

Climate litigation and judicial activism in environmental protection

Haider Abdulkareem Alobaidi ¹, Ammar Khadim Jasim ², Ali Kareem Majeed Hadi ³, Husam Najm Abbood Al-Bayati ⁴, Milad Abdullah Hafedh ⁵, Ata Amini ^{6*}

¹ Al-Turath University, Baghdad 10013, Iraq

² Al-Mansour University College, Baghdad 10067, Iraq

³ Al-Mamoon University College, Baghdad 10067, Iraq

⁴ Al-Rafidain University College Baghdad 10064, Iraq

⁵ Madenat Alelem University College, Baghdad 10006, Iraq

⁶ Kurdistan Agricultural and Natural Resources Research and Education Center, AREEO, Sanandaj, Iran.

Abstract

Climate litigation and judicial activism have become key instruments to tackle the climate crisis due to the lack of appropriate legislative or executive action. The study examines judicial activism through the lens of constitutional- and rights-related cases and its implications for some aspects of climate policies and environmental protection. The study uses both quantitative and qualitative methods to analyze 'litigation cases' from a variety of jurisdictions from 2010 to 2023. Judicial opinions were subjected to qualitative content analysis, and quantitative models estimated the relationship between judicial activism and emissions reductions. Data sources include judicial rulings, international agreements, and interviews with legal experts. North America has the highest absolute number of cases, as well as the largest share of cases in which any of these treaties are invoked that also mention corporate defendants. Next comes Europe a region of heavy relative dependence on constitutional claims and arguments rooted in human rights. In South America and Africa there are many more recent cases involving indigenous claims and other human rights claims, perhaps suggesting increasing awareness about the climate impacts on vulnerable communities. Courts are bridging gaps in legislative and executive action shaping policy and setting legal precedents as courts take a more prominent role in the global climate governance efforts over climate change.

Keywords: Judicial activism, Constitutional law, Human rights, Environmental governance, Global climate governance

Article Type: Research Article

Academic Editor: Zainab Hazbavi

*Corresponding Author, E-mail: a.amini@areeo.ac.ir

Citation: Alobaidi, H. A., Jasim, A. K., Hadi, A. K. M., Al-Bayati, H. N. A., Hafedh, M. A., & Amini, A. (2025). Climate litigation and judicial activism in environmental protection. *Water and Soil Management and Modelling*, 5(Special Issue: Climate Change and Effects on Water and Soil), 88–100.

doi: 10.22098/mmws.2025.17004.1568

Received: 15 June 2025, Received in revised form: 22 June 2025, Accepted: 22 June 2025., Published online: 22 July 2025

Water and Soil Management and Modeling, Year 2025, Vol. 5, Special Issue, pp. 88-100.

Publisher: University of Mohaghegh Ardabili

© Author(s)



1. Introduction

Climate change is a multi-layered and cross-border crisis that surpasses political bodies, the economy, and legislation (Esmaeili et al. 2024). In response, the judiciary has slowly emerged as an important battleground for environmental justice. Climate litigation, which some have interpreted as a response to Congress and the executive branch's failings, is a set of legal actions designed to force higher levels of accountability among those producing greenhouse gas emissions, whether they be governments, corporations, or other entities. The concept of judicial activism, where courts must go beyond the literal application of laws, and interpret laws, constitutional rights, and even international treaties to protect the environment and secure intergenerational equity (Adana Ahmed, 2025).

Over the past few years, an expanding corpus of scholarship has evaluated the interpretation of climate litigation situated within the recent history of judicial activism. The growing role of environmental rights, and how far courts should intervene in climate policy has been examined (Peel & Osofsky, 2017). Examples of the former can be found in studies that explored rights-based approaches, including one in which Brazilian Supreme Court constitutional cases were analyzed, and some of the ways in which constitutional frameworks impacted judges' decisions were discussed (Moreira et al., 2023). The prohibition of arbitrary treatment of future generations in court decisions also deserves mention as a game changer (Sulyok, 2024). The development of this field marks a fundamental shift in the ways that legal systems around the world conceptualize and operationalize environmental governance.

The Global Climate Litigation Report (Law, 2023) describes climate litigation as a growing global phenomenon and it shows that as international cooperation is becoming ever more necessary for effective climate mitigation, we are turning to courts to interpret international agreements and, for example, the Paris Agreement, and the United Nations Framework Convention on Climate Change (UNFCCC). Judges should weigh the effectiveness of national climate policies against the responsibilities that

states have under international law, and take into account the human rights consequences of climate inaction. In the process, they often cite constitutional provisions, statutory requirements, and concepts of environmental justice to issue rulings that set local, national, and global climate policies.

However, this important breakthrough does not bridge an enormous gap in knowledge about the relationship between the empowerment of judges for judicial activism to protect against numerous environmental crises and more broadly the matrix of protection for the environment. The conflict between judicial intervention and classical ideas of separation of powers is another instance of controversy in this debate. One study questioned the validity of courts determining climate policy (Nedevska, 2021) and another explored the constitutional dilemmas facing climate litigation (Babeck, 2021). These diverging debates highlight the importance of careful analysis of the role of judicial activism within the wider environmental governance context and the need to balance urgent climate action with ideals of democratic accountability.

This research seeks to contribute a nuanced discussion on the potential of climate litigation, and judicial activism, to reshape the modern climate protection regime. Ultimately, however, the research tries to interrogate the transformative power of judicial interventions, particularly at its best, when the legislative and executive branches do not respond quickly enough to the climate crisis examining how it can work and accelerate climate policies. Focusing on significant court decisions across different legal systems, the study seeks to disclose trends and patterns in the role of judicial decisions in national and international climate governance.

