demands that rely wholly on economic valuation and financial compensation may merely allow the rich to further profit from their affluence. After all, the fossil fuel industry extracts rents that exceed its expenditure several hundredfold. For those who can afford to pay for the damaging consequences of their excesses, fines are no deterrent to further irresponsibility. For instance, Scenarios 8 and 10 envision reparation claims by individuals and communities in the Global South against Northern corporations. Whilst these cases are unlikely to succeed, even in the best-case scenario of victory, large corporations are unlikely to be deterred from continuing harm. Remedies that seem to apply to everyone equally but are in fact radically unequal in their impact are unlikely to produce just outcomes in the long run. Indeed, as Anatole France famously observed, such laws have long helped institutionalize and maintain unequal power relations.[63]

When it comes to climate litigation, there is overreliance on economic valuation over other types of value. Even when other types of value are identified and acknowledged in climate debates – ecological, spiritual, cultural, and familial values, notions of fairness, justice, responsibility, deterrence, and so on – the default tendency in courts is to translate them ultimately into economic terms. Given that the prioritization of economic growth above all else has created environmental problems such as climate change, pinning our hopes on the same type of valuation for redress may be in vain. The futility of this logic is appreciated by many Tribal and Indigenous communities. A tribal elder from the Bad River Band of Lake Superior Chippewa Indians[64] observed that trying to evaluate their environmental resources or wild rice in dollars and cents is not a legitimate conversation, "because it concerns a lot more: our culture, our lifestyle, our spirituality. So, it's priceless. We can't put a price on it. We won't. *It's not for sale.*"[65] That is to say, nature cannot be encompassed within the rubric of exchange value. Thus, it presents fundamental conceptual

63 "For the poor it consists in supporting and sustaining the rich in their power and their idleness. At this task they must labour in the face of the majestic equality of the laws, which forbids rich and poor alike to sleep under the bridges, to beg in the streets and to steal their bread": Anatole France, *Le Lys Rouge* (first published 1894, Dodd Mead and Company 1910 English edition) 91; Natarajan, 'Measuring the Immeasurable' (n 44) 77.

64 The Bad River Band of Lake Superior Chippewa Indians are part of the Lake Superior Ojibwe group and related to the Anishinaabe group of Indigenous peoples that also includes the Ottawa, Potawatomi, and Algonquin peoples.

65 Stephanie Dooper, 'What Does Climate Change Mean for the Bad River Band of Lake Superior Chippewa Indians?' (*Climate Analytics*, 24 April 2018) *(emphasis added)*.

and practical challenges to the notion of climate reparations through conventional forms of litigation. For courts, delivering meaningful climate reparations entails not only making space for diverse understandings of value but also for learning from diverse legal traditions.

4. Litigation Opportunities for Climate Justice and Reparations

While there are several ethical, conceptual, legal, and practical challenges when it comes to litigating for climate reparations, there are also opportunities. As Linnéa Nordlander points out, the inadequacies of various climate funds (existing and planned) have rendered litigation a useful alternative forum for articulating redistributive demands.[66] Additionally, Julia Dehm makes a compelling argument for lawsuits against fossil fuel companies that intentionally concealed the dangers of their products and created doubt about climate science. Dehm predicts the proliferation of such suits, observing that "[a]ccountability for these targeted misinformation and lobbying campaign [sic] is an essential element of corporate climate accountability."[67]

As aforementioned, litigation tends to favor the powerful, but the ambiguity of law can sometimes work in favor of the oppressed and create momentous change that goes beyond the case at hand and productively informs broader societal, legal, and policy debates. Keeping in mind the constraints of mainstream legal discourse, litigation provides some opportunity – however limited – for claimants to tell their story. As discussed in Part 3, there are considerable barriers to climate justice claimants telling their stories in their own words and in their own languages. Nevertheless, at times they have managed to contribute to and shape the extant discourse in new and imaginative ways. Whether through establishing legal standing for future generations in the Philippines in 1993,[68] or legal standing for nature in Colombia, India and New Zealand over the last decade,[69] litigation has helped reveal the limits of traditional

66 See chapter 12, Nordlander, 254-255.

67 Julia Dehm, 'Beyond Climate Due Diligence: Fossil Fuels, "Red Lines" and Reparations' (2023) 8 Business and Human Rights Journal 151, 117, citing Jessica Wentz and Benjamin Franta, 'Liability for Public Deception: Linking Fossil Fuel Disinformation to Climate Damages' (2022) 52 Environmental Law Reporter 10995.

68 Philippines Supreme Court, *Minors Oposa v Factoran,* GR No 101083, 30 July 1993.

69 Constitutional Court of Colombia, Judgment T-622/16 (10 November 2016); *Lalit Miglani v State of Uttarakhand et al,* WPPIL 140/2015 (High Court of Uttarakhand) 2017 [64]; *Mohd Salim v State of Uttarakhand et al,* WPPIL 126/2014 (High Court of Uttarakhand) 2017 [19]; Te Awa Tupua (Whanganui River Claims Settlement) Act 2017, NZ.

legal remedies and has pushed courts to reevaluate the capacity of conventional legal concepts to provide justice. With this potential in mind, environmental justice movements litigate tactically with deep attentiveness to knowledge production, especially narratives – what stories are told by whom, when, and why – with a dedication to using the courtroom to tell better stories to address intergenerational and intragenerational equity concerns.

It is undeniable that environmental law – international and domestic, legislative and judicial – has thus far been unable to stem ecological catastrophe. Indeed, in many ways, environmental laws have contributed to the problems they claim to solve.[70] Nevertheless, the courtroom remains a theater of immense symbolic power. When climate justice cases are won but not enforced, or even when such cases are lost, all is not lost. For those who can get there, the courtroom provides an opportunity to be heard, not only by judges but to make suffering and injustice visible to the public at large and to make a public appeal through the considerable media attention that such cases command. Lawyers may enjoy tortuous debates on the intricacies of standing, causality, and attribution, but an ordinary person anywhere in the world more readily understands the general principles of law shared by all nations: Those who cause the harm should make the restitution and they should not repeat the harm.[71]

It is for this reason that courts continue to be a time-honored forum for Third World struggles. Not because they provide us with justice – this rarely happens – but because for a moment they amplify the mass suffering of the peoples of the Global South that is habitually ignored, silenced, or rendered unspeakable. Mahatma Gandhi is often quoted as saying, "there is a higher court than the courts of justice and that is the court of conscience. It supersedes all other courts."[72] As a legal practitioner and scholar, Gandhi had a keen appreciation of the courtroom as spectacle. His praxis of nonviolent civil disobedience entailed among other things repeated arrest and imprisonment. Gandhi used his time in the dock to amplify the injustices of British colonialism, using the attendant domestic and foreign press to appeal to 'the court of conscience' and thereby cultivate an Indian independence movement so large that it was impossible to ignore.

70 See generally Natarajan and Dehm (n 25).

71 As espoused by the Permanent Court of International Justice in the *Factory at Chorzów* (Jurisdiction) [1927] PCIJ Series A, No. 9.

72 Mohandas Karamchand Gandhi, *Quotes of Gandhi* (Shalu Bhalla ed, UBS 1995) 34; see also Mohandas Karamchand Gandhi, *The Law and the Lawyers* (rev edn, Navajivan Publishing House 2005).

The tactical gains achieved by Palestine at the International Court of Justice over the years, against devastating odds, testify to how courts continue to be used effectively for anticolonial movement building.[73] In the face of Israel's longstanding and ongoing occupation, settler colonialism, genocide, and apartheid in Palestine, it may seem futile to point to the ICJ's *Wall Advisory Opinion* or the ICJ's provisional measures in the *South Africa v Israel Genocide Case* as instances of success. Nevertheless, both cases not only significantly increased public awareness of the injustices long borne by the Palestinian people, but they also contributed to exponential growth of Palestine solidarity movements including the Boycott, Divest, and Sanctions movement.

Importantly, the Global South's demand for climate reparations is more than an anti-colonial and anti-imperial stance. It is an assertion that there are ways of being in this world that are not inescapably wedded to extractivism, racism, capitalism, patriarchy, and diverse intertwined evils that have inevitably produced ecological catastrophe. Riley Case observes that the liberatory visions of the Global South are not solely in response to imperialism, but are inspired by "self-assured traditions of abolition, independence, Pan-Africanism, and regional solidarity."[74] To the extent that litigation can draw on these types of local traditions, perhaps case law and the common law can propagate alternatives to globalized capitalism and its limitless accumulation:

> Reparations are foremost a horizon of transformation away from accumulative ways of life that spread from Europe to the world, structuring the present reality. "Reparations" also refers to immediate justices that meet the demands of those who are harmed, because this prefigures the horizon of transformation by disrupting imperialism. These qualities dispel racializing critiques from the First World that reparations are irrational, or constitute politics separate from law. Reparations can enact legal relations that are meaningful to those "on the bottom," and emancipatory for everyone, when communities and social movements define them.[75]

Today, adequate responses to climate change demand more than financial compensation, technological transfer, and other schemes that allow the rich to pay to keep emitting, and to profit from their own destructiveness via the so-called green economy. Climate change exacerbates existing vectors of injustice

73 See Ardi Imseis, *The United Nations and the Question of Palestine* (CUP 2023); Noura Erakat, *Justice for Some: Law and the Question of Palestine* (Stanford University Press 2019).

74 Riley Case (n 13) 49.

75 *Ibid*. 49.

but more than that it reveals shaky disciplinary foundations built on false legal assumptions about nature.[76] Modern western law has not only destroyed nature but has done so in a manner that makes sustainable alternatives difficult to imagine and articulate. We need to resurrect more accurate and healthy understandings of the environment and law's relationship to it. When it comes to international law, more than ever it would benefit from becoming genuinely international, ceding space to multiple worldviews so that more sustainable and equitable ways of living together can emerge.[77]

To conclude where I began with the case of Haiti, Haitians have long demanded reparations for slavery and colonization from France, including restitution of the independence ransom. Haiti is also one of the countries most harmed by climate change, despite neither contributing significantly to nor economically benefiting from greenhouse gas emissions. It is vulnerable to flooding, drought, hurricanes, other extreme weather, as well as sea level rise, all of which cause serious harm to human life and health, agricultural production and livelihoods, and to the functioning of terrestrial and marine ecosystems. As one of the poorest countries in the world, Haiti suffers these harms not only due to its location in the Caribbean, but because of its history of colonialism and slavery and the persistence of racist exploitation today.[78] Thus, a Haitian claim for climate reparations is fundamentally interconnected with its existing demands for reparations for colonialism, slavery, and ongoing racial injustice. This chapter argues that climate reparations entail telling the truths about the causes and consequences of climate change by looking to victims for guidance. In Haiti and elsewhere, victims of climate change consistently understand climate reparations as interlinked with social justice and self-empowerment. So, what does success look like when litigating for climate reparations? Cessation of harm, non-repetition, just compensation, certainly; but first and foremost, the ability to tell the truth amid legal systems designed to silence it.

76 See Natarajan and Dehm (n 25).

77 Natarajan, 'Climate, Conflict and International Law' (n 22) 162.

78 A recent report methodically lays out the evidence for just such a reparations claim: Global Justice Clinic, 'Bay Kou Bliye, Pote Mak Sonje: Climate Injustice in Haiti and the Case for Reparations' (2024).

Linnéa Nordlander

Chapter 12: Conceptualizing Loss and Damage for a New Frontier of Rights-Based Climate Change Litigation

1. Introduction

The international climate change regime lacks legally enforceable rights and obligations relating to the remedy of climate change loss and damage, a gap that has long been highlighted by climate-vulnerable developing countries.[1] Progress has been made on the matter over the last decade, with the recognition of the importance of loss and damage in the Paris Agreement and the subsequent establishment of initiatives like the Santiago Network for Loss and Damage, the Glasgow Dialogue on Loss and Damage, and most notably, a dedicated Fund for responding to loss and damage. Although the decision operationalizing the Fund "*allows* all developing countries to directly access resources from the Fund,"[2] this does not create a right for states to access finance in adequate volumes. Nor does it clarify which types of harms may be eligible for support. Moreover, contributions to the Fund are encouraged from both developed and developing countries,[3] but not mandated. This leaves

1 For discussion of the history of loss and damage in the international climate change negotiations, see *inter alia,* Maxine Burkett, 'Loss and Damage' (2014) 4 Climate Law 119 and Elisa Calliari and others, 'Article 8: Loss and Damage' in Leonie Reins and Geert van Calster (eds), *Commentary on the Paris Agreement* (Edward Elgar Publishing 2021).

2 UNFCCC COP, 'Decision 1/CP.28 Operationalization of the New Funding Arrangements, Including a Fund, for Responding to Loss and Damage Referred to in Paragraphs 2-3 of Decisions 2/CP.27 and 2/CMA.4' (15 March 2024) UN Doc FCCC/CP/2023/11/Add.1, para 20(e) (emphasis added).

3 The categorization of countries as developed or developing stems from the Paris Agreement. This binary is used to determine the extent of a given state's commitments under the Agreement, stemming from the principle of common but differentiated responsibilities and respective capabilities: see Paris Agreement (adopted 12 December 2015, entered into force 4 November 2016) 3156 UNTS 79, art 2; see also, United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force

climate-vulnerable developing countries, like small island developing states and least developed states, which have contributed minimally to greenhouse gas (GHG) emissions,[4] vulnerable to bearing the burden of addressing climate impacts largely on their own.

As negotiations have been ongoing, climate change litigation has been on the rise. Claims vary in nature, but often aim to hold states or corporations accountable for their (in)action on mitigation and/or adaptation, especially on the basis of human rights law.[5] Litigation for loss and damage is comparatively underutilized. Given the remedial gap in the international climate change regime and the slow progress to fill it, scholars have suggested that litigation may offer an alternative route for those seeking redress for climate harm.[6] This chapter seeks to contribute to that scholarship by exploring how five different types of human rights litigation can or cannot accommodate various elements of justice – *ex post* remedies, distributive justice, and the identification of duty bearers and rights holders – that underlie the loss and damage debate.

To do so, the chapter first outlines how loss and damage is addressed in the international climate change regime, in order to highlight how litigation may serve a supplementary role, in section 2. Section 3 then examines three unresolved issues regarding how loss and damage is understood in the international climate change regime: (1) whether it only concerns *ex post* injury, (2) the role of

21 March 1994) 1771 UNTS 107, art 3(1) (UNFCCC)). The Paris Agreement does not specify which states are developed or developing, nor does it provide conditions determining the categorization of a state. States instead self-differentiate through their nationally determined contributions, in which their contributions should reflect their national circumstances and capabilities. This departs from the approach adopted in the UNFCCC, which established Annexes listing countries as either developed, developing, or economies in transition, based on membership of the Organisation for Economic Cooperation and Development in 1992. For further discussion of differentiation in international climate change law, see Daniel Bodansky, Jutta Brunnée and Lavanya Rajamani, International Climate Change Law (OUP 2017) 127-128, 221-226; see also, Lavanya Rajamani, *Differential Treatment in International Environmental Law* (OUP 2006) 176-249.

4 See eg Climate Action Network, 'Submission on the Scope of the Technical Paper: Exploring Sources of Support for Loss and Damage and Modalities for Accessing Support' (February 2018), 4; Sam Adelman, 'Climate Justice, Loss and Damage and Compensation for Small Island Developing States' 7 Journal of Human Rights and the Environment 32 43.

5 Annalisa Savaresi and Joana Setzer, 'Rights-based Litigation in the Climate Emergency: Mapping the Landscape and New Knowledge Frontiers' (2022) 13 Journal of Human Rights and the Environment 7, 14-16.

6 See, among others, Margaretha Wewerinke-Singh, 'The Rising Tide of Rights: Addressing Climate Loss and Damage through Rights-Based Litigation' (2023) 12 Transnational Environmental Law 537; Maria Antonia Tigre and Margaretha Wewerinke-Singh, 'Beyond the North-South Divide: Litigation's Role in Resolving Climate Change Loss and Damage Claims' (2023) 32 Review of European, Comparative & International Environmental Law 439; Richard SJ Tol and Roda Verheyen, 'State Responsibility and Compensation for Climate Change Damages – a Legal and Economic Assessment' (2004) 32 Energy Policy 1109; Savaresi and Setzer (n 5) 15-16.

distributive justice, and (3) the identification of victims and duty-bearers. In section 4, the chapter analyzes fives type of litigation and their potential to provide remedies: (1) national vertical (individual v territorial state), (2) national oblique (individual v territorial corporation), (3) transnational diagonal (individual v non-territorial state), (4) transnational horizontal (interstate), and (5) transnational oblique (individual v non-territorial corporation).

In terms of delimitations, this chapter focuses on human rights litigation, specifically targeting European states and corporations based in Europe. This focus has been selected due to the high per capita emissions of these states[7] and the robust human rights framework provided by the European Convention on Human Rights (ECHR) and its Court, which has contributed to the prevalence of rights-based climate change litigation in the region.[8] While litigation against other major emitting developed states, such as the United States and Australia, is beyond the scope of this chapter, its findings are nevertheless relevant for prospective rights-based litigation against such states in other fora, such as before international treaty bodies and courts (depending on treaty membership and acceptance of judicial competence). While the chapter engages with litigation against developing states, this is not the primary focus, given that developed states are typically seen as the principal duty-bearers for loss and damage, as discussed in section 3(c). Additionally, litigation against developing states would not generally deliver on the calls for distributive climate justice at the international level discussed in section 3(b). Developing states and their nationals are, however, discussed in the chapter as potential litigants or beneficiaries.

2. Loss and Damage in the Climate Change Regime

Since the inception of the international climate change regime, small island developing states particularly vulnerable to the adverse effects of climate change have called for assistance in addressing these impacts, initially proposing an insurance pool financed by mandatory contributions from developed states as part of the United Nations Framework Convention on Climate Change (UNFCCC).[9] The proposal was not included in the Convention, but calls for

7 Pierre Friedlingstein and others, 'Global Carbon Budget 2021' (2022) 14 Earth System Science Data 4811.

8 Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2024 Snapshot' (June 2024), 2, 15, and 26.

9 Intergovernmental Negotiating Committee for a Framework Convention on Climate Change, 'Negotiation of a Framework Convention on Climate Change: Elements Related to Mechanisms' (17 December 1991) UN Doc A/AC.237/WG.II/CRP.8, paras 1(5), 1(2) and 3(2) (AOSIS Submission).

compensation and assistance for loss and damage persisted in the negotiations. The 2013 establishment of the Warsaw International Mechanism (WIM) marked the first institutional effort to address loss and damage. The WIM plays a facilitative role on knowledge-sharing and coordination, without any financial role. This, and the fact that the WIM was established under the Cancun Adaptation Framework, was considered problematic by some developing states.[10] Thus, in the lead-up to the adoption of the Paris Agreement, these states advocated for the inclusion of loss and damage as an independent item from adaptation in the Agreement, requiring new finance additional to adaptation finance. Despite contentious negotiations,[11] this crystallized in Article 8 of the Paris Agreement. The trade-off was the inclusion of paragraph 51 of the Conference of the Parties (COP) decision adopting the Paris Agreement, which explicitly excludes the use of Article 8 as a basis for liability and compensation.[12]

Despite the liability and compensation *caveat,* calls for financial assistance persisted post-Paris. After several years of financial plans being watered down into "networks"[13] and "dialogues,"[14] state parties finally agreed to establish a Fund for loss and damage in 2022.[15] This historic step finally (implicitly) recognized the distributive justice demands that had long underpinned the loss and damage negotiations.[16] However, the Fund's operational framework still does not guarantee adequate financing or clarify eligibility criteria for support, leaving climate-vulnerable states without guaranteed assistance.[17] This situation raises the question of whether litigation could offer a remedy

10 Julia Dehm, 'Climate Change, "Slow Violence" and the Indefinite Deferral of Responsiblity for "Loss and Damage"' (2020) 29 Griffith Law Review 220, 225-226.

11 Linda Siegele, 'Loss and Damage under the Paris Agreement' in Meinhard Doelle and Sara Seck (eds), *Research Handbook on International, National, and Transnational Responses to Loss & Damage* (Edward Elgar Publishing 2021) 100; Elisa Calliari, Swenja Surminski and Jaroslav Mysiak, 'The Politics of (and Behind) the UNFCCC's Loss and Damage Mechanism' in Reinhard Mechler et al (eds), *Loss and Damage from Climate Change: Concepts, Methods and Policy Options* (Springer 2019) 155.

12 UNFCCC COP, 'Decision 1/CP.21. Adoption of the Paris Agreement' (29 January 2016) UN Doc FCCC/CP/2015/10/Add.1, para 51.

13 CMA, 'Decision 2/CMA.2 Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts and its 2019 review' (16 March 2020) UN Doc FCCC/PA/CMA/2019/6/Add.1, para 43.

14 UNFCCC COP, 'Decision 1/CP.26 Glasgow Climate Pact' (8 March 2022) UN Doc FCCC/CP/2021/12/Add.1, para 73.

15 UNFCCC COP, 'Decision 2/CP.27 Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, Including a Focus on Addressing Loss and Damage' (17 March 2023) UN Doc FCCC/CP/2022/10/Add.1, paras 2-3.

16 *Ibid*. para 1.

17 Decision 1/CP.28 (n 2) para 20(e).

where the international climate change regime falls short. Yet, the potential for litigation to fill this gap depends on resolving key uncertainties about the meaning of loss and damage, which the following section will explore.

3. Understanding Loss and Damage

Loss and damage remains undefined in the international climate change regime. Boyd and others have identified a typology that frames loss and damage through four key perspectives: the mitigation and adaptation perspective, the risk management perspective, the limits to adaptation perspective, and the existential perspective.[18] Each perspective determines the type of response considered necessary to address loss and damage. The first perspective considers mitigation and adaptation sufficient, since all impacts of climate change are viewed as potential causes of loss and damage. The risk management perspective emphasizes disaster risk management and insurance, suggesting that loss and damage can be managed proactively by reducing risk. The limits to adaptation perspective highlights the impacts that already exceed the capacity for adaptation, requiring *ex post* responses to address harm that has already occurred. Similarly, the existential perspective focuses on actualized impacts but specifically underscores the need for remedies, with an emphasis on compensation.[19] Existing research reveals varying scholarly interpretations of these categories, with most aligning with the limits to adaptation or existential perspectives.[20] Common to the limits to adaptation and existential perspectives is a recognition that there are adverse impacts of climate change that cannot be avoided through additional adaptation, whereas the former two view loss and damage as something that can be averted and minimized through enhanced adaptation (and mitigation).

a. Actual Impacts

A key difference in these perspectives revolves around a fundamental question: does loss and damage concern the actual or potential manifestation of climate change impacts? This question has been a significant reason why reaching agreement on appropriate measures to address loss and damage within the climate change regime has been slow and challenging. Approaches that

18 Emily Boyd and others, 'A Typology of Loss and Damage Perspectives' (2017) 7 Nature Climate Change 723, 724.

19 *Ibid*.; see also Linnéa Nordlander, *Human Rights and Climate Change: the Law on Loss and Damage* (Routledge 2023) 22-23.

20 Nordlander, *ibid*.

recognize the inevitability of harm often call for the adoption of responsive remedial measures, like compensation. While the funding arrangements for loss and damage do not explicitly grant rights to receive or impose obligations to provide compensation, their creation reflects an acknowledgment of the need for *ex post* measures. As such, scholarship and policy now suggest that loss and damage primarily focuses on the actual manifestation of impacts.

However, in lieu of the operationalized funding arrangements with associated rights to assistance, individuals and states continue to lack effective remedies for the climate change harms they experience. Litigation may provide such remedies when it addresses harm that has already occurred. Claims for future or potential harm, however, may blur the lines between adaptation and loss and damage. As mentioned in section 2, this distinction has been critical for many developing states in the international climate change negotiations on loss and damage, as they seek *ex post* responses, rather than efforts focused solely on increasing adaptation measures, which are already established under the regime. The conflation of future harm with loss and damage claims may challenge the emerging understanding of loss and damage as involving responsive elements that address actual harm, in light of the establishment of funding arrangements to this end. At the same time, climate change claims may invoke both preventative and responsive elements and not always divide explicitly or clearly between mitigation, adaptation, and loss and damage. In such instances, only the responsive elements, seeking to remedy incurred harm, can truly fill the gaps left by the loss and damage funding arrangements.

b. Distributive Climate Justice

The debate around providing remedies for loss and damage ties into the question of the basis on which they ought to be provided. Loss and damage has long been closely linked to the notion of distributive climate justice, as reflected by the original proposal by the Alliance of Small Island Developing States, which called for mandatory financial contributions from developed states based on their GHG emissions and gross national product.[21] This notion of distributive climate justice has since underpinned loss and damage negotiations, with some developed states making the issue of liability a "red line" in the Paris negotiations,[22] as discussed in section 2.

21 AOSIS Submission (n 9) para 3(4).

22 Maxine Burkett, 'Reading Between the Red Lines: Loss and Damage and the Paris Outcome' (2016) 6 Climate Law 118, 122.

Resistance to recognizing current and historic responsibility for loss and damage also permeates the operationalization of the Loss and Damage Fund, with emphasis placed on "the need for support from a wide variety of sources, including innovative sources,"[23] rather than exclusively from those historically responsible for emissions. The Transitional Committee's report noted that while public sources will play a major role, additional contributions will be necessary.[24] As such, it is still not settled whether states will pay into the Fund, which states, or on what basis.

A key question is whether distributive justice will shape the Fund's operation. The question of the responsibility of major emitters for their historical contributions to GHG emissions permeates the loss and damage debate, with some calling for remedies for loss and damage as a form of reparation for the injustice of climate change impacts experienced by developing countries, in light of their negligible contribution to emissions.[25] If contributions to the Fund and payouts from it are not tied to historic and current responsibility, distributive demands will not be satisfied. On the other hand, if loss and damage is primarily about receiving assistance in addressing the adverse impacts of climate change, the source of funds may be less important. Resolving this issue is critical for the Fund's ability to meet the demands of climate-vulnerable developing states.

In the absence of operationalization of the Fund on the basis of the principle of distributive climate justice, litigation may play a supplementary role. Delivering distributive climate justice through litigation also presents challenges, particularly in terms of legal basis and access to courts in foreign jurisdictions. If climate justice is central to the notion of loss and damage, then allowing litigants from developing states to bring claims in developed states' courts becomes crucial. As is discussed in section 4 below, transnational claims have faced considerable hurdles to date.

23 Decision 2/CP.27 (n 15) para 6(d).

24 Transitional Committee, 'Operationalization of the New Funding Arrangements for Responding to Loss and Damage and the Fund Established in Paragraph 3 of Decisions 2/CP.27 and 2/CMA.4: Report by the Transitional Committee' (28 November 2023) UN Doc FCCC/CP/2023/9–FCCC/PA/CMA/2023/9, para 21.

25 For further discussion of distributive justice in the loss and damage context, and the role of reparations, see, *inter alia,* Maxine Burkett, 'Climate Reparations' (2009) 10(2) Melbourne Journal of International Law 509, Stephen Humphreys, 'Climate Justice: The Claim of the Past' (2014) 5 Journal of Human Rights and the Environment 134; and Dehm (n 10).

c. Duty Bearers and Victims in the Context of Loss and Damage

A final outstanding question in the context of loss and damage is identifying who the duty bearers and victims are. Given that the international climate change regime operates within the framework of state-centric rights and duties, it has been assumed that states are both the duty bearers and victims of loss and damage. However, Article 8 of the Paris Agreement does not specify the relevant entities, leaving scope for parties to include private actors, like corporations, individuals and communities, as duty bearers and/or victims.

Decisions adopted after Paris indicate that developing countries particularly vulnerable to climate change are to be the primary beneficiaries of any loss and damage assistance.[26] The operationalization of the Fund allows all developing countries to directly access resources, with small grants for affected communities.[27] However, the rights to access the Fund are granted to states, meaning that affected communities will rely on their states to access financial assistance. Depending on how this is implemented in practice, this arrangement may not ensure adequate support for individuals or communities, especially if the Fund lacks sufficient contributions to meet the needs of developing states themselves.

The decisions concerning the funding arrangements are less direct with respect to the duty-bearers for loss and damage finance, meaning it is unclear who must contribute to the Fund. Contributions are voluntary, with developed countries encouraged – but not mandated – to provide financial support.[28] Developing countries[29] and private sources[30] are also invited to contribute, but there are no binding obligations to this end. This creates uncertainty about the extent to which states, private actors, or other innovative sources will take responsibility for funding concerted loss and damage remedies.

Litigation may offer an alternative avenue to hold actors accountable when sufficient financial support is not available through international mechanisms. States may turn to inter-state litigation if they cannot access enough finance from the Fund, although this might not be conducive to advancing progress in the international loss and damage negotiations, as discussed further in section 4 below.[31] For individuals and communities, litigation could provide

26 Decision 2/CP.27 (n 15) recital 3 and 4.

27 Decision 1/CP.28 (n 2) para 20(e).

28 *Ibid*. para 13.

29 *Ibid*. para 12.

30 *Ibid*. paras 18, 39 and 54.

31 For discussions of the challenges surrounding inter-state climate change litigation, see Annalisa Savaresi, 'Inter-State Climate Change Litigation: "Neither a Chimera nor

a means to claim remedies for climate change harms directly, holding states or private actors accountable for their contributions to climate change.

A central question that arises here is whether litigation for loss and damage must target developed states specifically, based on their historical and current contributions to GHG emissions, or if it can target any major emitter, public or private, in order to cater to the demands of developing states advocating for the provision of loss and damage remedies. In conclusion, identifying clear duty bearers and victims in the loss and damage context is critical for both the operationalization of international funding arrangements and the potential role of litigation in delivering suitable remedies.

4. What Loss and Damage Gaps can Litigation Fill?

This section will explore whether and how rights-based litigation can provide responses to actual impacts and cater to demands for distributive climate justice. It considers which types of duty-bearers, developed states and corporations, can be targeted in litigation by individuals and developing states, through both national (when applicants and respondents are within the same jurisdiction) and transnational (when applicants and respondents are in different jurisdictions) litigation.

While loss and damage is often framed around developing states or individuals and communities in those states receiving assistance for addressing climate change impacts, scholars have also highlighted the importance of addressing the needs of climate vulnerable groups within developed states – the "south within the north."[32] National litigation against both states and corporations may provide an avenue for these populations (discussed in sections 4(a) and 4(b) respectively). However, at the heart of the loss and damage debate is the imbalance between the contributions of developed states to climate change and the vulnerability of developing states to its effects. The section therefore turns to the potential of transnational litigation – whether individual v state (section 4(c)), inter-state (section 4(d)), or individual v corporation (section 4(e)) – to offer remedies for loss and damage.

a Panacea"' in Ivano Alogna, Christine Bakker and Jean-Pierre Gaucci (eds), *Climate Change Litigation: Global Perspectives* (Brill Nijhoff 2021) 366.

32 Meinhard Doelle and Sara Seck, 'Loss and Damage from Climate Change: From Concept to Remedy?' (2019) 20 Climate Policy 669, 673.

a. Vertical Litigation (National): Individual v Territorial State

National vertical climate change litigation, where individuals bring cases against their home state (as in scenarios 1, 2, 3, and 5) has already yielded considerable successes in landmark cases like *Urgenda v Netherlands,*[33] *Neubauer v Germany,*[34] and *Verein KlimaSeniorinnen v Switzerland*.[35] These judgments demonstrate that inadequate state action on climate change can constitute human rights violations and that courts are increasingly willing to hold states accountable to that end. However, these cases focus on systemic mitigation, meaning that they target a state's overall mitigation ambition,[36] while claims for compensation for climate-related damages, such as the satisfaction sought for health harms incurred in scenario 1 and the compensation claim envisioned in scenario 5 for climate change-driven human rights violations, are less common. Therefore, it is unclear whether mitigation-based successes can indicate potentially successful outcomes for compensation claims.

In principle, the logic of systemic mitigation cases should be transferrable to loss and damage cases: manifested harms to health should be considered human rights interferences, given that the *risk* of those harms have been classified as such.[37] This should lead to the establishment of violations on behalf of the state in question, on the basis of partial responsibility for partial causation. In other words, in *Urgenda* and *KlimaSeniorinnen,* the courts found that the Netherlands and Switzerland respectively were responsible for their "share" of mitigating climate change, although the European Court of Human Rights (ECtHR) refrained from employing the notion of "fair share" in *KlimaSeniorinnen*[38] and thus did not engage with specific target setting, in contrast

33 Supreme Court of the Netherlands, *Urgenda Foundation v State of the Netherlands,* 13 January 2020, ECLI:NL:HR:2019:2007.

34 BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany).*

35 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR). For discussion of the preventative (not responsive) aims of applicants before the ECtHR, see chapter 8, Blattner.

36 Lucy Maxwell, Sarah Mead and Dennis van Berkel, 'Standards for Adjudicating the Next Generation of Urgenda-style Climate Cases' (2022) 13 Journal of Human Rights and the Environment 35, 36-37.

37 *Verein KlimaSeniorinnen v Switzerland* (n 35); UN Human Rights Committee, *Billy et al v Australia,* 22 September 2022, UN Doc CCPR/C/135/D/3624/2019.

38 For further discussion of the notion of "fair share," see *inter alia,* Maxwell, Mead and van Berkel (n 36) 53-60, Lavanya Rajamani et al, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions within the Principled Framework of International Environmental Law' (2021) 21 Climate Policy 983; Gerry Liston, 'Enhancing the Efficacy of Climate Change Litigation: How to Resolve the "Fair Share Question" in the Context of International Human Rights Law' (2020) 9 Cambridge International Law Journal 241.

to the Dutch Supreme Court in *Urgenda*. Applying this logic to loss and damage claims may enable courts to find states responsible for their contributions to climate change, contributing to the manifestation of the harm. This could result in the state in question being liable to remedy their "share" of the harm caused by their GHG emissions. This raises complex questions about calculating historical contributions (as compared to future emissions). However, courts may hesitate to link specific emissions to concrete harm, since the causation is not linear. Indeed, the effects of climate impacts are influenced by various factors like adaptation failures, social determinants of vulnerability, and economic and demographic changes.[39] It would thus likely be challenging to establish what portion of the harm is attributable to the state's historic GHG emissions. Even if responsibility is assigned, compensation may be minimal due to the small share of responsibility that could be attributed to each state.

In the event that courts do establish human rights violations for loss and damage, the question arises as to the type of remedy awarded, which varies significantly between judicial bodies. The ECtHR rarely awards compensation for environmental harm,[40] making it unlikely for climate victims to receive adequate damages there. By contrast, in *Daniel Billy et al v Australia*,[41] the UN Human Rights Committee ordered "adequate compensation" for climate harm, but the amount was left to Australia's discretion.

Although this indicates a greater willingness of treaty bodies to award compensation than the ECtHR, full compliance with treaty body decisions is low, at only 26.5%.[42] In this respect it is especially noteworthy that Australia rejected the Human Rights Committee's award of compensation in *Daniel Billy*.[43] As such, the prospects of receiving compensation from a developed state following rights-based litigation for climate change harm appear limited, due to the types of awards given by courts, the discretion left to the state when ordered to provide compensation by treaty bodies, and/or the recalcitrance

39 See eg Jon Barnett and others, 'A Science of Loss' (2016) 6 Nature Climate Change 976, 977; Adelle Thomas and Lisa Benjamin, 'Management of Loss and Damage in Small Island Developing States: Implications for a 1.5° or Warmer World' (2018) 18 Regional Environmental Change 2369, 2370.

40 Helen Keller, Corina Heri and Réka Piskóty, 'Something Ventured, Nothing Gained? – Remedies before the ECtHR and Their Potential for Climate Change Cases' (2022) 22 Human Rights Law Review 1.

41 *Billy et al v Australia* (n 37) [11].

42 Andreas Ullmann and Andreas von Staden, 'The (In)Significance of Legal Status: Comparing Compliance with Regional Human Rights Court and UN Treaty Body Decisions' (ECPR General Conference, 15 August 2024) 10.

43 Client Earth, 'One Year on from Historic Torres Strait UN Climate Victory: No Compensation Despite Legal Finding' (25 September 2023).

of states in implementing non-binding decisions.[44] These limitations seriously challenge the potential of human rights litigation for loss and damage, if compensation is an integral element of the concept.

Ultimately, irrespective of the nature of the remedy awarded, national litigation might offer solutions for the "south within the north," such as that envisioned in scenario 2, concerning Sámi litigation against Norway for adverse impacts of climate change on the right to culture, but is less relevant in contexts like the small island developing states, who contribute little to climate change. It seems unjust to hold them accountable for damages within their borders, given their limited contributions to GHG emissions. Even if pursued, if remedies are awarded on the basis of partial responsibility for partial causation, compensation would be negligible. In addition, national litigation is clearly unable to get at the climate justice issue at the heart of the loss and damage debate in the international climate change regime, as it cannot deliver distributive justice between states.

b. Oblique Litigation (National): Individual v Territorial Corporation

While less common than individual v state climate change litigation, individuals have successfully held corporations accountable for carbon-intensive activities, as seen in *Milieudefensie et al v Royal Dutch Shell*.[45] National litigation can thus target a range of actors for climate change harm, including corporations. If corporations that significantly contribute to climate change are recognized as duty bearers for loss and damage, this kind of litigation could provide remedies for individuals.

However, the *Milieudefensie* case, like *Urgenda* and *KlimaSeniorinnen,* only addresses future harm and emissions reduction, raising questions about how this logic could or would be applied with respect to specific causation. These cases are more likely to benefit individuals where such corporations are domiciled, but they cannot address the climate injustices faced by individuals in climate vulnerable developing states. The potential of these claims for victims in developing states is discussed further in section 4(e).

44 While not concerning *ex post* remedies, it ought to be noted that Switzerland has also indicated a reluctance to comply with the ECtHR's judgment in *KlimaSeniorinnen,* arguing that no additional climate change measures are necessary. For discussion of the initial Swiss response, see Corina Heri, 'Guest Blog: Implementing KlimaSeniorinnen: Evaluating the Initial Swiss Response' (*Climate Law. A Sabin Center Blog,* 18 July 2024).

