

Identifying Key Issues in Climate Change Litigation

Subjects: [Computer Science](#), [Artificial Intelligence](#)

Contributor: Wullianallur Raghupathi , Dominik Molitor , Viju Raghupathi , Aditya Saharia

As climate change, environmental, social, and governance (ESG), along with sustainability, become increasingly crucial for businesses and society, there is a noticeable scarcity of information and transparency regarding corporate practices. Often, government agency enforcement actions lead to litigation and are ultimately resolved by court decisions. Moreover, in instances when there is perceived inadequacy in government enforcement, citizens frequently turn to the courts for preventive judgments against businesses or agencies.

climate change

machine learning

text analytics

litigation

legal case

1. Introduction

When considering climate change, thoughts often revolve around its significant environmental consequences, such as increasing sea levels, glacial melting, and rising temperatures. These changes contribute to the degradation of our planet, increase pollution levels, and pose significant health risks [\[1\]\[2\]\[3\]\[4\]\[5\]](#). Regrettably, the climate crisis continues to worsen rather than abate. Each passing year witnesses a heightened intensity in the impacts of climate change. Hundreds of millions of people bear the brunt of increasingly frequent and severe extreme weather events, resulting in the loss of livelihoods and, tragically, lives. Annually, people's economies, and in certain instances, entire nations, grapple with the tangible consequences of unforeseeable events [\[4\]\[5\]\[6\]\[7\]\[8\]\[9\]\[10\]\[11\]](#). As the Secretary-General of the United Nations stated in the twenty-seventh Conference of the Parties to the United Nations Framework Convention on Climate Change in November 2022, people are facing the most critical battle of our existence and, unfortunately, we find ourselves on the losing side, with potentially devastating consequences for our planet and future generations [\[5\]](#). But, this is only the beginning of the impact of climate change, which is closely related to every aspect of human society [\[7\]\[8\]\[9\]\[10\]\[11\]\[12\]](#).

Climate change not only intensifies existing health threats but also gives rise to new and daunting public health challenges. Indeed, it is widely regarded as the foremost threat to public health in the 21st century [\[2\]](#). Climate change leads to rising temperatures, which in turn elevates the risk of heat-related illnesses and fatalities, worsens air quality which contributes to cardiopulmonary and respiratory diseases, facilitates the transmission of diseases through contaminated food, water, and vectors, and imposes significant stress on mental health [\[4\]\[5\]\[6\]\[7\]](#). Without substantial worldwide reductions in greenhouse gases (GHGs), these effects will only intensify [\[13\]\[14\]](#). Climate change encompasses long-term changes in temperatures and weather patterns. Although certain changes may arise naturally, such as those linked to fluctuations in the solar cycle, it is crucial to acknowledge that since the

1800s, human activities have been releasing greenhouse gases such as carbon dioxide (CO₂) and methane (CH₄) into the atmosphere. This has led to global warming and the greenhouse effect [7][8][10][11].

These human activities include burning gasoline in cars, using fossil fuels like coal and oil for generating electricity, clearing land and forests that result in the release of stored CO₂, creating landfills, which are significant sources of methane emissions, agricultural practices including livestock production, and industrial processes [10][11][15]. The concentrations of greenhouse gases have surged to levels unseen in more than 2 million years, and emissions are still on the rise. Consequently, the Earth's average temperature has increased by approximately 1.1 °C since the late 1800s. The decade from 2011 to 2020 has the distinction of being the warmest on record. Interestingly, many people mistakenly associate climate change primarily with warmer temperatures [5]. The rise in temperature is just the beginning of the climate change story. Our Earth operates as a complex system where all components are interconnected, meaning that changes in one area can trigger cascading effects across the entire system.

Despite the host of critical challenges that climate change poses, there is limited knowledge regarding the issues, impacts, and mitigation strategies at the micro level for various entities and organizations, including corporations and government agencies [16][17][18][19][20][21].