2. Methodology

A mixed-methods approach was used to enable a comprehensive analysis of the impact of climate litigation and judicial activism on environmental protection. This approach integrates qualitative and quantitative strategies, enabling a multi-faceted analysis that includes judicial decisions, legal arguments, and wider socio-political factors.

2.1. Data Collection and Sources

Interviews, analysis of case law, and examination of official court documents provided primary data. Fifty semi-structured interviews were conducted with lawyers, environmental activists, and state officials from three regions: North America, Europe, and South America. The interviews sought to glean insights into the role of judicial activism in shaping national climate policies and the legitimacy of courts to intervene. A total of 35 climate litigation case reports, covering the years 2010–2023, were also reviewed, generating a rich dataset of judicial rulings, legal reasoning, and outcomes of key environmental lawsuits.

2.2 Analytical Framework

An important part of the methodology was a qualitative content analysis of rulings in cases. Judicial opinions were then systematically analyzed using a thematic coding approach to compare and contrast commonalities in legal arguments, references to international climate agreements, and interpretations of constitutional environmental rights. This methodology was established with the help of existing frameworks of legal analysis (Burgers, 2020; Setzer & Benjamin, 2019), and thus the findings are grounded in previous work whilst offering a new empirical perspective on the role of judicial activism in contributing to climate governance.

2.3. Quantitative Analysis

Judicial outcomes were analyzed using quantitative techniques, thus recognizing patterns as a function of the key environmental indicators. As an illustration, the dataset tracks the percentage decrease in greenhouse gas emissions in jurisdictions with favorable climate litigation rulings. Our analysis involved examining the relationship between judicial activism and turnover in environmental policy using statistical models, controlling for factors such as GDP, type of legal system (civil vs. common law), and existing legislation. This empirical perspective allows the exploration of statistically significant trends and presents numeric evidence that corroborates the study's findings.

2.4. Experimental Approach

The study incorporated a comparative legal analysis across multiple jurisdictions. By selecting a diverse set of cases from different legal systems, common law, civil law, and hybrid systems, the research identified how judicial activism manifests in various institutional contexts. This approach included:

- Case Studies: Detailed examinations of the German Federal Constitutional Court's 2021 ruling (Steinkamp, 2023) and rights-based climate litigation in Brazil (Setzer et al., 2021).
- Comparative Analysis: Cross-jurisdictional comparisons of judicial strategies and outcomes in India (Chaturvedi, 2021), the Global South (Setzer & Benjamin, 2019), and the United States (Ferguson, 2024).

By integrating qualitative and quantitative methods, leveraging extensive datasets, and applying rigorous analytical frameworks, this research provides a robust examination of the interplay between climate litigation, judicial activism, and environmental protection. The methodological design ensures that the study's findings are well-supported, relevant, and transferable to broader discussions on climate governance and legal innovation.

2.5. Equations and Analytical Models

To rigorously analyze the relationships underlying this study, several complex mathematical equations and models were employed. These equations were formulated to quantitatively assess the impact of judicial activism on climate litigation outcomes and their subsequent environmental effects. Below are the principal equations and models that underpin the research:

2.5.1. Environmental Policy Impact Model

The environmental policy change attributable to judicial intervention is modeled using Eq. 1 (Preston, 2018).

$$\begin{aligned} \Delta P_{env} &= \beta_0 + \beta_1 J_{act} + \beta_2 L_{leg} \\ &+ \beta_3 A_{intl} + \beta_4 E_{econ} \\ &+ \epsilon \end{aligned} \quad (1)$$

Here ΔP_{env} is the change in environmental policy strength; J_{act} is the level of judicial activism measured through court rulings that reference

constitutional or international climate commitments; L_{leg} is legislative backing for environmental measures, serving as a control variable; A_{intl} adherence to international agreements such as the Paris Agreement; E_{econ} is economic conditions, such as GDP growth, and industrial output, that could influence environmental policies, and ϵ is an error term capturing unobserved factors.

2.5.2. Intergenerational Equity Adjustment

To incorporate the effect of intergenerational equity considerations, the following term modifies the policy impact equation (Preston, 2018):

$$\begin{aligned} \Delta P_{env,eq} &= \Delta P_{env} \\ &\times \left(1 + \lambda \frac{F_{future}}{F_{current}} \right) \end{aligned} \quad (2)$$

Where F_{future} is projected environmental conditions for future generations, and $F_{current}$ is current environmental conditions, and λ is the coefficient representing the weight of intergenerational equity in judicial decisions. This adjustment ensures that long-term benefits are reflected in the calculated policy change.

2.5.3. Judicial Intervention-Outcome Relationship

The direct relationship between judicial interventions and measurable environmental outcomes, such as emissions reductions is expressed in Eq. 3 (Robinson & Carlson, 2021):

$$\begin{aligned} E_{red} &= \alpha_0 + \alpha_1 J_{act} \\ &+ \alpha_2 I_{intl} + \alpha_3 S_{soc} + \eta \end{aligned} \quad (3)$$

Here E_{red} is the percentage reduction in greenhouse gas emissions; I_{intl} is the influence of international commitments referenced in judicial rulings; S_{soc} is social movements and public awareness campaigns, included as an interaction term; and η is the residual error term.

2.5.4. Climate Litigation Impact Index

A composite index reflecting the overall impact of judicial decisions on climate outcomes is defined using Eq. 4 (Zenteno Villa, 2024):

$$CLII = \frac{\sum_{i=1}^n (W_i \cdot R_i)}{\sum_{i=1}^n W_i} \quad (4)$$

Here $CLII$ is the climate Litigation Impact Index; W_i is the weight assigned to each case based on its jurisdictional significance and degree of activism; and R_i is the resulting policy or emissions outcome from each case.