45 The Hague District Court, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 26 May 2021, ECLI:NL:RBDHA:2021:5337.

c. Diagonal Litigation (Transnational): Individual v Non-territorial State

Individuals in developing states have no rights to access assistance from the Loss and Damage Fund. Pursuing litigation against states other than their own (diagonal litigation) thus becomes attractive. This type of litigation has been rare in the climate context, with early cases showing little success. In *Duarte Agostinho and Others v Portugal and 32 Others,* the ECtHR dismissed the case, partially on the grounds that the jurisdiction under the ECHR is primarily territorial.[46] The Court rejected the argument that the global nature of climate change and cumulative effect of GHG emissions should extend states' obligations beyond their border, citing the risk of an "unlimited expansion" of extra-territorial jurisdiction.[47] Additionally, in *KlimaSeniorinnen,* the ECtHR held that states' obligations to mitigate climate change are limited to their own territory.[48] Holding European states, which are high per capita emitters, accountable for the harms to which they contribute abroad through GHG emissions will thus not be possible under the ECHR.

UN bodies have taken a broader view. The Office of the High Commissioner of Human Rights concluded that state obligations under international human rights law "in the context of climate change (…) extend to all rights holders and to harm that occurs both inside and beyond boundaries."[49] To this end, "States should be accountable to rights holders for their contributions to climate change."[50] The Committee on the Rights of the Child reaffirmed this in *Sacchi et al v Argentina et al,* drawing on the Inter-American Court of Human Right's Advisory Opinion on the Environment and Human Rights, to emphasize that states are responsible for transboundary harm if their emissions cause damage to children's rights abroad.[51] The UN Secretary General echoed this sentiment, albeit in more hortatory language, finding

46 *Duarte Agostinho and Others v Portugal and 32 Others* App no 39371/20 (ECtHR) [195]-[213].

47 *Ibid*. [208].

48 *Verein KlimaSeniorinnen v Switzerland* (n 35) [544]-[552].

49 Office of the High Commissioner of Human Rights (OHCHR), 'Analytical Study on the Relationship between Climate Change and the Human Right of Everyone to the Enjoyment of the Highest Attainable Standard of Physical and Mental Health: Report of the Office of the United Nations High Commissioner for Human Rights' (6 May 2016) UN Doc A/HRC/32/23, para 38.

50 *Duarte Agostinho and Others v Portugal and 32 Others* (n 46).

51 UN Committee on the Rights of the Child, *Sacchi et al v Argentina et al,* 22 September 2021, UN Doc CRC/C/88/D/104/2019 et al [10.7].

that states should, as a matter of their international human rights obligations, "address extraterritorial impacts"[52] of climate change.

Individuals may therefore have more success holding states accountable for climate change impacts through the UN human rights system than in the ECtHR. Notably, all state parties to the ECHR are party to several of the core international human rights treaties[53] and, as such, it would be possible to hold these, and other, states accountable for their contributions to climate change under the UN human rights system. Nevertheless, while the UN bodies can issue authoritative findings, the enforcement of them is weak. In practice, states are less likely to comply with treaty body decisions compared to ECtHR rulings.[54] For example, ECHR states only fully comply with 28.2% of treaty body decisions but with 75.9% of ECtHR judgments.[55]

Thus, although there are no examples of diagonal litigation from the UN system in which applicants have won a climate change claim, the prospects of securing such a victory appears greater before these bodies than before the ECtHR. Nevertheless, receiving remedies is less certain. As such, the potential of litigation before these bodies to deliver loss and damage remedies may be limited to declaratory justice, with little scope for compensation. Effective justice may ultimately therefore depend on political action, through the full operationalization of the Loss and Damage Fund, with recourse for individual climate victims, rather than relying on litigation alone.

d. Horizontal Litigation: Interstate

There is no precedent of interstate climate change litigation, so assessing its potential to deliver remedies for developing states is speculative. However, several limitations make this form of litigation unlikely to fill the remedial loss and damage gap.

Interstate litigation is possible through the ECtHR and some of the UN treaty bodies,[56] like the Human Rights Committee and the Committee on the

52 OHCHR, 'Analytical Study on the Impact of Loss and Damage from the Adverse Effects of Climate Change on the Full Enjoyment of Human Rights, Exploring Equity-based Approaches and Solutions to Addressing the Same. Report of the Secretary-General' (28 August 2024) UN Doc A/HRC/57/30 para 49.

53 OHCHR, 'Status of Ratification: Ratification of 18 International Human Rights Treaties' (2024).

54 Ullmann and von Staden (n 42) 10.

55 *Ibid*.

56 It ought to be noted that litigation before the International Court of Justice is also an option for developing states seeking to hold developed states accountable for climate change harm, including on the basis of human rights law. For full discussion of this potential judicial avenue, see chapter 10, Suedi.

Elimination of Racial Discrimination.[57] However, since only ECHR state parties can bring cases to the ECtHR – and no developing states are parties – this venue offers little help for climate change harms in those regions. Additionally, while claims can be brought to certain UN bodies, both state parties involved must have ratified the relevant treaty and its interstate complaints mechanism. Few least developed countries and small island developing states, the most vulnerable to climate change impacts and in need of assistance, have done so, limiting this avenue.[58] Even when interstate litigation is possible, it often results in declarations of violations and non-repetition orders, rather than compensation.[59] As a result, interstate litigation is unlikely to satisfy the financial needs of developing states to address loss and damage.

Finally, interstate litigation may hinder progress on international climate change negotiations. The adversarial nature of litigation conflicts with the cooperative spirit needed for successful negotiations. Ensuring that the Loss and Damage Fund is filled and fully operationalized is wholly dependent on successful international climate change negotiations to this end. Indeed, the establishment of the Fund, while flawed, represents significant diplomatic progress. The establishment of funding arrangements was a clear "red line" for major actors like the US and the European Union (EU),[60] and thus a condition of the adoption of the Paris Agreement at all. Although it has been a slow and arduous process, the fact that such a Fund has been agreed is a major step, that is not to be underestimated. Disrupting this momentum through litigation could be counterproductive, especially given the limited chances of securing compensation.

e. Oblique Litigation (Transnational): Individual v Non-territorial Corporation

As discussed in section 4(c), individuals currently have no direct access to assistance from the Loss and Damage Fund. However, transnational litigation between individuals in developing states and corporations in developed states offers an alternative remedial pathway. So far, such litigation, especially

57 See, eg *Ireland v UK* App no 5310/71 (ECtHR); *Ukraine v Russia* App nos 20958/14 and 38334/18 (ECtHR); UN Committee on the Elimination of Racial Discrimination, *Qatar v Kingdom of Saudi Arabia,* 19 October 2020, UN Doc CERD/C/99/5; UN Committee on the Elimination of Racial Discrimination, *Qatar v United Arab Emirates,* 18 June 2020, UN Doc CERD/C/99/3.

58 OHCHR, 'Status of Ratification: Ratification of 18 International Human Rights Treaties' (n 53).

59 See exceptionally, *Cyprus v Turkey* (Just Satisfaction) App no 25781/94 (ECtHR).

60 Burkett (n 1) 122-124.

rights-based claims against corporations, has been limited. The closest example is the Philippines Human Rights Commission's *Carbon Majors Inquiry,*[61] which found that major fossil fuel producers were responsible for climate change impacts on human rights in the Philippines. The Commission recommended various measures but could not legally enforce them or order compensation.[62]

Unlike courts, non-judicial bodies like human rights commissions can conduct broader investigations, without being instigated by a litigant, which is particularly useful for systemic climate issues. The ability of these institutions to investigate corporate actors domiciled outside of their territorial jurisdiction is also a particular strength here. However, their competence to hold corporations accountable is limited to making recommendations, relying on corporate goodwill for implementation. This makes them less effective in delivering remedies like compensation,[63] though they can highlight corporate responsibility for climate harm. Therefore, similarly to the UN human rights bodies, the ability of these institutions to address the remedial gap for loss and damage hinges on whether acknowledgment of the harm is sufficient.

Transnational litigation between an individual and a corporation typically draws on legal frameworks beyond human rights law, though human rights can inform interpretation of other national law (as seen in *Milieudefensie* in section 4(b)). Human rights may come to play a role in cases like *Lliuya v RWE* (recently rejected by the Regional Court of Hamm), in which a Peruvian farmer suing the German energy company for its contribution to climate change sought damages proportionate to the company's global emissions (0.47%).[64] A similar approach has been adopted by applicants in *Asmania et al v Holcim* (scenario 8), in which four Indonesian nationals have sought compensation for climate change harm proportional to Holcim's (a Swiss building materials company) contributions to climate change.[65]

The *Lliuya* case has been identified as a clear example of loss and damage litigation in scholarship.[66] Indeed, the case is unique from the others reviewed

61 Commission on Human Rights of the Philippines, 'National Inquiry on Climate Change Report' (December 2022).

62 *Ibid*. 131-132.

63 Annalisa Savaresi and Margaretha Wewerinke-Singh, 'Historic Inquiry Holds the Carbon Majors Accountable for the Impacts of Climate Change in the Philippines' (*Global Network of Human Rights and the Environment,* 2022).

64 Landgericht Essen, 15 December 2016, 2 O 285/15 *(Luciano Lliuya v RWE)* [8.2]; Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG).*

65 Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

66 See eg Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2023 Snapshot' (June 2023), 35-36; Tigre and Wewerinke-Singh (n 6) 440.

in this chapter, in which applicants have typically sought prevention-oriented remedies, as opposed to remedies for manifested harm. However, the plaintiff's claim in *Lliuya* concerned expected costs associated with setting up flooding protection. Although these costs are likely to be incurred, they have not been incurred yet, nor has damage yet been done to his property. The claim thus appears more akin to a claim for assistance with adaptation measures and indicates an understanding in (the relatively sparse) scholarship that, provided that a plaintiff seeks compensation for (anticipated) damages, then it is a loss and damage claim.[67]

The claim made in *Asmania et al v Holcim,* adopts a similar approach, seeking assistance with adaptation measures, as well as increased emissions reductions for the corporation. Unlike the plaintiff in *Lliuya,* however, the plaintiffs in *Asmania* also seek compensation for climate change harm already incurred. At the time of writing, the method by which the plaintiffs calculate the respondent's proportional share of such compensation remains unknown. However, if the plaintiffs follow *Lliuya's* approach, the plaintiffs in both cases would only aim to secure compensation for a marginal portion of the harm they expect to incur. As such, litigation following this strategy is unlikely to result in full compensation. Litigation of this kind can promote climate justice by holding major emitters accountable, though it may not deliver full compensation or align with the original conception of loss and damage, which called for compensation from developed states. Nonetheless, it remains one of the few avenues available for securing compensation, particularly in the transnational context. While *Lliuya* was ultimately unsuccessful, and *Asmania* has not yet achieved concrete results, such cases could in principle address two critical elements of loss and damage – compensation and climate justice – but not fully and not as originally conceived in either respect. Although *Lliuya* and *Asmania* have not (yet) provided remedies for the plaintiffs and are unlikely to offer full compensation, similar claims brought on different grounds, against other respondents, or in other jurisdictions may still succeed.

5. Conclusion

In the absence of a Loss and Damage Fund that can fully compensate those harmed by climate change, litigation offers an alternative pathway. However, based on the cases explored in this chapter, litigation seems effective only in narrow circumstances. Rights-based climate change litigation has been successful nationally, particularly in challenging state and corporate contributions

67 Tigre and Wewerinke-Singh (n 6) 440; Setzer and Higham, *ibid*. 35-36.

to climate change, but it remains uncertain whether courts would apply similar reasoning to concrete climate harms or hold states or corporations accountable for them. Even when they do, compensation is rarely awarded. The exception here is the *Daniel Billy* case, where compensation was awarded but never paid. Thus, national litigation *may* be able to deliver climate justice for the "south within the north" in the form of acknowledgment of climate harm but is unlikely to provide financial remedies.

While litigation can deliver some justice for climate-vulnerable individuals in developed states, it does not address the central issue of climate justice for developing states and their populations harmed by major emitters. Transnational litigation has shown limited success, with diagonal claims like *Duarte Agostinho* failing, and horizontal, interstate claims not yet pursued. However, there may be potential in diagonal quasi-litigation before the UN treaty bodies, as indicated by *Sacchi* and *Daniel Billy.* Here, recognition of harm and the award of compensation is possible, but state compliance remains a crucial challenge, as it also was in the transnational oblique *Carbon Majors Inquiry.* Transnational claims may therefore be able to deliver declaratory climate justice, by acknowledging the harm and possibly ordering compensation, but are unlikely to result in victims receiving funds.

Another issue is the adequacy of compensation. In *Daniel Billy,* the UN Human Rights Committee did not specify the amount of compensation, leaving its determination to the discretion of the state. By contrast, *Lliuya* is seeking a specific, proportionate amount based on RWE's contribution to GHG emissions. If the claim had been successful, the sum sought would clearly not have been adequate to compensate the applicant fully for the harm litigated.[68]. These examples highlight that even if compensation is awarded, it is often inadequate and may not be paid at all.

In light of the above, litigation offers limited potential to remedy climate change loss and damage. It may provide declaratory climate justice through national and transnational venues, but offers little in terms of compensation due to non-compliance, inadequate awards and the piecemeal nature of litigation, thus not addressing the systemic nature of climate change harm. Furthermore, the high cost of litigation, especially when unsuccessful, makes it a risky avenue for climate victims. For the climate-vulnerable in developed states, litigation may be the only option, as they are ineligible for payouts from the Loss and Damage Fund. Individuals in developing countries may have better chances at securing payouts from the Fund than through litigation. Developing states must weigh the possible benefits and risks of interstate litigation

68 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG).*

carefully, given its limited precedent and its potential to derail loss and damage negotiations. Ultimately, only a concerted approach at the international level through full operationalization of a sufficiently financed Loss and Damage Fund could ensure that climate change victims in developing states are reliably remedied for the harms they incur, whereas litigation may be most suitable for climate vulnerable individuals in developed states.

Sara L. Seck

Chapter 13: Can Monetization of Loss and Damage Contribute to Climate Justice? A Relational Approach

1. Introduction

In this contribution, I reflect on the possibilities and limitations of reparations for climate change through what I describe as a "relational" approach to climate justice. I will draw upon three key bodies of previous work to inform this reflection. First, in introducing "critical" perspectives and climate justice, I will consider previous work[1] that draws upon intersectional feminist and vulnerability theories, as well as decolonial approaches and Indigenous environmental justice, to propose that at the center of the climate injustice challenge is the bounded autonomous individual of liberal thought that serves as both a framework for dominant approaches to legal analysis, and a construct used within such analysis. Second, I will define the scope of climate loss and damage informed by this relational approach and contributions to the 2021 *Research Handbook on Climate Change Law and Loss & Damage*[2] that I had the privilege of co-editing with my late colleague Meinhard Doelle. I will then turn to the key question, whether monetization of climate loss and damage can contribute to climate justice. Here, I will combine insights from relational approaches and the *Handbook* with insights that emerged from a co-authored article[3] that considers the relationship between the social cost of carbon as

1 Sara L Seck, 'Relational Law: Re-imagining Tools for Environmental and Climate Justice' (2019) 31(1) Canadian Journal of Women and the Law 151- 177; Sara L Seck, 'A Relational Analysis of Enterprise Obligations and Carbon Majors for Climate Justice' (2021) 11 Oñati Socio-Legal Series 245.

2 Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021).

3 Adebayo Majekolagbe, Sara L Seck and David V Wright, 'Exploring the Application of the Social Cost of Carbon in Loss-and-Damage and Impact Assessment' (2023) 13 Climate Law 83.

used in regulatory rule-making and the monetization of reparations for climate loss and damage. Throughout, I will illustrate the possibilities and limitations of reparations for climate change with reference to the model scenarios prepared to guide our contributions.[4] In this way, the chapter will reveal how the bounded autonomous individual infuses many of the real case studies discussed throughout this volume, and may be read as a reflection on dominant narratives of climate litigation and reparation.

2. 'Critical' Perspectives and Climate Justice

a. Intersectional Feminist and Vulnerability Theories

The writings of intersectional feminist and vulnerability theorists[5] shed light on the unacknowledged dominance of the bounded autonomous individual of liberal thought in domestic and international legal analysis, including as a construct that informs dominant understandings of the state, the corporation, the worker, and the individual holder of human rights. Yet, the presence and influence of the bounded autonomous individual is generally unacknowledged. As a result, legal analysis assumes as neutral an image of individuals, workers, corporate actors and the state that celebrates their independence and self-reliance, safe behind impermeable boundaries that separate them from other humans and the "natural world." Yet, the truth is that all are socially and ecologically embedded: all individuals are dependent upon nurturing social relations and earth systems that enable them to be autonomous, with boundaries better understood as porous than impermeable. The same can be said for workers, corporate actors and the state. However, as will be examined next, even as all are socially and ecologically embedded, not all individuals, workers, corporate actors or states are the same – account must also be taken of

4 See the introductory chapter on model scenarios.

5 While many could be cited, in my work I have relied in particular upon insights from: Anna Grear, 'Vulnerability, Advance Global Capitalism and Co-symptomatic Injustice: Locating the Vulnerable Subject' in Martha A Fineman and Anna Grear (eds), *Vulnerability: Reflections on a New Ethical Foundation for Law and Politics* (Ashgate 2013); Jennifer Nedelsky, *Law's Relations: A Relational Theory of Autonomy* (OUP 2011); Angela Harris, 'Vulnerability and Power in the Age of the Anthropocene' (2014) 6(1) Washington and Lee Journal on Energy, Climate and Environment 98; Karen Knop, 'Re/Statements: Feminism and State Sovereignty in International Law' (1993) 3(2) Transnational Law and Contemporary Problems 293; Dayna Nadine Scott, Jennie Haw, and Robyn Lee, 'Wannabe Toxic-Free? From Precautionary Consumption to Corporeal Citizenship' (2017) 26(2) Environmental Politics 322; and Lynn Stout, *The Shareholder Value Myth: How Putting Shareholders First Harms Investors, Corporations, and the Public* (Berrett-Koehler Publishers Inc, 2012).

differences in power and histories that have rendered some more at risk than others, and provided others with greater power and so greater responsibility to act.

b. De-colonial Approaches and Theories of Indigenous Environmental Justice

As a legal scholar at Dalhousie University in Canada, my obligations according to the Calls to Action of the Truth and Reconciliation Commission include working towards the implementation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)[6] and supporting the resurgence of Indigenous laws.[7] The land acknowledgement of my university states that "Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq people. We are all treaty people." This message is a daily reminder that the 'civilizing mission' of international law must be overcome: while dominant approaches to international legal analysis treat states as the primary if not only actor of importance, the failure to treat Indigenous nations as equal to nation states in international law has justified a legacy of injustice against Indigenous peoples in Canada over many years, including attempts to erase knowledge of Indigenous languages, traditions and laws. The legacy of this injustice endures and overcoming it and other colonial and patriarchal histories with which Canada is intertwined necessitates an awareness of difference together with a commitment to the revitalization and resurgence of Indigenous laws, including ecological laws.

The writings of many Indigenous scholars, including Indigenous feminists,[8] reveal that each Indigenous nation has a distinct framework of Indigenous laws. From these Indigenous legal orders a wealth of worldviews and theories emerge that collectively reflect reciprocal kinship relationships with the natural world, future generations and ancestors. Respect for Indigenous

6 United Nations General Assembly, *United Nations Declaration on the Rights of Indigenous Peoples*, resolution A/RES/61/295 (UNDRIP), 13 September 2007.

7 Sara L Seck, 'Realizing Environmental Protection through Indigenous Laws: Lessons for International Environmental Law from the Canadian Experience' in Laurence Boisson de Chazournes (ed), *L'effectivité du droit international face à l'urgence écologique* (Collège de France Éditions, Paris, 2024) 90–109.

8 In my work I have relied in particular on the writings of: Deborah McGregor, 'Indigenous Women, Water Justice and *Zaagidowin* (Love)' (2013) 30(2) Canadian Women Studies 71; Janice A Makokis, 'Nehiyaw iskwew kiskinowâtasinahikewina: paminisowin namôya tipeyimisowin: Learning Self-Determination through the Sacred' (2008) 26 (3–4) Canadian Women Studies 39; and Sherry Pictou, 'Decolonizing Decolonization: An Indigenous Feminist Perspective on the Recognition and Rights Framework' (2020) 119:2 South Atlantic Quarterly 371.

laws through implementation of UNDRIP is therefore an essential piece of the climate justice puzzle, so as to ensure that Indigenous peoples can fulfill their reciprocal responsibilities to mother earth as called for by their own laws, with the support and in harmony with settlers who are equally part of treaty relationships.

c. Revealing DSEERI

I have identified the heart of the climate injustice challenge as the prevalence of the bounded autonomous individual of liberal thought which serves as both a framework for dominant approaches to legal analysis, and a construct used within such analysis. I have most recently concluded that the path forward requires deliberate and conscious re-imagining of legal doctrines and constructs to reflect an alternate image: that of the Differentially Situated Ecologically Embedded Relational Individual (DSEERI).

DSEERI makes explicit the embeddedness of social and ecological relationships, while also acknowledging the importance of accounting for difference. Beyond respect for reciprocal responsibilities and Indigenous laws, DSEERI must account for all intersectional differences[9] that increase risk in the face of climate harms, as well as those that point to a heightened responsibility to act due to differential power. Increased risks may arise due to what are often socially constructed as innate vulnerabilities (such as those faced by children or persons with disabilities) while for others increased risk may be the consequence of historic and ongoing discrimination that renders certain marginalized individuals and groups more vulnerable (such as Indigenous communities, those living in poverty, and those experiencing racial or gender discrimination or both).[10]

3. Climate Justice and the Scope of Loss and Damage

Attention to DSEERI has implications for understanding the scope and definition of climate loss and damage for which reparations are due. In the *Handbook,* we define loss and damage broadly as any impact that arises from human-

9 For a critical engagement with intersectionality and gender in business and human rights context, see Melisa N Handl, Penelope Simons, and Sara L Seck, 'Gender and Intersectionality in Business and Human Rights Scholarship' (2022) 7 Business and Human Rights Journal 201.

10 Keeping in mind that there is no bright line between innate vulnerabilities and marginalization as this depends in part on what is seen as the norm.

induced climate change and that has not been avoided due to mitigation and adaptation efforts combined.[11] We further define "loss" as "permanent or irrevocable" while "damage" is "reparable or recoverable." Further distinctions must be made between economic and non-economic forms of loss and damage with implications for monetization as will be discussed below.

There are important temporal and spatial dimensions to the scope of climate loss and damage. For example, one key question in assessing loss and damage is when to start the clock – from what temporal baseline should loss and damage be measured? If loss and damage is understood primarily in relation to human-induced increases in GHG emissions and decreases in carbon sinks, then the starting point may be the industrial revolution, although some might argue that alternately it should be measured from the time at which global efforts began to reduce emissions.[12] But this may also depend on whether the question is being asked in the abstract, or whether it is being asked in the context of climate litigation brought by a particular plaintiff (whose harm may be measured from a later starting point) against a particular defendant (whose contribution to climate change may also have begun at a later date) and the possibilities and limitations of the chosen forum.[13] For example, Scenario 10 envisions a class action suit filed in US courts by members of the Samí community against US-based multinationals ExxonMobil and Chevron for contributing to GHG emissions with knowledge of the links to climate change. Yet if attention is paid to the most recent emissions tracing data about Carbon Majors Entities, two nation states (China and the former Soviet Union) and a state-owned entity (Saudi Aramco) take the first three spots in terms of total emissions, with Chevron and ExxonMobil in fourth and fifth place, and another state-owned entity (Gazprom) placing sixth.[14] Arguably the measure of loss and damage and the starting of the temporal clock would differ depending on which of these defendants were being brought to justice in light of their differing histories and power, and which defendants to target will depend at least in part on the forum in which the litigation is brought. Yet the loss and damage experienced by the plaintiffs would be the same.

11 Meinhard Doelle and Sara L Seck, 'Introduction' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing, 2021) 1.

12 *Ibid*. 5.

13 *Ibid*. 4-15 (canvassing varied legal perspectives on climate loss and damage arising from consideration of the nature of the harm suffered, potential claimants, potential remedies, potential defendants and sources of funds, and actionable wrongs).

14 Influence Map, 'Carbon Major Entities'.

A different temporal dimension might be to ask how far into the future climate loss and damage should be measured, particularly as the extent of these harms may be dependent upon mitigation and adaptation efforts still to come. In Scenario 1, a group of elderly people seek a just satisfaction award as reparation for damage they will experience against a state that has failed to adopt adequate mitigation measures. Yet a very different measure of mitigation and adaptation efforts would be required if the plaintiffs were children and youth, and the litigation were also brought on behalf of future generations as is frequently the case.[15]

The importance of viewing loss and damage through an equity lens that accounts for responsibilities to children and future generations, as well as elders and ancestors is consistent with notions of intergenerational equity and is embedded in many Indigenous cultural understandings of generational responsibilities.[16] Scenario 5 reflects this vision in a hypothetical case brought against Mexico before the IACtHR by Indigenous peoples, peasants and rural dwellers, on their own behalf and that of future generations.

An equity lens also highlights intragenerational equity responsibilities for loss and damage existing today, embedded in the climate regime through the principle of common but differentiated responsibilities and respective capabilities, and pointing to the importance of accounting for the spatial dimensions of climate harm sources and impacts.[17] Scenario 7 both raises and misses spatial equity dimensions. In this hypothetical case brought by Peru against Brazil before the ICJ, it is alleged that Brazil has failed to prevent forest fires and illegal deforestation despite being aware of their devastating climate effects, and that Peru must be compensated for harm to its environment due to Peru's high susceptibility to natural disasters arising from climate change. Yet Brazil and Peru are arguably economically similar states, and one wonders why Peru has chosen to seek remedy from Brazil for its failure to preserve a carbon sink, rather than against a more economically powerful state with high per capita GHG emissions. There is also the spatial dimension of production to consider. What responsibility should be borne by states that purchase products containing minerals mined in Brazilian rainforests (whether or not for green energy solutions), or agricultural products (whether soy or beef) that are the real cause of the destruction of the Brazilian Amazon? What responsibility

15 Katalin Sulyok, 'Transforming the Rule of Law in Environmental and Climate Litigation: Prohibiting the Arbitrary Treatment of Future Generations' (2024) 13 Transnational Environmental Law 475; see also scenario 5.

16 Nathalie J Chalifour, 'Equity Considerations in Loss and Damage' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021) 18.

17 *Ibid*.

must be borne by multinational enterprises and state-owned enterprises that perpetuate irresponsible production and consumption patterns with implications for vital carbon sinks like the Brazilian Amazon? Beyond this, the scenario raises the question of who should be understood to be legal guardians of the Amazon, and to what extent any remedy that fails to account for Indigenous self-determination and stewardship perpetuates climate injustice.

Scenario 4 also raises spatial equity concerns that raise the problematic image of the bounded autonomous state that DSEERI aims to challenge. In this scenario, a communication has been brought against a State party under the Optional Protocol to the ICESCR alleging a violation of the right to "continuous improvement of living conditions" due (presumably) to the climate effects of the State's GHG emissions. Yet the claim has been brought on behalf of both those within the territory of the respondent State, and affected individuals outside the State's territory, all of whom are to have access to a loss and damage fund. The question of how to assess state human rights duties beyond borders for climate harms will be increasingly before courts,[18] yet too frequently courts exclude claimants from outside State territory. The Dutch court in the *Milieudefensie* case provides a notorious example with its failure to include a Dutch-based NGO as a member of the class action because its mandate was to care about climate impacts in Africa, which were not seen as suitable for "bundling" with the similar interests of present and future generations of the Netherlands.[19]

Different spatial insights emerge from a racial capitalism lens which suggests that loss and damage should be viewed through a life cycle approach that would also account for the social and environmental harms experienced by those living in "sacrifice zones" of the global fossil fuel-dependent economy, including the poisoning of their land, water and air, dispossession and displacement.[20] Indigenous peoples have also expressed different understandings of

18 For example, scenario 5 takes note of the views on this issue of the UN Committee on the Rights of the Child and Inter-American Court of Human Rights: UN Committee on the Rights of the Child, *Sacchi et al v Argentina et al,* 22 September 2021, UN Doc CRC/C/88/D/104/2019 et al; Advisory Opinion OC-23/17 on the Right to a Healthy Environment (Inter-American Court of Human Rights, 15 November 2017).

19 The Hague District Court, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 26 May 2021, ECLI:NL:RBDHA:2021:5337, [4.2.2]-[4.2.6] (for the decision on appeal in this case, see The Hague Court of Appeal, Milieudefensie et al v Royal Dutch Shell PLC et al, 12 November 2024, ECLI:NL:GHDHA:2024:2100); see further Sara L Seck, 'Extraterritoriality and Corporate Climate Responsibility' in Austen Parrish and Cedric Ryngaert (eds), *Research Handbook on Extraterritoriality in International Law* (Edward Elgar Publishing 2023) 476-482.

20 Carmen G Gonzalez, 'The Sacrifice Zones of Carbon Capitalism: Race Expendability, and Loss and Damage' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021) 43.

the nature of loss and damage and its causes, with reconciliation and new political and cultural relations that support self-determination seen as an essential component of settler state responsibility so as to move away from and remedy the consequences of colonial and capitalist industrial structures imposed on Indigenous communities, lands and waters without consent.[21] Scenario 2 both touches on and misses some of these racial capitalism and Indigenous self-determination concerns. It contemplates a case brought before the ECHR against Norway by Sámi community members who allege that Norway's granting of new fossil fuel licenses contributes to climate change and so violates their cultural rights. They seek reparations from Norway for adverse impacts on their culture following the HRC's *Billy et al v Australia*.[22] Scenario 2's focus on climate change reparations thus presents what might be described as a typical climate loss and damage case, yet leaves aside questions as to whether Norway's historic granting of fossil fuel licenses and exploitation of fossil fuels has created local sacrifice zones of environmental degradation that have poisoned land, air and waters of Sámi communities or others, leading to dispossession and displacement, and infringing Indigenous rights of self-determination due to a lack of free, prior and informed consent. What historic responsibilities does Norway have towards communities whose ways of life have been poisoned by fossil fuel extraction in the past? A racial capitalism lens on climate loss and damage would view this responsibility as equally important to the climate responsibility arising from the granting of contemporary licenses. Similarly, attention must be paid to contemporary practices of siting green energy projects on Indigenous lands without consent and in violation of cultural rights.

An eco-centric equity dimension must also be accounted for in climate loss and damage.[23] The concept of DSEERI recognizes that all humans are embedded in ecological systems and so a fulsome attention to what it means to be human and to hold human rights must necessarily account for harms to earth systems, while creating challenges in terms of who has standing to bring legal claims. Recognition and respect for "rights of nature," often but not always linked to the revitalization of Indigenous ecological laws and reciprocal responsibilities, must also be accounted for in defining the scope of loss and damage through a climate justice and DSEERI lens, and may provide a response

21 Kyle Powys Whyte, 'Indigenous Peoples, Climate Change Loss and Damage, and the Responsibilities of States' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021) 224.

22 UN Human Rights Committee, *Daniel Billy et al v. Australia,* Communication No. 3624/2019, 22 September 2022, UN Doc. CCPR/C/135/D/3624/2019.

23 Chalifour (n 16).

to the legal standing challenge. Scenario 3 contemplates a group of farmers in Sicily whose agricultural lands are impacted by climate-related water crisis and who argue Italy has violated their right to property. They seek remedy in the form of mitigation and adaptation measures as well as compensation for loss in the value of their lands and lost profits. This scenario well illustrates the ease with which standing is often granted to those with property rights, yet remedy is then often limited to the values associated with the human use of the land, rather than the cost that would be incurred for a fulsome restoration of the damaged ecological systems.

4. Monetization and Climate Justice

This final part will consider the core question of whether, and if so how, different kinds of climate loss and damage could be monetized. Discussions of climate loss and damage often distinguish economic from non-economic loss and damage.[24] Also considered is the further question of whether this could be achieved in a way that is consistent with climate justice through a DSEERI lens.

a. Monetization as Alternative to or Proxy for Climate Justice

Monetization can never be a truly meaningful alternative to permanent or irrevocable loss, and so cannot fulsomely serve as a proxy for climate justice. An example of this may be found in situations of cultural loss such as the harm experienced by Inuit as a result of the loss of sea ice and the cultural practices dependent upon it that are integral to what it means to be Inuit.[25] Nevertheless, in a position paper drafted for COP28, the Inuit Circumpolar Council (ICC) called upon all international actors to advance recommendations that all climate change work be based on a human rights foundation, and that direct pathways be created to enable access for Indigenous Peoples to equitable

24 Following the WIM, Payne defines non-economic losses as capturing those that are not easily quantifiable in economic terms including loss of "life, health, displacement and human mobility, territory, cultural heritage, indigenous/local knowledge, biodiversity and ecosystem services" (Cymie Payne, 'Valuation of Climate Change Loss and Damage' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021) 184, 187). Payne also distinguishes valuation and values: "*valuation* is generally understood to mean monetization, while losses may have many kinds of values to us, including moral, ethical, religious, aesthetic and psychological value. And while valuation is always in reference to humans, the value of an ecosystem feature may be to non-humans or to the system itself" (*ibid*. 188).

25 Sheila Watt-Cloutier, *The Right to be Cold: One Woman's Story of Protecting Her Culture, the Arctic and the Whole Planet* (Penguin Random House 2016).

climate finance including the Loss and Damage Fund.[26] The need for financial support to enable "Inuit-defined and -led climate change adaptation and mitigation strategies" so as to ensure capacity to "address present and future challenges" is highlighted by the ICC, along with concerns over the "false dichotomy between the developing and developed world of global politics that excludes Indigenous Peoples from many funding sources."[27] Hearing these concerns and effectively responding to them requires a critical engagement with the idea of DSEERI so as to overcome prevalent assumptions about the nature of the state in international relations and international law.[28]

Ultimately, while monetization cannot fulsomely serve as a proxy for climate justice in cases of cultural loss, this does not mean that those who have experienced cultural loss should not nevertheless be supported financially to build capacity to prevent further cultural loss, or to revitalize alternate cultural practices, or simply as a means of compensation. It is common for legal systems to provide monetary remedies for permanent or irrevocable loss (eg loss of a limb, or loss of life), even if this can never truly be adequate. Scenario 5, the case against Mexico brought by Indigenous peoples, peasants and rural dwellers, well illustrates this conundrum as the plaintiffs seek both economic reparations for individual harms, and collective, community-wide reparations, although there is no mention of how the communities would anticipate using such reparations.

Monetization for ecological loss similarly cannot fulsomely provide an alternative to climate justice.[29] Nevertheless, to the extent that those with standing to bring claims of ecological loss believe that monetization can serve a useful purpose – perhaps contributing to climate mitigation and adaptation efforts that would better prevent avoidable future loss of the same ecological system, or contributing to ecological restoration efforts –, monetization must certainly play a role in remedy. Several scenarios hint at the potential for monetization of ecological loss, perhaps especially scenario 6 involving a hypothetical case before the ITLOS in which a small island state seeks full reparation with interest against the flag state for damage to the marine environment caused by an oil tanker spill. Here, an "ecosystem goods and services approach" to compensation is called for on the basis that *restitutio in integrum* may not be possible; yet ultimately clean-up and restoration of the marine

26 Inuit Circumpolar Council, 'On Thin Ice: Inuit Climate Leadership for the World – UNFCCC COP 28 Position Paper' (2024).

27 *Ibid*.

28 Seck, 'Relational Law' (n 1).

29 Payne (n 24) 188.

environment must be the final goal. Presumably the aim of valuation of the ecological system for compensation purposes here is to seek sufficient funds to cover the cost of ecological restoration as well as compensation for what cannot be restored. The Peru-Brazil scenario 7 before the ICJ also offers food for thought as Peru seeks compensation for harm to its environment, yet the harm to Peru arises from the destruction of key ecological systems in Brazil. Aside from a declaration that Brazil has violated international law, the case does not account for the need for ecological restoration of the Brazilian Amazon, illustrating the complexity and ultimately unsatisfactory promise of such a case.

Where the situation is one of recoverable or reparable damage (as distinct from permanent or irrevocable loss), monetization may play a more central role and one that could be consistent with climate justice. This is despite the fact that monetization of what has been (lost or) damaged is impossible due to subjective values with regard to loss of cultural identity, life or ecosystem functions.[30] Nevertheless, monetization may from a pragmatic perspective assist in meeting international law obligations of restitution, compensation and satisfaction, including funding of restoration of a damaged environment and compensation for costs incurred by communities or the state as a result of such damage.[31] However, monetization may differ depending on whether the valuation technique is designed for the purpose of financial compensation as distinct from "in-kind activities to remediate and restore" harm.[32]

b. Monetization as Perpetuation of Climate Injustice

There is no question that legitimate concerns arise that monetization of non-economic loss and damage perpetuate the problematic practice of alienation that is the basis of the capitalist system (and invokes the bounded autonomous individual), and so inevitably undervalues that which has non-monetizable value, whether for cultural, moral, ecological, or other reasons.

To overcome this concern, Cymie Payne argues that monetization (valuation and compensation) are "best used as tools to optimize future ecological

30 *Ibid*. 184; see further, Marco Nilgen, Maximilian Nicolaus Burger, Ivo Steimanis and Björn Vollan, 'Pitfalls of Monetizing Relational Values in the Context of Climate Change Adaptation' (2024) 20 Ecosystems and People 1.

31 Payne (n 24) 189; see also Maxine Burkett, 'Climate Reparations' (2009) 10 Melbourne Journal of International Law 509, 531–536, highlighting the important role of apology in reparations.

