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# **Climate Change: An Existential Global Predicament**

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## **Abstract**

Climate change has emerged as the most pressing existential predicament of the twenty-first century, transcending environmental concerns to encompass legal, social, economic, and human rights dimensions. Despite decades of international negotiations and the establishment of frameworks such as the UNFCCC, Kyoto Protocol, and the Paris Agreement, the global response remains fragmented and largely inadequate in preventing the irreversible consequences of rising temperatures, extreme weather events, and loss of biodiversity.

The phenomenon disproportionately affects vulnerable populations, raising questions of climate justice, equity, and intergenerational responsibility. This research paper critically examines the international legal framework and its limitations in ensuring compliance, highlights the inadequacies of national responses with a particular focus on India, and explores the evolving role of the judiciary in climate litigation. By analyzing case law from both domestic and international jurisdictions, it underscores how courts are increasingly positioning climate change as a matter of fundamental rights and state accountability.

Further, the paper identifies systemic challenges, including weak enforcement, insufficient financing, and political resistance, which continue to impede effective governance. In addressing these gaps, the study proposes strengthening international commitments, adopting climate-specific domestic legislation, and recognizing the need for judicial proactiveness and community engagement. Ultimately, it argues that climate change must be understood not only as an environmental crisis but also as a legal and ethical imperative demanding coordinated global and local action.

**Keywords:** Climate change, Paris Agreement, climate justice, human rights, climate litigation, sustainable development, intergenerational equity.

## Introduction

Climate change, broadly defined as long-term alterations in global temperatures, weather patterns, and ecosystems primarily driven by anthropogenic activities such as industrial emissions, deforestation, and unsustainable consumption of natural resources, has come to be recognized not merely as an environmental problem but as an existential global crisis threatening the very survival of humanity and the planet.

Over the past decades, the discourse on climate change has shifted from being a matter of scientific observation and concern, centered around greenhouse gas concentrations and rising global temperatures, to becoming one of the most pressing legal, political, and policy challenges of our time. The progression of debates from early warnings by the Intergovernmental Panel on Climate Change (IPCC) and scientific consensus on anthropogenic warming to international negotiations under the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement reflects the growing realization that climate change demands coordinated global action. Beyond environmental degradation, the crisis carries profound human dimensions—it undermines the right to life, health, food, and housing, thereby transforming into a human rights issue. Similarly, the disproportionate impact on developing and least developed countries despite their minimal contribution to global emissions exposes it as a developmental issue and a question of global justice<sup>1</sup>.

The urgency lies in the fact that rising sea levels, extreme weather events, biodiversity loss, and climate-induced migration are no longer distant threats but present realities that exacerbate inequalities, strain governance structures, and challenge sustainable development goals. Against this backdrop, the research problem addressed in this paper is the paradox that despite the existence of elaborate international frameworks, national commitments, and judicial interventions, climate change mitigation and adaptation remain inadequate and fragmented, with gaps in enforcement, compliance, and equitable responsibility-sharing.

The objectives of the paper are threefold: first, to critically analyze the legal and institutional frameworks, both international and domestic, that have been devised to address climate change; second, to examine the challenges faced in ensuring effective global and domestic governance of climate change, including issues of accountability, capacity, and political will; and third, to propose legal and policy solutions that can enhance the effectiveness of climate governance while ensuring fairness and sustainability<sup>2</sup>.

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<sup>1</sup> United Nations Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107.

<sup>2</sup> U.N. General Assembly, Resolution 76/300, *The Human Right to a Clean, Healthy and Sustainable Environment* (July 28, 2022).

The methodology adopted for this research is primarily doctrinal, involving the study of international treaties such as the UNFCCC, Kyoto Protocol, and Paris Agreement, alongside national legislations and policy instruments from select jurisdictions. A comparative approach is also employed to evaluate how different countries have responded to climate change through legislative measures and judicial pronouncements, thereby providing insights into best practices and gaps in implementation. Through this integrated analysis, the paper seeks to contribute to the broader discourse on climate governance by highlighting the intersection of law, policy, and justice in addressing one of the most urgent challenges of the twenty-first century.

## **Climate Change as an Existential Global Predicament**

Climate change is increasingly being recognized not merely as an environmental concern but as a profound existential challenge that threatens the very survival of life on Earth. The scientific consensus is unequivocal: human activities, especially since the Industrial Revolution, have dramatically altered the Earth's atmospheric balance. The accumulation of greenhouse gases such as carbon dioxide, methane, and nitrous oxide has trapped heat within the atmosphere, leading to global warming. While natural climatic fluctuations have occurred throughout history, the current pace and magnitude of change are unprecedented, pointing unmistakably towards anthropogenic causes<sup>3</sup>. The steady rise in global temperatures has triggered a chain reaction affecting weather patterns, ocean currents, and ecological systems across the globe.