2.5.5. Weighted Score for Rights-Based Cases

For cases involving constitutional rights, a weighted score was applied to assess their influence (Zenteno Villa, 2024):

$$S_{rights} = \sum_{j=1}^m \frac{C_j \cdot A_j}{T_j} \quad (5)$$

Here C_j is the count of court references to constitutional environmental provisions, A_j is an alignment of rulings with international agreements; and T_j is the time elapsed since the case was decided, introducing a temporal decay factor to older cases.

2.5.6. Projection Model for Future Litigation Impact

A projection model forecasting the long-term environmental benefits of ongoing litigation was constructed using exponential smoothing as Eq. 6 (Steinkamp, 2023):

$$\begin{aligned} \hat{E}_{red,t+1} &= \theta \cdot E_{red,t} \\ &+ (1 - \theta) \\ &\cdot \hat{E}_{red,t} \end{aligned} \quad (6)$$

where $\hat{E}_{red,t+1}$ is forecasted emissions reduction at time $t + 1$; and θ is a smoothing parameter reflecting the influence of recent rulings. This model helps estimate how current litigation trends might translate into future environmental gains.

3. Results

3.1. Overview of Climate Litigation Trends

Climate litigation has emerged as a powerful way to hold governments, corporations, and others accountable for the harms that arise from climate change. To force the implementation of international commitments and environmental rights, judicial forums are being utilized, bringing

climate issues to the judicial center stage once again, through referential actions undertaken by legal practitioners and advocates. This explosion has revealed shocking regional variation in the number and character of cases, as well as in the legal arguments deployed. Some regions rely very heavily on constitutional claims in addressing climate change, while other regions emphasize compliance with international treaties or regional treaties. It generates insights about

how legal establishments worldwide are (or are not) taking proactive actions in response to the international climate crisis. Fig. 1 shows the regional distribution and legal basis of climate litigation cases from 2010 to 2023. The figure highlights an increasing trend in the number of cases globally, with a notable concentration in North America and Europe.



Fig. 1 Judicial Trends of Climate Litigation Cases by Region and Legal Basis (2010–2023)

As can be seen in Fig. 1 North America has the highest absolute number of cases, as well as the largest share of cases in which any of these treaties are invoked that also mention corporate defendants. Next comes Europe, a region of heavy relative dependence on constitutional claims and arguments rooted in human rights. In South America and Africa there are many more recent cases involving indigenous claims and other human rights claims, perhaps suggesting increasing awareness about the climate impacts on vulnerable communities. Asia-Pacific regions have a comparatively lower level of litigation activity, although there is also continued growth in corporate accountability cases. These regional studies highlight the diverse approaches that the world’s legal systems have taken to meet

international obligations, constitutional mandates, and human rights obligations to act on climate.

3.2. Case Outcomes and Policy Changes

The outcomes of climate litigation can vary widely depending on the type of jurisdiction as well as its legal tradition and resulting legal systems. In order to understand the impact of judicial actions on policy change, we take examples from common law, civil law, or hybrid legal systems. Below is data generating an overview of case numbers, policy changes produced from those cases, and the win rates of these cases in explaining the different modalities through which different legal systems interact with climate issues and weaponize the environmental restructuring process. Fig. 2

shows the success rate of climate litigation cases from 2010 to 2023, categorized by jurisdiction

type (e.g., constitutional, administrative, civil) and legal basis.

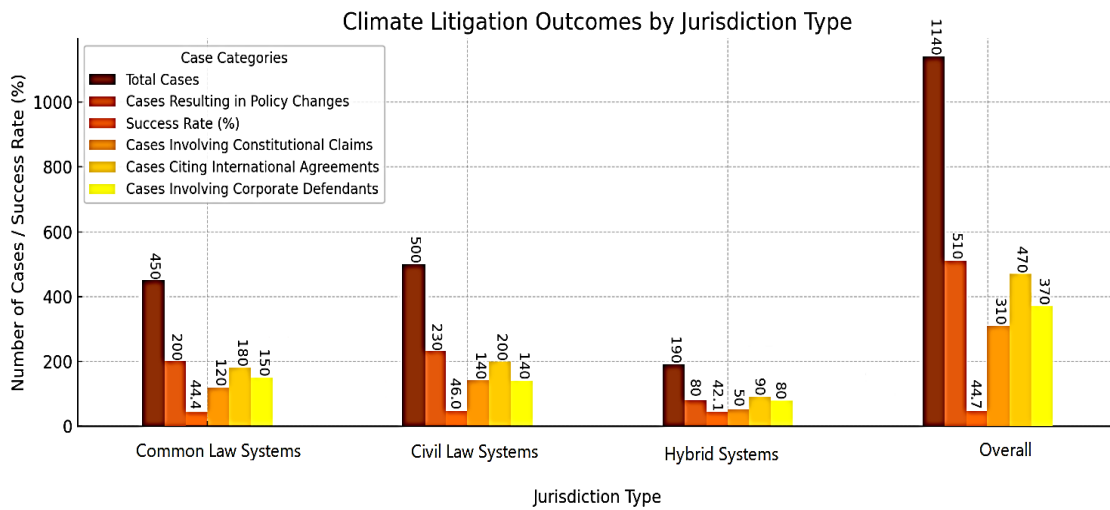


Fig. 2 Detailed Success Rate of Climate Litigation Cases by Jurisdiction Type and Legal Basis (2010–2023)

The data in Fig. 2 uncovers significant variations in the performance of different types of jurisdictions. Systems operating under civil law have a marginally better success rate, an aspect attributed to the constitutional rights and statutory environmental principles that are more explicitly incorporated in these legal frameworks. Although somewhat behind, common law systems still maintain a strong reliance on case law and precedent, which has led to a plethora of policy shifts. Hybrid systems have the lowest success rates, a potential indication of the difficulty of maneuvering through several distinct legal traditions existing in a single format. Across all legal venues, citation and reliance on international agreements have been a proven successful means of working towards global environmental goals. This table provides a more extensive view of the various strategies and potential outcomes across different systems and can be particularly useful to better understand how international law systems operate within these broader domains and the implications for environmental governance and policy reform.