32 Payne suggests that irrespective of the approach, valuation should include "market value, use value, option value and existence value of the damaged environment" while also taking into account the "time period before the environment recovers ('interim damage') by providing for the social, economic and ecological services the ecosystem provided prior to being injured" which in cases of irreversible harm may last forever (Payne (n 24) 194–195).

and social conditions, not to recover the past. Valuation's chief contribution, from this perspective, may be to scope and scale transformative and curative interventions."[33] One way in which monetization is already being used in a preventative manner in the US and Canada is through the use of the social cost of carbon in regulation-making and decision-making processes.[34] The social cost of carbon is an estimated dollar value that is designed to represent the net effects associated with incremental changes in carbon emissions, with similar metrics developed for other GHGs. Expressed as a dollar value per metric ton of carbon dioxide, the social cost of carbon is generally used to calculate the benefits of a proposed government action that is designed to reduce emissions and is increasingly used in regulatory rule-making.[35]

Pragmatically, if monetization is being used to inform decision-making, then monetizing all loss and damage, even if inevitably inaccurate, is important for better decision-making. However, to the extent that decisions are made based on grossly inadequate monetization, climate injustice will be perpetuated. Challenges in determining a "true" social cost of carbon include questions relating to how to account for tipping points, non-monetary damages and irrecoverable loss, among many others.

Scenario 9 provides an example of litigation in which a hypothetical shareholder brings an action before Swiss civil courts alleging that a major financial institution has failed to disclose and account for risks arising from its financing of GHG-intensive investments. While it is unclear what remedy the hypothetical shareholder is seeking, this case illustrates the importance of distinguishing financial risks (that might fall upon the shareholder) from monetized climate risks that a "true" social cost of carbon would ideally capture (risks that would be borne by the most vulnerable people and ecosystems around the world).

c. Monetization and the Promise and Limits of Climate Litigation for Global Climate Justice

The social cost of carbon emerged following a 2008 decision of the United States Court of Appeal that held the "cost-benefit analysis underpinning new fuel-economy standards ought to have incorporated a monetary value for carbon emissions" as the value of emissions reduction "is certainly not zero."[36] This suggests that climate litigation may be used to promote monetization as a

33 Payne (n 24) 187.

34 Majekolagbe, Seck and Wright (n 3).

35 *Ibid*. 86–87.

36 For details on the calculation of the social cost of carbon, see *ibid*. 86–95.

means to prevent future harm, as well as to remedy past harms through monetary compensation or remediation funds.

As noted above, financial compensation can play an important role in situations of irrecoverable loss and reparable damage, even when it cannot return those harmed to the situation they were in before the loss or damage occurred. However, important distributional concerns arise in climate litigation, with the ability to go to court and seek monetary compensation being unequally spread across the globe and in no way linked to moral or even legal entitlement.[37] Scenario 8 illustrates this challenge, as four residents of an Indonesian island have brought a civil claim against Holcim, a Swiss-based manufacturing company, seeking climate adaptation costs and compensation for climate loss and damage suffered.[38] Yet it is unrealistic to imagine that every individual in the world who needs access to climate adaptation funds and compensation for loss and damage would be able to go to court against Holcim or other carbon major companies, or that sufficient funds would be available if they did before these corporate enterprises – and state-owned enterprises – went bankrupt. Related concerns arise in relation to the newly established yet underfunded Loss and Damage Fund. This disconnect between the funds in fact needed to equitably address loss and damage and the funds that deserving plaintiffs might in reality be able to access is a major limitation of climate litigation for climate justice.

However, an innovative approach to global remedy in climate loss and damage litigation has been proposed by Mary Christina Wood who envisions atmospheric recovery litigation against carbon majors in domestic courts.[39] She argues for remedy in the form of funding for a global sky cleanup that would support natural climate solutions led by Indigenous communities, farmers and foresters engaged in restoration projects that also stimulate local economies while enhancing climate adaptation and biodiversity recovery.[40] Wood situates her exploration of this idea within the legal context of the US, and envisions atmospheric recovery litigation as a complementary strategy to atmospheric trust litigation which aims to achieve decarbonization.[41] She draws upon the ancient public trust principle recognized by courts in many

37 Doelle and Seck (n 11).

38 Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

39 Mary Christina Wood, 'Atmospheric Recovery Litigation Around the World: Gaining Natural Resource Damages Against Carbon Majors to Fund a Sky Cleanup for Climate Restoration' in Meinhard Doelle and Sara L Seck (eds), *Research Handbook on Climate Change Law and Loss & Damage* (Edward Elgar Publishing 2021).

40 *Ibid*. 305.

41 *Ibid*. 308.

countries around the world to argue that governments, as trustees, must protect public trust resources including the atmosphere.[42] Wood envisions sovereign co-trustees, whether national, sub-national, or Indigenous, sharing a responsibility to protect the atmosphere, and so being granted standing to sue fossil fuel companies for atmospheric damage.[43] An essential aspect of the remedy sought would be a regional plan providing a framework to organize and select drawdown projects, with damages deposited in a "Sky Trust" set up by the co-sovereigns, or a trust set up by the judiciary.[44] While the local benefits of such a remedy would not be equally spread, the global benefits of sky cleanup would be one way to overcome some of the climate injustice that is an inevitable part of (domestic) climate litigation efforts, a point that Wood highlights.[45] While Wood contemplates recovery efforts involving terrestrial ecosystems, there are good reasons to extend this thinking to marine ecosystems, especially given that the climate Advisory Opinion of the ITLOS specifically identifies state obligations for restoration of marine ecosystems and habitats under Article 192 of the United Nations Convention on the Law of the Sea.[46]

5. Conclusions

As climate litigation emerges across the globe as a tool to seek remedy for climate loss and damage, it is essential to cast a critical eye on the details of claims to avoid perpetuating climate injustice. In this chapter I have argued that a relational lens that is informed by intersectional feminist and vulnerability theories as well as de-colonial approaches and consciously made explicit through the image of DSEERI can assist in challenging dominant legal doctrines and constructs that inform current approaches to climate litigation. Bolstered by the work of contributors to the 2021 *Research Handbook on Climate Change Law and Loss & Damage,* I have critically engaged with the scenarios, and contemplated alternatives that I argue are more in keeping with

42 *Ibid*. 308.

43 *Ibid*. 314.

44 *Ibid*. 328–329.

45 *Ibid*. 306: "[t]here is simply not enough money in the world to pay for all of the harm unleashed by the fossil fuel industry. Choices must be made, either directly or by default, as to which forms of damage will be funded through strategic litigation." Wood continues to identify six categories of harm, noting that while it is compelling to remedy these harms in human terms, it is only the sixth category ("atmospheric damage and collateral ecological injury") that achieves recovery of the climate system.

46 *Request for an Advisory Opinion Submitted by the Commission on Small Island States on Climate Change and International Law* (Advisory Opinion, 21 May 2024) ITLOS Reports 2024, 1 [400].

climate justice. My reflections have included consideration of both the possibilities and limitations of monetization for climate reparations. Ultimately, my hope is that such critical engagement and foregrounding of DSEERI may contribute to a better alignment of climate litigation and climate justice. Yet real challenges will continue to face litigants who adopt a DSEERI lens in forums that were designed to serve bounded autonomous individuals, whether individuals, or states.

Pranav Ganesan

Chapter 14: Interim Reflection

1. Introduction

Frustration with international climate negotiations as they relate to the redressal of climate injustice appears to be a common element in the preceding chapters. While climate litigation stands out to advocates of climate justice as a means to bridge the "accountability gap," Suedi, Natarajan, Nordlander and Seck's chapters call for caution in framing litigation as such. They identify different problems with litigation for climate reparations and present complicated pictures of what claimants can achieve through litigation.

Upon reading the four chapters in this section of the book, three questions came to my mind. They were as follows. (1) Why is litigation for climate reparations necessary when slow but incremental progress[1] is being made in the area of climate finance and other forms of support through negotiations within the framework of the international climate change regime? (2) Would adjudicating on climate reparations claims even be possible for a court, given the controversies surrounding the meaning and legal implications of the underlying norms? (3) Can we hope for courts to become sites where legal remedies (assuming responsibility or liability on the respondent's part is found) are re-imagined? The focus of most of this chapter is on inter-state litigation, but other forms of litigation shall also be touched upon. In what follows, I will address each of the three questions in turn. The first question is meant to structure the discussion, whereas the second and third questions prompt evaluative responses. I would clarify at the outset, to not betray readers' expectations, that given the breadth of the latter two questions, my response will offer an informed discussion, rather than a definitive "yes/no" position.

1 See chapter 12, Nordlander, 257-259.

2. Inter-state Negotiations and Litigation for Climate Reparations

Suedi's chapter discusses inter-state litigation for climate reparations. These would include the cessation of conduct capable of injuring other states and the environment, which is causally linked with global warming, and compensation to the affected states for harms already produced by climate change. She argues that the key hurdles in a contentious litigation campaign by an affected state are that of an international court's jurisdiction to adjudicate a dispute about such reparations, the inability to calculate compensation because of questions surrounding historical responsibility, and the unlikelihood of international courts ordering the cessation of wrongful conduct alongside an authoritative statement on the reduction of greenhouse gas (GHG) emissions required from the responsible state. Still, she argues in favor of pursuing litigation as a strategic tool, believing in its ability to pressure target states to change their behavior and influence climate negotiations in a positive way.[2] Nordlander concurs with the view that inter-state litigation has limited chances of success, but then goes on to argue that its pursuit could be counter-productive, disrupting the (slow) momentum that negotiations for financing loss and damage has built up over the years. This is a profound risk, but one that needs to be assessed with a critical eye.

The decision of the Conference of Parties to the Paris Agreement on the establishment of the Fund for responding to Loss and Damage (Fund) maintains that support from both developed and developing country Parties shall be voluntary, with the difference that while the former are *urged,* the latter are *encouraged* to contribute,[3] and the developed country Parties are *invited* to "take the lead to provide financial resources."[4] Nordlander remarks that "[a] key question is whether distributive justice will shape the Fund's operation." Given that several contours of the Fund are yet to be finalized, we need to wait and see whether distributive justice will indeed shape the Fund's *operation*. But what about the Fund's *reason for being*? While often purported to be a deal

2 See chapter 10, Suedi, 226-228.

3 UNFCCC COP, 'Decision 2/CP.27 Funding Arrangements for Responding to Loss and Damage Associated with the Adverse Effects of Climate Change, Including a Focus on Addressing Loss and Damage' (17 March 2023) UN Doc. FCCC/CP/2022/10/Add.1, para 12.

4 *Ibid*. para 13.

on "compensating" those affected by climate harms,[5] this characterization is incorrect. The consensus achieved under the UNFCCC framework on the issue of loss and damage thus far suggests that this pillar of climate governance is not about accountability or liability.[6] The Global South has been persistently trying but failing to achieve consensus on norms in the international climate regime which would directly or indirectly frame loss and damage as an injury for which *historically* responsible actors must make some form of reparations.[7] Funding for the costs of adaptation to the effects of climate change and response to loss and damage takes place within a governance framework which treats such flows as aid rather than reparations.[8] While the resources of the Fund are purported to be allocated in a manner that is prioritarian,[9] the fact that the funds are "volunteered" arguably reflects that the mechanism is a far cry from constituting a piece in the reparations puzzle. Developed country Parties can, at any point in time, completely stop their contributions without attracting legal consequences.

In the off chance that inter-state climate litigation results in a finding of state responsibility for wrongful conduct in relation to emission of GHGs, the injured state's access to the Fund would not preclude the court or tribunal from recognizing their *right* to reparation (as a correlative of the responsible state's obligation to make full reparation, under the law of state responsibility). Emphasizing the disconnect between how climate finance under the UNFCCC framework is understood, and what advocates of climate reparations have been calling for instead, allows us to appreciate the value that litigation at the inter-state level can truly serve. Inter-state litigation for climate reparations would not merely be about bridging the climate finance gap as it relates to loss and damage, but forcing a shift in the terms of the debate between the Global North and South.

5 Arthur Wyns, 'COP27 Establishes Loss and Damage Fund to Respond to Human Cost of Climate Change' (2023) 7 Lancet Planetary Health e21.

6 UNFCCC COP, 'Decision 1/CP.21 Adoption of the Paris Agreement' (29 January 2016) UN Doc. FCCC/CP/2015/10/Add.1, para 51; zooming out, the negotiating history of the principle of common but differentiated responsibility in climate treaties reveals that industrial countries have steered clear of accepting any overarching responsibilities for the iniquitous state of the world: Lavanya Rajamani, *Differential Treatment in International Environmental Law* (OUP 2006) 153.

7 Rahul Mohanty, 'Need for Fairness in Climate Change Negotiations: A Third World Perspective' (2025) 15 Asian Journal of International Law 157.

8 Nick Malherbe and Abiodun Omotayo Oladejo, 'Against Climate Aid Colonialism: The Case for Climate Reparations and South-South Solidarity' (2025) 60 Africa Spectrum 84.

9 Decision 2/CP.27 (n 3) para 60.

3. Complexity of Adjudicating Climate Reparations

The principle of common but differentiated responsibility predominates the discourse on climate action. It recognizes that all states, small and big, developed and developing are in some ways responsible for causing the climate problem, and thus, they *all* must take action to mitigate the risks it poses and its effects. However, the individual measures to address or respond to climate change that each state must take as a matter of obligation must be varied. Its distinct avatar in the international climate change regime is worth noting, as it comes with the suffix of "respective capabilities"[10] and the clause "in light of different national circumstances."[11] The principle is cited as offering a legal basis for different arguments. The most prominent, albeit controversial one is that of developed countries' *historical responsibility* for climate change impacts and consequent duty to assume different burdens: the burden of making up for the reduction in the global GHG emissions budget that is linked to the socio-economic development of developing countries; and the burden of supporting developing countries in adapting to climate change.[12] A common response to this type of argument is that responsibility cannot arise for conduct which only came to be recognized as blameworthy in the late 20th century (ie after the so called "critical date" when the risks posed by GHG emissions came to be known with some degree of certitude). In response, Gosseries argues that ignorance (and therefore non-blameworthiness) does indeed excuse moral responsibility for the direct consequences of the conduct, but it does not detract from the moral obligation to redistribute the *correlative benefits* of historical emissions, which industrialized countries *continue to enjoy,* even after the latter's connection with climate change came to light.[13] This

10 UNFCCC, art 3.1.

11 Paris Agreement, art 2.2.

12 Henry Shue, 'Subsistence and Luxury Emissions' (1993) 15 Law & Policy 39; see also Henry Shue, 'Historical Responsibility,' Technical Briefing for Ad Hoc Working Group on Long-term Cooperative Action under the Convention [AWG-LCA], SBSTA, UNFCCC, Bonn, 4 June 2009.

13 To illustrate why the "ignorance" argument should not be accepted, Gosseries articulates the following scenario. Consider the interaction between a buyer (B) who purchases 40 wine bottles from a seller (S) with currency bills she was gifted. At some later point in time when S attempts to deposit the bills in a bank, the bank informs her that the bills are counterfeit. Neither B nor S was in a position to or could have been expected to know that the bills were counterfeit. In the meantime, B had consumed 10 out of the 50 bottles of the wine. When B comes to know from S that she had purchased the wine with fake money, putting S at a total loss of 50 bottles, what must she do?

moral obligation to redistribute those benefits in order to compensate the victim, according to Gosseries, is based on transgenerational "free-riding."[14] And the responsibility of the historical emitter is a consequence of their failure to adhere to this obligation.

So much for moral arguments, which should ideally inform the development of a fair international climate regime – what about historical responsibility in the legal sense of the term? International legal accountability for historical emissions hinges on whether such emissions were internationally wrongful acts at the time.[15] Internationally wrongful acts entail state conduct in breach of an obligation under international law.[16] Thus, "historical responsibility" in the legal sense does not imply that there exists an obligation on states to pay for climate harms attributable to historical emissions. However, international law does not rule out the relevance of historical emissions.[17] It has been argued that international law requires states not to determine their share of *mitigation efforts* "based on models that privilege current and *past* high levels of emissions."[18] In other words, a state's historical responsibility (not in the sense of responsibility for internationally wrongful acts) for GHG emissions is relevant for determining its "fair share" in climate mitigation which its conduct must correspond to as a matter of legal obligation.[19]

Given the interaction, demanding that B pay for all 50 bottles could be argued as unfair, as B surely would not have bought any wine, had she not been gifted the bills. However, under no circumstance does it seem just that B should get to keep the remaining 40 bottles, without paying anything to S. B should pay for those bottles if she wishes to keep them; see Axel Gosseries, "Historical Emissions and Free-Riding" (2004) 11 Ethical Perspectives 36, 39-42.

14 While readers are encouraged to read Gosseries work (*ibid.*), here is a summary of the argument: "free-riding" in certain cases is morally objectionable. Since the current generation of US residents are net beneficiaries of the past generation's conduct, they are "free-riders." The current generation of Bangladeshi residents are net victims in this scenario, notwithstanding that they may indirectly benefit from the US's climate-unfriendly (climate-ignorant) industrialization, because of climate harms. Current generation of US residents are thus free riders upon conduct that was harmful to Bangladesh. Bangladesh's claim for compensation from the US for historical emissions can rest, if not on *egalitarian* distributive grounds, on the grounds of "*interactive justice*."

15 Lavanya Rajamani and others, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions Within the Principled Framework of International Environmental Law' (2021) 21 Climate Policy 983.

16 ILC, 'Draft Articles on Responsibility of States for Internationally Wrongful Acts, with commentaries' (November 2001) Supplement No. 10 UN Doc A/56/10, art 2 (ARSIWA).

17 UNFCCC, para 3.

18 Rajamani and others (n 15).

19 *Ibid.* 992; cf Benoit Mayer, 'Temperature Targets and State Obligations on the Mitigation of Climate Change' (2021) 33 Journal of Environmental Law 585.

Reparations would follow for any injury caused by states' failures to prevent the emission of GHGs from activities within their jurisdiction, that is in excess of this fair share.[20]

In legal analysis, the *fair share* question[21] and the related *critical date* question[22] are quite controversial. This is clear from the different answers to these questions within state submissions to the ICJ concerning the climate change advisory opinion.[23] While denying that there is a critical date or that states ought to emit GHG only as much as their fair share of "the remaining budget" would be fallacious, any concrete proposal regarding these may be criticized as biased, arbitrary or impractical. Beyond these big questions, there are certainly concerns about the appropriate rate at which emissions reductions ought to be pursued. The choice of emissions pathways entails a certain temporal and spatial distribution of risks of harm to various categories of interests, and the determination of these risks as acceptable. While considerable work has gone into answering these by synthesizing relevant norms in the complex of abstract legal obligations and legal principles,[24] this debate continues. But importantly for our purposes, these questions need to be answered when determining reparable (versus non-reparable) climate change-related injury, injured (versus non-injured) states and individuals, and the duty-bearers who owe reparations. To exemplify the point using private litigation, the tort liability of the corporate actor for the harms attributable to their GHG emissions depends on questions about whether it is reasonable to find fault with the corporation's failure to self-regulate (based on concerns about how their activities might contribute towards climate change) rather than finding fault at the level of the state's failure to regulate their emissions, how to account for certain corporations' conduct in lobbying against regulation of GHG emissions and manufacturing doubt,[25] as well as the responsibility of

20 ARSIWA (n 16), art 31.

21 Rajamani and others (n 15); for a legal argument on how this question must be adjudicated in rights-based climate litigation, see Gerry Liston, 'Enhancing the Efficacy of Climate Change Litigation: How to Resolve the "Fair Share Question" in the Context of International Human Rights Law' (2020) 9 Cambridge International Law Journal 241.

22 Gosseries (n 13) 39-40.

23 See eg *Obligations of States in Respect of Climate Change* (Advisory Opinion), Verbatim Record CR 2024/36 85 (2 December 2024) 87; *Obligations of States in Respect of Climate Change* (Advisory Opinion), Verbatim Record CR 2024/52 (12 December 2024) 23; Written Comments of the Swiss Federation, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (7 August 2024) paras 39-42; Exposé écrit de la République française, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (22 March 2024) para 186.

24 Rajamani and others (n 15).

25 Säde Hormio, 'Can Corporations Have (Moral) Responsibility Regarding Climate Change Mitigation?' (2017) 20 Ethics, Policy & Environment 314, 325-326.

those who contribute towards the demand for the corporation's product. Without grappling with these cross-cutting questions about climate equity, courts cannot adjudicate on climate reparations in a way that is satisfactory to how climate justice advocates conceive them.

4. Courts as Sites of Re-imagination?

Nordlander helpfully classifies other forms of litigation besides inter-state litigation into the following categories: vertical national (individual versus territorial government), horizontal national (individual versus territorial corporation), diagonal transnational (individual versus non-territorial government) and oblique transnational (individual versus non-territorial corporation). The complexity surrounding the identification of substantive duties related to the emission of GHG, and possible liability for harms causally linked with those emissions, still applies in these cases.[26] Again, these forms of litigation may not adequately further global climate justice. Nordlander's analysis highlights the contrast between what litigation for reparations means for different categories of litigants. For those located within the Global South, transnational litigation would primarily be about bridging the gap left by the lack of North to South support for responses to loss and damage. Against corporations, tort cases will always be attractive for climate claimants because of their compensatory nature and their ability to extract this compensation from a "perpetrator" of harm.[27] For vulnerable groups and "the south" within the Global North, litigation may be the only way (outside of seeking redressal through political means) to fund responses to climate-related harms due to the inaccessibility of the Fund. However, no case of private litigation seeking compensation for climate-related harms has resulted in a successful outcome for complainants.[28] Claimants may find that their prospects of successfully obtaining some form of remedy would be higher if they instead initiate a case

26 Consider the *Lliuya* case where the claim was made that since RWE's cumulative emissions amount to 0.38% of global emissions, it should bear 0.38% of the costs of appropriate adaptation measures that the claimant is burdened with. Aside from the issue of how responsibility needs to be apportioned between RWE and the regulators who oversaw its operations, the adjudicator would have to nuance what part of the 0.38% of global emissions RWE could have emitted fairly (ie within the scope of its duty of care); see Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG)*.

27 Kim Bouwer, 'Substantial Justice?: Transnational Torts as Climate Litigation' (2021) 2 Carbon & Climate Law Review 188, 200.

28 Admittedly, the result of the *Lliuya* appeal before the Higher Regional Court of Hamm suggests that courts' doors are not completely shut to claimants seeking damages; *Luciano Lliuya v RWE AG* (n 26).

against their own government, challenging inadequacies in the legal framework on disaster response and resilience (or its implementation). And there might be limited value in this, since such cases end up obscuring their individual responsibilities towards the climate or fail to account for the victims of climate change who suffer risks that are far worse.[29]

Reviewing litigation projects from a critical lens can expose the limitations of framing claims in certain ways, approaching certain fora, or choosing some but not other respondents to go after. However, all these choices are merely a product of the legal norms that litigants can draw upon. Scenario 7 contemplates an ICJ case brought by Peru against Brazil rather than a Global North state, for there is no Global North candidate (except the Netherlands as Suedi points out),[30] that has acceded to the ICJ's jurisdiction to adjudicate such a dispute.

Ultimately, I am sympathetic to the view that law has, far from helping the most disadvantaged of the victims, been complicit in producing climate injustice (among other injustices).[31] Indeed, these norms ignore overconsumption and enable shifting burdens onto groups who are marginalized or lacking in the socio-economic and political capacity to protect themselves. Is it naïve to hold out hope for costly but necessary change at a scale that is transformative? When describing international law's *illusory* emancipatory potential, Tzanakopoulos refers to Audre Lorde's famous aphorism: "[t]he master's tools will never dismantle the master's house."[32] International law is constituted by norms emanating from states' "own free will."[33] Jackson warned of the risk of mixing "norms of duty" and "norms of aspiration" within the same instrument,[34] and this is pertinent in the context of climate treaties. Regarding the Paris Agreement, Rajamani suggests that the primacy of "national determination" has arguably led to "drag" in its implementation, and "mismatch between the collective temperature goal, stated ambition, and real-world action."[35] In a world where different states can hold different interpretations

29 See chapter 11, Natarajan, 238, 240–241, 246.

30 See chapter 10, Suedi, 218.

31 See chapter 11, Natarajan, 233–235; see also, Usha Natarajan and Julia Dehm (eds), *Locating Nature: Making and Unmaking International Law* (CUP 2022).

32 Antonios Tzanakopoulos, 'The Master's Tools and the Master's House: Marxist Insights for International Law,' in Anne van Aaken and others (eds), *The Oxford Handbook of International Law in Europe* (OUP 2024) 351.

33 *SS Lotus (France v Turkey)* [1927] PCIJ Series A, No. 10 [44].

34 John H Jackson, *World Trade and the Law of GATT* (Bobbs Merrill, 1969), 761–62.

35 Lavanya Rajamani, 'Interpreting the Paris Agreement in its Normative Environment' (2004) 77 Current Legal Problems 167, 176–180.

of what international law requires them to do or refrain from doing, Tzanakopoulos argues that in the end, all interpretations are formally equal and:

> No selection can be made among them until the States either agree ("peculiar organ") or at least agree to delegate the political power to a third party, such as a court or tribunal. (…) The determinations remain equal until we reach that final instance. But, to paraphrase Althusser, "the lonely hour of the 'last instance' [may] never come."[36]

A cynical take on litigation for climate reparation would suggest that legal analysis undertaken by courts, should legal claims survive jurisdictional and admissibility hurdles, will be constrained by norms that privilege the privileged. Which "final instance" can the victims of climate-induced displacement – as Natarajan illustrates in her chapter – appeal to for the restitution of their previous conditions of life?[37] Even if victims who are privileged enough to apply to a "final instance" manage to succeed through creative legal efforts, whatever victory is achieved, if at all, seems to end up being incremental rather than transformative. Seck, however, holds out hope that legal constructs can be re-imagined from the point of view of the Differentially Situated Ecologically Embedded Relational Individual (DSEERI).[38] As an example of legal remedies, she refers to Mary Christina Wood's proposal of "atmospheric recovery litigation," a model that Wood argues is practicable in climate cases brought against carbon majors before US courts. Can courts truly be the sites where this sort of legal re-imagination can occur? Private litigation that seeks to obtain remedial awards for climate-related harm (understood broadly as harm linked with global warming, rather than environmental pollution from activities like fossil fuel extraction and production) is yet to bear fruit. Suedi and Natarajan both draw parallels and discuss the relationship between climate injustice and colonialism,[39] but do not suggest that any court would be able to reckon with this inter-relationship when adjudicating reparations claims. This is not to say that climate cases have not and will not produce outcomes which can

36 Tzanakopoulos (n 32) 364, citing Louis Althusser, *For Marx* (Ben Brewster trans, Verso 2005) 113.

37 The *Teitiota* case suggests the applicability of the *non-refoulement* obligation under human rights law to such individuals, except that it is only when climate risks are "imminent" that the obligation can be said to exist (UN Human Rights Committee, *Teitiota v New Zealand,* 23 September 2020, UN Doc CCPR/C/127/D/2728/2016 [9.7]-[9.12]); see also, Michelle Foster and Jane McAdam, 'Analysis of "Imminence" in International Protection Claims: *Teitiota v New Zealand* and Beyond' (2022) 71 International & Comparative Law Quarterly 975.

38 See chapter 13, Seck, 274, 284-285.

39 See chapter 10, Suedi, 213-224; chapter 11, Natarajan, 249-250.

be described as landmark or historic, but rather to highlight that legal victories do not necessarily reflect outcomes that climate litigants truly desire. Nevertheless, and echoing Natarajan's concluding remarks, I do believe that they can serve as sites where the meaning of "reparations" as is traditionally understood can be questioned, and truth of those suffering the compound injustice of colonialism and climate change can be amplified.[40]

40 See chapter 11, Natarajan, 247-250.

Part Four
Corporate Liability for Climate Change

Valentin Jentsch

Chapter 15: Climate Change Litigation against Carbon Majors

1. Introduction

From a private law perspective, different avenues are available to hold corporations responsible for GHG emissions.[1] However, it must be clearly stated that the hurdles for such lawsuits to be successful are extremely high.

Arguably the most popular approach to realize corporate liability for climate change is to recur to tort law in combination with human rights law. This is what has essentially been done in the Dutch Shell case, decided by a court of first instance (Rechtbank Den Haag), so far the only "successful" climate lawsuit against a corporation, which was recently overturned by the competent court of second instance (Gerechtshof Den Haag).[2] Put simply, the case relies

1 See Andreas Hösli and Rolf H. Weber, 'Klimaklagen gegen Unternehmen: Internationale Entwicklungen und deren Bedeutung für die Schweiz' (Jusletter, 25 May 2020), 6ff; Marc-Philippe Weller and Mai-Lan Tran, 'Klimawandelklagen im Rechtsvergleich – private enforcement als weltweiter Trend?' (2021) 29 Zeitschrift für Europäisches Privatrecht 573, 578ff; Michael Rodi and Michael Kalis, 'Klimaklagen als Instrument des Klimaschutzes' (2022) 1 Klima und Recht 5; Andreas Hösli, 'Corporate Climate Litigation: Klageweise Durchsetzung der Klimaverantwortung von Unternehmen? Eine Einordnung' (2023) 38 Umweltrecht in der Praxis 776, 780ff; Jan-Erik Schirmer, 'Haftung für künftige Klimaschäden' (2023) 76 Neue Juristische Wochenschrift 113.

2 Rechtbank Den Haag, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 26 May 2021, ECLI:NL:RBDHA:2021:5337; Gerechtshof Den Haag, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 12 November 2024, ECLI:NL:GHDHA:2024:2100. See Valentin Jentsch, 'Etappensieg bei Klimaklage zur Reduktion von CO2-Emissionen gegen Rohstoffunternehmen: Rechtbank Den Haag, 26. Mai 2021 – C/09/571932 / HA ZA 19-379 (Klimaatzaak tegen Royal Dutch Shell)' (2021) 16 Zeitschrift für Gesellschafts- und Kapitalmarktrecht 321; Valentin Jentsch, Klimaklagen gegen Rohstoffunternehmen: Eine Fallstudie mit Perspektivenbildung (Schulthess 2021) 7ff; Andreas Hösli, 'Milieudefensie et al. v. Shell: A Tipping Point in Climate Change Litigation against Corporations?' (2021) 11 Climate Law 195; Vito Roberto and Jürg Fisch, 'Zivilrechtliche Klima-Klagen: Der Shell-Entscheid des Bezirksgerichts Den Haag aus schweizerischer Perspektive' (2021) 30 Aktuelle Juristische Praxis 1225, 1227ff; Felix Ekardt, 'Klimaklagen gegen Unternehmen – Das Den Haager Shell-Urteil' (2022) 1 Klima und Recht 15; Alexander Gian-Carlo Baumann, 'Milieudefensie et al. v. Royal Dutch Shell – Law and Economics of Corporate Responsibility' in Peter Nobel, Alexander Gian-Carlo Baumann and Elias Aliverti (eds.), *Law and Economics in all seinen Facetten: Festschrift zu Ehren von Klaus Mathis* (Duncker & Humblot 2023) 179ff.

on a legal basis in Dutch tort law (Art. 6:162 of the Dutch civil code), according to which anyone who violates an – unwritten, but generally considered to be proper social conduct – duty of care is liable for damages. It draws on human rights instruments (in particular Articles 2 and 8 ECHR and Articles 6 and 17 ICCPR), international standards (in particular the UN Guiding Principles on Business and Human Rights), and climate science (in particular the reports by the IPCC) to concretize the relevant standard of care. It goes without saying that this case is based on notable public law disputes in climate matters (the Dutch Urgenda case) which have been emulated in many other jurisdictions, but that it is so far without a clear-cut outcome.[3]

Another approach to realize corporate liability for climate change is not directed against the corporation itself, but against its directors and officers.[4] The British Shell case concerned whether Shell's directors breached their fiduciary duties in respect of Shell's climate strategy and its response to the Dutch Shell case. The derivative claim[5] was based on corporate law, namely section 172 of the British Companies Act (2006), pursuant to which a director of a company must, inter alia, also consider the impact of the company's operations on the community and the environment. In the written procedure, the High Court of Justice in London concluded that plaintiff had not met its burden of proof for a prima facie case in the proceedings for admission of the action for a number of reasons.[6] Following an oral hearing requested by plaintiff, the High Court of Justice confirmed its opinion once again.[7] The High Court of Justice further refused permission to continue a derivative claim.[8]

At the broadest level, two types of climate lawsuits can be distinguished: injunctions and actions for performance.[9] There is already case law in both of these areas.

3 Rechtbank Den Haag, *Urgenda Foundation v State of the Netherlands,* 24 June 2015, ECLI:NL:RBDHA:2015:7196; Gerechtshof Den Haag, *State of the Netherlands v Urgenda Foundation,* 9 October 2018, ECLI:NL:GHDHA:2018:2591; Hoge Raad, *Urgenda Foundation v State of the Netherlands,* 13 January 2020, ECLI:NL:HR:2019:2007.

4 See Rolf H. Weber and Andreas Hösli, 'Climate Change Liability: Comparing Risks for Directors in Jurisdictions of the Common and Civil Law' (2020) 10 Climate Law 151; Rolf H. Weber and Andreas Hösli, 'Corporate Climate Responsibility – aktienrechtliche Haftungsrisiken für den Verwaltungsrat?' (2020) 116 Schweizerische Juristen-Zeitung 605; Holger Fleischer, 'Klimaklagen gegen Vorstandsmitglieder: Englische Fälle und deutsches Recht' (2023) 68 Die Aktiengesellschaft 833.

5 For a definition of this term, see chapter 17, Hinteregger, 352.

6 *ClientEarth v Shell* [2023] EWHC 1137 (Ch).

7 *ClientEarth v Shell* [2023] EWHC 1897 (Ch).

8 *ClientEarth v Shell* [2023] EWHC 2182 (Ch).

9 See Valentin Jentsch, 'Klimaklagen gegen Rohstoffunternehmen: Aktuelle Entwicklungen und Zukunftsfragen' (iusNet Gesellschaftsrecht, 24 November 2022), 1ff.

Injunctions are aimed at ensuring that corporations emit fewer GHG emissions in the future.[10] The Dutch Shell case belongs to this category. Other injunction-based cases include the Italian Eni case, the German Volkswagen, BMW, Mercedes-Benz, and Wintershall Dea cases, and, at least partly, the Swiss Holcim case.

Actions for performance may include compensation for climate damage that has already occurred and/or reimbursement of costs for the installation of protective measures for impending climate damage. A well-known case in this category, which was rejected both in the first instance (Landgericht Essen) and in the second instance (Oberlandesgericht Hamm), is the German RWE case.[11] Another case, which also includes compensatory elements, is the Swiss Holcim case, currently pending at Kantonsgericht Zug; at the time of writing (end of June 2025), the main hearing in this case was scheduled to start on 3 September 2025.[12]

This chapter offers an international and comparative understanding of legal and practical realities and the role of courts with regard to climate change litigation against carbon majors. The line of argument of this text is essentially based on relevant court decisions, selectively enriched with further literature on the topic. After presenting a few typical case studies on horizontal (private-law-based) climate change litigation, distinguishing adaptation, mitigation, and other cases, the relevant legal concepts of such litigation are introduced, namely the general notions of damage, unlawfulness, duties of care, causality, and proof, and the duty to reduce emissions in particular. In addition, pitfalls of litigation and corporate responses are highlighted before the public-private divide and the institutional context are addressed. A concluding section rounds off the chapter.

10 See Roberto and Fisch (n 2) 1230f.

11 Landgericht Essen, 15 December 2016, 2 O 285/15 *(Luciano Lliuya v RWE)*; Oberlandesgericht Hamm, 30 November 2017, 1 February 2018, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE)*. See Gerhard Wagner, *Klimahaftung vor Gericht: Eine Fallstudie* (Beck 2020), 17ff; Anne Kling, 'Die Klimaklage gegen RWE – Die Geltendmachung von Klimafolgeschäden auf dem Privatrechtsweg' (2018) 51 Kritische Justiz 213; Hösli and Weber, 'Klimaklagen gegen Unternehmen' (n 1) 11ff.

12 See Danielle Cara Hefti, 'Deliktsrechtliche Klimaklagen in der Schweiz: Erfolgschancen der Pilotklage gegen die Zementherstellerin Holcim AG gestützt auf Persönlichkeitsrecht nach Art 28 und 28a ZGB' (2023) 8 ex/ante 72.

2. Case Studies

a. Adaptation Cases

The German RWE case concerned the liability of a GHG emitter for harms arising in a different jurisdiction. A Peruvian farmer, who lives in Huaraz, filed claims for declaratory judgment and damages against the German multinational energy company RWE in November 2015. On 15 December 2016, a district court (Landgericht Essen) dismissed both the requests for declaratory and injunctive relief and the request for damages.[13] This case failed at first instance primarily due to a lack of causality. On 30 November 2017, however, a higher regional court (Oberlandesgericht Hamm) admitted the complaint and allowed the case to move into the evidentiary phase, and on 1 February 2018, this order was confirmed.[14] On 28 May 2025, the higher regional court (Oberlandesgericht Hamm) ultimately dismissed the case, finding that the plaintiff's property was not in concrete danger; the judgment is final, as no further appeal was permitted.[15]

The Swiss Holcim case is likewise about the civil liability of a major GHG emitter for climate change-related damages suffered in a different jurisdiction. In addition, the case is about the financing of anti-flooding measures. The legal basis for this claim is, in particular, redress for unjust harm. The case is pending at the court of first instance in Zug (Kantonsgericht Zug).

b. Mitigation Cases

In the Dutch Shell case, it is at issue whether Shell violated a duty of care and human rights obligations by failing to take adequate action to curb contributions to climate change. On 26 May 2021, a Dutch district court (Rechtbank Den Haag) ordered Shell to reduce emissions by 45% by 2030, relative to 2019, across all activities, including its own emissions (scopes 1 and 2) and end-use emissions (scope 3).[16] On 12 November 2024, however, the competent Dutch court of appeal (Gerechtshof Den Haag) overturned the district court's judgment and denied the claims of Milieudefensie, the plaintiff organization.[17] The court of appeal essentially ruled that Shell is obliged to reduce its GHG

13 Landgericht Essen, *RWE* (n 11).

14 Oberlandesgericht Hamm, 30 November 2017, 1 February 2018, 5 U 15/17 *(Luciano Lliuya v RWE)*.

15 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE)*.

16 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.4], [4.4.55], [5.3].

17 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7], [9].

emissions, but that it was unable to determine which percentage of emissions reductions should apply. At the time of writing (end of June 2025), an appeal in cassation against this ruling may still be brought before the Dutch supreme court (Hoge Raad).