2. Climate Change

Climate change pertains to long-term alterations in weather patterns and temperatures. These shifts may occur naturally, stemming from variations in the sun's activity or significant volcanic eruptions [7][8][15][22]. However, since the 1800s, human activities have become the predominant drivers of climate change, chiefly because of the combustion of fossil fuels such as oil, gas, and coal. The burning of these fossil fuels produces greenhouse gas emissions, which function like a blanket enveloping the Earth, trapping heat from the sun and leading to a rise in temperatures [7][8][15][23]. The primary greenhouse gases responsible for driving climate change are carbon dioxide and methane. The sectors that are key to greenhouse gas emissions include energy, buildings, transportation, agriculture, land use, and industry [10][11]. People are encountering the effects of climate change in a multitude of ways, impacting various life aspects, including health, food production, housing, safety, and employment. Certain populations, such as those residing in small island developing States, are already more susceptible to the repercussions of climate change [4][5]. Conditions such as rising sea levels and saltwater intrusion have progressed to the extent that entire communities have been compelled to relocate. In the years to come, it is anticipated that the number of climate refugees will be on the increase [4][5][24]. Therefore, every increment of global warming holds significant importance.

In a 2018 report, a consensus among thousands of scientists and government reviewers concluded that constraining global temperature increases to a maximum of 1.5° centigrade would serve as a crucial measure in averting the most severe climate-related consequences, and in preserving a habitable climate [7][8]. However, if carbon dioxide emissions continue their current trajectory, global temperatures could potentially rise by up to 4.4 °C by the close of this century. Emissions responsible for climate change originate from all regions across the globe and impact people worldwide. However, certain nations contribute significantly more than others. In fact, the 100

countries with the lowest emissions collectively account for just three percent of the total emissions ^[5], while the 10 largest emitters are responsible for 68 percent of emissions. While climate action is a shared responsibility, those individuals and nations contributing more significantly to the problem bear a greater responsibility to take the lead in addressing it.

Climate change presents a formidable challenge, but, on the bright side, numerous solutions that can yield economic advantages, enhance quality of life, and safeguard the environment have already been identified ^{[23][25][26][27][28][29][30]}. There are also international agreements in place to steer our collective efforts, including the Paris Agreement and the UNFCCC (United Nations Framework Convention on Climate Change) ^{[4][5]}. Three overarching categories of action include adapting to climate impacts, reducing emissions, and financing required adjustments. Transitioning from fossil fuel-based energy systems to renewables, such as solar power, will mitigate the emissions contributing to climate change. The urgency of beginning these actions cannot be overstated ^{[4][5]}. While an increasing number of countries are pledging to achieve net-zero emissions by 2050, it is essential to recognize that approximately half of the necessary emissions reductions must be achieved by 2030 to limit global warming to under 1.5 °C ^{[7][8]}. Achieving this goal entails an approximate six percent annual reduction in fossil fuel production from 2020 to 2030 ^{[7][8]}. Adaptation efforts will be necessary worldwide, but there is an immediate need to prioritize those who are most vulnerable and have the fewest resources to address climate-related risks ^[5]. The potential return on investment can be substantial. For example, the implementation of early warning systems for disasters not only saves lives and property but can also yield benefits up to 10 times the initial cost ^{[4][5]}. The choice is to invest in proactive measures now or face significantly higher costs in the future. Addressing climate change necessitates substantial financial commitments from both governments and businesses. However, the costs of climate inaction far outweigh these investments. A crucial measure is for industrialized nations to honor their commitment to provide \$100 billion annually to developing countries, enabling them to adapt and transition towards more sustainable economies ^{[7][8][9][11][12]}.