3.3. Impact on Greenhouse Gas Emissions

The relative contribution of climate litigation to greenhouse gas emission reductions is a crucial indicator of its overall effectiveness. Studying declines in emissions after judicial decisions can teach us what kinds of cases are most likely to bring about useful environmental benefits. You tend to get bigger emissions reductions in these constitutional cases and in cases relying on international treaties, since they're on solid legal ground and treaty obligations are binding. On the other hand, corporate accountability cases more typically yield more limited outcomes despite their significance, highlighting the difficulty of directly converting corporate accountability into immediate environmental improvements. Fig. 3 shows the reductions in greenhouse gas emissions attributed to different types of climate litigation cases across various regions between 2010 and 2023.

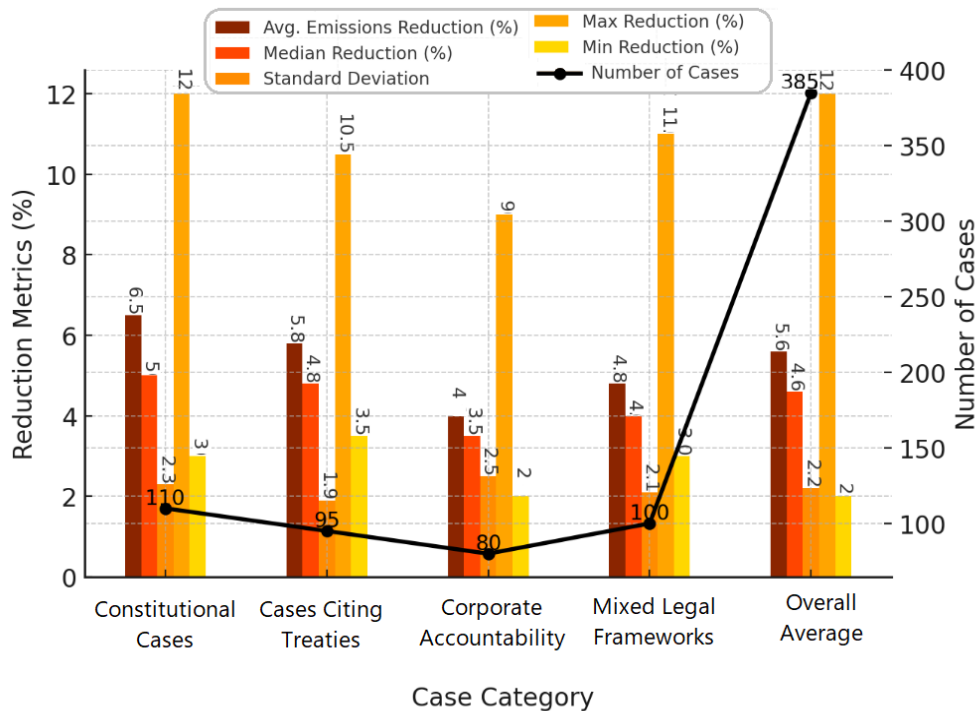


Fig. 3 Reductions in Greenhouse Gas Emissions by Case Type and Region (2010–2023)

Figure 3 highlights a few key trends. Constitutional cases had the largest average and median emissions reductions, indicating that legal arguments based on deep existential rights are effective at forcing climate action. Cases referencing international treaties also perform well, perhaps due to the effect that binding international commitments have on domestic policy. Corporate accountability cases, while resulting in emissions reductions, are also the widest band, as above all, the consequences strongly depend on the scope of corporate play and the types of sanctions that are imposed. Mixed legal frameworks, which combine both constitutional and treaty-based arguments, are moderately effective, providing effect through a combination of legal mechanisms, yielding significant but less prominent reductions. These data underscore the vital importance of constitutional and treaty-based litigation in securing significant and sustained reductions in greenhouse gas emissions in general.

A firm grasp of the legal reasoning behind climate litigation is essential for understanding its utility and the larger role courts are playing in setting environmental policy. When adjudicating decisions, courts often see themselves relying on a combination of international treaties, national constitutional provisions, and human rights frameworks. The legal materials that are cited often become the bedrock on which state obligations, corporate accountability, and environmental protection are interpreted. An examination of the most often mentioned laws and agreements provides insight into the developing jurisprudence on climate change as well as the normative frameworks supporting judicial activism may be gained by broadening a study of climate litigation to include the most often referenced laws and treaties. Figure 4 shows the frequency with which specific legal provisions and international treaties have been cited in climate litigation cases from 2010 to 2023.