The Italian Eni case is about the same issue, namely whether Eni (a multinational energy company headquartered in Rome) violated a duty of care and human rights obligations by failing to take adequate action to curb contributions to climate change. This case in fact attempts to replicate the Dutch Shell case, with further complications such as the allegation of early knowledge of the climate crisis. The first hearing took place t the Ttribunale di Roma on 16 February 2024.

In Germany, several climate lawsuits are pending. One German Volkswagen case was brought by a farmer, Ulf Allhoff-Cramer, and supported by Greenpeace Germany. In this case, it is at issue whether Volkswagen's business activities constitute a violation of Allhoff-Cramer's rights, and whether Volkswagen can be ordered to reduce its emissions to avoid further and future infringements of rights. Allhoff-Cramer basically argues that Volkswagen is partly responsible for the damage climate change has caused to his farm in the form of droughts and heavy rains. On 24 February 2023, however, the relevant court (Landgericht Detmold) rejected his claims seeking a declaration that a maximum of 25% of Volkswagen's passenger cars and light commercial vehicles sold may operate on an internal combustion engine between 2021 and 2029, and none at all from 2030 onwards; and that Volkswagen must reduce its GHG emissions by 65%, compared to 2018 emissions.[18] The court's reasoning in particular points out that Allhoff-Cramer could not establish that the alleged damage to his property, health, and rights could be remedied by the measures he demanded alone. The case is pending at a higher regional court (Oberlandesgericht Hamm).

In addition, three individuals associated with Greenpeace Germany and Fridays for Future Germany on the one hand and a German non-governmental organization (Deutsche Umwelthilfe) on the other hand have initiated climate-related proceedings against several German car manufacturers.[19] In the Mercedes-Benz, BMW and Volkswagen cases, it is at issue whether Mercedes-

18 Landgericht Detmold, 24 February 2023, 1 O 199/21 *(Allhoff-Cramer v Volkswagen).*

19 See Nils Schmidt-Ahrendts and Viktoria Schneider, 'Gerichtsverfahren zum Klimaschutz' (2022) 75 Neue Juristische Wochenschrift 3475; Nils Schmidt-Ahrendts, 'Klimaklagen: auf in die 2. Runde! Anmerkungen zu den Urteilen der Landgerichte Stuttgart, München, Braunschweig und Detmold' (2023) 34 Zeitschrift für Umweltrecht 416; Patrick Abel, 'Zukunftsgerichtete zivilrechtliche Klimaklagen und Grundgesetz' (2023) 76 Neue Juristische Wochenschrift 2305.

Benz, BMW and Volkswagen are infringing on the right to climate protection by not committing to achieve carbon neutrality in the production and intended use of internal combustion engine cars. These cases are interesting because the claim is grounded in German tort law (in particular §§ 823 and 1004 of the German civil code) and the Paris Agreement, and it relies on the earlier decision by the German Federal Constitutional Court on the German Climate Protection Act.[20] As a matter of fact, however, all these cases were rejected by German courts of first and second instance: the Mercedes-Benz case was dismissed by a district court (Landgericht Stuttgart) on 13 September 2022 and a higher regional court (Oberlandesgericht Stuttgart) on 8 November 2023; the BMW case was dismissed by a district court (Landgericht München I) on 7 February 2023 and a higher regional court (Oberlandesgericht München) on 12 October 2023; and the Volkswagen case was dismissed by a district court (Landgericht Braunschweig) on 14 February 2023 and a higher regional court (Oberlandesgericht Braunschweig) on 6 May 2024 and 24 June 2024.[21] The Mercedes-Benz and BMW cases are pending at the German Federal Court of Justice (Bundesgerichtshof) at the time of writing (end of June 2025).[22]

Similarly, three individuals supported by a German non-governmental organization (Deutsche Umwelthilfe) have initiated proceedings against the oil and gas company Wintershall Dea. In the resulting German Wintershall Dea case, it is at issue whether Wintershall Dea is violating fundamental rights by not adhering to a "fair" carbon budget. In this case, plaintiffs sought to prevent Wintershall Dea from exploring new oil and gas fields beyond 2025. There has not yet been a court ruling on this matter in the first instance (Landgericht Kassel).

The Swiss Holcim case is likewise about GHG emission reductions. The legal basis for this claim is an infringement of personal rights. As noted above, the case is pending at the court of first instance in Zug (Kantonsgericht Zug).

20 BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany)*.

21 Landgericht Stuttgart, 13 September 2022, 17 O 789/21 *(Metz et al v Mercedes-Benz)*; Oberlandesgericht Stuttgart, 8 November 2023, 12 U 170/22 *(Metz et al v Mercedes-Benz)*; Landgericht München I, 7 February 2023, 3 O 12581/21 *(Metz et al v BMW)*; Oberlandesgericht München, 12 October 2023, 32 U 936/23 *(Metz et al v BMW)*; Landgericht Braunschweig, 14 February 2023, 6 O 3931/21 *(Kaiser et al v Volkswagen)*; Oberlandesgericht Braunschweig, 6 May 2024 (Hinweisbeschluss), 24 June 2024 (Endbeschluss), 2 U 8/23 *(Kaiser et al v Volkswagen)*.

22 See Rafael Harnos, 'Keine Korrektur klimapolitischer Kompromisse durch die deliktsrechtliche Hintertür' (2024) 69 Die Aktiengesellschaft R92.

c. Other Cases

The French Total case is about an inadequate environmental assessment of a proposed oil project in Uganda and Tanzania. In this case, six non-governmental organizations allege that Total failed to adequately assess the project's threats to human rights and the environment. The legal basis of this claim is the French Duty of Vigilance Law (2017), according to which French companies are obliged to identify and prevent serious violations of human rights and to the environment that could occur as a result of their business practices, including foreign subsidiaries and subcontractors. After a rather long-lasting battle on various competence issues, the interim relief judge at Tribunal judiciaire de Paris published two decisions in a summary procedure on 28 February 2023.[23] This judgment is devoid of any res judicata in the main proceedings; the judge on the merits can give a different judgment.

The French BNP Paribas cases are likewise about disclosure, in particular violations of the French Duty of Vigilance Law (2017). It should be pointed out that these cases are not directed against a carbon major, but against a financial institution that is accused of contributing to climate change by lending to fossil fuel companies on the one hand and providing financial services to companies that allegedly contribute to the deforestation of the Amazon rainforest on the other hand. Both cases were filed in 2023 and are still pending at Tribunal judiciaire de Paris.

In the British Shell case, it was disputed whether there was a prima facie case for permission to continue a derivative claim against Shell's directors for breach of their duties in respect of Shell's climate strategy and its response to the Dutch Shell case. The High Court of Justice in London dismissed the case and confirmed its refusal of plaintiff's application for permission to appeal to the Court of Appeal.[24]

The British USS case follows the same line of argument. In this case, it was at issue whether the investments in fossil fuels by a large pension fund in the United Kingdom breach directors' fiduciary duties and duties towards contributors of the pension fund. Although the High Court of Justice accepted that plaintiffs had standing to bring a derivative claim, the court refused

23 Tribunal Judiciaire de Paris, 28 February 2023, RG 22/53942 *(Les amis de la Terre France et al v TotalEnergies)*; Tribunal Judiciaire de Paris, 28 February 2023, RG 22/53943 *(Survie et al v TotalEnergies)*.

24 *ClientEarth v Shell* [2023] EWHC 1137 (Ch); *ClientEarth v Shell* [2023] EWHC 1897 (Ch); *ClientEarth v Shell* [2023] EWHC 2182 (Ch).

permission.[25] As plaintiffs secured permission to appeal, the Court of Appeal dismissed the fossil fuel risk claim for procedural reasons, without addressing it in substance.[26]

3. Legal Concepts

a. General Notions

i. Damage

Damage is generally understood to be an involuntary loss of assets (damnum emergens) or an unintentional loss of profit (lucrum cessans). In the context of climate change litigation, damages can take many forms, such as a harm that has already occurred or protective measures to prevent an imminent threat.

In a German Volkswagen case, Landgericht Detmold essentially held that plaintiff cannot demand from defendant to stop placing cars and light commercial vehicles equipped with an internal combustion engine on the market or force them to reduce their annual aggregated GHG emissions.[27] The court further points out that it must generally be left to Volkswagen to decide how to eliminate an impairment that has already occurred, or to prevent a serious threat of impairment, because the rights of a disturber should not be restricted any further than is necessary to protect the entitled party from impairment of their rights. Moreover, and most notably, the court also rejects the right to GHG-related freedom referred to by plaintiff.

ii. Unlawfulness

An act or omission is considered unlawful if it violates a general duty of care or a protective law (Schutzgesetz). The only decisive factor is thus the presence of behavioral injustice (Verhaltensunrecht), and not whether harm was effectively caused (Erfolgsunrecht). In the climate context, unlawfulness is not unproblematic in several respects.[28]

25 *McGaughey et al v Universities Superannuation Scheme Limited et al* [2022] EWHC 1233 (Ch).

26 *McGaughey et al v Universities Superannuation Scheme Limited et al* [2023] EWCA Civ 873.

27 Landgericht Detmold, *Volkswagen* (n 18) [59ff].

28 See Alexandros Chatzinerantzis and Markus Appel, 'Haftung für den Klimawandel' (2019) 72 Neue Juristische Wochenschrift 881, 884 et seq.; Roberto and Fisch (n 2) 1233ff; Jürg Fisch, 'Rechtswidrigkeit bei der "Klima-Haftung": Abermals zum niederländischen Shell-Entscheid' (2022) 31 Aktuelle Juristische Praxis 715; Meik Thöne 'Klimaschutz durch Haftungsrecht – vier Problemkreise' (2022) 33 Zeitschrift für Umweltrecht 323, 329ff; Jentsch, 'Aktuelle Entwicklungen' (n 9) 5f.

In the German Mercedes-Benz case, Landgericht Stuttgart did not find that there had been any unlawful acts: the production of vehicles with internal combustion engines by Mercedes-Benz has no impact on the personal rights or the way of life of plaintiff, but may contribute to or lead to measures being taken by the legislator which restrict the personal way of life of plaintiff; Mercedes-Benz can at most indirectly interfere with plaintiff's right of personality or way of life, but this must be rejected on the basis of a weighing of interests, as the consequences for plaintiff resulting from the prohibited conduct are not foreseeable.[29] Oberlandesgericht Stuttgart follows that same line of argument: the placing of new combustion engines on the market is lawful and does not lead to an unlawful situation, even if indirect third-party effects of fundamental rights against private parties were taken into consideration; third-party effects of fundamental rights against private parties cannot go any further than direct third-party effects, which obligate the state itself.[30] The court left it open, however, whether a fundamental right to an ecological minimum subsistence level or a right to a humane future flows from Art. 20a of the German Constitution (environmental protection) and whether direct claims against the legislator can be derived on these grounds. Nevertheless, the court acknowledged that the impact of fundamental rights on private law relationships must be taken into account in certain circumstances.

In the German BMW case, Landgericht München I clarifies that a possible interference with the scope of the general right of personality does not at the same time indicate that the interference is unlawful; it is rather necessary that a positive determination of unlawfulness is made through a comprehensive weighing of the interests affected in the individual case.[31] Oberlandesgericht München confirmed this decision and clarified that BMW sells its cars in accordance with the law and does not violate applicable law.[32] The court further noted that the protection of individuals from the consequences of climate change has not yet been established as being within the scope of protection of the general right of personality against interference by third parties.[33] In the court's view, extending the scope of this right to require protection against legislative measures that became necessary because of the conduct of third parties is currently neither constitutionally required nor recognizable as an obligation under civil law that goes beyond this.[34]

29 Landgericht Stuttgart, *Mercedes-Benz* (n 21) [19ff].

30 Oberlandesgericht Stuttgart, *Mercedes-Benz* (n 21) [55ff].

31 Landgericht München I, *BMW* (n 21) [51], [61ff].

32 Oberlandesgericht München, *BMW* (n 21) [53ff].

33 *Ibid*. [68].

34 *Ibid*. [68].

In a German Volkswagen case, Landgericht Braunschweig argued that Volkswagen is acting in accordance with the law and, therefore, not unlawfully.[35] The court basically ruled that Volkswagen's obligation cannot go beyond the state's duty of protection arising directly from fundamental rights. The court further noted that Volkswagen complied with the applicable public law regulations. Oberlandesgericht Braunschweig also denied unlawfulness: as the legislator had created regulations in the transport sector that conform to the constitution and lead to climate neutrality, it had fulfilled its obligation to reduce GHG emissions, and since Volkswagen indisputably complied with the statutory requirements and regulation in this regard, neither the marketing of new passenger cars with internal combustion engines nor the associated emissions could be unlawful.[36] In addition, the court argued that Volkswagen is likewise not in breach of its traffic safety obligations.

iii. Duties of Care

Duties of care are a fundamental concept to establish unlawfulness in tort law, at least based on a continental understanding. Generally speaking, a duty of care is a legal obligation imposed on an individual, requiring adherence to a standard of reasonable care to avoid careless acts that could foreseeably harm others. This requirement is the substantive gateway for climate change litigation against corporate actors.

In the Dutch Shell case, Rechtbank Den Haag, in its own understanding, interpreted an unwritten standard of care, which was found to be applicable to Shell, based on the facts of the case, widespread consensus, and internationally accepted standards.[37] Pursuant to this standard, acting in conflict with what is generally accepted accordig to unwritten law is unlawful. Int its judgment, the court concluded that Shell is obliged to ensure through the group's corporate policy that the GHG emissions of the group, its suppliers, and its customers are reduced. The court further notes that it is generally accepted that companies must respect human rights; this entails an individual responsibility of companies (obligation of result), which is separate from states' actions, and also extends to suppliers and customers (significant best-efforts obligation), namely by using its influence through the corporate policy for the group (by setting requirements on suppliers in its purchasing policy). It is noteworthy that, according to the court, Shell has complete freedom in

35 Landgericht Braunschweig, *Volkswagen* (n 21) [71ff].

36 Oberlandesgericht Braunschweig, 6 May 2024, 2 U 8/23 *(Kaiser et al v Volkswagen)* [9ff].

37 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.3], [4.4], [4.5.4].

how it meets its reduction obligation and shapes the group's corporate policy. In the court's words, the required sacrifices outweigh the interest served by fighting dangerous climate change.

Gerechtshof Den Haag took another approach: the court discussed that protection against dangerous climate change should be considered a human right; examined the direct effect of the right to protect against dangerous climate change in private relationships; and addressed how Milieudefensie's claims relate to existing climate legislation.[38] Based on these considerations, the court answered the question concerning the extent to which it can be established that Shell has a legal obligation to limit its GHG emissions.[39] In the court's understanding, the social standard of care in relation to climate is thereby not only defined through human rights, but also through soft law such as the UN Guiding Principles and the OECD Guidelines.[40] It follows from these instruments, the argument goes on, that the social duty of care implies that companies also have an obligation to contribute to the mitigation of dangerous climate change.[41] More specifically, the court considered whether new investments in oil and gas violate the social standard of care; discussed Shell's obligations regarding scope 1 and 2; and covered Shell's obligations with regard to scope 3.[42] With regard to scope 3 emissions, the court concluded that Shell cannot be bound by a 45% reduction standard (or any other percentage) agreed by climate science because this percentage does not apply to every country and every business sector individually.[43] The court further held that no sectoral standard for oil and gas can be established based on scientific consensus, wherefore no 45% reduction obligation applies to Shell in respect of scope 3.[44] Furthermore, it could not be established that an obligation on Shell to reduce its scope 3 emissions by a certain percentage is effective.[45]

iv. Causality

In order to create liability, there must be a causal link between the unlawfulness of an act or omission (a breach of duties of care) and damage. In the German-

38 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.6ff], [7.18ff], [7.28ff].

39 *Ibid*. [7.55ff].

40 *Ibid*. [7.55].

41 *Ibid*. [7.55].

42 *Ibid*. [7.58ff], [7.63ff], [7.67ff].

43 *Ibid*. [7.68ff], [7.111].

44 *Ibid*. [7.82ff], [7.111].

45 *Ibid*. [7.97ff], [7.111].

speaking world, a distinction is made between natural and adequate causality. Proving causality is often seen as the biggest hurdle for climate lawsuits.[46]

In the German RWE case, Landgericht Essen made interesting statements on causality in the climate context.[47] The pollutants emitted by the energy company are only a part of countless other pollutants that are and have been emitted by a large number of small and large emitters. Even the emissions of RWE as a carbon major are not so significant in view of the millions and billions of emitters worldwide that anthropogenic climate change, and thus the alleged flood risk from the Laguna Palcacocha glacier lake, would not exist without the individual emissions of RWE. By applying the forest damage judgment (BGHZ 102, 350) to the present case, the court concluded that it is no longer possible to identify even an approximately linear chain of causation from a specific emission source to a specific damage when countless large and small emitters release GHG that are indistinguishably mixed with each other, change each other, and ultimately cause climate change via a highly complex natural process. In addition, the share of an individual GHG emitter's contribution to global climate change is so small that the individual emitter, even a carbon major such as RWE, does not significantly increase the possible consequences of climate change.

v. Proof

The burden of proof is on plaintiff, who has to prove the existence of damage, an unlawful act or omission, and causation between the damage and breach of law. In tort law, plaintiff has to prove his or her case by a preponderance of evidence. The preservation of evidence poses particular problems in the climate context.[48]

In the German RWE case, Oberlandesgericht Hamm initially took (from the plaintiff's perspective) a more favorable position to compensation: in the court's view, it is in line with the legal system that even those who act lawfully must be liable for any damage to property caused by them, and the operation of energy companies can also give rise to liability.[49] Against this backdrop, the court commissioned two technical expert opinions. One opinion

46 See Chatzinerantzis and Appel (n 28) 882ff; Jan-Erik Schirmer, 'Klimahaftung und Kausalität – und es geht doch!' (2021) 76 JuristenZeitung 1099; Roberto and Fisch (n 2) 1236ff; Jürg Fisch, 'Kausalität bei der "Klima-Haftung": Noch einmal zum niederländischen Shell-Entscheid' (2022) 31 Aktuelle Juristische Praxis 533; Thöne (n 28) 325ff; Jentsch, 'Aktuelle Entwicklungen' (n 9) 6f.

47 Landgericht Essen, *RWE* (n 11) [40ff].

48 See Roberto and Fisch (n 2) 1231ff; Thöne (n 28) 327ff.

49 Oberlandesgericht Hamm, 30 November 2017, 5 U 15/17 *(Luciano Lliuya v RWE)* [1ff].

examined whether there is a serious threat of flooding and/or mudslide to plaintiff's residential property as a result of the significant increase in the glacier lagoon located above the property. Another opinion was supposed to quantify RWE's contribution to the chain of causation, which was claimed to amount to 0.47%. In its final judgment, Oberlandesgericht Hamm ruled that the plaintiff's action to establish RWE's obligation to reimburse the costs of protective measures against an imminent glacier flood from Laguna Palcacocha was unfounded.[50] RWE is not obligated to bear the costs in proportion to its contribution to the cause, as there is no serious threat of impairment of the plaintiff's property within the meaning of § 1004 of the German civil code. The probability of the plaintiff's property being endangered by flooding or mudslides in the next 30 years is around 1%, which is considered to be too low to justify a risk of first occurrence. In addition, experts have established that the plaintiff's property would not be affected by any of the hazard scenarios examined. Even a possible lowering of the water level of Laguna Palcacocha would further reduce the risk. Therefore, the plaintiff is not entitled to reimbursement of the costs for protective measures by RWE.

In the British Shell case, High Court of Justice decided that the breaches alleged did not establish a prima facie case.[51] Firstly, very little weight could be given to plaintiff's witness evidence, which did not amount to expert evidence. Secondly, that evidence did not support a prima facie case that there is a universally accepted methodology as to the means by which Shell might be able to achieve its reduction targets. And most notably, plaintiff's case ignored the fact that the management of a business of the size and complexity of Shell requires the directors to take into account a range of competing considerations, the proper balancing of which is a classical management decision, with which the court is simply ill-equipped to interfere. In corporate law jargon, this is what we call the business judgment rule.

b. Duty to Reduce Emissions

The Dutch Shell case elaborates where the duty to reduce emissions begins in time and space. On 26 May 2021, Rechtbank Den Haag ordered Shell to limit or cause to be limited the aggregate annual volume of all GHG emissions into the atmosphere (scopes 1 to 3) due to the Shell group's business operations and sold energy-carrying products, to such an extent that this volume will have reduced by at least net 45% at the end of 2030, relative to 2019 levels.[52] On

50 Oberlandesgericht Hamm, *RWE* (n 15) [96ff].

51 *ClientEarth v Shell* [2023] EWHC 1137 (Ch) [46ff].

52 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.4], [4.4.55], [5.3].

12 November 2024, Gerechtshof Den Haag overturned that judgment and denied the claim for a reduction in Shell's GHG emissions.[53] As a matter of principle, however, the court ruled that Shell is obliged to reduce its GHG emissions, but that it was unable to determine which percentage should apply.[54]

In its judgment in the appeal proceedings between Milieudefensie and Shell, Gerechtshof Den Haag argues that everyone has a responsibility to combat the dangers posed by climate change; the focus thus does not exclusively lie on states, but also and especially on companies whose products have contributed to the creation of the climate problem.[55] Therefore, companies like Shell have an obligation to limit GHG emissions in order to counter dangerous climate change – even if this obligation is not explicitly laid down in (public law) regulation of the countries in which the company operates.[56] However, existing climate legislation in the EU does affect Shell's obligations under the unwritten social standard of care.[57] Moreover, the content and scope of such reduction obligations may vary from one company to another, depending on a company's contribution to climate change and its capacity to counter climate change.[58] Against this background, more can be expected of Shell – a major player in the fossil fuel market for over 100 years with a prominent position in that market even today – than of most other companies.[59]

4. Pitfalls of Litigation and Corporate Responses

a. Separation of Powers

From a theoretical perspective, the main critique of climate change litigation refers to the principle of separation of powers in a modern state.[60] State power is divided into three branches: executive (government), legislative (parliament), and judicial (courts). This principle must also be observed in a climate context. In the same spirit, Landgericht Stuttgart held that an overall framework covering all areas of economic and social life is required in order to meet climate protection targets, whereas the implementation of such a framework

53 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.28ff], [7.63ff], [7.67ff].

54 *Ibid*. [7.24ff], [7.50ff].

55 *Ibid*. [7.26].

56 *Ibid*. [7.27].

57 *Ibid*. [7.54].

58 *Ibid*. [7.55].

59 *Ibid*. [7.55].

60 See Wagner, Fallstudie (n 11) 113ff; Jentsch, Fallstudie (n 2) 74ff.

is the responsibility of the democratically elected legislator in accordance with constitutional law.[61] The court basically upheld the constitutional division of tasks between parliamentary legislation and judicial case law, thereby assigning the essential decisions for the organization of social life and living conditions to the legislator. Landgericht München I acknowledged that the transformation of the economy and society to climate neutrality is a highly complex task that allows for different strategies and requires constant consideration of conflicting political objectives in terms of scope and time; and this is why the performance of this task is entrusted to the legislator and the government (the political process).[62]

With regard to the separation of powers, corporations generally respond that the solution to the energy transition should not be provided by a court, but by the legislator and politics.[63] Rechtbank Den Haag and Gerechtshof Den Haag did not follow this argument in the Dutch Shell case, but Landgericht Stuttgart and Oberlandesgericht Stuttgart did so in the German Mercedes-Benz case and Landgericht München I and Oberlandesgericht München in the German BMW case.[64] Gerechtshof Den Haag took a somewhat intermediate position in this regard, on the one hand proclaiming that it is primarily up to legislators and governments to take measures to minimize dangerous climate change, and on the other hand noting that companies may also have a responsibility to take measures to counter dangerous climate change.[65]

b. Interaction of Legal Norms

From a doctrinal perspective, the sound interaction of different legal norms is at least questionable.[66] Several levels of regulation are involved in climate lawsuits against corporations. However, no solid legal basis can be claimed for an individual reduction obligation for individual companies, as the interplay between various legal norms is not or at least not sufficiently harmonized. Rechtbank Den Haag obviously sees this point differently, as it refers to human

61 Landgericht Stuttgart, *Mercedes-Benz* (n 21) [26].

62 Landgericht München I, *BMW* (n 21) [70].

63 See Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.2]; Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.52].

64 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.3]; Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.53]; Landgericht Stuttgart, *Mercedes-Benz* (n 21) [26]; Oberlandesgericht Stuttgart, *Mercedes-Benz* (n 21) [83 ff]; Landgericht München I, *BMW* (n 21) [70]; Oberlandesgericht München, *BMW* (n 21) [53ff].

65 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.17].

66 See Jentsch, Fallstudie (n 2) 76ff.

rights instruments, international standards, and climate science in order to concretize a general duty of care.[67]

Regarding the interaction of legal norms, corporations typically argue that there is no legal basis for a reduction obligation imposed by a court.[68] In the German BMW case, both the district court (Landgericht München I) and the higher regional court (Oberlandesgericht München) were quite persuasive in pointing out that BMW complies with applicable laws on climate protection.[69]

c. Interpretation and Customary Law

From a methodological perspective, the boundaries between interpretation and customary law become somewhat blurry.[70] In almost all points, Rechtbank Den Haag referred to an international consensus in one form or another.[71] With regard to climate science, it assumed a "consensus" on the necessity of non-state action in the climate context and the relevance of the Paris climate targets. The "consensus" was further extended to the fact that GHG emissions must be reduced by 45% by 2030 and by 100% by 2050. In its reasoning, the court relied mainly on the so-called Oxford report and adopted the "consensus" described there.[72] Strictly speaking, however, the court did not interpret the report, but assumed the existence of an international consensus and thus customary law. However, individual reduction obligations of corporations cannot be based on customary law, as there is neither a continuous practice nor a longer tradition in this regard.

In relation to the interpretation of international treaty and customary law, corporations usually point out that there is no consensus on what steps various stakeholders must take in order to prevent certain dangers or risks resulting from climate change. Although there is indeed a broad agreement that something needs to be done here (the Paris climate goals), this agreement does not extend to the ways and means of achieving these goals.

67 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.4].

68 *Ibid*. [4.1.2].

69 Landgericht München I, *BMW* (n 21) [71ff]; Oberlandesgericht München, *BMW* (n 21) [53ff].

70 See Jentsch, Fallstudie (n 2) 78ff.

71 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.1.3], [4.4].

72 *Ibid*. [4.4.18]. See Oxford University Net Zero Network, 'Mapping of Current Practices around Net Zero Targets' (May 2020).

d. Tragedy of the Commons

From a law and economics perspective, climate change serves as a real-world example of the tragedy of the commons.[73] The climate is a public good, characterized by the criteria of non-excludability and non-rivalry. As a result, we can observe an incentive problem in the form of a prisoner's dilemma: protection of the climate cannot be achieved through the voluntary restraint of individual persons or corporations; their usage behavior has hardly any influence on the climate, it is simply balanced out by the greater use of others. Accordingly, neither voluntary nor judicially enforceable restraint by individuals or companies are effective measures for climate protection.

With respect to the tragedy of the commons, corporations regularly argue that the reduction obligation will have no effect, or even be counterproductive, because the place of a carbon major will be taken by competitors.[74] Although this argument may be theoretically sound, Rechtbank Den Haag rightfully pointed out in the Dutch Shell case that carbon majors may not use it for exonerating purposes.[75]

e. Distortions of Competition

From a political perspective, it must be taken into consideration that court-ordered reduction obligations can sometimes lead to significant distortions of competition that may be irreparable.[76] Individual reduction obligations lead to significant distortions of competition within a certain industry sector, as they mean that different requirements apply to different corporations operating within that sector. At the same time, all corporations operating in a certain industry sector may be disadvantaged, as the individual reduction obligations may in fact have industry-wide significance, since courts tend to rule the same way in similar cases. Finally, an individual reduction obligation for a corporation that has links to a certain country and thus falls under the jurisdiction of that country put this (domestic) company at a disadvantage compared to other (foreign) companies that do not fall under that jurisdiction. In this light, it is also interesting to note that Shell relocated its headquarters from The Hague to London following the far-reaching Dutch ruling of first instance.

73 See Wagner, Fallstudie (n 11) 112f; Gerhard Wagner, 'Klimaschutz durch Gerichte' (2021) 76 Neue Juristische Wochenschrift 2256, 2257ff; Jentsch, Fallstudie (n 2) 80ff.

74 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.4.49].

75 *Ibid*. [4.4.49].

76 See Wagner, Fallstudie (n 11) 120ff; Wagner, 'Klimaschutz' (n 73) 2262; Jentsch, Fallstudie (n 2) 83ff.

In view of distortions of competition, corporations tend to argue that imposing a reduction obligation on a carbon major will lead to unfair competition and a disruption of the "level playing field" of the market.[77] In an efficient market, however, the view that everyone can be affected by such a judgment will prevail.

f. Corporate Social Responsibility

From a comparative perspective, the issue of holding carbon majors accountable is not only one of corporate social responsibility, but also relates to society at large.[78] This view was taken by Landgericht Stuttgart, which held that an overall framework covering all areas of economic and social life is required in order to meet climate protection targets, and it would be incompatible with this view to grant individuals injunctive relief against individual corporations on the basis of their personal rights or the EU Charter of Fundamental Rights.[79]

Concerning corporate social responsibility, corporations argue that the energy transition required for achieving the goals of the Paris Agreement demands a concerted effort by society as a whole, and not by just one private party.[80] This is true, but non-state actors must arguably also make their contribution.[81]

5. Public-Private Divide

The audience of public international law, public law, and private law is very different. While public international law regulates the relationships between states, public law focuses on the relationship between the state and a person. In contrast, private law structures the relationships between persons without reference to the state. In the process of the application of the law, we must not forget about these fundamental differences between the respective sets of legal rules.

In the Dutch Shell case, Rechtbank Den Haag applied public law together with and in the same way as private law rules.[82] Gerechtshof Den Haag further clarified that protection from dangerous climate change is a human right that

77 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.4.53].

78 See Jentsch, Fallstudie (n 2) 85ff.

79 Landgericht Stuttgart, *Mercedes-Benz* (n 21) [26].

80 See Rechtbank Den Haag, *Milieudefensie* (n 2) [4.4.51].

81 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.26], [7.27].

82 Rechtbank Den Haag, *Milieudefensie* (n 2) [4.4].

can have an impact on private law relationships by giving substance to open standards (the social standard of care), concluding that Articles 2 and 8 ECHR are decisive for the interpretation of the social standard of care and for clarifying what can be required of large and international companies under that standard.[83] However, this symbiosis of public law (human rights, international standards) and private law (torts) requires more in-depth analysis.

In a German Volkswagen case, Landgericht Braunschweig made some interesting observations on the third-party effects of fundamental rights.[84] Most notably, the court held that a high level of emissions cannot lead to a direct effect of fundamental rights towards a private actor. Moreover, the court held that the indirect effect of fundamental rights in civil law constellations cannot lead to a higher protection of rights than that guaranteed by the direct effect towards the state. Similarly, the higher regional court (Oberlandesgericht Braunschweig) clearly highlighted that although fundamental rights, which as a rule have an exclusively indirect effect on the relationship between citizens and the state, must be taken into account when interpreting civil law norms, but that the indirect third-party effect of fundamental rights does not extend any further than their defensive function towards the state.[85]

In the German BMW case, Oberlandesgericht München further clarified that compliance with public law limits is an indication of the insignificance of an interference emanating from another property, but this does not in itself constitute a statement on the legality of the interference.[86]

6. Institutional Context

A pivotal question remains as to whether there is scope for judicial discretion and creativity in this context. Generally speaking, if a broad consensus in society demands for such jurisprudence, and this is in line with the current legal system, judicial discretion and creativity are arguably not out of place. However, courts should not usurp legislative authority, but continue to serve as complementary institutions.

Oberlandesgericht Braunschweig concludes that the fundamental question raised in these proceedings, namely whether the statutory climate protection requirements are to be regarded as sufficient, may be subject to further

83 Gerechtshof Den Haag, *Milieudefensie* (n 2) [7.17], [7.24], [7.25].

84 Landgericht Braunschweig, *Volkswagen* (n 21) [79ff].

85 Oberlandesgericht Braunschweig, *Volkswagen* (n 36) [12ff].

86 Oberlandesgericht München, *BMW* (n 21) [53ff].

societal and political discourse, but cannot be decided in a civil law dispute, which relates exclusively to the bilateral relationship between the two parties involved.[87]

The desirable role for courts to play in the climate crisis is not obvious. Courts are supposed to interpret the law, not create new law in the first place. But this distinction is not that clear-cut in practice. Courts should in any case not usurp legislative authority but continue to serve as complementary institutions. It is further important to distinguish between vertical and horizontal climate change litigation: while there is certainly room for the former, the latter is hardly in accordance with the applicable legal system. In any case, tort law with its all-or-nothing approach is arguably the wrong instrument for combatting the consequences of climate change.

Landgericht Stuttgart already clarified that it is basically up to the courts to apply the applicable laws in compliance with constitutional requirements, and it is not compatible with this role for the courts to take over the decisions reserved for the legislator in the context of an individual action.[88]

Other bodies should play a central role in the climate crisis, namely politics in general and parliaments in particular. Our society needs guidance on how to deal with climate change, and so do corporations (including carbon majors).

Landgericht Stuttgart has also argued that the principle of environmental protection, enshrined in many national constitutions, is primarily directed at the legislator, who must set the framework conditions that prevent further global warming.[89] This view further corresponds to the understanding of the Bundesverfassungsgericht, according to which Art. 20a of the German Constitution (environmental protection) leaves the legislator considerable leeway and it is generally not the task of courts to derive concretely quantifiable limits to global warming and corresponding emission levels or reduction targets from the open wording of this constitutional provision.[90]

87 Oberlandesgericht Braunschweig, *Volkswagen* (n 36) [16ff], [28ff].

88 Landgericht Stuttgart, *Mercedes-Benz* (n 21) [25].

89 Landgericht Stuttgart, *Mercedes-Benz* (n 21) [25].

90 BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany)* [207].

7. Conclusions

In this chapter, legal and practical realities of climate change litigation against carbon majors are discussed in order to better understand the role of courts in this regard. Based on the analysis of relevant case law, it can be stated that so far there is only one precedent, from a court of first instance in the Netherlands, which holds a private actor liable for climate change, and this precedent has since been overturned by the competent court of second instance. In Germany, civil courts are particularly cautious when assessing private-law-based climate claims against the automotive industry. For the reasons outlined above, it is highly unlikely that climate change litigation against carbon majors will turn out to be "successful" in the near future from a purely legal point of view. Nevertheless, this type of strategic litigation has without doubt raised considerable awareness among private actors on climate change as one of the most important and urgent issues of our time. Together with existing rules and regulations on sustainable corporate governance, namely corporate sustainability reporting and corporate sustainability due diligence, the legislator and politics are challenged not only to discuss those issues, but to build solid and lasting solutions in order to take decisive action against climate change for the benefit of future generations.

Josephine van Zeben

Chapter 16: Establishing Corporate Climate Citizenship – Regulation and/or Reparations?

1. The Contours of Corporate Climate Liability

Climate litigation against corporations has taken flight in recent years. Whereas early corporate climate litigation was mostly deregulatory in focus – brought by corporations to prevent or soften the regulatory impact of new environmental and climate standards[1] –, the past decade has seen an increase in litigation focused on holding corporations to account for their share in the climate crisis. The successful claim in the first instance against Royal Dutch Shell (RDS) in 2021[2] raised expectations on the use of private law as a vehicle for drawing attention to the perceived economic, social, and moral responsibility of corporations for climate change damage across jurisdictions, as expressed through legal liability.[3] This avenue is considered particularly important in lieu of binding international law obligations for corporate actors,[4] which have not materialized despite the fact that, already seven years ago, studies showed that just 100 companies are responsible for 71% of global emissions since 1988.[5]

1 For a discussion of the early cases, see Jacquline Peel and Hari M Osofsky, *Climate Change Litigation: Regulatory Pathways to Cleaner Energy* (CUP 2015).

2 The Hague District Court, *Milieudefensie et al v Royal Dutch Shell PLC et al*, 26 May 2021, ECLI:NL:RBDHA:2021:5337, discussed in more detail in section 2.

3 Legal liability and economic, social and moral responsibility are not (always) synonymous. See William Lucy, 'Legal Liability-Responsibility' in William Lucy, *Philosophy of Private Law* (OUP 2006; online edition 2010).

4 Soft law instruments such as the United Nations Guiding Principles on Business and Human Rights – OHCHR, 'Guiding Principles on Business and Human Rights. Implementing the United Nations "Protect, Respect and Remedy"' (2011) HR/PUB/11/4 – set out a moral but not legal obligation for corporate action. See also Tamara Horbachevska, Josephine van Zeben and Nadia Bernaz, 'A Capability Approach to the Sustainable Development Goals: Towards Positive Corporate Human Rights Obligations' (2024) Transnational Legal Theory 15(3) 465.

5 Tess Riley, 'Just 100 Companies Responsible for 71% of Global Emissions, Study Says' *Guardian* (10 July 2017).

Much has been written about the phenomenon of climate change litigation against public and private actors, and how the involvement of courts, through public and private law, is changing the regulatory landscape of climate change mitigation and adaptation.[6] There is a general sense of optimism regarding the potential of litigation to break through some of the stalemate in international and national climate policy negotiations, and for holding public and private actors to account for their actions, and inactions, on climate policy.[7] Climate change litigation has also forced legal doctrines to grapple with changing perceptions of harm, damage, causation, risk, and compensation due to climate change.[8] Moreover, the inter- and transnational nature of these claims has brought jurisdictional questions under private international law to the fore (eg scenario 8 on climate adaptation, and scenario 10 involving the US Alien Tort Statute).[9] Similarly, the role of climate science, and courts' role in interpreting and applying that science, has had to be reflected on,[10] especially as the issue of "climate change attribution" – the extent to which certain aspects of climate change can be linked to specific behaviors – continues to develop.[11]

Against the backdrop of this rapidly developing area of legal and interdisciplinary research, this chapter will reflect on two dimensions of corporate climate liability that could, and arguably should, shape the use of litigation for corporate climate reparations: first, the absolute and relative role of – civil – litigation vis-à-vis regulation with respect to corporate responsibility

6 See eg Jacqueline Peel, Hari M Osofsky and Anita Foerster, 'Shaping the "Next Generation" of Climate Change Litigation in Australia' (2017) 41 Melbourne University Law Review 793; Jacqueline Peel and others, 'Corporate Energy Transition: Legal Tools for Shifting Companies Toward Clean Energy Practices' (September 2020); Jacqueline Peel and Hari M Osofsky, 'A Rights Turn in Climate Change Litigation?' (2017) 7 Transnational Environmental Law 37; Jacqueline Peel and Rebekkah Markey-Towler, 'Recipe for Success?: Lessons for Strategic Climate Litigation from the Sharma, Neubauer, and Shell Cases' (2022) 22 German Law Journal 1484; Joana Setzer and Catherine Higham, 'Global Trends in Climate Change Litigation: 2023 Snapshot' (June 2023), 8; Jolene Lin and Jacqueline Peel, *Litigating Climate Change in the Global South* (OUP 2024).