3. Climate Change Litigation

Over the past few years, there has been a substantial increase in climate litigation on a global scale, encompassing a broader array of legal theories and spanning diverse geographical regions ^{[6][31]}. This surging wave of climate-related lawsuits is instigating essential transformations. Climate litigation is pressuring corporate entities and governments to adopt high-reaching goals for both mitigating and adapting to climate change. An emerging and noteworthy trend involves cases that prioritize fundamental human rights related to a stable climate. Additionally, there is an increasing number of cases on the right to a healthy environment, a right enshrined in the constitutions of more than 100 countries. These cases are compelling enhanced climate-related disclosures and putting an end to deceptive corporate greenwashing on climate change. Citizens are demanding accountability from their governments, striving to prevent further extraction of fossil fuels and contesting the lack of enforcement of climate-related laws and policies ^[4].

As part of this wave, more citizens and organizations around the world are going to court to seek a fair judgment in climate change law cases, and the number of cases brought against climate change inaction has increased

dramatically [2]. For instance, while the Clean Air Act (CAA) empowers the U.S. Environmental Protection Agency (EPA) to regulate emissions of both carbon dioxide and other air pollutants, non-governmental organizations have resorted to legal action to compel the EPA to fulfill its obligations in safeguarding public health from air pollution. Additionally, they have initiated legal actions against entities believed to be breaching relevant emission standards or permit regulations. The British Institute of International and Comparative Law research project examines climate litigation globally and produces a toolbox for implementing climate law. This shows that there are at least 2000 climate change litigation cases filed globally since November 2022 [32].

Climate change litigation offers civil society, individuals, and various stakeholders a potential avenue to confront insufficient responses from the private sector and governments in dealing with the climate crisis. In climate-related cases, individuals or parties referred to as plaintiffs employ diverse legal tactics across various national and international jurisdictions. Their primary aim is typically to compel the public and private sectors to adopt more ambitious goals for both mitigation and adaptation. Nonetheless, there are instances where plaintiffs may also aim to contest climate laws and lower climate objectives. In its Sixth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) acknowledged that climate litigation has, for the first time, impacted the results and level of ambition within climate governance [7][8][24]. The IPCC has also recognized climate litigation as a significant channel through which stakeholders can influence climate policy beyond the formal UNFCCC processes [7][8][24]. Furthermore, winning cases pursued by plaintiffs have inspired the initiation of analogous claims in different legal jurisdictions. As an example, the ruling in the Urgenda Foundation v. State of the Netherlands case, where a court held a government accountable for greenhouse gas emissions mitigation, has catalyzed a series of ambition-driven cases in other countries. Many of these cases explicitly reference the Urgenda decision even though it lacks legal authority beyond the Netherlands [33]. In a separate instance, a cohort of young individuals in Montana achieved a groundbreaking legal victory when a judge ruled that it was unconstitutional for the state to approve fossil fuel projects without considering climate change [34].

The scope of climate litigation will continue to broaden as research on climate science expands, and new legal theories get explored nationally and internationally. [5]. Each passing year sees climate change litigation assume a progressively vital role, either driving forward or hindering substantial action on climate change. The Intergovernmental Panel on Climate Change (IPCC), in 2022, acknowledged that litigation has an impact on shaping the outcome and the level of ambition in climate governance [7][8][35]. The Global Climate Litigation Report: 2023 Status Review reveals that by December 2022, a total of 2180 climate-related cases had been submitted across 65 jurisdictions. These encompassed tribunals, international/regional courts, quasi-judicial bodies, and other adjudicatory entities, including Special Procedures at the United Nations and arbitration tribunals [5]. This marks a consistent rise in case numbers from 884 to 1550 between the years 2017 and 2020. Notably, local communities, women's groups, children and youth, and Indigenous Peoples are assuming a significant role in initiating these cases and spearheading reforms in the governance of climate change worldwide [5]. In 2019, the body of climate litigation literature saw considerable expansion, with notable attention directed toward new landmark judgments, emerging legal pathways, diverse actors involved, shifting litigation objectives, and an extended range of jurisdictions [36]. A recent comprehensive review systematically examines significant literature on climate litigation released from 2000 to 2018 [37].