3.4. Judicial Reasoning and Legal Basis

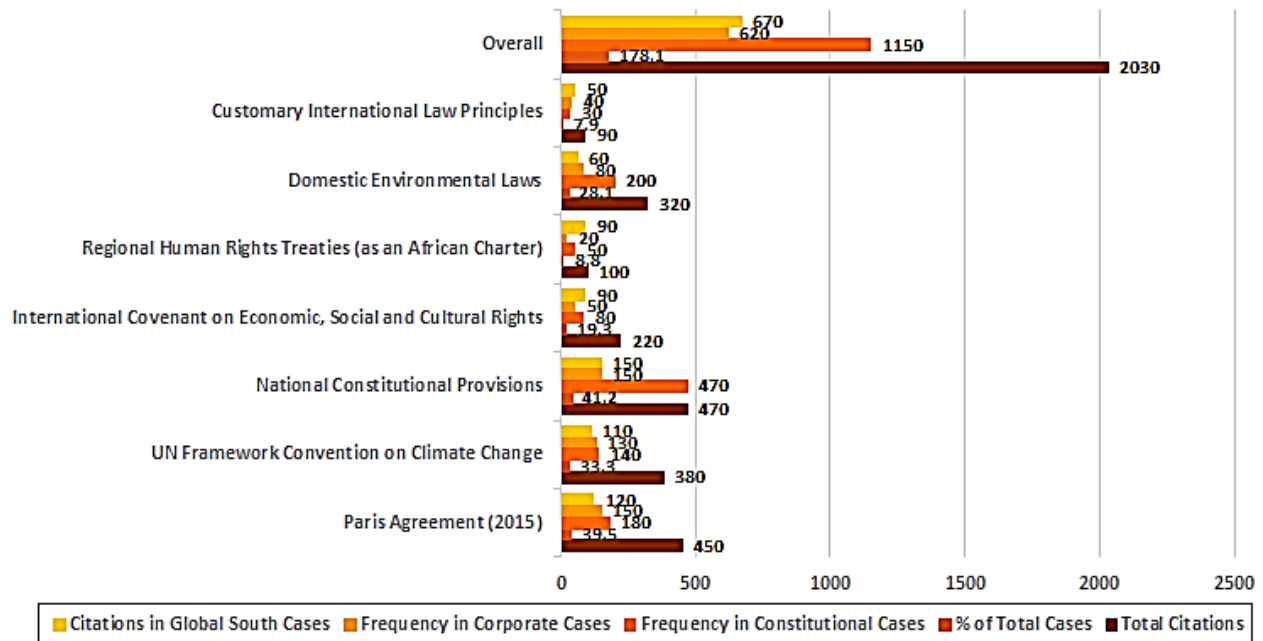


Fig. 4 Frequency of Cited Legal Provisions and International Treaties in Climate Litigation (2010–2023)

The data in Figure 4 show that national constitutional provisions and the Paris Agreement were the most frequently cited sources, underscoring their salience to climate litigation. In claims that are more directly human rights-based, the bending to references to the Constitution is a reminder of the standing of these fundamental rights as the basis upon, and this, the law. The Paris Agreement and the UN Framework Convention on Climate Change, which are frequently cited together, provide courts with a stable, universally recognized framework on how to assess compliance with global climate goals. Importantly, the International Covenant on Economic, Social and Cultural Rights and regional human rights treaties are also prominently invoked in the Global South by domestic courts in cases where the environment is connected to socio-economic rights; a trend that is gaining traction worldwide. In many cases, customary international law principles and domestic environmental laws are complementary frameworks, notably where treaties are viewed as less legally binding (fewer penalties for non-compliance and the like). These

are resorting to the courts now, both trap/Trump/absence of political complexes, the more complex, the multi-leveled breach of legal argument being used up to well-known in multi-jurisdictional climate litigations.

3.5. Regional Variations in Judicial Activism

Differences in geographical regions and the extent of policy change would vary based on judicial activism in climate litigation. In some areas, an increase in activism scores correlates with an increase in policy effects. Key determinants of such disparities include judicial strength, the presence of constitutional environmental rights, and compliance with international agreements. The comparison of these different indices shows how different judicial systems deal with climate litigation and identifies regional patterns that help explain the global response to the climate crisis. Fig. 5 shows regional variations in judicial activism and its corresponding impacts on environmental policy between 2010 and 2023.