7 On the interaction between the UNFCCC process and climate litigation, see Charles Beauregard and others, 'Climate Justice and Rights-based Litigation in a Post-Paris World' (2021) Climate Policy 21(5) 652.

8 See eg Douglas Kysar, 'What Climate Change Can do about Tort Law' (2011) 41(1) Environmental Law 1; Elizabeth Fisher, 'Environmental Law as 'Hot' Law' (2013) 25(3) Journal of Environmental Law 347.

9 See also the contribution by Hinteregger to this volume (chapter 17), and the introductory chapter on model scenarios.

10 Rupert F Stuart-Smith and others, 'Filling the Evidentiary Gap in Climate Litigation' (2021) 11 Nature Climate Change 651.

11 Michael Burger, Jessica Wentz and Radley Horton, 'The Law and Science of Climate Change Attribution' (2021) 51 Environmental Law Reporter 10646.

for climate change damages; and, second, the impact of the public/private distinction with respect to corporate climate change responsibility.

The litigation versus regulation dimension builds on existing research in legal and law and economics scholarship on the institutional strengths and weaknesses of courts and legislatures. While the theory behind this debate pre-dates the questions of this chapter, and its implications are well-known, the practice of corporate climate litigation provides new avenues for reflection on these strengths and weaknesses. The public/private dimension interacts with this institutional discussion insofar that policy choices as to the public and/or private nature of corporate activity go to the heart of questions of corporate responsibility and reparation. As corporations fulfill a growing number of "public" roles,[12] more explicit engagement with this distinction in climate policy is needed.

This chapter will start by providing a short and purposefully incomplete overview of recent corporate climate litigation to flag questions of feasibility and success of litigation that frame this chapter (section 2). These questions will be developed in reference to the scenarios discussed throughout this volume. It continues by reflecting on the institutional dimension of corporate climate litigation and regulation (section 3) and the implications of the public/private distinction in climate policy (section 4). It concludes by considering the interaction between these two dimensions and the implications for future climate policy (section 5).

2. Litigating Corporate Climate Liability

The question of the legal feasibility of corporate liability for climate change is – unsurprisingly – one that varies between jurisdictions and areas of law. Nevertheless, the overall expectation as to the "success" of this growing number of claims is high, even though many cases continue to be unsuccessful. Common obstacles include lack of standing;[13] failure to establish causality; and, lack of suitable remedies – an issue also raised in scenario 5, which in addition highlights the potential tension between individual and collective remedies, and more generally the need for collective remedies. These obstacles are common to all forms of climate change litigation, against corporations

12 See eg the overview provided by Philip Alston in his report as Special Rapporteur for extreme poverty and human rights, UNCHR, 'Report of the Special Rapporteur on Extreme Poverty and Human Rights' (2018) UN Doc A/73/396.

13 Samvel Varvastian and Felicity Kalunga, 'Transnational Corporate Liability for Environmental Damage and Climate Change: Reassessing Access to Justice after *Vedanta v. Lungowe*' (2020) 9(2) Transnational Environmental Law 323.

as well as against governmental actors. However, one could argue that those litigating against corporations are faced with several additional challenges, including the vast resources of certain large corporates, which can overwhelm individual plaintiffs and smaller organizations. This power imbalance complicates litigation, as does the often abstract nature of corporate decision-making, where actions are dispersed across multiple departments or levels of management, making it difficult to pinpoint direct responsibility. The issue of corporate personality also complicates matters: because corporations are legal fictions, identifying who or what is "guilty" can be elusive, and the accountability for wrongdoing can be diluted among a multitude of stakeholders, from shareholders to executives.

In parallel to challenges to bringing successful claims, there is the question as to how "success" can, and is, measured when claims do lead to judgments. Thus far, the reduction of greenhouse gas (GHG) emitting activities has been a key focus in climate change litigation against corporations, and the forced reduction of such emissions has been a principal remedy. However, as the urgency of adaptation is overtaking the need for, and possibilities of, mitigation in an increasing number of jurisdictions, remedies in the form of monetary compensation for (irreversible or intangible) harm are becoming more common.[14] There are clear practical constraints to remedying certain types of climate harm; once a species is extinct, restitution, ie de-extinction, is no longer an option. Though problematic from an ecological and philosophical perspective, such practical constraints are not unique to climate harm. Through monetization, the law has found a workaround for many irreversible harms, such as death or the loss of limbs. The question is whether finding corporations financially liable for the disappearance of a species can, and should, be seen as a "success" in the context of climate litigation.

A holistic understanding of success would require us to engage with value judgments that arise at various stages of litigation. This includes questions of valuation of the harm caused by climate change, such as those linked to loss of life, health risks and property (such as those discussed in scenarios 1 and 3) that inform remedy requests. In addition, one may consider intangible losses specific to climate change, also referred to as "solastalgia" – the feeling of loss and distress caused by negative environmental changes.[15] This may extend to losses related to the disappearance of cultural heritage and ancestral ecosystems, such as those mentioned in scenarios 2 and 5. As our understanding

14 Eg in Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

15 Glenn Albrecht and others, 'Solastalgia: The Distress Caused by Environmental Change' (2007) 15 (1 suppl) Australasian Psychiatry S95.

of these experiences of loss grows, there is a need to engage with the "future" or forward-looking aspect of these losses – a harm done by the knowledge that some things will be lost, even if they have not yet been. Though this type of loss is experienced by current generations, it invites reflection on the impacts on future generations and how we may quantify or value the losses that they will experience.[16] Most of these types of losses, especially the ones that involve complex puzzles of timing, both in terms of the causation and materialization of the harms, are not easily accommodated in the legal system.[17] This is true for the recognition of the harm itself as legally relevant "harm" or "damage" but also for the types of remedies that can be awarded.

As to the broader aim of the litigation and the remedies awarded, general deterrence is a clear goal of many climate change litigation cases: the idea that establishing liability for corporate climate change action would result in a different cost-benefit analysis for corporations, which would then result in lower emissions across the board, also from corporations who themselves have not yet been subject to litigation. Whether this effect indeed exists is a factual question that cannot be answered in the scope of this contribution.[18] Lessons may be learned here from the role liability has played, and continues to play, in regulating other environmental risks, such as nuclear power and oil drilling.[19] Taking stock of global environmental quality, one may argue that the general deterrence of both regulation and litigation in these areas has not resulted in a level of environmental quality that is sustainable or safe.[20]

However, within climate litigation, the plaintiffs or applicants seem to place their faith not only in the general deterrent effect of monetary damages, but also in the ability of such cases to bring about social change. This can be seen in the expansive media campaigns that have accompanied most strategic climate litigation.[21] There has been a clear shift within climate litigation to

16 Daniel Bertram, '"For You Will (Still) Be Here Tomorrow": The Many Lives of Intergenerational Equity' (2023) 12(1) Transnational Environmental Law 121.

17 *Ibid*.

18 See eg Josje de Vogel and others, 'Bevordering van duurzaamheid via het geldende privaatrecht' (2024) Nederlands Tijdschrift voor Burgerlijk Recht 2024/22 afl. 7.

19 See scholarship as early as Leon Green, 'Hazardous Oil and Gas Operations: Tort Liability' (1954) 33 Texas Law Review 574; see also Peter Cameron, 'Liability for Catastrophic Risk in the Oil and Gas Industry' (2012) 6 International Energy Law Review 207; Harold P Green, 'Nuclear Power: Risk, Liability, and Indemnity' (1972) 71 Michigan Law Review 479; Maria Lee, 'Civil Liability of the Nuclear Industry' (2000) 12(3) Journal of Environmental Law 317.

20 See also Josephine van Zeben and Arden Rowell, 'Environmental Law Beyond Emergencies: Lessons from the Future' (2024) No. 24-18 University of Illinois College of Law Legal Studies Research Paper.

21 See eg Milieudefensie's website on their case against RDS; and Urgenda's website.

more strategic and cooperative behavior among plaintiffs where the sharing of resources, insights and strategies has become commonplace. Organizations such as the Climate Litigation Network assist local groups to bring cases against their national governments and corporations.[22] In the remainder of this section, the landmark case of *Milieudefensie et al v Royal Dutch Shell*[23] will be used as an illustration of how some of these issues – specifically the question of damages and remedies, and what is perceived as "success" – are playing out in practice.

The climate litigation against Royal Dutch Shell, the parent company of a global network of subsidiaries involved in the production and distribution of oil and gas, started in 2019. Milieudefensie, a Dutch environmental NGO, filed a class action on behalf of itself, six other NGOs and over 17,000 Dutch citizens. The plaintiffs argued that RDS has an obligation based on Dutch tort law, specifically the unwritten standard of care pursuant to Book 6 Section 162 of the Dutch Civil Code, to contribute to the prevention of dangerous climate change.[24] In the eyes of the plaintiffs, RDS was not currently fulfilling this obligation, rather they considered RDS's corporate policy as "hazardous and disastrous," and "in no way (…) consistent with the global climate target to prevent a dangerous climate change for the protection of mankind, the human environment and nature."[25] They requested the court to order RDS to reduce its CO_2 emissions with 45% by 2030, as compared to 2019,[26] including emissions based on its own business operations (so-called "scope 1 and 2 emissions") but also those created through sales of its energy products ("scope 3 emissions").[27]

On 26 May 2021, the District Court of the Hague, which decided the case in the first instance, held in favor of the plaintiffs and ordered RDS to cut its global CO_2 emissions by 45 percent by 2030, as compared to 2019 levels.[28] The decision was grounded in the Court's interpretation of RDS's duty of care under Dutch tort law in light of international soft law, including the United Nations Guiding Principles on Business and Human Rights,[29] and other soft law responsibilities of States and society.[30] This judgment represented the

22 See the Climate Litigation Network's website.

23 *Milieudefensie* (n 2).

24 *Ibid*. [3.2].

25 *Ibid*.

26 Or in the alternative 35%/25% *(ibid.)*.

27 *Ibid*. [3.1].

28 *Ibid*. [4.4.55].

29 Above, n 4.

30 Chiara Macchi and Josephine van Zeben, 'Business and Human Rights Implications of Climate Change Litigation: Milieudefensie et al. v Royal Dutch Shell' (2021) 30(3) Review of European, Comparative & International Environmental Law 409.

first imposition of a specific mitigation obligation on a private company over and above reduction targets set by existing "cap-and-trade" regulations and/or other governmental mitigation policies.[31]

On 12 November 2024, RDS successfully appealed the verdict, with the Hague Court of Appeal setting aside the District Court's judgment.[32] The Court of Appeal rejected the reasoning that the 45% reduction target, taken from IPCC reports, should be considered "an average for all sectors and all places in the world."[33] As such, it could not be read as applying to "every country and every business sector individually."[34] As Milieudefensie's litigation strategy has focused exclusively on this argument, the Court was not able to consider other potential avenues for corporate liability, such as the wrongfulness of investment in new oil and gas fields in view of RDS's standard of care or an obligation to reduce scope 3 emissions.[35]

More generally, while the verdict could be considered a setback in what was considered a promising and symbolic change of the tides regarding climate change litigation against corporations, commentators have been quick to point at the openings that the judgment provides for future litigation strategies. As argued by André Nollkaemper,[36] the Court provides several additional avenues towards corporate climate responsibility by emphasizing that there is a shared responsibility of states and private actors regarding climate change – referring also the UNGPs[37] and the horizontal effect of human rights[38] – even if these responsibilities are differentiated.[39] The takeaway from the Shell case, therefore, may well be that it is not a question of "if" but rather "when" climate litigation against corporations will result in the award of damages, injunctions, or specific performances for corporations.

31 See in more detail *ibid.*

32 The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al,* 12 November 2024, ECLI:NL:GHDHA:2024:2100.

33 *Ibid.* [7.74].

34 *Ibid.* [7.111].

35 See André Nollkaemper, 'Lessons from a Landmark Lost: The Judgment of the Hague Court of Appeal in Shell v Milieudefensie' (*Verfassungsblog,* 12 November 2024).

36 *Ibid.*

37 *Milieudefensie* (n 32) [7.26].

38 *Ibid.* [7.17] and [7.25].

39 See also *Milieudefensie* (n 32) [7.27], "companies like Shell, which contribute significantly to the climate problem and have it within their power to contribute to combating it, have an obligation to limit CO_2 emissions to counter dangerous climate change, even if this obligation is not explicitly laid down in (public law) regulations of the countries in which the company operates."

The Shell litigation shows that success is, at least partly, in the eye of the beholder. Corporations are likely relieved about RDS's successful appeal, but the judgment provides enough legal "hooks" for future litigation strategies to provide hope for the plaintiffs. With respect to harm and remedies, the District Court's view on Shell's contribution to climate change harm was not followed by the Court of Appeal, which consequently set aside the remedy that would have forced a reduction in emissions from RDS. An open question is what the role of historic emissions in climate litigation may be, both against corporations and against states (see also scenario 7).

3. Litigation versus Legislation

The desirability of litigation for corporate climate change damage and the absolute and relative role of – civil[40] – litigation vis-à-vis regulation has received relatively little attention, as compared to its practicalities. This section builds on institutional research to consider whether courts are particularly well or ill-suited to decide climate change-related questions. This question will be answered differently depending on how we categorize questions arising from such litigation; some are questions of compensation for established damage with clear causation, others are questions of risk of future damage of activities which may have certain social and private benefits for a variety of actors. These types of dilemmas hold distinctly different challenges for courts and regulators in their decision-making. From an institutional, law and economics-based, perspective, litigation and the courts have other strengths and weaknesses in the face of climate change risks as compared to government regulators (see Table 1).

The picture that emerges from the above table is one not of alternatives but rather of (imperfect) complements, where both regulatory intervention by a governmental agent and the imposition of liability through litigation by courts can, and arguably should, play a role in regulating climate change damage and risks.[41] The "optimal" balance between litigation and regulation on this topic is due to change as climate policy, at the national and international level, changes; one could imagine that as international and/or national policies weaken, litigation increases to try to fill in resulting ambition gaps. Similarly, if this ambition gap is replaced with an enforcement gap, litigation may continue apace but now aimed at ensuring compliance with legislative climate obligations.

40 The role of criminal liability will be discussed in section 3.

41 *Ibid*. 98.

	Regulator	
Factor	**Judiciary Strengths**	**Governmental agent Strengths**
Type of risk	Private risks (where discretion is needed as to level of care); "New" risks	Uniform private risks; Systemic risks
Type of harm	Concentrated; Immediate; Clear causality	Geographically or temporally dispersed; Irreversible; Latent; Catastrophic
Information	Incomplete information	Full information
Type of injurer	Identifiable injurer(s) – with joint or several liability	"Litigation proof" injurers
Type of victim	Identifiable individual or group	Dispersed or disenfranchised victims

Table 1: Strengths of judicial and/or governmental risk regulation [42]

Most cases thus far have focused on imposing liability on corporations in order to force them to mitigate their GHG emissions beyond, or in the absence of, regulatory minimums. In these cases, one could compare the intended deterrent function of liability with the *ex ante* nature of regulation; litigation and regulation are both intended to prevent future behavior and/or change existing behaviors. However, as the window for preventative action becomes smaller and climate change adaptation becomes more necessary, these cases are likely to increasingly take on a reparation focus, no longer asking for mitigation actions but requesting damages for harms already suffered (such as under scenario 8).

Under such circumstances, the ability to provide tailored redress in specific cases is undoubtedly a strength of tort law, which may be hard – though not impossible – to match under a regulatory scheme. However, this strength could also be considered a weakness as it favors strong plaintiffs over weaker ones. "Strength" here is measured not in reference to the nature or validity of their claim but in terms of plaintiffs' resources and ability to bring a case.[43] The inability to account for this imbalance can mean that tort law ultimately also deprives certain individuals of a route of redress. Examples of this can be found in the Deepwater Horizon incident, where the lack of coordination between different liability regimes and the existence of statutory caps to liability left some victims of the oil spill under-compensated and others over-compensated.[44]

42 Josephine van Zeben, 'A Law and Economics Perspective on Judicial Risk Regulation' (2018) 9 European Journal of Risk Regulation 79, 90.

43 Regarding access to justice, see Varvastian and Kalunga (n 13).

44 Perry Ronen, 'The Deepwater Horizon Oil Spill and the Limits of Civil Liability' (2011) 86(1) Washington Law Review 1.

From a constitutional perspective, questions of corporate responsibility for climate change may be considered of a magnitude that they fall within so-called "political question" doctrines – as some courts themselves have argued.[45] Especially regarding questions of climate risk, rather than climate damage, there has been a broad contestation and politicization of many aspects of risk management, including the nature of knowledge,[46] the acceptability of risk,[47] the distinction between perceived and actual risk,[48] and the impact of the timespan during which risks may materialize.[49] Given the unelected nature of judges (in most jurisdictions), leaving these questions in the hands of the elected legislature could render a more legitimate result.[50]

By extension, in the specific case of climate change litigation based on tort law, one could argue that tort law – as an area of private law – should not govern decisions with such clear third-party effects as climate change litigation cases. A counter-argument presented by Doug Kysar sets out that tort law, and by extension, the courts, are uniquely capable of addressing the claims that underlie climate litigation given that "[r]eceiving a remedy through statutory or regulatory means is simply not equivalent to the personal and distinctively liberal achievement of persuading a judge and a jury of one's peers that a wrong has been committed which demands repair."[51] Put differently, despite the complexities of adjudicating climate change harms, to ignore the role of tort law, and by extension private law more generally, in addressing the negative impacts of climate change, would be to deprive individuals of a route of redress that is uniquely suited to remedying specific harms – especially given the inability of regulators to regulate climate change risks comprehensively.[52]

45 *Native Village of Kivalina v Exxon Mobil Corp,* 696 F 3d 849 (9th Cir 21 September 2012), cert denied, 133 S Ct 2390 (20 May 2013) (in dismissing the case for lack of subject matter jurisdiction, the court held that the question of how best to address climate change was a political question not appropriate for a federal trial court to decide).

46 See Jonathan Jenkins Ichikawa and Matthias Steup, 'The Analysis of Knowledge' (*Stanford Encyclopedia of Philosophy,* fall 2024).

47 See eg Paul Slovic, Baruch Fischhoff and Sarah Lichtenstein, 'Facts and Fears: Understanding Perceived Risk' in Richard C Schwing and Walter A Albers (eds.), *Societal Risk Assessment: How Safe is Safe Enough?* (Springer 1980) 181.

48 Paul Slovic, 'Perception of Risk' (1983) 236 Science 280. See also chapter 3, Rowell.

49 See eg William LF Felstiner and Peter Seigelman, 'Neoclassical Difficulties: Tort Deterrence for Latent Injuries' (1989) 11 Law & Policy 309.

50 For a discussion of these points in the context of the *Urgenda* case, see Josephine van Zeben, 'Establishing a Governmental Duty of Care for Climate Change Mitigation: Will Urgenda Turn the Tide?' (2015) 4(2) Transnational Environmental Law 339.

51 Douglas A Kysar, 'The Public Life of Private Law: Tort as a Risk Regulation Mechanism' (2018) 9 European Journal of Risk Regulation 48, 64.

52 *Ibid*. 65. See also Varvastian and Kalunga (n 13).

Apart from the reference to different types of justice, this line of argument (correctly) presumes that the legislature is unable to comprehensively and/or successfully regulate climate change mitigation and adaptation. Notwithstanding this constraint, it has been argued that litigation may "distract" from legislation, for example by reducing public and political demand for legislative solutions, or by taking up finite governmental resources. In the *KlimaSeniorinnen* case,[53] Judge Eicke dissented on the basis that he believed

> [T]here is a significant risk that the new right/obligation created by the majority (alone or in combination with the much enlarged standing rules for associations) will prove an unwelcome and unnecessary distraction for the national and international authorities, both executive and legislative, in that it detracts attention from the on-going legislative and negotiating efforts being undertaken as we speak to address the – generally accepted – need for urgent action.[54]

In Eicke's view, the Court's decision to support the plaintiffs' application by finding that the Swiss government was not taking sufficient action on climate change and would have to adopt new legislation to address climate change more effectively would diverge essential resources away from governmental action on that same issue.

The social and economic costs of climate change will only increase over the coming decades and the concern over resources is a real one. However, to successfully argue that litigation is a costly (ie ineffective) distraction from legislative efforts, the counterfactual of (equally ambitious) legislation without (the threat of) litigation would have to be shown, or at least be credible. This counterfactual is far from proven with respect to the climate obligations of nation states, and perhaps even less so with respect to corporations, who are not subject to international climate obligations. In the absence of such legislation, it is hard to see litigation as anything other than a complement to, or replacement of, incomplete or ineffective legislation.

There are, however, other potential threats to the potentially fruitful interaction between litigation and legislation: when judgments are routinely ignored by defendants, either state or private actors, the credibility of the courts will be undermined. The Swiss Parliament, for example, recommended that the government reject the *KlimaSeniorinnen* judgment, a clear show of defiance of the European Court of Human Rights's ruling.[55] Though corporations could

53 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR).

54 *Ibid*. [69].

55 Imogen Foulkes, 'Swiss Parliament Defies ECHR on Climate Women's Case' *BBC News* (12 June 2024).

be held accountable for non-compliance with judgments in ways that governments cannot, this also depends on governments' willingness to enforce them.

Finally, one can imagine situations, as with the appeal in *Shell,* when legislation is adopted during litigation, and courts are placed in a potentially difficult position. On 25 July 2024, before the ruling on Shell's appeal, the EU's Directive on Corporate Sustainability Due Diligence (CSDDD) entered into force.[56] This means that there is now a legal obligation under European law for corporations to adopt and implement climate transition plans that are compatible with Paris's 1.5°C goal.[57] Notwithstanding the judgment, therefore, RDS will be bound to reduce its emissions in line with international climate change policy, even if that does not necessarily translate into a 45% reduction.[58] As a result of the CSDDD, the legal reality since the initial ruling had changed to the point that the need for such a ruling was perhaps less urgent than it had been before. One may speculate whether this impacted the Hague Court of Appeal's decision to overturn the District Court's holding.

Despite the changes brought about by the CSDDD, corporations remain largely free from obligations to align their practices with international climate change policy, even though some corporations have contributed more to climate change than some nation-states. As corporations fulfill a growing number of public mandates, it bears considering whether this division between public and private actors in climate policy should hold, both in litigation and in legislation. The next section will reflect on these questions.

4. The Public/Private Distinction

The corporate form was created in order to provide a legal fiction that allows individuals to pool resources, take collective action, and limit their personal liability while pursuing business objectives.[59] This form has enabled businesses to scale, innovate, and drive economic growth on a global scale. The separation of ownership and control – along with the ability to transfer ownership through shares – has given rise to powerful entities capable of shaping industries and economies. Additionally, the corporate veil provides protection to shareholders, insulating them from many of the risks associated with the corporation's activities. The corporate structure has undeniably reshaped

56 Directive (EU) 2024/1760 of the European Parliament and of the Council of 13 June 2024 on corporate sustainability due diligence.

57 *Ibid*. art 22.

58 *Milieudefensie* (n 32) [7.46].

59 Milton Friedman, 'The Social Responsibility of Business is to Increase its Profits' *New York Times Magazine* (New York, 1970).

the modern economic landscape and society at large. This success, however, comes with distinct challenges. In many cases, corporations have become so large and influential that their operations, or lack thereof, have far-reaching social, environmental, and political consequences.[60] In particular, corporations' legal and financial structures allow them to evade accountability, also when their actions conflict with the public interest or ethical considerations.

There are two public/private distinctions that are particularly relevant for our discussion: the categorization of corporations as private, as opposed to public, actors with private and/or public mandates; and the distinction between public and private law and how these bodies of law relate to and feature in climate litigation.

5. Climate Accountability of Public/Private Corporations

One response to the growing role of corporations in society has been the interpretation of private law duties through public law principles, especially in areas like human rights and environmental regulation.[61] In cases where corporate actions intersect with public law, such as under the European Convention on Human Rights or the UN Guiding Principles on Business and Human Rights, the legal analysis shifts from strictly private interests to broader public policy concerns. Corporations, particularly multinational ones, often operate across jurisdictions, which has led to efforts to interpret and enforce private law duties through the lens of international public law, as in the *Shell* case.

Thus far, corporate climate litigation has targeted privately owned corporations. However, one can easily envisage cases involving state-owned corporations, especially in industries like energy or infrastructure. State-owned corporations are often shielded by sovereign immunity or operate with the backing of government policies, making litigation against them more challenging. Moreover, the intersection of corporate governance with state interests raises complex questions about the separation between government and business, particularly in the context of climate litigation. A potentially pioneering case in this context is that of Greenpeace Italy and several other NGOs against

60 Gerard Hanlon and Peter P Fleming 'Updating the Critical Perspective on Corporate Social Responsibility' (2009) 3 Sociology Compass 937. See also Alston (n 12).

61 See eg Peter Muchlinski, 'International Corporate Social Responsibility and International Law' in Todd Weiler and Freya Baetens (eds), *New Directions in International Economic Law* (Brill 2011) 223.

ENI, an Italian utilities company.[62] The case was brought against ENI, but also against its two majority shareholders, the Italian Ministry of Economy and Finance and the Cassa Depositi e Prestiti, both state entities. The plaintiffs claim that ENI, as well as its majority shareholders, are liable for violating fundamental rights through their climate contributions. The respondents have questioned the court's jurisdiction, which means that the Italian courts will have to decide on the procedural admissibility of climate litigation cases in Italy.

6. Public and Private Law in Corporate Climate Litigation

One possible path forward for addressing corporate liability, particularly in the context of climate-related harms, may lie in the coordination of national private law responses through public international law. A model already exists in the realm of nuclear liability, where international conventions like the Vienna Convention on Civil Liability for Nuclear Damage seek to harmonize national legal frameworks to ensure that victims of accidents can seek redress.[63] Similarly, climate-related litigation might benefit from a more unified approach to corporate liability, where states could align their legal responses to ensure consistency across borders and increase pressure on carbon-intensive corporations.[64]

In parallel, the interaction between criminal and civil liability in corporate climate law cases is an area of growing significance. Traditionally, corporate liability has been dealt with under civil law, where the primary focus is on compensating victims. With the increasing severity of environmental damage and its connection to human rights abuses, there is a growing push for criminal accountability in the corporate sector. However, the complexity of prosecuting corporations under criminal law – particularly when it involves proving *mens rea* or corporate intent – raises practical challenges.[65]

62 *Greenpeace Italia et al v Eni SpA et al* (Civil Court of Rome, no. 26468/2023) (pending).

63 Vienna Convention on Civil Liability for Nuclear Damage (adopted 21 May 1963, entered into force 12 November 1977) 1063 UNTS 265.

64 See Lavanya Rajamani, 'The Durban Platform for Enhanced Action and the Future of the International Climate Change Regime' (2012) 61(2) International and Comparative Law Quarterly 501; Karin Buhmann, 'Corporate Social Responsibility: What Role for Law? Some Aspects of Law and CSR' (2006) 6(2) Corporate Governance: The International Journal of Business in Society, 188.

65 See also Michael G Faure, 'Environmental Crimes' in Nuno Garoupa (ed) *Criminal Law and Economics* (Edward Elgar 2009) 320 and Michael G Faure, 'Environmental Liability of Companies in Europe' (2022) 39(1) Arizona Journal of International and Comparative Law 1.

The potential piercing of the corporate veil would be one avenue towards greater accountability of corporations and their leaders.[66]

One promising interaction between the public and the private has been the rise of shareholder-led litigation – also discussed in scenario 9 – where shareholders bring a case against a corporate actor, or its board of directors, on climate (in)action. Corporations have fiduciary duties to their stakeholders, which often necessitate internal cost-benefit analyses of the environmental risks and impacts of their actions. For instance, installing pollution-control technologies requires weighing the financial costs against the environmental and reputational benefits. These analyses can be shaped, or even mandated, by legislation, but even absent legal requirements, corporations' financial decisions are influenced by their environmental risk assessments. Psychological and economic biases, such as the tendency to undervalue environmental risks relative to more tangible risks, and discounting long-term effects, can distort these decisions.[67]

In many jurisdictions, the litmus test for sound corporate decision-making lies in resulting profits for shareholders. Shareholders are constrained by relatively high standards of proof in questioning the judgment of a corporation's board of directors. For example, the claim in *Greenpeace v Shell's Board of Directors* was dismissed on the basis that it is the corporate executive's prerogative not to adopt a credible climate strategy, even if this strategy may pose a threat to the long-term survival of the corporation.[68] Similarly, shareholders have unsuccessfully tried to hold corporations accountable for anti-climate policy lobbying behavior,[69] and successfully brought cases to hold boards of directors accountable for environmental decisions.[70]

These challenges raised by the public/private divide are not only legal but deeply political and ethical, as they involve balancing the interests of business with those of the global community, including vulnerable populations most affected by climate change. As such, the future of corporate liability, particularly in relation to climate change, will likely require innovative legal frameworks that bridge the gap between private interests and public responsibility.

66 Relatedly, see Christiane Ahlborn, *Lifting the Corporate Veil: The Responsibility of International Organizations and their Member States* (CUP, forthcoming).

67 Compare chapter 3, Rowell.

68 *ClientEarth v Shell* [2023] EWHC 1137 (Ch); *ClientEarth v Shell* [2023] EWHC 1897 (Ch); *ClientEarth v Shell [2023] EWHC 2182 (Ch).*

69 Landgericht Braunschweig, 14 February 2023, 6 O 3931/21 *(Kaiser et al [Greenpeace] v Volkswagen),* see Daniella Murynka, 'German Court Dismisses Climate Action Against Volkswagen AG' (*Fasken Bulletin*, 23 February 2023).

70 Sabin Center for Climate Change Law, 'ClientEarth v Enea'.

7. Conclusions

To unite the different dimensions of corporate climate change liability discussed in this chapter, these concluding remarks introduce the overarching concept of "corporate climate citizenship" with a view to approaching a more holistic understanding of corporate social responsibilities. The concept of corporate citizenship refers to the "degree to which firm culture promotes or inhibits a moral commitment to society."[71]

Extending this concept to climate change, a working definition of corporate climate citizenship would read as "the extent to which corporate culture promotes or inhibits contributions to the mitigation of, and adaption to, climate change, as reflected in its corporate strategy." In this regard, corporate climate citizenship moves beyond the concept of corporate social responsibility, which typically involves voluntary actions aimed at improving a company's reputation or complying with legal norms. Climate citizenship calls for businesses to take proactive steps in reducing their carbon footprints, advocating for climate policies, and ensuring that their business models are aligned with long-term sustainability goals. It also envisions corporations engaging in public discourse on climate change and contributing to global efforts such as the Paris Agreement.[72] By adopting a climate citizenship model, corporations would be encouraged to view their actions through a wider lens – one that incorporates the collective well-being of society rather than focusing solely on profit maximization. Corporate climate citizenship aligns with the growing emphasis on Environmental, Social, and Governance criteria as key metrics for corporate accountability and long-term value creation. This is exemplified by initiatives like the Task Force on Climate-related Financial Disclosures (TCFD), which encourages businesses to disclose the financial risks associated with climate change and their strategies for managing them.[73]

Moreover, corporations adopting climate citizenship principles might pledge to meet science-based targets for carbon emissions reduction, divest from fossil fuels, or invest in climate adaptation measures. Notably, the concept also reflects a shift toward corporate activism, where businesses participate in broader societal issues, often advocating for stronger climate regulations and fostering collaboration across sectors to create a more sustainable

71 Carole Gibbs, 'Corporate Citizenship and Corporate Environmental Performance' (2012) 57 Crime, Law and Social Change 345, 345.

72 Ans Kolk and Jonatan Pinkse, 'Multinationals' Political Activities on Climate Change' (2007) 46(2) Business & Society 201.

73 Task Force on Climate-related Financial Disclosures, 'Final Report. Recommendations of the Task Force on Climate-related Financial Disclosures' (15 June 2017).

future.[74] Through such actions, corporate climate citizenship not only positions businesses as key players in the global climate crisis but also underscores the interconnectedness of corporate success and planetary health. This is also a clear driver of the EU's CSDDD, which puts in place mechanisms to internalize such corporate social responsibilities.

As these legislative parameters of corporate climate citizenship continue to develop in certain jurisdictions, there continue to be many places where such legislation is absent or falls short. And even in those jurisdictions where legislation is ambitious, there may be an implementation or enforcement gap. In these circumstances, there continues to be a clear role for climate litigation aimed at corporate accountability.

While the concept of corporate climate citizenship may help us focus our legislative and litigious practices, it is no panacea for some complex climate policy questions. For example, corporations play a central role in the transition to a low-carbon economy. As illustrated by the growing amount of litigation around this issue,[75] also highlighted in scenario 4, low-carbon transitions can augment existing inequities and create new ones. To deliver this transition in a "just" manner, environmental *and* socio-economic sustainability must be balanced.[76] A just transition must consider theories of environmental, climate, and energy justice,[77] when considering both the aims and the means of achieving the necessary changes.[78] The sheer complexity of sectors, aims, processes, and regulatory interactions will undoubtedly result in sub-optimal policy coordination with respect to the role of public and private actors in this space.

Judging by recent developments in jurisdictions such as the United States, corporations feel increasingly confident in playing an overt role in political and social life. Corporate (climate) citizenship may serve as a reminder that the privileges of citizenship come with concurrent obligations.

74 Robert G Eccles and Svetlana Klimenko, 'The Investor Revolution' (2019) 97(3) Harvard Business Review 106.

75 Annalisa Savaresi, Joana Setzer et al, 'Conceptualizing Just Transition Litigation' (2024) 7 Nature Sustainability 1379.

76 Louis J Kotzé and Sam Adelman, 'Environmental Law and the Unsustainability of Sustainable Development: A Tale of Disenchantment and of Hope' (2022) 34 Law and Critique 227.

77 Savaresi, Setzer and others (n 75) 2.

78 *Ibid*. 3–4. See also Xinxin Wang and Kevin Lo, 'Just Transition: A Conceptual Review' Energy Research & Social Science 82 (2021); Simone Abram and others, 'Just Transition: A Whole-systems Approach to Decarbonisation' Climate Policy (2022) 22 1033; Alexandra Harrington, *Just Transitions and the Future of Law and Regulation* (Palgrave Macmillan 2022).

Monika Hinteregger

Chapter 17: Private Law Instruments for Climate Change Damage – Challenges and Limits

1. Introduction

This chapter addresses private law litigation for climate change damages, as set out in scenarios 8, 9 and 10 (see introductory chapter on model scenarios), which cover several aspects of this topic.[1] The problems of tort law as a means of addressing climate change damages are illustrated in scenario 8, which is based on the facts of *Asmania et al v Holcim*,[2] a spectacular tort law case pending before a Swiss court in which Indonesian residents seek to hold a Swiss company, a major emitter of greenhouse gases (GHG), liable for sustained and future harm caused by rising sea levels. Scenario 8 raises several fundamental issues of tort law in relation to climate change damages. These concern the availability of applicable causes of action, the question of causation and the related problem of damage assessment.

Another typical feature of climate change damage is the fact that claimants and defendants are often located in different parts of the world (ie Asia and Europe in scenario 8) leading to questions of international jurisdiction and applicable law. The issue of legal standing is also addressed in scenario 10, which explores the availability of a class action under the US Alien Tort Statute to victims of climate change damage. The idea of suing in the US may be attractive to foreign claimants, because the procedural tool of the class action is not available in every jurisdiction. Another reason for this is that US substantive tort law is often perceived as favorable to victims. It will be shown that this perception is rather deceptive, as US courts are in fact rather reluctant to award compensation or other remedies for climate change damages.

1 See the introductory chapter on model scenarios. For more on the *Milieudefensie* case, see chapter 15, Jentsch.

2 Cantonal Court of Zug, civil claim filed on 20 January 2023 *(Asmania et al v Holcim)* (pending).

Another very different route to litigation under private law is the shareholder lawsuit in scenario 9. The idea of shareholder lawsuits recognizes that climate change damage has already become a relevant factor for enterprises. As major emitters of GHG, enterprises are both drivers and victims of climate change, because climate change adversely affects corporate assets through impacts on infrastructure, supply chains and markets. In addition, private companies are also possible targets of climate change litigation. The potential of such litigation is demonstrated by the Heede study,[3] which shows that just 90 entities, the so-called "carbon-majors," are responsible for 63 per cent of global industrial emissions of carbon dioxide and methane from 1854 to 2020. It is obvious that these entities, many of them private corporations, will be at the center of attention when it comes to such litigation. Litigation is costly in itself, but for corporations it is also detrimental to their public image and thus can have a negative impact on their overall financial position. In the US[4] and Australia,[5] shareholders have already taken legal action against companies for failing to disclose relevant information about the company's exposure to climate change risks. Lawsuits have also been brought against pension funds, claiming that they have a duty to consider climate-related financial risks in their investment decisions.[6] Today, these lawsuits are brought by climate change activists who use them as another platform to articulate their concerns. As the risks associated with climate change continue to grow, such claims may become more frequent and actually driven by the financial concerns of shareholders.

In the following I will discuss these issues in more detail. I will begin with the problem of legal standing, then outline the main features of tort law and their implications for climate change damages, and explore whether shareholder lawsuits can be a way forward to tackle the problem of climate change.