References

1. McCormick, S.; Simmens, S.J.; Glicksman, R.L.; Paddock, L.; Kim, D.; Whited, B.; Davies, W. Science in litigation, the third branch of US climate policy. *Science* 2017, 357, 979–980.
2. McCormick, S.; Simmens, S.J.; Glicksman, R.; Paddock, L.; Kim, D.; Whited, B. The role of health in climate litigation. *Am. J. Public Health* 2018, 108, S104–S108.
3. McCormick, S.; Glicksman, R.L.; Simmens, S.J.; Paddock, L.; Kim, D.; Whited, B. Strategies in and outcomes of climate change litigation in the United States. *Nat. Clim. Chang.* 2018, 8, 829–833.
4. UNEP. Global Climate Litigation Report: 2020 Status Review. Nairobi. 2020. Available online: <https://wedocs.unep.org/handle/20.500.11822/34818> (accessed on 8 October 2023).
5. UNEP. Global Climate Litigation Report: 2023 Status Review. 2023. Available online: <https://www.unep.org/resources/report/global-climate-litigation-report-2023-status-review> (accessed on 8 October 2023).
6. Burger, M.; Tigre, M.A. Global Climate Litigation Report: 2023 Status Review; UNEP—UN Environment Programme: Nairobi, Kenya, 2023.
7. IPCC. Press_Release_WGI_AR6_Website-Final (ipcc.ch). 2021. Available online: https://www.ipcc.ch/site/assets/uploads/2021/08/IPCC_WGI-AR6-Press-Release_en.pdf (accessed on 8 November 2023).
8. IPCC. Climate Change Widespread, Rapid, and Intensifying—IPCC; IPCC: Geneva, Switzerland, 2021.
9. The World Bank. Climate Change Overview: Development News, Research, Data; World Bank: Washington, DC, USA, 2023.
10. UN. What Is Climate Change? United Nations: New York, NY, USA, 2023.
11. UN. Fastfacts-What-Is-Climate-Change.pdf (un.org). 2023. Available online: <https://www.un.org/en/climatechange/what-is-climate-change> (accessed on 9 November 2023).
12. EPA. Climate Change Science Facts (epa.gov). 2023. Available online: <https://www.epa.gov/climatechange-science> (accessed on 9 November 2023).
13. Blattner, C.E.; Vicedo-Cabrera, A.M.; Frölicher, T.L.; Ingold, K.; Raible, C.C.; Wyttenbach, J. How science bolstered a key European climate-change case. *Nature* 2023, 621, 255–257.
14. Liu, Z.; Deng, Z.; Davis, S.J.; Giron, C.; Ciais, P. Monitoring global carbon emissions in 2021. *Nat. Rev. Earth Environ.* 2022, 3, 217–219.