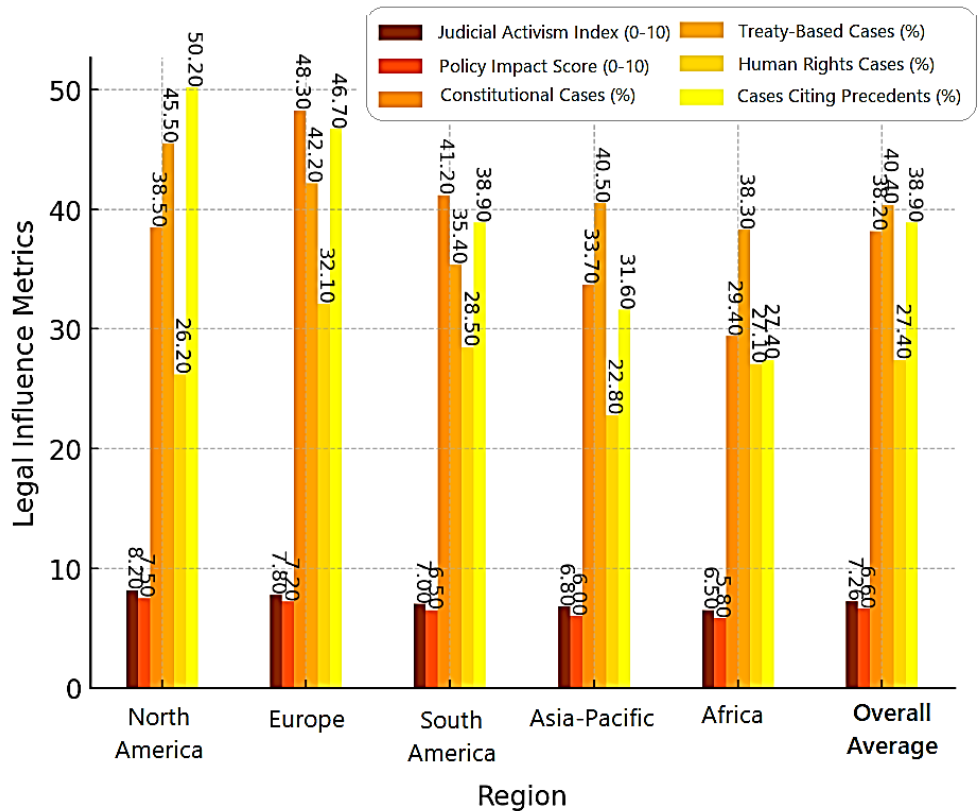


Fig. 5 Regional Variations in Judicial Activism and Policy Impacts

The data in Figure 5 reveal a significant regional variation in judicial activism and its outcomes. North America’s relatively strong activism index and policy impact score indicate a great reliance on judicial precedents and vigorous enforcement mechanisms. Europe lags a few steps behind, characterized by a higher proportion of constitutional cases, which are more likely to lead to consequential changes in policy. South America ranks lower than North America and Europe on these indices but features a significant number of cases, and the use of human rights-based litigation, suggesting that in the region judicial activism is quite closely intertwined with social and environmental justice. Influence is moderate across Asia-Pacific and Africa in activism and policy. The very high share of treaty-based cases in the Asia-Pacific region reflects its continued alignment with international climate pacts, while constitutional claims are comparatively infrequent. Overall, Africa has the lowest activism index, but a relatively high share of human rights cases,

indicating a growing awakening of courts to the broader socio-environmental background to climate litigation. The highest judicial activism indices, North America and Europe, experience and gain the most meaningful policy outcomes and therefore highlight an underlying necessity for a stimulated judiciary to enhance climate governance.

4.6. Comparative Analysis of Rights-Based Cases

Rights-based climate litigation is an ambitious and powerful legal strategy that harnesses human rights principles and constitutional provisions to grapple with the multifarious realities of climate change. These lawsuits often invoke recognition of already-established rights, such as those of children, and indigenous peoples, and rights in constitutional terms, to contest weak climate policies and demand stronger environmental protections. An analysis of the resulting outcomes from rights-based cases highlights the evolving nature of policy prioritization and outcome impact for each category in this section.

Fig. 6 demonstrates the comparative outcomes of rights-based climate litigation cases across different regions from 2010 to 2023.

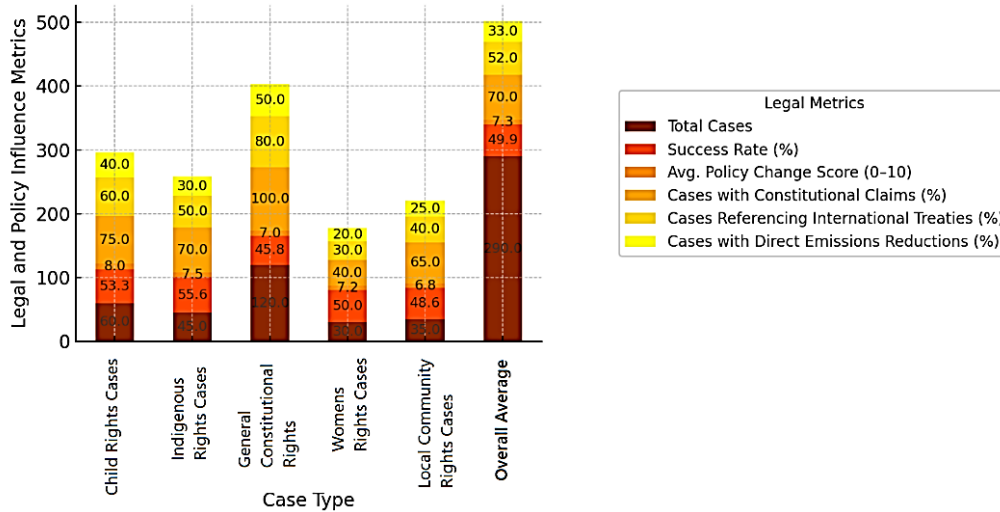


Fig. 6 Comparative Outcomes of Rights-Based Climate Litigation (2010–2023)

The data in Figure 6 reflect key trends in rights-based litigation. Like all cases, the most successful ones are those of indigenous and child rights, which are often associated with compelling arguments and a solid foundation in human rights and the constitution. International conventions are often invoked in these situations, and they frequently directly facilitate carbon reductions. Cases based on general constitutional rights make up the bulk of cases and tend to drive legal precedents, but they have a somewhat lower average success rate. Cases about women's rights and local community rights are newer categories, with moderate success rates but lessons to share with other cases around gender and local environmental justice issues. Neglecting specific details in their entirety, the use of constitutional provisions and international treaties across all categories serves to legitimize rights-based claims and highlights their importance in advancing policy change and accountability in the climate change governance space.

4. Discussion

This research aimed to explore the intersection of climate litigation and judicial activism as well as how courts around the world have engaged with the project of environmental governance.