3 Richard Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuels and Cement Producers, 1854–2010' (2013) Climatic Change 122 229.

4 *Ramirez v ExxonMobil,* 334 F Supp 3d 832, 840 (ND Tex 2018).

5 Federal Court of Australia, *Abraham v Commonwealth Bank of Australia,* no. V879/2017, Concise Statement of Claim, 8 August 2017, case was discontinued in 2017.

6 *Fentress v ExxonMobil Corp,* 304 F Supp 3d 569, 572 (SD Tex 2018): dismissed; Federal Court of Australia, *McVeigh v Retail Employees Superannuation Trust* [2019] FCA 14: settled; see Esmeralda Colombo, 'From Bushfires to Misfires: Climate-related Financial Risk after McVeigh v. Retail Employees Superannuation Trust' (2022) Transnational Environmental Law 11 (1) 173; Emily Davies, 'Recommendations for Effectively Resolving Climate Change Disputes Against Investors' (2020) Carbon & Climate Law Review 14 (1) 49; Geetanjali Ganguly, Joana Setzer and Veerle Heyvaert, 'If at First You Don't Succeed: Suing Corporations for Climate Change' (2018) Oxford Journal of Legal Studies 38 841; Lisa Benjamin, 'The Road to Paris Runs through Delaware: Climate Litigation and Directors' Duties' (2020) Utah Law Review 2 2313; Jacqueline Peel, Hari Osofsky and Anita Foerster, 'Shaping the "Next Generation" of Climate Change Litigation in Australia' (2017) Melbourne University Law Review 41 793.

2. Tort Law Litigation for Climate Change Damage

a. International Jurisdiction and Applicable Law

i. Scenario 8 (the Holcim-case) and the Rules in Europe

In Europe, there are clear rules on jurisdiction and conflict of laws which, as will be shown in the following, are quite favorable to claimants. In Switzerland, where the *Holcim* case is being heard, the 2007 Lugano Convention (LC)[7] applies. According to the LC, the international jurisdiction for claims for damages lies either with the courts of the state in which the defendant is domiciled[8] or with the courts of the State in which the harmful event occurred or may occur.[9] According to the European Court of Justice (CJEU), this includes the jurisdiction of the state where the damage occurred.[10] The plaintiff therefore has the right to choose.[11] The domicile of legal persons is defined in Article 60 LC as the place where they have their statutory seat, their central administration or their principal place of business. The domicile of the plaintiff is irrelevant.

The Indonesian plaintiffs in the *Holcim* case are therefore entitled to bring their claim before a Swiss court. If the defendant were not domiciled in Switzerland, the domestic rules on international jurisdiction[12] would apply, but the parties would also have the option of conferring jurisdiction on a Swiss court by means of a choice of court agreement.[13]

It is interesting to see that the European Union (EU) provides for similar rules in the Brussels I Regulation.[14] Jurisdiction is conferred either on the courts of the State in which the defendant is domiciled[15] or on the courts of the State in which the harmful event or the damage occurred.[16] As in the LC,

7 Convention on Jurisdiction and the Recognition and Enforcement of Judgments in Civil and Commercial Matters of 30 October 2007, OJ L 339, 3.

8 Art 2 para 1 LC.

9 Art 5 No. 3 LC.

10 Case C-21/76 *Bier BV v Mines de potasse d'Alsace SA* [1976] ECR 1735.

11 Dieter Hofmann and Oliver Kunz, 'Art 5' in Christian Oetiker and Thomas Weibl (eds), *Basler Kommentar Lugano-Übereinkommen* (Helbing Lichtenhahn Verlag 2015), para 8.

12 See art 129 Swiss IPRG (Swiss Federal Act on Private International Law [*Bundesgesetz über das Internationale Privatrecht*] of 18 December 1987, SR 291). In the European states these rules can vary considerately. For an overview of the different frameworks, see Arnaud Nuyts, 'Study on Residual Jurisdiction, General Report' (3 September 2007).

13 Art 23 LC.

14 Regulation (EU) 1215/2012 of the European Parliament and of the Council of 12 December 2012 on jurisdiction and the recognition and enforcement of judgments in civil and commercial matters (recast) (Brussels I Regulation) [2012] OJ L 351/1.

15 Art 4 of the Brussels I Regulation.

16 Art 7 No 2 of the Brussels I Regulation.

the plaintiff has a right of choice.[17] The definition of the domicile for legal persons is the same as in the LC.[18] In order to benefit from these favorable rules, plaintiffs have already tried to sue European parent companies and then join subsidiaries as co-defendants to the claims.[19] If the defendant is not domiciled in an EU member state and no choice of court agreement has been concluded, international jurisdiction is determined by the domestic rules of the relevant Member State. Unlike in US law, European courts have no discretionary power to decline their jurisdiction if another judicial body may more conveniently hear the case (doctrine of *forum non conveniens*).[20]

This favorable position for plaintiffs also extends to the rules on choice of law. Swiss law provides in Article 133(1) of the Swiss IPRG[21] that claims arising from tortious acts are governed by the law of the State in which the tortious act was committed. If the result does not occur in the State in which the tortious act was committed, the law of the State in which the result occurs shall apply if the tortfeasor could have expected the result to occur in that State. Within the EU, the applicable law for non-contractual obligations is governed by the Rome II Regulation.[22] In the case of environmental damage, including damage to persons or property, the injured party has the right to choose between the law of the country where the harmful event occurred and the law of the country in which the damage occurred (Article 7 Rome II). According to Article 2 Rome II, Article 7 can also be applied to injunctive relief for imminent environmental damage.

Under Swiss law, in contrast to Article 7 of the Rome II Regulation, there is no choice between the place where the harmful event occurred and the place where the damage occurred.[23] However, the parties are free to agree on the applicable law in accordance with Article 132 of the Swiss IPRG. According to

17 *Bier BV* (n 10); Peter Mayr, *Handbuch des europäisches Zivilverfahrensrechts* (Manz 2017) 3.302.

18 Art 63 para 1 Brussels I Regulation.

19 For example: *Okpabi v Shell* [2021] UKSC 3; *Lungowe v Vedanta* [2019] UKSC 20; The Hague District Court, *Kiobel et al v Royal Dutch Shell PLC et al,* 23 March 2022, ECLI:NL:RBDHA:2019:4233; The Hague District Court, *Dooh and Milieudefensie v Royal Dutch Shell PLC et al,* 18 December 2015, ECLI:NL:GHDHA:2015:3586; Lucas Roorda, 'Jurisdiction in Foreign Direct Liability Cases in Europe' (2019) 113 Proceedings of the ASIL Annual Meeting 161, 164.

20 Roorda (n 19) 163.

21 Swiss Federal Act on Private International Law of 18 December 1987, SR 291.

22 Regulation (EC) 864/2007 of the European Parliament and of the Council of 11 July 2007 on the law applicable to non-contractual obligations (Rome II) [2007] OJ L 199/40, 40–49.

23 Jolanta Kren Kostkiewicz, 'Art 133' in Jolanta Kren Kostkiewicz (ed), *IPRG/LugÜ Kommentar* (Orell Füssli 2015), para 4.

Article 138 of the Swiss IPRG, claims arising from harmful effects (emissions) emanating from a property are to be assessed either according to the law of the State in which the property is located or according to the law of the State in which the effect of the impact occurs. The choice is left to the plaintiff.[24] Thus, all in all, the plaintiff-friendly result also applies to Swiss law.

ii. The US Alien Tort Statute (Scenario 10)

The US Alien Tort Statute (ATS)[25] is a specific rule of US federal law that allows foreign nationals to sue in US federal courts for tort law remedies for the violation of the law of nations or treaties concluded by the United States. The rule does not create a cause of action but merely establishes that federal courts have jurisdiction[26] and "allows federal courts to recognize certain causes of action based on sufficiently definite norms of international law."[27] The scope of the statute is rather unclear. To be actionable, the violated rule must be "specific, universal, and obligatory."[28] According to the US Supreme Court,[29] the requirement of specificity means that the violated rule must be comparable to the common law causes (piracy, torts against foreign ambassadors and violations of safe passage) that were actionable under the ATS in the 18th century. The cause of action must be universally recognized by the law of nations, and it must be of a binding nature. Even if all three criteria are met, the court may decline jurisdiction due to policy considerations, such as public policy, separation of powers, political questions etc. In *Jesner*[30] the Supreme Court set a rather high standard for the type of perpetration that can be the basis of a suit under the ATS by referring to international human rights norms that prohibit acts repugnant to all civilized peoples, such as genocide, torture and slavery, which make their perpetrators enemies of all mankind. Jurisdiction under the ATS rule thus requires the violation of well-established, fundamental precepts of international human rights law.

It is not clear whether economic rights and corporate liability are covered by the statute. In *Jesner* the Supreme Court held that foreign corporations

24 Jolanta Kren Kostkiewicz, 'Art 138' in Jolanta Kren Kostkiewicz (ed), *IPRG/LugÜ Kommentar* (Orell Füssli 2015), para 1.

25 28 USC § 1350. The rule reads as follows: "[t]he district courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States."

26 *Sosa v Alvarez-Machain,* 542 US 692, 720 (2004).

27 *Kiobel v Royal Dutch Petroleum Co,* 569 US 108 (2013).

28 *Sosa* (n 26).

29 *Ibid*.

30 *Jesner v Arab Bank,* PLC, 584 US 241 (2018).

could not be sued under the ATS.[31] For US companies the issue remains unresolved.[32]

In addition, in *Kiobel*[33] and *Nestle USA, Inc v Doe,*[34] the US Supreme Court held that there must be a sufficient connection between the cause of action and the domestic conduct of the defendant company. Mere corporate presence of the defendant company in the United States does not suffice. This consideration is discussed under the term "presumption against exterritorial application" which is intended to prevent US courts from unwanted interference with foreign policy.[35]

In the legal literature, scholars debate whether the ATS can be applied to climate change damages.[36] According to the construction of the rule by the Supreme Court in *Jesner,* such a suit cannot be brought against a foreign corporation. Whether it is possible to sue a US corporation under this rule is still unclear. According to the ruling in *Kiobel,* it would require that the corporation has committed a violation of a rule of international law that (i) is recognized by the United States, (ii) is directed not only at the state but also at private entities and (iii) is equivalent in gravity to the acts already recognized under the statute. The obligation may arise from an international treaty on human rights[37]

31 The main reason was the concern that this would open the way for U.S. corporations being sued abroad for alleged violations of international law. For a critical view on this argument and the ruling as such, see Myanna Dellinger, 'Post-Jesner Climate Change Lawsuits under the Alien Tort Statute' (2019) 44 Columbia Journal of Environmental Law 241.

32 *Kiobel* (n 27).

33 *Ibid.*

34 *Nestle USA,* Inc v Doe, 593 US (2021).

35 In *Kiobel* the Supreme Court referred to two rulings where this principle was very aptly expressed by stating that "[w]hen a statute gives no clear indication of an extraterritorial application, it has none" (*Morrison v National* Australia Bank Ltd, 561 US (2010) (at 6)) and "that United States law governs domestically but does not rule the world" (*Microsoft Corp v AT&T Corp,* 550 US 437, 454 (2007). For a critical analysis of this argument, see Aaron B Rudyan, 'Extraterritoriality in Common Law Climate Actions: Judicial Restraint or Judicial Error?' (2019) 37 Pace Environmental Law Review 177.

36 Michael Byers, Kelsey Franks and Andrew Gage, 'The Internationalization of Climate Damages Litigation' (2017) 7 Washington Journal of Environmental Law & Policy 264; Dellinger (n 31); Rudyan (n 35).

37 The United States are a member to the following international treaties under auspices of the UN: International Convention on the Elimination of all Forms of Racial Discrimination (ratified 1994), International Covenant on Civil and Political Rights (ratified 1992), Convention against Torture and other Cruel, Inhuman or Degrading Treatment or Punishment (1994); Optional Protocol to the Convention on the Rights of the Child on the Involvement of Children in Armed Conflict (2002) and Optional Protocol to the Convention of the Right of the Child on the Sale of Children, child Prostitution and Child Pornography (2002).

or climate protection ratified by the United States,[38] or from customary international law. Whether such an obligation in relation to climate change damage can be derived from any of these sources of international law is doubtful and highly controversial among legal scholars. While some authors[39] see space for the application of the ATS to climate change damage, others[40] do not.

For scenario 10, this means that the case brought by members of the Sámi community in Norway against ExxonMobil and Chevron in the US District Court on the basis of the US Alien Tort Statute is not very promising from a legal point of view. There is no question that this claim would not be barred by the presumption of exterritoriality, since both companies are based in the US and both have been responsible for significant amounts of GHG emissions that have undoubtably affected the territory of the US and beyond. The problem for such a claim, however, would be that the plaintiffs would have to show that the defendants had violated an established and universal rule of international law against the emission of GHG. This violation of international law would have to be of a gravity comparable to the eighteenth-century common law causes that were actionable under the ATS (piracy, torts against foreign ambassadors and violations of safe passage). It is highly doubtful that the existing international frameworks on human rights or on climate change prevention have ever provided for such a rule in the past, and it is also doubtful that such a rule exists today.

Even if all of these criteria are met, the Court may decline jurisdiction due to policy considerations. One of the biggest hurdles in this regard would be the "political question doctrine," which has already been used by US courts to dismiss actions for the compensation of climate change damage.[41]

In addition, it is important to note that the ATS is only concerned with the establishment of jurisdiction. If the claimants succeed to do so, they will then have to show that their harm is compensable under a specific cause of action under federal common law.

38 The United States are a member to the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol which was superseded by the Paris Agreement in 2016. In 2020 the US withdrew from the Paris Agreement, but rejoined in 2021. On 20 January 2025, President Trump signed an executive titled "Putting America First in International Environmental Agreements," which again initiates the process of withdrawing from the international climate treaties.

39 Dellinger (n 31); Rudyan (n 35).

40 Byers, Franks and Gage (n 36) 264.

41 *American Electric Power v Connecticut* 564 US 410 (2011). See *Comer v Murphy Oil* 585 F 3d 855 (5th Cir, 16 October 2009); *Native Village of Kivalina v Exxon Mobil Corp,* 696 F 3d 849 (9th Cir 21 September 2012), cert denied, 133 S Ct 2390 (20 May 2013).

3. Tort Law

a. Causes of Action

There is currently no international liability regime for the prevention and compensation of climate change damage. As a result, all claims must be brought before national courts under specific national laws. National tort laws provide for different types of liability that can be applied to climate change damage.[42] To date, no country has a specific no-fault liability regime applicable to climate change damage, but many countries have liability regimes that can be applied to climate change damage. One basis for litigation in some civil law countries are the rules on neighborhood liability[43] which require a continuous, unlawful and polluting interference with the use or enjoyment of land (such as by smoke, wastewater, noise, etc.) from one neighboring land to the other. In common law countries, the corresponding remedy is the action of private nuisance.[44] Although GHG are undoubtedly pollutants within the meaning of neighborhood law, they cannot easily be subsumed under this requirement because GHG do not directly affect the neighboring land. They are released by the emitter into the atmosphere, where they accumulate over a long period of time and cause the temperatures on Earth to rise. This leads to a change in climate patterns, triggering certain natural events (storms, rising sea levels) that cause damage. It is very questionable whether such an indirect causal relationship can be considered an interference according to neighborhood law. However, it is interesting to note that in the case of *Lliuya v RWE*[45] the German Court of Appeal (Oberlandesgericht Hamm) did not hesitate to apply Section 1004 of the German Civil Code (BGB), a special provision of property law which provides for injunctive relief in the case of disturbance of ownership and includes the right to have the disturbance removed, even though the alleged tortfeasor (RWE) and the disturbed plot of land in Peru are more than

42 For a comprehensive analysis see Monika Hinteregger, 'Civil Liability and the Challenges of Climate Change: A Functional Analysis' (2017) 8 Journal of European Tort Law 238; and Monika Hinteregger, 'Climate Change and Tort Law' in Eva Schulev-Steindl and others (eds), *Climate Change, Responsibility and Liability* (Nomos 2022) 383.

43 Eg § 364a Austrian ABGB; § 906 (2) German BGB and § 14 German Federal Emission Control Act *(Bundes-Immissionsschutzgesetz)*; art 1003 and art 1108 Greek Civil Code *(Astikos Kodikas)*; art 844 Italian Civil Code etc. In France a similar result is reached through case law *("troubles de voisinage")*, see Nadège Reboul-Maupin, *Droit des biens* (8th edn, Dalloz 2020) 356ff; Philippe Malaurie and Laurent Aynès, *Les biens* (8th edn, LGDJ 2019) 34ff.

44 Charles Wild and Stuart Weinstein, *Smith and Keenan's English Law* (17th edn, Pearson 2013); Peter Hay, *US-Amerikanisches Recht* (7th edn, C.H.Beck 2019) 159.

45 For information on the case, see the RWE Climate Case website.

10,000 kilometers apart.[46] On 28 May 2025, the Higher Regional Court of Hamm dismissed the lawsuit on factual grounds in a second instance, concluding that the plaintiff's house was not specifically endangered by glacier melt. However, in its detailed ruling, the court expressly affirmed the civil liability of major emitters for climate damage.[47]

The common law provides for another tort of nuisance, which is unknown in civil law countries: the tort of public nuisance. This tort covers interference with a public interest and can be brought by the State against a person who unreasonably interferes with a right common to the public (public waters, air).[48] Private parties can only bring an action for public nuisance if they have suffered particular injury different from that suffered by the public at large. An action in public nuisance allows recovery for personal injury and property damage as well as for pure economic loss.

All national tort laws provide for fault-based liability.[49] In the civil law countries fault-based liability is regulated in the civil codes and requires proof of actionable damage, fault and causation. The criterion of fault (in the broad sense, which includes the Germanic notion of unlawfulness) is the result of a comprehensive assessment of several factors, such as the magnitude of the risk, the gravity of the harm, the cost of precautions and the social utility of the defendant's conduct.[50] The assessment must always be made *ex ante* and must relate to the time of the emission, not to the time when the harm occurred. The concept of fault thus requires that the harm was foreseeable at the time of the emission. For this purpose, it is important to determine when industrial emitters of GHG must have become aware of the negative effects of GHG on the global climate. Climate science shows that the first scientific analyses of the warming effects of GHG date back to 1861,[51] and it can be assumed that since

46 For a critical view on the case and the ruling of the Court of Appeal, see Gerhard Wagner, *Klimahaftung vor Gericht* (C.H. Beck 2020).

47 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE)*. See Margaret Barry and Maria Antonia Tigre, 'Climate Litigation Update' (30 May 2025).

48 Restatement (Second) of Torts § 821B (1) (American Law Institute 1979) defines public nuisance as "unreasonable interference with a right common to the general public."

49 In the common law jurisdictions, the tort which comes closest to the concept of fault liability is the tort of negligence. The tort of negligence is comprised of four elements: actionable damage, duty of care, breach of duty and causation. The plaintiff must show that the defendant owed him a duty of care, that the defendant breached this duty, and that the occurrence and type of damage was foreseeable.

50 For an overview of the different concepts in the European countries see Helmut Koziol (ed), *Unification of Tort Law: Wrongfulness* (Kluwer Law International 1998).

51 John Tyndall, 'On the Absorption and Radiation of Heat by Gases and Vapours, and on the Physical Connexion of Radiation, Absorption, and Conduction' (1861) 151 Philosophical Transactions of the Royal Society of London 1. For a comprehensive overview

1990, when the first IPCC report on climate change was published,[52] the interested public definitely had knowledge of the risk. However, it is important to note that the fact that the emitter was aware or must have been aware of the risk does not yet necessarily amount to fault.

b. The Problem of Causation

There is no doubt that the establishment of causation for climate change damage is very difficult and a real challenge for any court. In the context of climate change damage, all conceivable causation scenarios culminate at the same time. Damage is caused by multiple emitters. Emitters and injured parties are located far from each other. There is a considerable time lag between emissions and the harm, and there are possible synergistic effects between the various emitted substances as well as between these substances and the natural environment.

Compensability of harm under tort law requires a sufficient causal link between the defendant's activity and the harm sustained by the victim. Legal doctrine provides that the causal link is established according to the "but for" test (common law) or the *conditio sine qua non*-formula (civil law), which qualifies any circumstance as a cause of the damage if the damage would not have occurred without it. The "but for" test and the *conditio sine qua non*-formula are appropriate tools for the attribution of damage in most causation scenarios. Traditional tort law also recognizes liability in case of concurrent, cumulative and alternative causal constellations,[53] and it is even able to provide well-balanced solutions to the problems of synergistic and progressive effects of pollutants.

Tort law theory thus offers solutions even for the more complex scenarios of climate change damage. It is important to note that climate change leads to different types of damage and that not all types of climate change damage raise the same problems of causation.[54] For those events that can be directly attributed to the large-scale rise in the temperature of the atmosphere, such

see David Archer and Raymond Pierrehumbert (eds), *The Warming Papers: The Scientific Foundation for the Climate Change Forecast* (Wiley-Blackwell 2011).

52 John T Houghton, Geoffrey J Jenkins and JJ Ephraums (eds), *Climate Change: The IPCC Scientific Assessment. Report Prepared for IPCC by Working Group I* (CUP 1990).

53 See Jaap Spier (ed), *Unification of Tort Law: Causation* (Kluwer Law International 2000); Bénédict Winiger and others (eds), *Digest of European Tort Law Volume 1: Essential Cases on Natural Causation* (Springer 2007).

54 This was already stressed by Will Frank in various publications ('Climate Change Litigation – Klimawandel und haftungsrechtliche Risiken' (2010) 10 Neue Juristische Online-Zeitschrift 2296; 'Überlegungen zur Klimahaftung nach Völkerrecht' (2014) 33 Neue Zeitschrift für Verwaltungsrecht 695; 'Zur Kausalitätsproblematik und Risikozurechnung bei Klimaschäden im Zusammenhang mit Entschädigungs- und Schutzansprüchen gemäß Völkerumweltrecht' (2015) 8 Bonner Rechtsjournal 42).

as the rise of sea levels or the gradual melting of glaciers and polar ice caps, climate science can show that the causal link is actually quite clear: these events are predominantly caused by GHG emitted into the atmosphere by human activity. The causal relationship between the emission of GHG and the consequences for the natural environment also includes the finding of actionable harm caused by those natural events to persons and property. Examples of such scenarios are the cost of rebuilding a village on a sea-cliff that has become uninhabitable, as in the *Kivalina* case,[55] or the cost of a dam to protect against melting glacier waters, as was claimed by the plaintiffs in the *Lliuya* case. With respect to these scenarios, the problem for the establishment of causation lies not so much in the scientific proof of causation as such, but rather in the attribution of the incurred harm to specific polluters, given the large number of polluters that have released GHG into the atmosphere over the last hundred years.

For such constellations, tort law can offer the theory of minimal causation.[56] In such scenarios the mere application of the "but for" test cannot produce acceptable results because, due to the smallness of the contributions, it does not indicate the concrete share of the individual contributor. Although this cannot be established with certainty for the individual emitter, it is legitimate to assume that each emitter has in fact caused a part, albeit a very small part, of the damage. As the number of emitters is quite large and the shares attributable to each emitter are quite low, a solidary liability of each emitter would be excessive and would lead to a result that is neither fair nor, due to an extreme over-deterrent effect, economically efficient. It would therefore make much more sense to hold each emitter liable only for its share. Since this share cannot be established with sufficient probability, it is fair and reasonable to estimate the share according to the total amount of GHG emitted by the individual contributor.

However, the application of the theory of minimal causation to these types of climate change damage faces the further problem that GHG only cause climate change if they exceed a certain threshold. GHG, especially carbon dioxide (but also methane and nitrous oxide, but not the fluorinated gases) are part of natural processes and can be absorbed to some extent by the natural environment. It can, therefore, be assumed that the emissions caused by a single person (breathing, driving a motor vehicle, heating the home) will never be sufficient to exceed this threshold. Since these emitters do not have even

55 *Native Village of Kivalina* (n 41).

56 Bernhard Koch, 'Comparative Report' in Winiger and others (n 53) 541 indicates that case law dealing with this problem is scarce.

the slightest potential to cause climate change damage, it would, already from a theoretical point of view, not be justifiable to subject those contributors to the theory of minimal causation. Such an approach would overwhelm the system both from a theoretical and, given the enormous number of past and actual emitters of GHG, practical viewpoint. Therefore, at best, the theory of minimal causation can be applied to the major emitters of GHG, such as the "big players" in the energy generating industry, who are responsible for the emission of enormous amounts of GHG over the past decades.

Under the condition that the concept of minimal causation is accepted for such large emitters, the main problem for the allocation of the loss to the individual polluter is then not so much the question of causation, but rather, as was outlined above, the need to find an applicable cause of action for the claim.

An even greater challenge for legal doctrine is posed by those cases where it is only possible to establish a statistical link between the rising temperatures on the planet and the sustained harm. Examples of this are property damage or personal injury caused by extreme weather events, such as storms, floods or heat waves. Such events occur regularly, but science shows that climate change is increasing their frequency and severity. In these cases, the causal link between the emission of GHG and the damage incurred is not direct, but only of a statistical nature. In order to deal with such constellations in tort law, the question arises as to (i) whether under these conditions full proof of causation can be dispensed with and (ii) whether it can be justified to apportion the damage suffered by an individual according to the percentage increase in the probability of the occurrence of such damage, or according to the percentage increase in the damage caused by human emissions of GHG.

Legal doctrine is not entirely reluctant to find liability in cases where plaintiffs face scientific and structural problems in proving causation. A look at different legal systems shows that courts find even more sophisticated solutions when the causality situation becomes more complex and plaintiffs encounter structural problems for the proof of causation. The solutions applied vary. Courts may accommodate the claimant by lowering the standard of proof in the individual case, or they may reverse the burden of proof from the claimant to the defendant, or they may impose only partial liability or, under specific circumstances, even full liability. Prominent examples are provided by the famous DES cases and the theory of market share liability developed by US courts,[57] the "increased material risk of harm" test of the UK Supreme

57 See *Sindell v Abbott Laboratories*, 607 P.2d 924 (Cal 1980) and *Collins v Eli Lilly & Co*, 342 N.W.2d 37 (Wis 1984). In the Netherlands (Supreme Court of the Netherlands, *X et al v Bayer Nederland et al*, 9 October 1992, ECLI:NL:HR:1992:ZC0706) and in France (Cour de cassation 2e civ, 24 September 2009, no. 08-16.305, Bull 2009 I No 187; Cour de cas-

Court in *Fairchild*,[58] or the attribution of proportional liability under the French *perte d'une chance* theory[59]. These examples show that courts and legislators are willing to address the issue and to adapt their usual requirements for the establishment of causation to the specific circumstances.

Whether jurisdictions are willing to accept such theories of proportionate liability is a matter of policy. In any case, holding emitters of GHG liable for an increase in damage that is only statistically verifiable is in any case a far-reaching measure that pushes tort law to its conceptual and factual limits. In such cases, the causal connection between the individual emitter of GHG and the person who suffers a specific damage is very loose. The causal connection only becomes more obvious when it is established between the respective groups, the group of GHG emitters on the one side and the group of injured parties on the other. Such an undertaking requires procedural tools that allow for the aggregation of these persons into coherent groups. A good example for such an instrument is the class action under US law. Another appropriate instrument would be the introduction of specific compensation funds, financed by the GHG producing industry.

4. Shareholder Lawsuits (Scenario 9)

Shareholders are the co-owners of a company. They are entitled to participate in the company's decision-making process, according to the rules of the relevant national company law. They can express their concerns to the board, they can formulate resolutions to be put to the vote at general meetings ("shareholder proposals") and they can try to influence the nomination and election of board members ("proxy battles").

In general, shareholders are not entitled to sue the company for disclosure of any business- related information. However, in some countries (eg UK, US), in the event of a conflict, they can challenge board decisions by way of

sation 1re civ, 28 January 2010, no. 08-18.837, Bull 2010 I No 22) the Supreme Courts also lightened the burden of proof of causation for the DES victims and even decided for joint and several liability of the defendant drug producers.

58 *Fairchild v Glenhaven Funeral Services Ltd* [2002] UKHL 22, [2003] 1 AC 32. See also *Barker v Corus (UK)* Ltd [2006] UKHL 20, [2006] 2 AC 572 and *Sienkiewicz v Greif (UK) Ltd* [2011] UKSC 10, [2011] 2 AC 229. For victims of mesothelioma, Section 3 of the Compensation Act 2006 reverses the burden of proof in case of unlawful exposure to asbestos and provides for joint and several liability of each of several tortfeasors.

59 François Terré and others, *Droit civil: Les obligations* (13th edn, Dalloz 2022) No. 925. According to a comparative study concerning Europe, the theory is accepted in France, Italy, Portugal, Spain, Netherlands, Ireland and Slovenia, see Helmut Koziol, 'Comparative Report' in Winiger and others (n 53) 589.

"derivative action."[60] This means that shareholders can bring a legal action on the company's behalf against the directors of the company for a breach of their managerial duties under company law. In doing so, shareholders can only sue in the interests of the company, not in their own interests (eg to recover damages for a fall in the value of their shares). A prominent example is ClientEarth's derivative action against the directors of Shell in the High Court of England and Wales, alleging that Shell's climate change strategies are inadequate, which was dismissed by the court without a full trial.[61]

It is highly questionable whether shareholders (and other interested parties) need to resort to such litigation to obtain information about their company's climate risks, as there are already a number of regulations that provide for such reporting requirements. For climate change risks, the standard for reporting and disclosure has been set by the Task Force on Climate-Related Financial Disclosures (TCFD), which developed a framework for the voluntary reporting on climate-related risks and opportunities. In 2023, this task was taken over by the International Sustainability Standards Board (ISSB) of the International Financial Reporting Standards Foundation (IFRS).[62] In 2023 the ISSB published the IFRS S2 Climate-related Disclosures which aims to provide a global baseline of sustainability disclosures to inform financial markets. The rules require "an entity to disclose information about climate-related risks and opportunities that could reasonably be expected to affect the entity's cash flows, its access to finance or cost of capital over the short, medium or long term."[63] Climate-related risks comprise physical risks, transition risks and climate-related opportunities available to the entity. The information shall enable users of financial reports to understand how the company deals with its climate change related risks. The rules follow a very comprehensive approach by including all strategies and mechanisms for monitoring, managing and overseeing the climate-related risks and opportunities of the company.

Beside these important and widely accepted voluntary rules, mandatory rules on reporting and disclosure obligations of climate change risks are evolving. A very comprehensive and important step in this regard has been taken by the EU with the adoption of the Corporate Sustainability Reporting Directive

60 For an overview and an analysis of the liability of directors and officers of a company towards third parties and shareholders see Simon Deakin, Helmut Koziol and Olaf Riss (eds), *Directors' and Officers' (D&O) Liability* (DeGruyter 2018).

61 *ClientEarth v Shell* [2023] EWHC 1137 (Ch) (dismissed) and *ClientEarth v Shell Plc et al* [2023] EWHC 1897 (Ch) (dismissed).

62 See IFRS Foundation, 'IFRS S2 Climate-related Disclosures' (June 2023).

63 *Ibid*.

(CSRD),[64] which entered into force on 5 January 2023. The new rules, which are part of the European Green Deal,[65] modernize and strengthen the reporting obligations already provided by Directive 2013/34/EU on disclosure of non-financial and diversity information by certain large undertakings and groups.[66] The new directive broadens the scope of enterprises which fall under the reporting duties (all large companies, all listed companies except listed micro-enterprises, and non-EU companies which generate over EUR 150 million on the EU market) and explicitly extends the reporting obligations to climate change risks. The directive aims to ensure that all stakeholders, including consumers, shareholders and civil society groups, have the necessary information on the sustainability performance of the relevant company in order to be able to assess the company's risks and opportunities arising from climate change and other sustainability issues. The reports must follow a defined format, which is provided by the European Sustainability Reporting Standards (ESRS).[67] A further instrument within the EU Sustainable Finance Frameworks is the Sustainable Finance Disclosure Regulation (SFDR)[68] which obliges the participants of the financial markets (banks, investment firms, fund managers, etc.) and financial advisers to provide investors with sustainability information, including information on GHG-emissions.

A very comprehensive obligation to include climate change risks into the business operations of larger corporations is provided by the Corporate Sustainability Due Diligence Directive.[69] The directive obliges corporations to mitigate their negative impacts on human rights issues (child labor, slavery,

64 Directive (EU) 2022/2464 of 14 December 2022 amending Regulation (EU) No 537/2014, Directive 2004/109/EC, Directive 2006/43/EC and Directive 2013/34/EU, as regards corporate sustainability reporting [2022] OJ L 322, 15–80.

65 Communication from the Commission to the European Parliament the European Council, the Council, the European Economic and Social Committee and the Committee of the Region "The European Green Deal" [2019] COM/2019/640 final.

66 Amended by Directive 2014/95/EU of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups (Text with EEA relevance) [2014] OJ L 330, 1–9.

67 Commission Delegated Regulation (EU) 2023/2772 of 31 July 2023 supplementing Directive 2013/34/EU of the European Parliament and of the Council as regards sustainability reporting standards [2023] OJ L 2772, 22.

68 Regulation (EU) 2019/2088 of the European Parliament and of the Council of 27 November 2019 on sustainability-related disclosures in the financial services sector [2019] OJ L 317, 1–16.

69 Directive of the European Parliament and of the Council on corporate sustainability due diligence and amending Directive (EU) 2019/1937 and Regulation (EU) 2023/2859 [2024] OJ L 1760.

labor exploitation) and on the environment, including the management and prevention of risks caused by climate change.

As a consequence, NGOs and other interested parties, including shareholders, will no longer have to resort to such claims in order to force companies to provide information on their climate change risks and to encourage them to integrate such risks into their management strategies.

However, it should be noted that, despite having only recently entered into force, both the CSRD and the CSDDD have already been amended.[70] The start of reporting obligations under the CSRD was postponed,[71] and the implementation deadline for the CSDDD was extended from 26 July 2026 to 26 July 2027. Its scope was narrowed, and the start of the reporting obligations for affected companies was also postponed.[72] Furthermore, the Commission has proposed a significant restriction of the reporting and due diligence obligations set out in both directives as part of an omnibus package.[73] Among other things, the liability rule set out in Article 29 of the CSDDD is to be removed, leaving the question of liability to national liability laws. These restrictions will reduce the climate-protecting effect of these instruments on companies, but will not eliminate it completely.

5. Conclusions

The use of private law instruments to combat climate change faces a number of fundamental challenges. To date, there is no international liability regime for the prevention and compensation of climate change damage. Therefore, all claims must be brought before a national court under a specific rule of national law. It is necessary to find a court that has jurisdiction and then to decide on the applicable law. It has been shown that in Switzerland (as well as in the EU) there are concrete rules on jurisdiction and conflict of laws that are quite favorable for plaintiffs of climate change damages. These rules allowed the Indonesian claimants in the *Holcim* case to sue the Swiss company before a Swiss court under Swiss law which means that if the claimants win the case, they will also be able to enforce the judgement in Switzerland. In contrast to US law,

70 Directive (EU) 2025/794 of the European Parliament and of the Council of 14 April 2025 amending Directives (EU) 2022/2464 and (EU) 2024/1760 as regards the dates from which Member States are to apply certain corporate sustainability reporting and due diligence requirements, OJ L 2025/794, 1 (so-called "Stop-the-Clock" Directive).

71 Art 1 RL 2025/794 ("Stop-the-Clock" Directive).

72 Art 2 RL 2025/794 ("Stop-the-Clock" Directive).

73 European Commission, 'Commission Simplifies Rules on Sustainability and EU Investments, Delivering Over €6 Billion in Administrative Relief'.

European courts do not have any discretionary power to decline jurisdiction if another judicial body may more conveniently hear the case (doctrine of *forum non conveniens*). Establishing the jurisdiction of a US federal court under the US ATS, as set out in scenario 10, is a rather long shot and faces a number of fundamental hurdles, in particular the need to show that the defendants have violated an established and universal rule of international law against the emission of GHG.

Actions based on national tort law undoubtedly have the effect of attracting a great deal of publicity. They will therefore raise public awareness of the risks of climate change, and subsequently induce governments and industry to intensify their efforts to reduce their GHG emissions. As companies tend to avoid negative publicity, this may even be the case if the individual case is not successful. The usefulness of such actions is also stressed by tort law theory. Tort law ensures that a committed wrong is redressed and that victims are compensated for their losses. It also has important preventive effects, because the threat of liability makes potential polluters aware of the risks of their actions and gives them a strong incentive to minimize the expected damage costs in their own economic interest in the future. It therefore prevents the externalization of costs. It is assumed that if GHG emitters are liable for all the harm they cause, they will adapt their behavior and reduce their future emissions in their own interest. Making enterprises liable for the harm they cause would therefore lead to a reduction in GHG emissions through the market mechanism, as enterprises with lower GHG emissions will have lower damage costs. This would improve their position in the market and will give other enterprises with higher liability costs an incentive to reduce their own GHG emissions in order to reduce these costs.

It is, however, undeniable that the use of tort law confronts plaintiffs and defendants with considerable challenges. Engaging in litigation as outlined in the *Holcim* case of scenario 8 means entering into a lengthy legal process that can take many years and will cause high costs. When it comes to climate change damages, serious factual and legal uncertainties will make such litigation an arduous task for plaintiffs and defendants alike. If tort law is to serve as an effective tool for climate protection, it must be adapted to the specific characteristics of climate change damages. This concerns the attribution of legal standing, especially in relation to pure economic loss, the substantial expansion of the right to bring collective action and the recognition of minimum and proportionate liability by national tort laws.

A shareholder action, as presented in scenario 9, would bypass these tort law hurdles. However, the above analysis shows that in the EU, NGOs and other interested parties, including shareholders, will no longer have to resort to such

claims in order to force companies to provide information on their climate change risks and to encourage them to integrate such risks into their management strategies, because they will be able to rely on the mandatory reporting and disclosure requirements on climate change risks provided by EU law.