15. Lee, H.; Calvin, K.; Dasgupta, D.; Krinner, G.; Mukherji, A.; Thorne, P.; Ruane, A.C. Climate Change 2023 Synthesis Report: Summary for Policymakers; IPCC: Geneva, Switzerland, 2023.
16. Carattini, S.; Hertwich, E.; Melkadze, G.; Shrader, J.G. Mandatory disclosure is key to address climate risks. *Science* 2022, 378, 352–354.
17. Dawkins, C.; Fraas, J.W. Coming clean: The impact of environmental performance and visibility on corporate climate change disclosure. *J. Bus. Ethics* 2011, 100, 303–322.
18. Giannarakis, G.; Zafeiriou, E.; Arabatzis, G.; Partalidou, X. Determinants of corporate climate change disclosure for European firms. *Corp. Soc. Responsib. Environ. Manag.* 2018, 25, 281–294.
19. Ihlen, Ø. Business and climate change: The climate response of the world's 30 largest corporations. *Environ. Commun.* 2009, 3, 244–262.
20. Stanny, E.; Ely, K. Corporate environmental disclosures about the effects of climate change. *Corp. Soc. Responsib. Environ. Manag.* 2008, 15, 338–348.
21. Wright, C.; Nyberg, D. An inconvenient truth: How organizations translate climate change into business as usual. *Acad. Manag. J.* 2017, 60, 1633–1661.
22. Pielke, R.A., Jr. Misdefining “climate change”: Consequences for science and action. *Environ. Sci. Policy* 2005, 8, 548–561.
23. Dahlmann, F.; Branicki, L.; Brammer, S. Managing carbon aspirations: The influence of corporate climate change targets on environmental performance. *J. Bus. Ethics* 2019, 158, 1–24.
24. Chapter 13: National and Sub-National Policies and Institutions. In *Climate Change 2022: Mitigation of Climate Change. Working Group III Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*; Intergovernmental Panel on Climate Change: Geneva, Switzerland, 2022; Available online: https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_Chapter_10.pdf (accessed on 10 October 2023).
25. Kemp, L.; Xu, C.; Depledge, J.; Ebi, K.L.; Gibbins, G.; Kohler, T.A.; Rockström, J.; Scheffer, M.; Schellnhuber, H.J.; Steffen, W.; et al. Climate Endgame: Exploring catastrophic climate change scenarios. *Proc. Natl. Acad. Sci. USA* 2022, 119, e2108146119.
26. Demertzidis, N.; Tsalis, T.A.; Loupa, G.; Nikolaou, I.E. A benchmarking framework to evaluate business climate change risks: A practical tool suitable for investors decision-making process. *Clim. Risk Manag.* 2015, 10, 95–105.
27. Gasbarro, F.; Pinkse, J. Corporate adaptation behaviour to deal with climate change: The influence of firm-specific interpretations of physical climate impacts. *Corp. Soc. Responsib. Environ. Manag.* 2016, 23, 179–192.

28. Gouldson, A.; Sullivan, R. Long-term corporate climate change targets: What could they deliver? *Environ. Sci. Policy* 2013, 27, 1–10.
29. Nikolaou, I.; Evangelinos, K.; Leal Filho, W. A system dynamic approach for exploring the effects of climate change risks on firms' economic performance. *J. Clean. Prod.* 2015, 103, 499–506.
30. Pinkse, J.; Kolk, A. Challenges and trade-offs in corporate innovation for climate change. *Bus. Strategy Environ.* 2010, 19, 261–272.
31. Sabin Center for Climate Change Law. Climate Change Litigation|Sabin Center for Climate Change Law. 2023. Available online: <https://climate.law.columbia.edu/> (accessed on 10 October 2023).
32. British Institute of International 1 and Comparative Law. Global Perspectives on Corporate Climate Legal Tactics. 2023. Available online: <https://www.biicl.org/projects/global-perspectives-on-corporate-climate-legal-tactics?cookieset=1&ts=1699734136> (accessed on 11 October 2023).
33. Wewerinke-Singh, M.; McCoach, A. The State of the Netherlands v Urgenda Foundation: Distilling best practice and lessons learnt for future rights-based climate litigation. *Rev. Eur. Comp. Int. Environ. Law* 2021, 30, 275–283.
34. Gelles, D.; Baker, M. Judge Rules in Favor of Montana Youths in a Landmark Climate Case. *The New York Times*. 14 August 2023. Available online: <https://www.nytimes.com/2023/08/14/us/montana-youth-climate-ruling.html?smid=url-share> (accessed on 11 October 2023).
35. Setzer, J.; Higham, C. *Global Trends in Climate Change Litigation: 2022 Snapshot*; Grantham Research Institute on Climate Change and the Environment: London, UK, 2022.
36. Peel, J.; Osofsky, H.M. Climate change litigation. *Annu. Rev. Law Soc. Sci.* 2020, 16, 21–38.
37. Setzer, J.; Vanhala, L.C. Climate change litigation: A review of research on courts and litigants in climate governance. *Wiley Interdiscip. Rev. Clim. Chang.* 2019, 10, e580.

Retrieved from <https://encyclopedia.pub/entry/history/show/119664>