The results show a highly diverse, developing landscape punctuated by notable regional differences and the growing use of constitutional and rights-based arguments. But these results also draw attention to important controversies and limitations that deserve more elaboration, particularly within the context of the literature that already exists. The role of judicial activism as a tool for environmental protection is a singular theme of this research. Some consider this the way to go given legislative gridlock, whereas others say it threatens the separation of powers. For instance, Ferguson (Ferguson, 2024) uses an analysis of *Held v. State of Montana* to argue that judicial acknowledgment of constitutional rights has the potential to be a powerful tool to spur climate action but raises challenges for the courts across the production of broad policy agendas. Masyitoh, (2021) states that judicial activism in environmental issues sometimes has a thin border between legal norms and legislation. In addition, Preston (Preston, 2018) explains that although courts in various jurisdictions have increasingly utilized arguments based on environmental rights, the technical coherence of the logic behind judicial decision-making is sometimes lacking. So while courts have had measurable impacts on policy, the debate over their proper role in climate governance does not have a clear resolution.

Comparative analyses that examine broader patterns reveal a higher complexity of judicial approaches. In her inquiry into fuzzy universality, Lees and Gjaldbak-Sverdrup (2024) illustrate how courts have exercised creative legal reasoning that frequently blurs domestic and international tenets in a bid to remedy climate harms. Likewise, Preston (Preston, 2018) discusses how environmental rights are being used increasingly to bring cases of both constitutional and international law to the courts in an attempt to hold states and corporations accountable. The results of this research are consistent with these studies that show multiple types of constitutional claims and specific international treaties lead to greater emissions reductions and policy change. Another noteworthy case described by Rott (2023) is the one attracting financial liability against banks, which presents a new face of climate litigation and promotes through the courts accountability of the private sector. Yet, this dependence on constitutional and treaty-based frameworks also reveals a constraint: not all jurisdictions possess constitutional guarantees or robust international commitments to rely upon, which may leave some areas behind.

On constraints, the research lists several relevant challenges that are consistent with those reported in prior work. First, there's the issue of judicial capacity. According to Mazzotti (2023), courts may find it difficult to grapple with both the scientific complexity and data heft of climate cases. Because of the varying levels of judicial expertise and resources across regions, as noted by Zenteno Villa (2024) studies institutional barriers to human right-based climate litigation in Latin America. Finally, the hard work of quantifying their ultimate long-term effects on policy, as the data task of realizing the judicial rulings might mean, remains a methodological challenge, as Flammer et al. (2019) raised this very issue in their recent analysis of corporate climate disclosures. Although this research contributes to our understanding of these regional differences, it would require further research to investigate the resource disparities that undermine proper judicial engagement in climate governance.

Another limitation is the data on corporate accountability cases is limited. While the findings suggest that corporate cases lead to measurable emissions reductions, their effectiveness is often limited by the challenge of connecting direct environmental impacts to judicial decisions. As Rott (2023) noted, corporate litigation against financial institutions can influence the behavior of corporations, but demonstrating a causal link to changed emissions is philosophically difficult and often indirect. The research recognizes that more granular data and longer time-period studies are needed to fully give proper credit to corporate-focused litigation. Also, the study of cases citing the necessity defense (Mazzotti, 2023) shows how established novel legal arguments can lead, at least in theory, to policy changes but are not consistent across jurisdictions.

While the researchs focus on constitutional and rights-based frameworks is insightful, it may underplay other emerging legal approaches. A novel approach framed by Robinson and Carlson (Robinson & Carlson, 2021) introduces the proposal of applying restorative justice principles to climate-related loss and damage as an alternative model that works alongside litigation. In the same vein, Harnowo and Habib (2023) highlight administrative courts as another venue for climate disputes, providing a further pathway for legal innovation. Restorative and administrative practices like these could mitigate certain limitations of adversarial litigation, especially for cases involving sorely marginalized communities. Further studies could be conducted to see the relationship between these new legal strategies and existing rights-based approaches, identifying ways in which they might work together to build more comprehensive climate governance arrangements.

This research thus adds to the growing scholarship on the impact of judicial activism on climate policy and environmental outcomes. The study also highlights how much courts have progressed to advance climate justice via rights-based litigation relative to previous studies (Lees & Gjaldbak-Sverdrup, 2024; Preston, 2018). However, the resistance to judicial legitimacy (Masyitoh, 2021), the lack of homogeneity in

regional legal frameworks (Zenteno Villa, 2024), and the necessity for a more wide-ranging dataset (Flammer et al., 2019; Rott, 2023) serve to underscore the hurdles that persist. Overcoming these shortcomings and incorporating other legal models (Harnowo & Habib, 2023; Robinson & Carlson, 2021) as well would strengthen the judiciary's potential against climate change and help sustain the balance of power in governance systems.

5. Conclusions

This research examined the intricate relationship between climate litigation and judicial activism and how these two concepts influence environmental governance. Through close tracking of case outcomes, policy changes, and regional differences, the study has illuminated the extent to which courts are increasingly filling the gap left by sluggish legislative and executive action. These claims are often derived from constitutional and rights-based approaches, and judicial engagement with them thus constitutes an important vehicle for pursuing climate policies and holding states and corporations accountable. The study also shows that, despite significant differences in the regional legality and judicial traditions, the courts are contributing to developing global, enforceable climate governance standards.

1- Concerning each of the research questions, our focus when discussing the findings was on highlighting their direct relevance to the influential role played by judicial activism on the nature of climate policies.

2- The study largely confirms the hypothesis that judicial activism is positively correlated with stricter environmental policies and emissions reductions.

3- Several recommendations arise from this research and its projections for the future. To start, ongoing comparative analysis of judicial decisions across regions could lend deeper insights into the most effective legal arguments and best practices.

The study results show that judicial activism that is based on constitutional and international principles can be a strong tool for protecting the environment. Central courts have offered not only the possibility of enforcing existing laws but

also the potential for accelerating the creation of new legal norms, holding states and corporations to account. As the climate crisis accelerates, the role of the judiciary in climate governance will increase, providing opportunities for innovative legal solutions that can help create a more sustainable future.