Larisa Alwin

Chapter 18: Interim Reflection

The preceding chapters shed light on climate litigation about corporate liability for climate change. The overarching topic is to understand the legal and practical realities of climate litigation against corporations, especially against the "carbon majors,", and the role of courts in this regard. The authors give insight in the form of a snapshot of the state of affairs in 2025. They do not aim to give a complete overview or an exhaustive discussion of all imaginable topics that can arise. Inspired by the model scenarios that were set out by the organizers of the Conference to guide and structure the discussions, the chapters lead us through several aspects of climate litigation against corporations and its legal and practical realities.[1]

The takeaway from the chapters is that we are in the midst of a global legal development in climate litigation against corporations through cases decided by national courts. The applicable national law can be favorable for climate litigation, but can also raise obstacles. Climate litigation against corporations raises specific issues and challenges and has several inherent tensions. Another takeaway is that the "success" of climate litigation is not limited to the assignment of a claim. The following offers a reflection on these takeaways, with further thoughts inspired by the chapters, naming possible future issues and subjects for further research.

1. Global Legal Development Through National Legal Doctrine

Climate litigation against corporations is a worldwide phenomenon.[2] All over the world, climate cases against corporations are pending and new cases continue to be launched. Cases against corporations represent a growing percentage in the global climate litigation corpus. The case law discussed in the

1 See the introductory chapter on model scenarios.

2 See for overviews of global climate litigation: Joana Setzer and Catherine Higham, 'Global Trends in Climate Litigation: 2024 Snapshot' (June 2024); The Colombia Law School Sabin Centre for Climate Change Law Climate Change Litigation Database.

previous chapters focuses on climate litigation in Europe, the United States and Australia, where most such cases are pending. The global case law shows that plaintiffs seek a broad approach, with injunction-based cases aimed at ensuring that corporations produce fewer greenhouse gas (GHG) emissions in the future and also actions for performance aiming at compensation for climate damage that has already occurred and/or reimbursement of costs for the installation of protective measures for impending climate damage. The injunction-based claims target at a wide range of corporate activities and obligations, all directly or indirectly aimed at reducing the corporations' GHG emissions and holding them responsible for their own emissions and those of their value chain. Besides claims directly asking for an injunction to reduce GHG emissions, claims target prohibiting investments in new plants, proper assessments of investments on climate change, pulling back from financing and investing in fossil fuel industries and "greenwashing" by corporations, among other aims. Climate litigation is used as a means of putting pressure on corporations to do their part and demand justification if they do not appear to do so; plaintiffs are clearly looking for as many avenues as possible to hold corporations responsible for climate change, reduce emissions and compensate damages caused by climate change.

This legal development is global, but it takes place in cases before national courts governed by national legal doctrine. The national courts apply their own procedural law and the applicable national substantive law. The cases discussed in the chapters demonstrate how climate change is fitted into existing national legal doctrines. A typical feature of this global legal development is interaction: between climate science and legal doctrine, between national jurisdictions all over the world, between national and international courts and between civil (tort) law, human rights law and other areas of law. Climate cases against corporations show additional interaction with national legal doctrines and "soft law" on corporate responsibility such as the OECD Guidelines[3] and UN Guiding Principles.[4] These interactions require a broad view in legal scholarship on climate cases – both against states and corporations – and also a deep understanding of the international and domestic legal doctrines that are applied in climate case law. One of the potential pitfalls for legal scholars and practitioners in this field can be to look at foreign case law only through the lens of their own domestic legal doctrine.

3 OECD, 'Guidelines for Multinational Enterprises on Responsible Business Conduct' (8 June 2023).

4 OHCHR, 'Guiding Principles on Business and Human Rights. Implementing the United Nations "Protect, Respect and Remedy"' (2011) HR/PUB/11/4.

Unlike states, corporations can potentially face climate litigation in other jurisdictions than the country where they are domiciled. Depending on the applicable national rules of international jurisdiction, plaintiffs will often have the option to take corporations to court in other countries. Parent company liability can broaden the options for plaintiffs to choose a jurisdiction that they assess as favorable for their case. National legal systems with generous rules of standing can also prove favorable for plaintiffs; an example is article 3:305a of the Dutch Civil Code, which allows for class actions seeking to protect common interests, which cannot be individualized because they accrue to a much larger group of persons, which is undefined and unspecified. On the other hand, domestic legal doctrine can also pose obstacles that prove insurmountable in climate cases against corporations in jurisdictions were the *forum non conveniens* and the "political question" doctrine can be used to decline jurisdiction or for dismissal, as is the case in for example the United States. It goes without saying that plaintiffs are wise to thoroughly investigate where to file a climate case against a corporation, also because the outcome can differ depending on the applicable national substantial legal doctrine.

There is no overarching international public or private regime for climate liability of corporations; the interaction in the global legal developments in climate cases has not led to a substantive global legal doctrine on corporate liability for climate change. The cases discussed in the preceding chapters, for example the German and Dutch cases discussed by Jentsch (chapter 15), show varying approaches to corporate liability to climate change due to differences in the applicable domestic law and legal traditions. One can safely assume that the exact same claim brought against the same corporation in various jurisdictions can have a different outcome per jurisdiction.

It does not seem plausible that these varying approaches by national courts can be bridged solely through global legal development within the existing national legal doctrines fired by the interaction mentioned before. Within the European Union (EU) the Corporate Sustainability Reporting Directive (CSRD) and the Corporate Sustainability Due Diligence Directive (CSDDD) could have contributed to more unity in corporate obligations linked directly or indirectly to emission reduction. Also the specific EU-wide liability regime of Article 29 CSDDD could have contributed to more unity within the EU. The amendments in the 2025 EU "Omnibus" package – which include the removal of the EU-wide liability regime in the CSDDD – form a setback in this regard.[5]

5 European Commission, 'Proposal for a Directive of the European Parliament and the Council Amending Directives 2006/43/EC, 2013/34/EU, (EU) 2022/2464 and (EU) 2024/1760 as Regards Certain Corporate Sustainability Reporting and Due Diligence Requirements' (26 February 2025) COM(2025) 81 final 2025/0045 (COD).

2. Recurring Themes in Climate Litigation and Typical Features of Climate Cases Against Corporations

Despite the different approaches due to domestic legal doctrine, the global climate case law corpus shows recurring themes in all types of cases. Plaintiffs often build forth on earlier claims by filing similar claims and using similar arguments to support their positions. Defendants tend to fall back on the same or similar arguments in their defense. Many of the recurring themes are connected to the characteristics of climate change. Climate change and its damage are always caused by multiple emitters, emissions can have worldwide effect, it takes time before emissions have effect, the effects can differ in time and place and synergistic effects can occur. It is probably safe to say causation is one of the most challenging aspects of climate litigation, especially in cases in which damages are claimed. Causation can also play a role in relation to the effectiveness of the injunction claimed.

Climate case law shows that the "last step" is challenging, especially in cases against corporations. In several cases, though obligation of the corporations in relation to climate change has been established, the claim was not assigned.[6] Establishing causation between the emissions and the damages and establishing the individual reduction obligation of a corporation as named in the claim both prove extremely difficult. Both points merit further (interdisciplinary) research. Questions that arise here are: how to adapt reduction paths made for policy makers and climate science findings to an individual corporation? Is there a gap to bridge between climate scientists and legal practitioners and if so, how to do so? Are there alternative ways of thinking about this "last step" both from a legal point of view and seen from the climate science perspective?

The question that arises is which features are typical for climate cases against corporations. Several are discussed in the previous chapters, for example shareholder litigation and directors' responsibility. Other typical features concern topics related to the corporate structure and to running a commercial enterprise, such as disclosure (to shareholders), investments and greenwashing (in advertising and in reporting). Examples of typical questions that can arise in climate litigation against corporations are:

6 See for example the appeal ruling in The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al*, 12 November 2024, ECLI:NL:GHDHA:2024:2100; Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG)*.

— Is it sufficient for a corporation to abide by the law?
— Which scopes of GHG emissions as categorized by the World Resources Institute Greenhouse Gas Protocol[7] fall within corporations' responsibility? Put differently: are corporations be held responsible for emissions in their value chain, and to what extent?
— Do permits and concessions have indemnifying effect? And, in that respect, how to deal with everlasting permits and concessions?
— What are the effects of emission cap and trade systems such as the ETS system?

Typical for corporate responsibility and liability for climate change are also the corporations' knowledge of the risks posed by GHG emissions, the size of their GHG emissions and their ability to contribute to the reduction of GHG emissions.

An issue which could become more prominent is responsibility and liability connected to the direct or indirect obligation for corporations to reduce GHG emissions. Here questions can arise such as: can a corporation reduce its GHG emissions by selling plants or business units or is it obliged to shut down and clean up? What if a corporation knowingly sells to a buyer who will emit more GHGs in their exploitation of the plant or the business unit?

Legislation aimed at reduction of GHG emissions might also lead to claims such as those of energy corporations against the Dutch State. They claimed damages stating their ownership rights were breached by legislation that obliged coal plants to shut down within a certain period.[8]

The interests of future generations are an important theme in climate litigation. Until now, this theme predominantly features in cases against states. Though claims have been filed against corporations that not only serve the interests of the current generation, but also those of future generations, the debate in these cases has focused on the legal grounds and the scope of the corporations' responsibility for climate change. A question arises about the role future generations could or should play in the corporate boardroom.

7 Scope 1: direct emissions from sources that are owned or controlled in full or in part by the organization and/or scope 2: indirect emissions from third-party sources from which the organization has purchased or acquired electricity, steam, or heating for its operations and/or scope 3: all other indirect emissions resulting from activities of the organization, but occurring from GHG sources owned or controlled by third parties.

8 The Hague District Court, *Uniper Benelux et al v the Netherlands,* 20 November 2022, ECLI:NL:RBDHA:2022:12653; The Hague District Court, *RWE v the Netherlands* (30 November 2022, ECLI:NL:RBDHA:2022:12628). The claims were dismissed.

3. Inherent Tensions in Climate Litigation (Against Corporations)

Climate litigation in general has several inherent tensions, such as:

— Climate litigation concerns a global issue that cannot be solved by the defendant alone. This tension is generally solved by the reasoning that the defendant has to "do its part" or "contribute its fair share."
— Climate litigation is often strategic litigation, in other words, litigation pursuing broader interests beyond the parties' rights. The judgments settle the rights and obligations of the parties. They do not end the broader, often complex and contextual political debate about state and/or corporate responsibility for climate change.
— Also: the judgments can raise new and/or unanswered questions, which can lead to new climate cases or can touch on overarching topics out of scope for the judiciary: what is the relationship between the obligations of the responsible actors involved? Is there a hierarchy in responsibilities of the actors involved? How is the combined effort best organized? These are in fact general questions regarding the effectuation of the Paris Agreement.
— Climate cases are generally time consuming, while climate litigation, especially in injunction-based cases, is generally meant to speed up the pace of climate measures. Climate litigation exposes corporations, who have an interest in certainty for their business decisions especially when it comes to long-term investments, to years of uncertainty. The upside is that this allows for further discussion and refinement of the arguments, both in the legal discourse and in society.

Climate litigation concerning damages has additional inherent tensions. Van Zeben raises the question of whether finding corporations financially liable for the disappearance of a species can, and should, be seen as a "success" in the context of climate litigation.[9] This touches on the broader question of what is "best": injunctions directly or indirectly aimed at reduction of GHG emissions, or monetary damages for damage that has occurred. In a recent publication, Spier and Wiegers assert that climate litigation can lead to an unfair distribution of damages as they might not necessarily be awarded to those who suffer most due to climate change and the applicable national legal doctrines can be more or less generous.[10] However, courts have to decide in the case at

9 Chapter 16, van Zeben [PAGE NUMBER TBC].

10 Jaap Spier and Sam Wiegers, 'Help: klimaatverandering. Een zinnig debat en actie: neen, dank u' Ondernemingsrecht (2025) 15.

hand and determine whether the claim of *these* plaintiffs against *this* corporation (or *this* state) can be rewarded under the applicable law. The overreaching question of moral justness of certain claims and fairness of the distribution of the damages is out of scope for the courts.

4. A Few Thoughts on "Success"

There is no clearcut answer to the question of when climate cases against corporations can be considered successful besides that "success" is not limited to the assignment of the claim. Questions arise such as: can climate litigation be considered a success if it brings attention to the issue and stimulates debate in society and in legal doctrine? Can litigation be considered successful if the claim is not assigned because the corporation has adjusted its behavior after the claim was filed? Can a case in which the claim is not assigned but the scope of corporate liability is (further) defined be considered successful? These questions all regard the direct and indirect effects of climate litigation, taking into account the broader aim of the plaintiffs. They often use these lawsuits as a platform to articulate their concerns, set an example for other corporations, contribute to societal debate about corporate responsibility regarding climate change and to put the issue on the political agenda. Interdisciplinary research can shed light on the effects of climate litigation against corporations. By now the corpus of climate cases against corporations probably offers enough examples that can be used as case studies to examine the effects on the defendants, their sector and also on the legislative response to these cases and the influence on the general opinion in society of what can be expected of corporations in relation to climate change.

5. Conclusion

A lot more can be said about the preceding chapters. They give interesting food for thought on the rapidly evolving subject of corporate liability for climate change. The global legal development on this topic continues as we speak: after nearly ten years, the *Lliuya* climate case, brought by a Peruvian farmer against RWE, was dismissed by the German Higher Court of Hamm.[11] The Court asserted that the plaintiff could possibly have a claim against the defendant under § 1004 of the German Civil Code, but concluded that the evidence showed that there was no concrete danger to his property.[12] Also

11 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG)*.

12 *Ibid*. [486].

Milieudefensie has announced that it is launching a new case against Shell demanding that it put a stop to new oil and gas expansion, building forth on the assessment by the Court of Appeal in the Hague that Shell might be obliged to do so.[13] The future will show where the global legal development on corporate liability for climate change will lead. One thing is sure: climate litigation against corporations will continue as long as plaintiffs feel that the policy process implementing the Paris goals is ineffective and that corporations should also contribute their share in reducing GHG emissions.

13 Milieudefensie, 'Why We are Launching a New Climate Case Against Shell' (13 May 2025), building on The Hague Court of Appeal, *Milieudefensie et al v Royal Dutch Shell PLC et al*, 12 November 2024, ECLI:NL:GHDHA:2024:2100.

Part Five
The Successes and Limits of Litigation

Helen Keller and Corina Heri

Chapter 19: Synthesis

1. Preliminary Remarks

The preceding chapters have discussed various options and methods for reparation for climate change, as well as the gradations of success to which this type of litigation can lead. Relating their analyses to the model scenarios set out at the beginning of the volume,[1] the contributors have examined litigation efforts in a variety of legal areas – from corporate cases, to the work of human rights courts, to advisory proceedings under general international law, to domestic constitutional law proceedings. In doing so, they have mapped the difficulties of ensuring reparation for climate-related impacts, within but also beyond international climate law's loss and damage framework. They have shown that different adjudicators take different approaches to reparations, ranging from declaratory judgments to hands-on remedial orders, and that the impact of the corresponding rulings can vary widely across contexts and systems.

The use of the model scenarios, while by no means covering every type of potential climate case, was intended to provide common ground, allowing authors to converse with each other across different fields of law and different disciplinary backgrounds. Authors were encouraged to write about the strength of arguments or present critiques of approaches taken by the litigants in (predominantly) hypothetical scenarios. Our attempt to encourage the authors to engage with the model scenarios and analyze them using approaches from their specific field of expertise was only partially successful, in the sense that some model scenarios attracted more engagement than others. This reflects the draw of recent practice, and the fact that these scenarios approximate major recent developments in climate litigation. For example, scenario 1, which is based on the *KlimaSeniorinnen* case at the European Court of Human Rights (ECtHR),[2] received more attention than scenario 4, which concerns a hypothetical Communication before the Committee on Economic, Social and Cultural Rights. This is to some extent attributable to the fact that the ECtHR's high-profile judgment in *KlimaSeniorinnen* was issued

1 See the introductory chapter on model scenarios.

2 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* App No 53600/20 (ECtHR).

mere days before the conference that gave rise to the present volume, coupled with the attention directed at this Court in light of its ability to issue binding judgments.

Looking towards the future of climate litigation, it is certainly possible that cases reflecting the other, hypothetical model scenarios might arise. For some scenarios, related real-life cases even arose during the writing of this book.[3] In any case, discussions concerning these scenarios can be used as heuristic tools to facilitate further developments in compensation models. This could help to further develop the available mechanisms, drawing inspiration for efforts both through and beyond the current Loss and Damage funding framework.[4] For instance, fund solutions such as the one that exists for oil pollution damage at sea in the context of international shipping[5] would also be conceivable for particular types of climate-related damage. In addition, we are convinced that, in the future, courts will not only rule on climate cases concerning the improvement of climate protection measures, but that there will also be an increasing number of legal proceedings aimed at restricting or reshaping climate protection measures, or in other words just transition cases.[6] Since climate protection measures tend to involve restrictions on other rights (property rights, personal freedoms, land use rights, etc.), these lawsuits will also keep courts busy.

Litigation *strategies* for securing an award of climate-related damages necessarily vary from jurisdiction to jurisdiction. In terms of *arguments,* however, it is safe to generalize that courts will award damages where it is established that there is quantifiable damage, an injured party, a responsible perpetrator and culpable conduct, which is causally linked to the damage incurred. Admittedly, in the area of civil liability, deviations from this model are possible. For example, operators of certain hazardous facilities may face strict liability for damage resulting from their activities, ie liability regardless of fault.[7] In most instances of climate litigation, however, courts and litigants face several

3 Eg scenario 3, given the *Swiss Farmers Case* (Swiss Federal Administrative Court, *Uniterre et al v Swiss Department of the Environment (Swiss Farmers Case),* filed 23 October 2024 ([pending]).

4 UNFCCC COP, 'Decision 6/CP.29: Arrange,ments for Responding to Loss and Damage' (27 March 2025) UN Doc. FCCC/CP/2024/11/Add.1. See also chapter 12, Nordlander.

5 International Maritime Organization, International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (adopted 18 December 1971, superseded by 1992 Protocol, adopted 27 November 1992, entered into force 30 May 1996, 1110 UNTS 57).

6 Annalisa Savaresi, Joana Setzer, et al, 'Conceptualizing Just Transition Litigation' (2024) 7 Nature Sustainability 1379.

7 See chapter 17, Hinteregger, 346, discussing no-fault liability.

major challenges when it comes to damages awards: GHG emissions were and are (at least in many areas of life) not regulated strictly in the same way as traditionally hazardous pollutants typically are, and their impacts are global and accumulative instead of localized. Climate change cannot be attributed to a single causal event; rather, we are all "to blame" for it (albeit in globally, regionally and interpersonally unequal ways). Since climate change is intergenerational, multifactorial and transnational, courts can only find solutions if they are creative and, for example, interpret standards of care and due diligence in light of the climate crisis or reject arguments that a given polluter is only contributing inconsequentially, in the sense of a "drop in the ocean."

Against the background of the rich and varied chapters contained in this volume, which discuss the mechanisms, methods and meaning of reparations for climate change, the present synthesis emphasizes two overarching issues which, together, represent two main areas requiring further attention going forward. The first is the question of legitimacy, concerning both institutions as a whole and applicants' perceptions of (procedural) justice within a given set of proceedings. The second, and equally important issue, concerns temporality. This synthesis chapter concludes by looking to a jurisdiction that did not receive particular attention within the remainder of the present volume, but which has delivered promising rulings on climate-related harms and reparations in recent years, namely Brazil. Examining recent developments in Brazilian climate litigation, the synthesis chapter concludes that while climate-related reparations through litigation are by no means self-evident, barriers to climate litigation can be overcome. This will lead us to an outlook at the international level. In an era where climate law issues are being brought before regional human rights courts, the International Tribunal for the Law of the Sea (ITLOS) and the International Court of Justice (ICJ), it is pertinent to ask what we can expect from the rulings and opinions of these bodies concerning the issue of damages.

2. Legitimacy of Institutions and Perceptions of (Procedural) Justice

a. Potential of the Judicial System to Redress Climate Change

In the model scenarios, we have assumed that the courts seized can award compensation for climate-related damage to a certain extent. The chapters have shown how variable prospects for a favorable remedial award for plaintiffs depend on the court and legal system in question. Prospects are shaped by substantive and procedural law at national and international level. Rules

of evidence also play an important role – flexibility in adjusting the burden of proof and the standard of the required proof of damage based on special features of climate litigation is highly consequential. Finally, courts have different traditions of awarding damages. While the Anglo-American world is used to spectacular amounts of (punitive) damages being awarded, particularly in class action proceedings, European courts are much more cautious, frequently lacking a tradition of punitive damages awards. The practice of the ECtHR on Art. 41 ECHR likewise indicates that the award of damages and satisfaction is rather restrained in the European context, although exceptions are of course possible, especially as concerns demonstrated pecuniary damages.[8] Domestically, high damages could result from civil or commercial liability for climate damage; however, plaintiffs are confronted with other hurdles there – for example, difficulties in proving causation or the existence of concrete emissions limits for corporate actors.[9]

This brings us to the question of *what role* national and international courts should play in the compensation and reparation of climate-related damage. We start from the following premises: The impacts of climate change – and related damage – will become more frequent and more evident in the coming years. This includes the impacts of both gradual and sudden-onset events. Incidents of extreme weather events as well as drought, crop failures and the growing risk of flooding will become apparent both nationally and transnationally. In certain parts of the world, the financial damage will assume gigantic proportions. Extreme weather events will hit people, communities and countries hard, resulting in non-economic damage to individuals, communities and the environment itself.[10] The damage will also be felt economically, in terms of damage eg to income and physical assets and even, for some small island states, their whole territories.[11] This understanding of damage is broad, and intentionally so: by supporting critical legal engagement, the present volume goes beyond the boundaries of current conceptualizations of "Loss and Damage" within international climate negotiations.[12]

8 For example in the *Yukos* case, where the ECtHR awarded over EUR 1.8 billion in pecuniary damages concerning State measures that led to the demise of a major corporation (*OAO Neftyanaya Kompaniya Yukos v Russia* (Just Satisfaction) App no 14902/04 (ECtHR)).

9 See, for more on this, chapter 16, van Zeben, 325, 328-329.

10 For an overview, see UNFCCC, 'Non-economic Losses: Featuring Loss of Territory and Habitability, Ecosystem Services and Biodiversity, and Cultural Heritage' (2024).

11 Michael Oppenheimer et al, '2019: Sea Level Rise and Implications for Low-Lying Islands, Coasts and Communities' in Hans-Otto Pörtner et al (eds), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* (CUP 2019) 321, 375.

12 UNFCCC COP, 'Decision 3/CP.18: Approaches to Address Loss and Damage Associated with Climate Change Impacts in Developing Countries that are Particularly Vulnerable

b. Landslide in Blatten as an Example

To illustrate this, we present the figures from an extreme event that hit close to home for us. We refer to the landslide in Blatten, a village in the valley of Lötschental, Switzerland, that took place in 2025. This event was well documented and the manner in which it was handled also sheds light on the response capacity of an economically and politically stable, highly developed country if there is sufficient political will to mobilize the required resources.

The Blatten landslide occurred on 28 May 2025. Fortunately, residents and livestock were evacuated from the village some days earlier. The event was preceded by several rockfalls and landslides in the region. The debris and ice masses from the event buried 130 houses in Blatten as well as the local church, destroying around 90 percent of the village. An initial estimate by Swiss private insurers puts the insured losses at around CHF 320 million.[13] Most of this relates to buildings and household contents, with many cases involving total losses. A total of around CHF 260 million was lost in destroyed property and household contents, while a further CHF 60 million was lost due to business interruptions and damage to motor vehicles.

This damage is enormous, even for a developed country. Upon closer examination, however, it appears that the impact of the landslide was limited by several factors. Firstly, mountain areas in Switzerland are closely monitored. These geological, seismic and meteorological measurements require a complex infrastructure. It was only because of this infrastructure that the authorities were able to detect the impending landslide and evacuate the village. Thanks to this data and the preventive measures taken by the authorities, all but one casualty was avoided.[14] Secondly, the federal and cantonal authorities were quick to assuage the evacuees' concerns about compensation payments, with the federal Parliament authorizing immediate disaster relief funding.[15] Meanwhile, insurance companies promised to provide "pragmatic and unbureaucratic" assistance.[16] This attitude reassured the displaced population. At the same time, it is difficult to predict whether this same generous

to the Adverse Effects of Climate Change to Enhance Adaptive Capacity' (28 February 2013) UN Doc. FCCC/CP/2012/8/Add.1.

13 Schweizer Radio und Fernsehen (SRF), 'VS: Die Schäden in Blatten werden auf 320 Millionen geschätzt' (*SRF,* 17 June 2025).

14 The landslide caused the death of one local resident.

15 Swiss Parliament, Federal Law on Emergency Aid for Blatten, 20 June 2025, 616.2.

16 Swiss Insurance Association, 'Schweizer Privatversicherer stehen der Bevölkerung in Blatten pragmatisch und unbürokratisch bei' (27 June 2025), translation from the original German by the authors.

attitude will prevail in relation to future disasters, especially if they occur more frequently, or how victims abroad would fare under similar circumstances. For example, during the ICJ's 2024 climate hearings,[17] Barbados argued that the progression of climate change will render certain types of losses prohibitively expensive and therefore basically impossible to insure, economically decimating climate-vulnerable countries.[18] A third limiting factor here was the fact that insurance coverage against natural hazards is high in Switzerland. In 22 of 26 cantons, building insurance is mandatory by law. In the canton of Wallis, where the Blatten landslide occurred, insurance is voluntary, but coverage nevertheless remains high.[19] Therefore, damage from this landslide was almost entirely covered by private insurers.

This example also allows for reflection on the *kind* of damage redressed. We have characterized the damage in question here as "enormous." However, it needs to be emphasized that the quantified damage figure mentioned above is an underestimation. That is because the figures in question concern only damage to property, and not the damage caused to the natural landscape. A swathe of mountain forest was destroyed by the landslide, with the Army called in to remove trees that had been torn down by falling ice and rubble.[20] Areas such as two-kilometer-long river landscape along the river Lonza, which was designated as a floodplain of national importance,[21] and the meadow above Blatten, which was used recreationally, were also destroyed. All this damage is difficult to quantify and is not included in the above calculation.

Last but not least, the affected population suffered difficult-to-quantify non-economic loss and damage.[22] Losing one's home means more than just losing a house and the surrounding land. The evacuees had to leave behind many of their cherished possessions. Cultural assets such as the church and

17 Request for Advisory Opinion on the Obligations of States in Respect of Climate Change, transmitted to the Court pursuant to UNGA Res 77/276 (29 March 2023) UN Doc A/RES/77/276.

18 Written Statement of Barbados, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (22 March 2024) para 5.

19 Manuel Rentsch, 'Wallis ohne Versicherungspflicht: Die Privaten sind gefordert' (*SRF*, 31 May 2025).

20 Swiss Armed Forces, 'Seeräumung in Blatten mit Unterstützung der Armee' (20 June 2025).

21 Swiss Federal Inventory of Alluvial Zones of National Importance, item nr. VS-134 (Tännmattu).

22 Adelle Thomas and Lisa Benjamin, 'Non-economic Loss and Damage: Lessons from Displacement in the Caribbean', in Morten Broberg and Beatriz Martinez Romera (eds), *The Third Pillar of International Climate Change Policy: On "Loss and Damage" after the Paris Agreement* (Routledge 2021) 31.

the graves of relatives have been irreparably destroyed, and a close-knit local community has been displaced and scattered. Whether, where and in what form the village of Blatten can be rebuilt are still open questions at this stage (end of June 2025).

This example also highlights how, despite our growing understanding of the relationship between global warming and disaster risks, the former complicates the predictability of the latter events. Before this natural disaster, Blatten was not designated as a risk area on the Canton of Wallis hazard map. An area is considered a risk area if a natural disaster could occur there at least once in 300 years.[23] A mountain and glacier collapse such as the one that occurred on 28 May 2025 was considered an event with a significantly lower probability of occurrence. Experts disagree about the *extent* to which climate change and the consequent shrinking of permafrost contributed to this disaster.[24] While it will probably remain difficult to quantify the exact role of climate change in this event, it seems increasingly certain that the thawing of permafrost and changes in rainfall will lead to an increase in the frequency of such extreme events.[25]

It is currently unclear whether affected persons will initiate litigation against national authorities or insurers in connection with the landslide in Blatten. The generous financial compensation offered to the affected persons and the Swiss population's traditionally low propensity to take legal action in such constellations are likely to speak against it. However, reparations-related issues such as those highlighted by this disaster and its aftermath are sure to concern courts across different jurisdictions and areas of law in the future.

c. Competition for Increasingly Scarce Resources

Since we are living in a time of *multi-present global crises* in which state resources are scarce, rich and poor countries alike will increasingly be faced with dilemmas: Should we invest in protection against the negative effects of climate change, or arm ourselves? Are we preparing for the next pandemic,

23 Swiss Federal Department for the Environment, 'Implementation Aid for Hazard Assessment of Gravitational Natural Hazards under the Hydraulic Engineering and Forestry Ordinance' (2025), 49.

24 Mylène Jacquemart, 'Glaziologin über die dramatischen Folgen des Bergsturzes in Blatten' (*Neue Zürcher Zeitung*, 31 May 2025); Wilfried Haeberli, 'Die Schwächung der Berge ist irreversibel' (*WOZ - Die Wochenzeitung*, 5 June 2025); Jan Beutel, '"Das Tauen und Schmelzen wird unweigerlich weitergehen"' (Universität Innsbruck, 29 May 2025).

25 Lennart Olsson et al, 'Land Degradation', in Priyadarshi R Shukla et al (eds), *Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems* (CUP 2019), 345.

or do we want to promote climate-neutral energy? Should we invest in biodiversity, or take measures to adapt to climate disasters? Of course, these choices are not always binary: for example, avoiding climate breakdown simultaneously helps to avoid the resulting threats to international peace and security, and the IPCC has noted that climate change drives a rise in zoonotic diseases, meaning that climate action can also contribute to pandemic management.[26] Nevertheless, countries are faced with the question of how they should allocate scarce resources in light of necessary trade-offs. This decision is often of a political nature, and the corresponding decisions are easier to make at the domestic rather than at the international level, where consensus has been demonstrably difficult to achieve. Under these circumstances, poorer states are hit harder than richer ones. This is true in relation to many situations of global crisis. In the climate context, however, there is a particularly bitter aftertaste: those countries that have historically emitted the least GHG will be hit hardest by climate change.[27]

In democratic states, it is widely accepted that fundamental decisions on major financial expenditures should be made by the legislature, given the democratic legitimacy enjoyed by the legislative branch and the deliberative nature of its decision-making process. In this context, it is no secret that the protection of global goods that are threatened by creeping destruction find it hard to compete for priority as a budgetary issue. Judges in different jurisdictions have noted that political officeholders tend to focus on re-election and therefore find it difficult to implement medium and long-term measures that would be necessary to protect the environment and the climate.[28] The relatively short timeframe of the decision-making process, on the one hand, and the longer time period over which solutions need to be implemented, on the other, play a supporting and sometimes dramatic role. In other words, the temporal urgency of a short-term situation, like armed conflict, a pandemic or a financial crisis, can drastically overshadow the need to combat climate change.[29] Proposals for stringent legal obligations in the field of climate protection are likely

26 Hans-Otto Pörtner, et al (eds.), *Climate Change 2022: Impacts, Adaptation and Vulnerability: Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP 2022), 51.

27 Diego Andreucci and Christos Zografos, 'Between Improvement and Sacrifice: Othering and the (Bio)Political Ecology of Climate Change' (2022) 92 Political Geography 102512.

28 BVerfGE 157, 30 (24 March 2021) *(Neubauer et al v Germany)* [205]; *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* (n 2) [420].

29 For a detailed discussion on intertemporal policy conflicts and how to address the problem, see Jonathan Boston, 'Assessing the Options for Combatting Democratic Myopia and Safeguarding Long-term Interests' (2021) 125 Futures 102668.

to be rejected for the reason that they would be too disruptive to legal regimes designed with other issues in mind.[30] At the national level, the disruptive nature of climate change regulation is all the more visible.[31]

Climate lawsuits typically arise under these conditions, which simultaneously illustrate the difficulty faced by the courts in formulating an appropriate and legitimate response. Even in a legal environment where it would be possible to award large amounts of damages, the question arises as to whether the courts *should* do so, or whether this would expose them to the criticism of being activist.[32] In view of the ongoing multiple planetary crises[33] and the need to set priorities, this accusation appears justified at first glance. However, it glosses over the principle that it is precisely the task of courts to protect other legally enshrined interests, such as for example human rights obligations or tort law duties of care. On closer inspection, courts in this situation are doing exactly what they were created for: applying the law, dispensing justice in a disputed area and awarding compensation for damage.

d. The (Limited) Role for Courts

Even if we assume in principle in this volume that the courts have an important and supporting role to play when it comes to providing reparation for climate change, three questions arise. First, are courts equipped for this task? Second, would courts break down at a certain point due to the scale of this task? And third, how great is the effect that climate judgments can have on combating the climate crisis? The various chapters provide differentiated answers to the first and third questions. We see a disparate picture of damage calculations depending on the area of law at the national level (civil, commercial, insurance law or state liability) or at the international level (reparations as a consequence of state responsibility for breaches of [customary] international law or human rights law). We are a long way from having uniform standards for calculating damages, and in our view there is a great need for

30 For example, van Asselt argues that "[i]nternational investment law, by contrast [to international climate change law], seems to point states to the risks of moving away from fossil fuel production: if they choose to do so, they may well be required to pay compensation to investors in case of a dispute" (Harro van Asselt, 'Governing Fossil Fuel Production in the Age of Climate Disruption: Towards an International Law of "Leaving it in the Ground"' (2021) 9 Earth System Governance 1).

31 Elizabeth Fisher, Eloise Scotford and Emily Barritt, 'The Legally Disruptive Nature of Climate Change' (2017) 80 Modern Law Review 173.

32 See for example, the Swiss Parliament's declaration that the ECtHR has exceeded interpretive limits; 'Nationalrat sieht Schweizer Demokratie bei Klima-Urteil missachtet' (Parlament.ch, 12 June 2024).

33 Council of Europe, 'Reykjavík Declaration: United Around Our Values' (17 May 2023), Appendix V.

action here. The courts would be well served by a *code of conduct* or best practices to record and quantify climate-related damage.

Various authors within this volume comment on the third question when they discuss the meaning of "success" in climate litigation. A persuasive case has been made to the effect that success, broadly understood, does not hinge on plaintiffs' victory or an award of damages. Quantifying all aspects of success is empirically nearly impossible, of course. But even a case that the plaintiffs lose at first glance can be understood as a minor success, for example because the court makes a groundbreaking interpretation that can also lead to clarifying obligations or inform plaintiff victories in subsequent litigation.[34] Success is often a result of incremental legal developments in case law and can emerge over time: for example, a case's level of success or impact may be perceived differently twenty years after the judgment is handed down, as opposed to five years later.[35] The perception of a groundbreaking judgment will vary depending on its effective implementation, the outcome of follow-up cases and the long-term impact of the case in its own and other jurisdictions.[36] In this regard, there is a great need for research about the ramifications of climate rulings. This volume is only a first step in this direction.

At this point, the second question in particular should be addressed. The *limits of a court's power* can be illustrated with the following example. Let us assume, as set out in scenarios 6 and 7, that a court is confronted with an interstate case concerning serious damage that is causally linked with climate change. This court then awards the claimant state eg 50% of the amount of damage claimed as compensation, the payment of which is to be spread over the next five years. The compensation payable per year would correspond for example to 5% of GDP, ie more than most Western countries currently spend on armaments. Would such a ruling be implemented? Would it lead to such strong resistance in the defendant state that disregard of the judgment would be supported by a broad public? The open disregard of court rulings is a serious and real problem in a political environment in which constitutional structures and the rule of law are increasingly eroding. This brings us to the question of whether compensation for damage caused by the climate crisis should be enforced through the courts at all. Without wishing to be pessimistic, it is essential to deal with a situation in which the legal – and therefore also the judicial – options for compensating for climate damage are *no longer effective* because *the scale of the*

34 Eg UN Committee on the Rights of the Child, *Sacchi et al v Argentina et al*, 22 September 2021, UN Doc CRC/C/88/D/104/2019 et al.

35 See chapter 7, Williamson et al, 156–157.

36 See for the rather difficult implementation of the *KlimaSeniorinnen* (n 2) judgment chapter 8, Blattner.

damage exceeds the economic capacity of the respondent state to compensate. The world has experienced similar situations in recent years: examples could include the economic ramifications of the COVID-19 pandemic, financial crises, or bailouts to major banks such as Credit Suisse. States may simply not have the means to compensate for these harms. Some states have accordingly argued for debt forgiveness in order to free up funds to deal with climate change.[37] Others, as mentioned above in respect of Barbados, have noted that climate change will render certain types of losses uninsurable and therefore irrecoverable in vulnerable states.[38] Barbados's argument, by noting the limitations of climate reparation, underscores the importance of highly ambitious mitigation and adaptation measures and the provision of support to vulnerable countries.

Where mitigation and adaptation fail to avoid climate-related impacts, states will likely resort to emergency law and state-sponsored insurance solutions. It could very well be that resorting to such solutions in certain contexts will prove necessary because the traditional compensation route would overburden the parties involved. At the same time, failing to avoid and prepare for impacts and comply with preventative, due diligence and protective obligations means accepting irreparable harm, which in turn can potentially destabilize democratic resilience by placing democratic institutions and their legitimacy under stress.[39] In this regard, it seems to us that neither researchers nor the international community have metabolized the lessons about dealing with major systemic shocks that stood to be learned from eg the COVID-19 pandemic. Here, too, we see a great need for further research.

e. Temporal Perspectives

A second overarching topic concerns temporal perspectives on climate change and climate litigation.[40] The climate crisis is characterized by three features: it is global, intergenerational and accumulative. These three attributes often also apply to other environmental problems, eg the threat to the ozone layer, the preservation of biodiversity or the handling of PFAS (per- and polyfluoroalkyl

37 Written Statement of Colombia, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (11 March 2024) para 4.15; Written Statement of Kenya, Obligations of States in respect of Climate Change (Request for an Advisory Opinion) (22 March 2024) para 6.112.