Among the most significant causes of climate change is the large-scale burning of fossil fuels for energy production, transportation, and industrial activities. Deforestation, often driven by agricultural expansion, logging, and urbanization, has worsened the crisis by reducing the Earth's capacity to absorb carbon dioxide. Rapid industrialization in both developed and developing countries has further amplified emissions. This combination of unsustainable practices has created a "perfect storm" where the ecological balance is tilting dangerously, pushing planetary systems towards thresholds beyond which recovery may not be possible<sup>4</sup>.

The impacts of these changes are being felt across every continent and ocean. Rising sea levels, driven by melting polar ice caps and thermal expansion of seawater, threaten low-lying coastal regions and island nations with submergence. Extreme weather events—such as hurricanes, heatwaves, droughts, and floods—have become more frequent and severe, leading to catastrophic human and economic losses. Biodiversity loss, through habitat destruction and altered ecosystems, poses another grave challenge as countless species are being driven to extinction. These changes also affect food and water security, as erratic rainfall and shifting climatic zones disrupt agricultural productivity and reduce freshwater availability. Collectively,

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<sup>3</sup> Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2023: Synthesis Report* (2023).

<sup>4</sup> Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2022: Impacts, Adaptation, and Vulnerability* (Hans-Otto Pörtner et al. eds., 2022).

these scientific and environmental realities make clear that climate change is not a distant or abstract concern, but a lived and escalating crisis.

### **Socio-Economic Implications**

The consequences of climate change extend far beyond the environment, seeping deeply into the fabric of societies and economies. One of the most visible impacts is the displacement of people, often referred to as “climate refugees.” Communities living in coastal areas, small island states, or regions prone to desertification are increasingly being forced to migrate as their homes become uninhabitable. This mass displacement creates new pressures on urban centers, sparks conflict over resources, and tests the resilience of already fragile social systems.

Developing nations, which often contribute the least to global emissions, face the greatest brunt of loss and damage. Floods, cyclones, and prolonged droughts not only destroy infrastructure and livelihoods but also trap countries in cycles of poverty. Economic resources that might have been used for education, healthcare, or infrastructure development are instead diverted towards disaster relief and reconstruction. The economic toll is staggering, with climate-related disasters costing billions of dollars annually and disproportionately affecting nations with limited adaptive capacity<sup>5</sup>.

Furthermore, climate change poses a direct threat to the realization of the United Nations Sustainable Development Goals (SDGs). Goals related to poverty reduction, food security, clean water, and health are all undermined by environmental instability. For instance, SDG 13, which calls for urgent action to combat climate change, is inherently linked with the success of other goals. Without addressing the climate crisis, the broader global development agenda risks collapsing, highlighting the inseparable relationship between environmental health and socio-economic progress.

### **Human Rights Dimensions**

Climate change is not only a scientific and developmental issue but also a human rights concern. The right to life, enshrined in various national constitutions and international human rights treaties, is jeopardized by rising sea levels, lethal heatwaves, and natural disasters. Similarly, the right to health is compromised by the spread of climate-sensitive diseases such as malaria and dengue, air pollution, and malnutrition arising from declining crop yields. The right to a clean and healthy environment, increasingly recognized as a fundamental right, is also at stake.

Intergenerational equity forms a particularly critical dimension of this debate. Current patterns of consumption and exploitation are compromising the ability of future generations to enjoy the same environmental and developmental opportunities as their predecessors. The idea that today’s

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<sup>5</sup> U.N. Human Rights Council, *Report of the Special Rapporteur on Human Rights and the Environment*, U.N. Doc. A/HRC/43/53 (2020).

actions should not prejudice the well-being of tomorrow's citizens is not only a moral imperative but also a legal and ethical principle acknowledged by international law. Thus, the climate crisis becomes a direct challenge to humanity's collective responsibility to safeguard the planet for present and future generations.

### **The Justice Dilemma**

At the heart of the global climate debate lies the justice dilemma: who bears the responsibility for combating this crisis? Developed nations have historically been the largest contributors to greenhouse gas emissions through decades of industrialization, yet developing nations now face the greatest vulnerabilities. This imbalance has given rise to the principle of climate justice, which demands accountability and equitable distribution of burdens and responsibilities.

The principle of Common But Differentiated Responsibilities (CBDR), recognized in the United Nations Framework Convention on Climate Change (UNFCCC), provides a framework for addressing this dilemma. It acknowledges that while all countries share the obligation to tackle climate change, the extent of responsibility varies depending on historical contributions and present capabilities. For instance, wealthier nations are expected to provide financial assistance, technological support, and capacity-building initiatives to enable developing countries to adapt and mitigate the effects of climate change.