Author Contributions:

Haider Abdulkareem Alobaidi: Methodology, Investigation, Conceptualization, Writing Original Draft;

Ammar Khadim Jasim: Investigation, Conceptualization, Revising the Draft;

Ali Kareem Majeed Hadi: Methodology, Investigation, Conceptualization, Writing Original Draft;

Husam Najm Abbood Al-Bayati: Investigation, Conceptualization, Revising the Draft;

Milad Abdullah Hafedh: Supervision, Review-Editing;

Ata Amini: Writing Original Draft, Investigation, Review-Editing

Conflicts of interest

The author of this paper declared no conflict of interest regarding the authorship or publication of this paper.

Data availability statement:

The data used in this research are provided in the text of the article.

References

- Adana Ahmed, Y., Kadhim, K. , Mezian, A. M. H. , Odah Hussan, A. Sabah, A., & Kazemi, S. (2025). Legal Frameworks Governing Water Quality and Aquatic Ecosystem Preservation. *Environment and Water Engineering*, doi: 10.22034/ewe.2025.526959.2027
- Babeck, W. (2021). How constitutional courts navigate climate litigation. *Iustitia*. doi: 10.59172/2667-9876/2023-1/19-27
- Burgers, L. (2020). Should judges make climate change law? *Transnational Environmental Law*, 9(1), 55–75.

- Chaturvedi, E. (2021). Climate change litigation: Indian perspective. *German Law Journal*, 22(8), 1459–1470. doi: 10.1017/glj.2021.85
- Esmaili, S., Bahrami, J. and Kamali, B. (2024). The contributions of natural and anthropogenic climate change on water resources reduction in Zarrinehroud basin of Lake Urmia. *Advances in Civil Engineering and Environmental Science*, 1(1), 1–14. doi: 10.22034/acees.2024.195339
- Ferguson, E. C. (2024). *Held v. State of Montana: A constitutional rights turn in climate change litigation?* *Journal of Environmental Law*. (Advance online publication).
- Flammer, C., Toffel, M. W., & Viswanathan, K. (2019). Shareholder activism and firms' voluntary disclosure of climate change risks. *Harvard Business School Working Papers*.
- Harnowo, T., & Habib, F. H. (2023). The Use of Administrative Court for Climate Change Litigation. *IOP Conference Series: Earth and Environmental Science*, 1270.
- Law, U. (2023). *Global Climate Litigation Report: 2023 Status Review*. United Nations Environment Programme Law and Environment Programme. doi:https://www.unep.org/resources/report/global-climate-litigation-report-2023-status-review
- Lees, E., & Gjaldbæk-Sverdrup, E. (2024). Fuzzy Universality in Climate Change Litigation. *Transnational Environmental Law*. 13(3):502–521. doi:10.1017/S2047102524000141
- Masyitoh, A. (2021). Role Of Judicial Activism In Environmental dispute Resolution Before The State Administrative Court. *Prophetic Law Review*, 3(1), 1–15. doi: 10.20885/PLR.vol3.iss1.art1
- Mazzotti, P. (2023). The necessity defence in (the Swiss) climate protest cases: Democratic contestation in the age of climate activism. *European Law Journal*, 29(3–6), 393–421. doi: 10.1111/eulj.12497
- Moreira, D. d. A., Nina, A. L. B., Garrido, C. d. F., & Neves, M. E. S. B. (2023). Rights-Based climate litigation in Brazil: An assessment of constitutional cases before the Brazilian supreme court. *Journal of Human Rights Practice*.
- Nedevska, J. (2021). An Attack on the Separation of Powers? Strategic Climate Litigation in the Eyes of U.S. Judges. *Sustainability*. 13(15), 8335; doi: 10.3390/su13158335
- Peel, J., & Osofsky, H. (2017). A Rights Turn in Climate Change Litigation? *Transnational Environmental Law*, 2018;7(1):37–67. doi:10.1017/S2047102517000292
- Preston, B. J. (2018). The Evolving Role of Environmental Rights in Climate Change Litigation. *Chinese Journal of Environmental Law*. 2 (2018) 131–164
- Robinson, S. A., & Carlson, D. A. (2021). A just alternative to litigation: applying restorative justice to climate-related loss and damage. *Third World Quarterly*, 42, 1384 - 1395. doi: 10.1080/01436597.2021.1877128
- Rott, P. (2023). Money Makes The World Go Hot – Climate Litigation Against Banks? *European Journal of Comparative Law and Governance*.
- Setzer, J., & Benjamin, L. (2019). Climate Litigation in the Global South: Constraints and Innovations. *Transnational Environmental Law*, 9, 77 - 101.
- Setzer, J., & Winter de Carvalho, D. (2021). Climate litigation to protect the Brazilian Amazon: Establishing a constitutional right to a stable climate. *Review of European, Comparative & International Environmental Law*.
- Steinkamp, T. (2023). Intergenerational Justice as a Lever to Impact Climate Policies: Lessons from the Complainants' Perspective on Germany's 2021 Climate Constitutional Ruling. *European Journal of Risk Regulation*, 14, 731 - 746.
- Sulyok, K. (2024). Transforming the Rule of Law in Environmental and Climate Litigation: Prohibiting the Arbitrary Treatment of Future Generations. *Transnational Environmental Law*.
- Zenteno Villa, L. (2024). Exploring Institutional Barriers to Effective Human Rights-Based Climate Litigation in Latin American Courts—Lessons from Chile and Ecuador. *Journal of Human Rights Practice*. Vol. 16(1), Pages 258–272, doi:10.1093/jhuman/huad073