38 Obligations of States in respect of Climate Change (Advisory Opinion), Verbatim Record CR 2024/36, 2 December 2024, ICJ, 76–77.

39 Austin Beacham, Emilie M. Hafner-Burton and Christina J. Schneider, 'Climate Change, Political Conflict, and Democratic Resilience' (2024), UC San Diego: University of California Institute on Global Conflict and Cooperation working paper.

40 See Rémi Fuhrman and Melissa Schweizer, 'Ending the Past: International Law, Intertemporality, and Reparations for Past Wrongs' (2025) 26 German Law Journal 1-21.

substances). In the case of the climate, they apply more acutely because many climate-damaging processes have been promoted over decades. The global economy had (and largely still has) an interest in continuing the use of fossil fuels. For decades, the links between GHG emissions (from the combustion of fossil fuels) and climate change were denied – which highlights the problematic role of climate research sponsored by private actors.[41] As a result, we have lost valuable decades in the transition to a carbon-neutral economy. This highlights the serious consequences of a lack of independence in research. After all, using fossil fuels adds convenience to many areas of life, so there is little incentive to reduce it. The prime example of this is air travel. As Arden Rowell explained in chapter 3, here we see a phenomenon that can be described as social acceptance or deliberate ignorance of climate-damaging behavior. Although we all know that flying is highly damaging to the environment and climate, we do it anyway; we play down the damage it causes, emphasize its centrality to private or economic interests, or regard it as unavoidable. The harsh reality is impossible to ignore: we live in a "fossil modernity."[42] Transitioning to a climate-neutral economy is therefore not easy and the efforts to do so are often argued to involve excessive costs. The accumulative effect also raises difficult questions. GHG emissions accumulate in the atmosphere, with the carbon-intensive industrial activity of the 20th century laying the foundations for the high level of CO_2 concentration in today's atmosphere. Added to this are current emissions and the destruction of carbon sinks (eg through deforestation). Accumulation is linked to global and intergenerational injustices: future generations will bear the burden of previous generations' emissions, much like the global South suffers from the historical emissions caused primarily by the global North. These economic, scientific, historical and psychological aspects are also important in a legal context. First of all, these points are central to the question of who has committed injustice, breached duties of diligence or disregarded human rights, and with what actions or omissions.

The following considerations illustrate how important time is for the assessment of legal questions. Which actors were expected to know that they

41 For a discussion of narratives funded and advanced by fossil fuel lobbies, see eg Benjamin Franta, 'Early Oil Industry Disinformation on Global Warming' (2021) 30(4) Environmental Politics 663; Antoine De Spiegeleir, 'Climate Change Storytelling and Masterplots at the European Court of Human Rights' (2024) 19(1) *Law and Humanities* 93, footnote 23, discussing Carla Schaeperkoetter, *Petro Pete's Big Bad Dream* (Oklahoma Energy Resources Board 2016). See also for the "free-market narrative" Naomi Oreskes and Erik M Conway, *The Big Myth, How American Business Taught Us to Loathe Government and Love the Free Market* (Bloomsbury Press 2023) 388–390.

42 Andreas Folkers, 'Fossil Modernity: The Materiality of Acceleration, Slow Violence, and Ecological Futures' (2021) 30(2) Time & Society 223.

were acting in a climate-damaging way, starting from what point in time? At what point in time do we assume a degree of scientific certainty about climate change, meaning that the negative effect of GHG emissions could no longer be denied, and legal responsibility began?[43] And: what of intergenerational considerations? Framing mitigation in terms of how we should use up our "remaining carbon budget" allows us to see that each additional ton of CO_2 we deem permissible to emit comes at great expense to future generations, interfering in advance with their fundamental freedoms.[44]

The time dimension is also central to calculating the damage caused, not merely because reparations would only be owed for damage linked with *wrongful* emissions, but also because of how time controls the framing of the gravity of the wrongful act, the importance of the obligation breached and the degree of willful intent.[45] Would a court be brave enough and methodologically equipped to comment on future damage, and what kinds of reparations would it then order, eg financial awards, legislative changes, or technology-sharing obligations? Thorny questions also arise within climate policy about trade-offs to be made between climate-related measures: what if local adaptation is prioritized over mitigation because of concerns about other states' recalcitrance regarding climate mitigation? How exactly can a state, especially a powerful one, be prevented from acting in self-interest and abandoning its mitigation commitments?[46] And what should courts in other jurisdictions make of uncertainties introduced, for instance, by the US' decision to cease implementation of its NDC under the Paris Agreement and contributions to the Green Climate Fund?

For the courts, many of these issues take the form of questions of evidence. The parties will rely on various expert opinions. Engagement with scientific knowledge in judicial decision-making processes is nothing new. However, this inclusion has taken on a new dimension in climate lawsuits. The dialogue between politics and science is institutionalized in the IPCC.[47] Given the high level of scientific and political consensus around the findings

43 Oberlandesgericht Hamm, 28 May 2025, I-5 U 15/17 *(Luciano Lliuya v RWE AG)*.

44 *Neubauer et al* (n 28) [184]-[188].

45 Phoebe Okowa, *State Responsibility for Transboundary Air Pollution in International Law* (OUP 2000), 209.

46 The White House, 'Putting America First in International Environmental Agreements' (20 January 2025).

47 By this, we mean to suggest that the IPCC's findings are always policy-relevant and based on the political determinations made at the international level. For instance, even though there is nothing scientifically special about the 2°C and 1.5°C temperature limits, which were set as political targets, the IPCC offers evaluations of different mitigation pathways that correspond to staying within these politically determined limits.

made in these reports, the courts are well advised not to contradict them, and so far, we know of no recent national or international climate case in which the court has gone toe-to-toe with the IPCC.[48] Instead, the courts generally rely on the expertise of the IPCC when it comes to understanding the physical science basis and impacts of climate change.[49] The manner of engagement with experts, however, can trigger pushback: for example, the ICJ's decision to hold a closed hearing with IPCC experts in preparation for its advisory opinion proceedings led to concerns about "phantom experts."[50] Meanwhile, the ECtHR's reluctance to use its powers to consult scientific experts in environmental cases, including in the *KlimaSeniorinnen* case, has also received criticism.[51]

Time plays a role here: the current status of the latest IPCC report is always a time-bound synthesis of the available data on climate change. However, its forecasts are subject to uncertainties, its findings are expressed in ranges that encompass several different possible scenarios, and the state of the underlying science can change within a few years. Notably, however, this usually results in findings that the extent and magnitude of climate change impacts are even more severe and urgent than previously estimated, and not less so.[52] Still, without normative determinations about historical responsibility and engagement with expert evidence on individual states' climate measures, climate science from the IPCC cannot help courts with all of the complexity arising in climate cases.

Finally, the temporal dimension of climate damage litigation raises difficult questions of justice. The law can only make amends for unjust, reprehensible or unlawful acts to a modest extent. We know this from dealing with the past in cases of great injustice, such as the commission of genocide or serious war crimes, colonialism and apartheid. No court judgment, not even the individual criminal conviction of wrongdoers, can undo disasters and the

48 However, there are certainly cases where courts consider climate action less urgent than the IPCC does (see eg the domestic proceedings that proceeded the *KlimaSeniorinnen* case [n 2], including Swiss Federal Supreme Court, Judgment 1C_37/2019, 5 May 2020 [*Verein KlimaSeniorinnen Schweiz et al v Federal Department of the Environment, Transport, Energy and Communications*]).

49 Supreme Court of the Netherlands, *Urgenda Foundation v State of the Netherlands*, 13 January 2020, ECLI:NL:HR:2019:2007 [2.1], [4.4]-[4.5], [7.2.1]; *Neubauer et al* (n 28) [16]-[19]; *Verein KlimaSeniorinnen Schweiz and Others* (n 2) [104]-[120].

50 Renatus Otto Franz Derler, 'Experts Fantômes at the ICJ' (*EJIL:Talk!*, 2 December 2024); Michael Becker and Cecily Rose, 'The Return of Not-Quite "Phantom Experts"? The ICJ Meets with IPCC Scientists' (*Verfassungsblog*, 3 December 2024).

51 Helen Keller and Pranav Ganesan, 'The Use of Scientific Experts in Environmental Cases Before the European Court of Human Rights' (2024) 73 International & Comparative Law Quarterly 997, 1015.

52 Hoesung Lee and José Romero (eds), *Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC 2023) 41, 46.

injustices associated with them. The legal judgment obtained is always only a partial solution to a larger social reparation or transitional justice process, which in many situations will continue for generations. This recognition is not intended to deny the role of law and justice in the reparation process: climate change is also a legal problem whose solutions can be judicially enforced. However, expectations of judgments must not be exaggerated. Climate cases will be confronted with problems of time, causation, attribution of (shared) responsibility and the irreversibility of certain climate processes. Despite all these difficulties, the successes described in this volume give us cause for optimism. Climate litigation can bring about attention, legal clarity, more just solutions and reparation, meaning that it can be expected to continue contributing to efforts to tackle the global climate crisis.

3. The Way Forward – A Look at Brazil and the International Sphere

a. The Example of Brazil

i. Why Brazil?

On their own, courts may not be the saviors of the climate. But recent cases demonstrate that they play an important role in the overall societal process of tackling the climate crisis, both nationally and internationally. At the same time, courts can only assume this role if they are aware of their sensitive position within the legal order and are prepared to take a creative approach to the multidimensional issues raised by climate litigation. This means, resuming the discussion above, anticipating and facing challenges to their legitimacy.

Not every judicial system faces the same questions of legitimacy. An international court such as the ICJ or the Inter-American Court of Human Rights faces different legitimacy challenges than, for example, the German Federal Constitutional Court, which is deeply embedded in a domestic legal order. The applicable law and the powers of the respective institutions can also differ. Consideration of legitimacy issues must, in other words, be contextual. Still, some generalizations are possible. In this regard, we believe that it is worthwhile to take a look at recent developments in Brazil. Here, large parts of the Amazon – one of the world's most important CO_2 sinks – are being illegally deforested. In 2023, there was a dramatic reduction in deforestation rates, but fires continue to contribute to significant losses of natural vegetation.[53] The

53 Guilherme Mataveli et al, 'Deforestation Falls but Rise of Wildfires Continues Degrading Brazilian Amazon Forests' (2024) 30 Global Change Biology e17202.

story of deforestation of the Amazon since the turn of the century has been a complicated one, with rates peaking in the 1990s and early 2000s, then declining briefly before rising again in 2012 and onwards.[54] This, along with the weakening of environmental regulations by the Brazilian government,[55] has led to significant climate and environmental litigation,[56] including even a (now dormant) communication to the international Criminal Court (ICC) concerning the alleged crimes against humanity committed by then-President Jair Bolsonaro.[57]

As a result of this body of litigation, a progressive body of environmental and climate case law has emerged in Brazil. The next section's summary of this case law provides a source of inspiration for the next generations of climate litigation.

ii. Foundations in Brazilian Law

Brazil recognizes a human right to an ecologically balanced environment in Article 225 of its Constitution. The Federal Supreme Court has interpreted this provision to include a right to a balanced climate, which applies to both current and future generations.[58] Martins da Rosa refers to this scheme as an iteration of climate constitutionalism.[59] In this context, two landmark rulings by the Federal Supreme Court are particularly noteworthy: *PSB et al v Brazil on the Climate Fund*[60] and *PSB et al v Brazil on the Amazon Fund*.[61]

54 Antonio Herman Benjamin and Nicholas Bryner, 'Brazil' in Emma Lees and Jorge E. Viñuales (eds), *The Oxford Handbook of Comparative Environmental Law* (OUP 2019) 82, 104-106.

55 Roberto Goulart Menezes and Ricardo Barbosa Jr. 'Environmental Governance under Bolsonaro: Dismantling Institutions, Curtailing Participation, Delegitimising Opposition' (2021) 15 *Zeitschrift für vergleichende Politikwissenschaft* 229, 230-232.

56 Danielle de Andrade Moreira, 'A Panorama of Climate Litigation in Brazil' in Maria Antonia Tigre, Armando Rocha, and Délton Winter de Carvalho (eds), *Brazil and Climate Justice* (Brill 2025) 47, 50.

57 Allrise, *Communication under Article 15 of the Rome Statute of the ICC regarding the Commission of Crimes Against Humanity against Environmental Dependents and Defenders in the Brazilian Legal Amazon from January 2019 to present, perpetrated by Brazilian President Jair Messias Bolsonaro and certain former and current principal actors of his administration* (12 October 2021).

58 Danielle de Andrade Moreira, *Litigância climática no Brasil: argumentos jurídicos para a inserção da variável climática no licenciamento ambiental* (Editora PUC-Rio 2021), 29.

59 Rafaela Martins da Rosa, 'Climate Damage and Tort Law in Brazilian Climate Litigation' in Maria Antonia Tigre, Armando Rocha and Délton Winter de Carvalho (eds), *Brazil and Climate Justice* (Brill 2025) 360, 362.

60 *ADPF 708 (Fundo Clima)* (Supremo Tribunal Federal, 7 January 2022) *(PSB et al v Brazil [on Climate Fund])*.

61 *ADO 59 (Fundo Amazônia)* (Supremo Tribunal Federal, 16 August 2023) *(PSB et al v Brazil [on Amazon Fund])*.

In these cases, the Brazilian Supreme Court was called upon to review the government's failure (reluctance) to mobilize resources under the Climate Fund and acts of dismantling governance mechanisms for the operationalization of the Amazon Fund, respectively. Essentially, both cases were about the government's conduct in paralyzing the operation of these funds. In both cases, the Supreme Court found this conduct to be in violation of Article 225 of the Constitution. In these rulings, the Federal Supreme Court recognized climate protection as an integral part of environmental protection, which it understands as a human rights entitlement. Based on the recognition that the protection of the climate system is included in the content of the fundamental right to a healthy environment, the climate system is subject to constitutional protection in Brazil. As a result, the Court described the Paris Agreement as a human rights treaty, which is a highly influential development given that – as Maria Antonia Tigre and Joana Setzer have noted – it sets the stage for invalidating Brazilian domestic legislation that contradicts the Paris Agreement.[62] What is particularly interesting is that a violation or a threat thereof triggers civil liability, because the civil liability regime in matters of environmental damage in Brazil is constitutional in scope.[63] Article 225(3) of the Brazilian Constitution enshrines triple responsibility (civil, criminal and administrative) for all infractors whose conduct harms the environment.[64] The fact that the Brazilian Constitution serves as the basis for imposition of both civil and criminal liability is a distinctive aspect of the Brazilian legal system.[65]

iii. Solutions for Notorious Litigation Hurdles

The Brazilian case law has set important precedents that, some have argued, can support litigation seeking to advance climate justice.[66] Aside from cases where the litigant enforces the constitutional right to an ecologically balanced environment in its individual or collective dimension, Martins da Rosa theorizes that there is potential for climate litigation which seeks to hold "polluters" of the climate system, ie emitters of large quantities of GHGs,[67] liable for damages. Environmental case law in Brazil evinces that courts are attentive to the complexity of defining environmental damage. Such damage

62 Maria Antonia Tigre and Joana Setzer, 'Human Rights and Climate Change for Climate Litigation in Brazil and Beyond: An Analysis of the Climate Fund Decision' (2023) 54(4) Georgetown Journal of International Law 593.

63 Martins da Rosa (n 59) 363ff.

64 *Ibid*.

65 *Ibid*. 364.

66 See for example Tigre and Setzer (n 62).

67 Martins da Rosa (n 59) 374-377.

is understood as multi-dimensional, encompassing both damage to the environment in itself (under an autonomous liability regime) and damage that derives from harmful effects on the environment that impact other protected assets (such as life, health, well-being, and material and intangible heritage).[68] Martins da Rosa argues that climate-related damage is merely a type of environmental damage that occurs on a planetary scale.[69]

As regards the causal link between GHG emissions and the afore-described environmental damage, liability can arise if it can be proven that the polluter's conduct contributed to the *risk* of such damage.[70] Concerning the capacity to sue and to be sued, Brazilian law envisages public or collective civil action for environmental damage and a broad notion of polluters, encompassing both direct and indirect contributors to pollution.[71] In environmental cases, public or collective civil action for environmental damage can be filed against a "polluter," a natural or legal person responsible for an activity that causes environmental degradation.

As Martins da Rosa explains, it remains to be seen whether Brazilian courts will accept claims against GHG-emitting agents as direct polluters and for example banks and financing agents as indirect polluters, in light of the principle that liability is not based on fault.[72] However, developments in litigation concerning deforestation in the Amazon region show that Brazilian courts have made some progress in their engagement with the concept of climate-related damage. While these cases are certainly reminiscent of classic (environmental) cases revolving around a destructive conduct, where the central question at the end is how much the polluter must pay, they have gained significance in today's context. The question they raise is how, if at all, courts should distinguish between environmental damage and climate-related environmental damage.[73] In this regard, approaches amongst different courts are not yet uniform. One approach that has emerged is that of ordering damages for the lost benefits of carbon storage and sequestration. Indeed, other than GHG emissions from fossil fuel combustion, deforestation and agriculture are the "main human causes of climate change."[74] Here, the damages would

68 *Ibid*. 373.

69 *Ibid*.

70 *Ibid*. 375.

71 *Política Nacional do Meio Ambiente* (PNMA), Law No 6898/91, art 3(IV).

72 Martins da Rosa (n 59) 379.

73 De Andrade Moreira notes that in many cases concerning deforestation, the litigants often reference environmental damage without disaggregating the distinct impacts of the same on the climate system; De Andrade Moreira (n 56) 64.

74 Deliang Chen et al, '2021: Framing, Context, and Methods' in Valérie Masson-Delmotte et al (eds), *Climate Change 2021: The Physical Science Basis. Contribution of Working*

include the value (in monetary terms) of emissions which would have otherwise been removed from the atmosphere if not for the deforestation in question. While there are divergent judicial pronouncements on this point,[75] in some cases, the order for damages to be paid by the defendants accounted for climate damage estimated based on the "social cost of carbon" (as understood in studies by the Economic Commission for Latin America and the Caribbean that have been relied on by the Brazilian courts).[76]

In October 2021, the National Council of Justice (CNJ), an administrative organ of the judiciary in Brazil that has constitutional status,[77] issued Resolution No 433 establishing the National Policy of the Judiciary for the Environment. Article 14 of this resolution states that when quantifying environmental damage, courts must consider the impacts of the damage on global climate change, diffuse losses suffered by affected peoples and communities and provide the deterrents required to internalize externalities.[78] The quantification of *dano climático* or climate damage is a highly technical exercise, and the lack of consensus and legally approved methodology might dissuade courts from ordering damages under this heading. Thus, to assist courts in applying Article 14 of its resolution, in 2024 the CNJ adopted a Protocol for Judging Environmental Lawsuits containing a detailed guide for judges to quantify climate damage in pursuance of Article 14.[79] To summarize, the protocol prescribes that climate damage must be quantified in six steps, viz (1) identifying the extent of the deforested or burnt area, in hectares (using satellite images); (2) estimating the average carbon stock in that area or biome, per hectare; (3) multiplying (1) and (2) to find the carbon stock lost due to the conduct; (4) converting this carbon stock into tons of carbon dioxide equivalent (CO_2e); (5) taking the

Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change (CUP 2021) 147, 244.

75 Danielle de Andrade Moreira, Victoria Lourenço de Carvalho e Gonçalves, Maria Eduarda Segovia, 'Conceptual and Practical Aspects of Civil Liability for Climate-environmental Damage in Brazil' (2024) 113 *Revista de Direito Ambiental* 341.

76 *IBAMA v V. de Souza Brilhante EIRELI*, no. 1003478-16.2018.4.01.3100 (6th Federal Civil Court, Judicial Section of Amapá, 14 March 2023); *IBAMA v Indústria, Comércio, Importação e Exportação de Madeiras Floresta Verde Ltda.*, no. 1000083-80.2019.4.01.3908 (6th Federal Civil Court, Judicial Section of Amapá, 25 March 2020).

77 Constitution of the Federative Republic of Brazil, art. 103-B.

78 Danielle de Andrade Moreira, 'Tort Law and Climate Change in Brazil: How Environmental Civil Liability Regime Can Be and is Being Applied to Climate Damage' in Douglas Kysar and Ernst Lim (eds), *Oxford Handbook of Climate Change and Private Law* (OUP forthcoming 2026); Martins da Rosa (n 59) 380ff.

79 CNJ, '*Protocolo para Julgamento das Ações Ambientais: Segundo Escopo: Parâmetros para Mensuração do Impacto do Dano na Mudança Global do Clima (Artigo 14 da Res. CNJ 433/2021): Diretrizes para Ações Judiciais sobre Danos à Flora: Desmatamento e Incêndio Floresta*' (2024).

prevailing price of each ton of CO_2e, which the Protocol leaves to be determined by regulations in Brazil, but for the time being ought to be no less than the price determined by the Amazon Fund (which it admits constitutes a negotiated figure); and finally (6) multiplying (4) and (5) to arrive at a final value. Admittedly, according to the wording of Article 14 of Resolution No 433 and the content of the 2024 Protocol,[80] this methodology applies to cases involving degradation of the local environment through deforestation and fires, rather than GHG emissions from the combustion of fossil fuels. Liability for excessive GHG emissions remains a frontier that Brazilian courts are yet to cross. Nevertheless, developments regarding quantification of (globally diffuse) climate-related damage in deforestation cases should be of importance to observers of climate litigation across the globe.

iv. Still Challenging: Monetarization of Climate Damage

Climate litigation in Brazil shows promise in several areas owing to the absence of procedural hurdles that typically hinder such cases in other jurisdictions, as well as the robust environmental law framework such litigation occurs under. However, the country still lacks a ruling by the Federal Supreme Court on the question of liability for climate-related damage and its quantification.

De Andrade Moreira summarizes the developments in this regard as follows:

> [S]o far, the few decisions that address this issue are first-instance judgments, remaining subject to further appeals, and diverge on whether distinct climate-damage awards are appropriate. In each, the evidentiary record proves pivotal in confirming the scale of injury and the proportionality of any monetary remedy. Some judgments (in 14 cases) have recognised the existence of climate damage (direct climate damage) and awarded compensation in line with the valuation methodology put forward in each case. In others (3 cases), however, the courts have held that the quantification of climate damage lacks consensus and objective benchmarks, since scientific uncertainties, the absence of case law, statutory or doctrinal guidance, and the dearth of technical studies preclude the setting of a definitive monetary figure.[81]

Like any comparative legal exercise, findings made by the Brazilian courts cannot be directly transferred to other countries. However, a look at this case-law makes it clear that certain concepts should be examined in greater depth in the specific context of climate litigation. This applies to jurisdiction, the

80 *Ibid*. 37-40.

81 De Andrade Moreira (n 78), forthcoming.

legitimacy of asserting and defending claims, the causal link and, finally, the definition and assessment of damages. In all these respects, the Brazilian case law is innovative and forward-looking. And, with great relevance for present purposes, the cases have impressively demonstrated that barriers to climate litigation can be overcome, and that such cases can lead to successes for the interests of litigants.

b. At the International Level

Between early 2024, when we were planning the conference that served as the impetus for this book project, and the summer of 2025, when we put the finishing touches on this book, three important climate rulings from international courts had been issued: one from the ECtHR,[82] one from the ITLOS,[83] and one from the Inter-American Court of Human Rights (IACtHR).[84] These three rulings made one thing clear: climate change has irrevocably reached the attention of the international courts and tribunals. Each of these courts recognized the existential threat posed by climate change, and interpreted legal instruments which do not squarely address climate change as containing binding obligations concerning its mitigation – including customary obligations, environmental and human rights treaties. While it is now clear that climate change has entered the international docket, it is equally apparent that the matter of assessing and calculating damage is not yet being accorded high priority in these contexts. For the ECtHR, this may be due to the fact that the Court was not asked, in its initial climate cases, to grant compensation for material damage and – even if it had been asked to do so – it rarely awards high damages, particularly in environmental cases.[85] For the other courts in question, the lack of concrete damage assessments is due to the fact that they issued advisory opinions, which did not require them to pronounce findings assessing and calculating damage in detail.

82 *Verein KlimaSeniorinnen Schweiz and Others v Switzerland* (n 2).

83 *Request for an Advisory Opinion Submitted by the Commission on Small Island States on Climate Change and International Law* (Advisory Opinion, 21 May 2024) ITLOS Reports 2024, 1. Two other important requests for advisory opinions were pending at the time of writing: Request for Advisory Opinion on the Obligations of States in Respect of Climate Change (n 17); African Court on Human and Peoples' Rights, *Request for an Advisory Opinion on the Human Rights Obligations of African States in Addressing the Climate Crisis,* filed 2 May 2025 (pending).

84 Advisory Opinion OC-32/25 on Climate Emergency and Human Rights (29 May 2025).

85 Helen Keller, Corina Heri and Réka Piskóty, 'Something Ventured, Nothing Gained? Remedies before the ECtHR and their Potential for Climate Change Cases' (2022) 22 Human Rights Law Review.

However, international courts could soon be called upon to answer questions concerning the liability of responsible states for climate-related damage. In contentious proceedings, provided that they have jurisdiction, the conditions for admissibility are met, and a breach of obligations is found, courts will also have to rule on the question of legal remedies for addressing climate-related damage. What paths could be taken in the future to raise the issue of climate damage? Building on the findings made by the contributors to this volume, the following considers possible legal bases in international law. We acknowledge that our comments are currently speculative and will remain so until a final contentious ruling on damages has been handed down by an international court or tribunal. Assuming that it is a matter of time before such a ruling is made, we aim to outline both the potential of relevant claims and the difficulties of making them.

i. Legal Bases of Reparations Claims

Unlike certain national legal systems,[86] international law does not recognize any customary rule of strict liability for lawful acts, even if they are extremely dangerous. The "polluter pays" principle, which is sometimes extensively developed in national law (eg, for financing waste disposal or contaminated site remediation), is not established in international law to the extent that it could form the basis for liability between states.[87] However, there are prospects for the emergence of a primary legal norm prescribing strict liability for damage resulting from a state's hazardous activities. This inevitably recalls the work of the International Law Commission (ILC) in this area.[88] However, it should be noted that the ILC's work on the draft articles in this area does not necessarily reflect customary international law.[89] Furthermore, the application of the draft articles in climate cases would hinge on whether the emission of CO_2 and other GHGs *per se* constitutes a hazardous activity. We do not believe this qualification is always justified, nor is it applicable at every point in time.

Aside from the issue of strict liability, one of the key questions that the ICJ must answer in its advisory opinion on climate change is whether the customary duty not to cause significant harm to the environment also applies

86 See chapter 17, Hinteregger, on private law instruments.

87 On the genesis of this principle, see Alan Boyle, 'Polluter Pays', in Rüdiger Wolfrum (ed), *Max Planck Encyclopedia of Public International Law* (2009).

88 ILC, 'Draft Principles on the Allocation of Loss in the Case of Transboundary Harm Arising Out of Hazardous Activities, with Commentaries' (2006) UN Doc. A/61/10, 106.

89 *Ibid*. 114.

to the climate sphere.[90] If so, this customary rule would provide an important basis for claims for damages. We recognize significant potential here, given that the international climate regime (the UNFCCC and the Paris Agreement) are essentially silent on state responsibility.[91] Therefore, we assume that the norms of state responsibility as they exist in general international law are applicable to breaches of climate-related international obligations. However, this does not mean that the climate regime will be completely irrelevant in liability or compensation cases. In cases involving state parties to the climate treaties, an international court will deal with the question of reparations in case the respondent has breached obligations under international law, including – for a court of general jurisdiction like the ICJ – the climate treaties. Turning back to the customary no harm rule, the ICJ has emphasized that the duty not to cause significant harm to the environment of other states, which is in turn, "based on the principle of prevention," has "its origin in the *due diligence* that is required of a State in its territory."[92] Due diligence is a standard of conduct that is determined by various factors, including the circumstances of the relevant state, and that can change over time.[93] In our view, the same should apply to the prevention of transboundary harm caused by global warming.[94] Furthermore, in an environmental context, due diligence requires a state to "use all the means at its disposal to avoid activities in its territory or under its jurisdiction causing significant environmental damage to another state."[95] This argument was recently reiterated by the ITLOS, which stated that a State must "put in place a national system, including legislation, administrative procedures and an enforcement mechanism necessary to regulate the activities in question, and [...] exercise adequate vigilance to

90 *Obligations Concerning Negotiations Relating to Cessation of the Nuclear Arms Race and to Nuclear Disarmament (Marshall Islands v United Kingdom)* (Preliminary Objections) [2016] ICJ Rep 833 [29].

91 Note in this regard the declarations made by States including the Cook Islands, Micronesia, Nauru, Niue, the Philippines, the Solomon Islands, and Tuvalu to the effect that their accession to the Paris Agreement did not constitute a renunciation of their rights to reparations or compensation.

92 *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep 14 [101] (emphasis added).

93 *Gabčikovo-Nagymaros Project (Hungary v Slovakia)* [1997] ICJ Rep 7 [140]. See also Jutta Brunnée, 'Procedure and Substance in International Environmental Law' in *Pocket Books of The Hague Academy of International Law,* vol 40 (Brill 2020) 64–82.

94 See also Lavanya Rajamani, 'Due Diligence in International Climate Change Law' in Heike Krieger, Anne Peters and Leonhard Kreuzer (eds), *Due Diligence in the International Legal Order* (Oxford 2020) 163, 174–177.

95 *Pulp Mills on the River Uruguay (Argentina v Uruguay)* [2010] ICJ Rep 14 [101].

make such a system function efficiently, with a view to achieving the intended objective."[96]

In specific cases, due diligence is determined by applying standards from written and unwritten international law.[97] At this stage, an international court could refer to the specific state's obligations under the climate regime in case it is a party to the relevant treaties. A key factor here is Article 4 of the Paris Agreement, which enshrines an obligation to pursue domestic measures with the aim of achieving the objectives of a State's nationally determined contribution (NDC) – which gives rise to one of the most pressing questions pending before the ICJ, on which the opinions of states are divided.[98] Insofar as NDCs are not simply at the discretion of the states, and are instead legally binding, they might be taken as an indication of whether a state has fulfilled its due diligence obligation. However, a given State's NDC may also be out of line with the overall temperature limits enshrined in the Paris Agreement, meaning that it is insufficiently ambitious to avoid warming beyond 1.5 or 2°C (Article 2(1)(a) of the Paris Agreement). In this regard, it could be argued that it is not the content of the NDC itself, but rather the principles enshrined in the climate treaties which should inform the requisite standard of diligence – including for example the Paris Agreement's principles of highest possible ambition, progression and common but differentiated responsibilities and respective capabilities, in the light of different national circumstances (Articles 2(2), 3, and 4(3) of the Paris Agreement). If a State determines an NDC in contravention of these principles, its fulfillment of that same NDC would not necessarily mean that it had complied with its international obligations, including those under customary law or human rights law. Any other conclusion would render the climate targets, and the ideas of cooperation and collective effort that inform the Paris Agreement, moot.

If an international court were to conclude that the customary international law obligation to prevent significant transboundary harm to the environment is applicable in the context of climate change, and that there has

96 *Request for an Advisory Opinion Submitted by the Commission on Small Island States on Climate Change and International Law* (n 83) [235]. See also in the context of the Inter-American system Advisory Opinion OC-32/25 on Climate Emergency and Human Rights (n 84) [236-237].

97 *Gabčikovo-Nagymaros Project* (n 93).

98 Thomas Burri, 'The ICJ's Advisory Opinion on Climate Change: A Data Analysis of Participants' Written Submissions (updated version)' (SSRN, 13 December 2024). See also Christina Voigt, 'The power of the Paris Agreement in international climate litigation' (2023) 32 Review of European, Comparative & International Environmental Law 237, 239-242; Benoit Mayer, 'The "Highest Possible Ambition" on Climate Change Mitigation as a Legal Standard' (2024) 73 International and Comparative Law Quarterly 285.

been (and continues to be) a breach of this obligation due to conduct falling short of the relevant standard of diligence, that state is responsible for the consequences of its breach. The responsible state would then suffer the consequences as under Part Two, Chapter I of the Articles on the Responsibility of States for Internationally Wrongful Acts (ARSIWA). Wrongful acts give rise to an obligation on the respondent state to compensate the injured state for the harm caused by such acts (Article 36(2) ARSIWA).

This gives us a potential legal basis on which to build a possible climate compensation case. However, it also brings us to the major hurdles facing such a claim.

ii. Potential and Hurdles

Climate damage is usually caused by a combination of factors, rather than by a single factor for which a particular country is responsible. The extent of the damage caused by global warming is characterized by its transnational nature. This means that CO_2 emitted somewhere can have a devastating impact anywhere on the planet. The context of the emitting activity does not necessarily have to be transboundary; its effects are planetary in nature. In many cases, the damage is not caused by a single event, but by the gradual accumulation of greenhouse gases over time, the sources of which can change. While industrialized countries in the Global North were mainly responsible for CO_2 emissions in the 19th century, emerging economies are increasingly responsible for a large proportion of CO_2 emissions in the 21st century. These cumulative emissions interact with other vulnerabilities, eg historical, political, cultural, geographical and infrastructural ones.[99] This complexity in scientific terms raises difficult questions of causality and attribution in legal terms. At this juncture, it is also obvious that the courts' handling of scientific findings and data will have a decisive impact on liability cases.[100]

The ARSIWA regime certainly offers a way to answer questions of temporality and multifactoriality. Article 14(2) ARSIWA provides that "[t]he breach of an international obligation by an act of a State having a continuing character extends over the entire period during which the act continues and remains not in conformity with the international obligation." Article 47(1) ARSIWA also appears to be relevant in this context. It states that "[w]here several States are responsible for the same internationally wrongful act, the responsibility of

99 Emmanuel Raju, Emily Boyd and Friederike Otto, 'Stop Blaming the Climate for Disasters' (2022) 3(1) Communications Earth & Environment.

100 Katalin Sulyok, *Science and Judicial Reasoning, The Legitimacy of International Environmental Adjudication* (CUP 2020) 263-331.

each State may be invoked in relation to that act." At first glance, these are two principles that could guide the courts in climate liability cases. However, applying them *in concreto* is likely to be more difficult.

Various scientific disciplines are developing approaches that could help the courts answer these challenging questions. One such approach is to determine a reference point from which it can reasonably be assumed that CO_2 emissions are harmful to the climate.[101] Another is the field of attribution science,[102] which seeks to link specific emissions to specific impacts, and finally, the definition of a national carbon budget.[103] However, translating these scientific findings into the language of legal responsibility is no easy task for litigators and judges.[104]

While there is accordingly potential for future climate damage claims under the ARSIWA regime, the hurdles are high, and many complex questions will only be clarified through future case law. Given the short and urgent timeframe available for tackling the climate crisis, this is only partially encouraging. In a few years, we may conclude that the ARISWA framework is insufficient for successfully pursuing climate damage compensation claims for three main reasons: firstly, because the legal hurdles are too high. Secondly, because the ARSIWA responsibility regime is too lenient, as many CO_2-emitting actions are excluded from the outset because they cannot be classified as wrongful acts. This means that damage resulting from CO_2 emissions that are permissible is excluded from the liability regime in ARSIWA. Thirdly, these damage proceedings may prove too slow to deliver timely relief, giving rise to frustrations as climate-related impacts intensify and tipping points are crossed.[105]

101 Eg through tipping points, see Violetta Ritz, 'Climate Tipping Points: Tracing the Limits of Political Discretion' (2024) Leiden Journal of International Law.

102 Michael Burger, Jessica Wentz and Radley Horton, 'The Law and Science of Climate Change Attribution' (2020) 45 Columbia Journal of Environmental Law. See also Rupert F. Stuart-Smith et al, 'Filling the Evidentiary Gap in Climate Litigation' (2021) 11 Nature Climate Change 651.

103 Lavanya Rajamani et al, 'National "Fair Shares" in Reducing Greenhouse Gas Emissions Within the Principled Framework of International Environmental Law' (2021) 21(8) Climate Policy 983.

104 See André Nollkaemper, 'Causation Puzzles in International Climate Litigation' (2023) 33 Italian Yearbook of International Law 25.

105 See Ritz (n 101).

4. Conclusion

Litigating climate reparations raises a variety of challenges, as the chapters in this volume have shown. Questions of obligation, causality, (shared) responsibility, legitimacy and temporality all influence the success of a climate case, and its ability to deliver on claims for reparations. Different areas of law may apply different evidentiary tests, liability regimes and approaches to reparation, and these cases also entail questions that go beyond the legal, including political, economic, psychological and scientific ones. While lessons from one jurisdiction or area of law may not always translate directly to another, and must be understood contextually, it is high time to understand that reparation will continue to challenge courts, governments and international mechanisms. This is the first step in understanding how and when reparation is possible, evaluating and critically engaging with different modalities of redress for climate-related harms, and ultimately answering the question: what constitutes success in a climate case?

As this volume has shown, what is considered a success in any given case can vary depending on one's perspective and expectations. However, it is clear that reparations claims for climate-related damage have the potential to succeed, both internationally and domestically. As these matters continue to be litigated and clarified in court, issues like the requisite degree of due diligence, the need to establish causation, reparation gaps for impacts that cannot be linked to a breach of legal obligations, and frustrations about reparations orders that seem like too little, too late are likely to continue to arise. By examining reparations across various areas of domestic and international law, as well as the mechanisms, methods and meaning of reparations for climate change and the temporality and legitimacy of judicial engagement, the present volume aims to clarify the possibilities for reparations. It concludes that such possibilities, albeit not always easy or perfect, most certainly exist.

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REPARATIO FOR CLIMA CHANGE

Climate lawsuits have reached the courts. While the initial rulings primarily address the obligations of states and major CO_2 emitters, future cases will require courts to consider issues of compensation. This volume aims to shed light on the following questions: How can compensation for climate loss and damage be claimed? At what point can CO_2 emissions be considered harmful? How do the courts engage with climate science? How is climate damage quantified? How should historical CO_2 emissions be assessed to determine a just amount of compensation in an intergenerational and transnational context? Bringing together legal experts from private and public law as well as experts from the insurance industry, the social sciences, and economics, this volume is essential reading for anyone concerned with climate damage.

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