However, the implementation of CBDR has often been fraught with disagreements and political challenges. Developed nations have frequently fallen short of their commitments, while some emerging economies argue for greater leeway in balancing developmental priorities with climate responsibilities. The justice dilemma thus remains a central obstacle in forging unified and effective international climate action.

Climate change epitomizes an existential global predicament, intertwining scientific, socio-economic, human rights, and justice dimensions. It threatens the stability of ecosystems, undermines economic development, exacerbates inequalities, and challenges fundamental human rights. Addressing this crisis requires more than technological innovations or isolated national policies; it demands collective global action grounded in fairness, accountability, and long-term sustainability. Without urgent and equitable intervention, climate change will continue to unravel the delicate balance that sustains life on Earth, making it one of the most pressing existential challenges of our time.

### **International Legal Framework on Climate Change**

The international legal response to climate change has evolved over the last three decades, reflecting growing scientific evidence, political negotiations, and the recognition of climate change as a pressing threat to humanity and the planet. The framework is characterized by treaties, protocols, and agreements under the auspices of the United Nations, supplemented by

scientific assessments, international litigation, and financial mechanisms. Despite progress, the regime continues to grapple with challenges relating to binding commitments, compliance, and the balance between national sovereignty and collective responsibility.

### **Foundational Instruments**

The United Nations Framework Convention on Climate Change (UNFCCC) 1992, represents the cornerstone of international climate governance. Adopted at the Earth Summit in Rio de Janeiro, it was the first multilateral treaty to comprehensively address climate change. The UNFCCC established the principle of “common but differentiated responsibilities and respective capabilities” (CBDR-RC), recognizing that while climate change is a global problem, the historical responsibility and capacity to respond differ among states. Its ultimate objective is to stabilize greenhouse gas (GHG) concentrations at a level that prevents dangerous anthropogenic interference with the climate system. The Convention does not impose binding emission reduction targets but lays down procedural obligations such as reporting, information-sharing, and periodic meetings of the Conference of the Parties (COP).

Building on this framework, the Kyoto Protocol of 1997 introduced legally binding commitments for industrialized countries (Annex I parties) to reduce GHG emissions. It marked a significant legal step, creating quantified emission limitation and reduction obligations (QELROs) for the period 2008–2012, with flexibility mechanisms such as emissions trading, the Clean Development Mechanism (CDM), and Joint Implementation (JI). While the Protocol was an ambitious attempt to operationalize binding targets, its effectiveness was undermined by the withdrawal or non-ratification of key emitters such as the United States and the limited participation of developing countries. The second commitment period, established through the Doha Amendment (2012), further weakened its influence, as global emissions increasingly came from emerging economies not bound by its targets<sup>6</sup>.

The Paris Agreement of 2015 represented a paradigm shift in climate governance. Unlike the Kyoto Protocol, it does not impose top-down legally binding emission reduction obligations. Instead, it relies on nationally determined contributions (NDCs), allowing each country to set its own climate targets in line with its circumstances and capabilities. The Agreement seeks to limit global temperature rise to “well below 2°C above pre-industrial levels” and to pursue efforts to keep it within 1.5°C. It introduced mechanisms for transparency, a global stocktake every five years, and enhanced climate finance commitments. Importantly, it expanded the scope beyond mitigation, addressing adaptation, loss and damage, and technology transfer. However, the reliance on voluntary commitments raises concerns about ambition and accountability, as current NDCs fall short of achieving the 1.5°C pathway identified by scientific bodies<sup>7</sup>.

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<sup>6</sup> Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 11, 1997, 2303 U.N.T.S. 148.

<sup>7</sup> Paris Agreement, Dec. 12, 2015, T.I.A.S. No. 16-1104.

## **Other International Developments**

Parallel to treaty developments, international climate governance has been shaped by scientific assessments from the Intergovernmental Panel on Climate Change (IPCC). Established in 1988, the IPCC synthesizes peer-reviewed scientific research to provide authoritative assessments of the causes, impacts, and policy responses to climate change. Its periodic assessment reports, such as the Fifth (2014) and Sixth (2021–2022), have been instrumental in shaping negotiations by providing evidence of human influence, the urgency of action, and pathways for mitigation and adaptation. The IPCC's findings directly informed the 1.5°C ambition of the Paris Agreement and continue to provide the evidentiary foundation for legal and policy action.

The Conference of the Parties (COP) remains the central decision-making forum under the UNFCCC. Annual COP meetings serve as a platform for negotiating commitments, reviewing progress, and adopting decisions to strengthen implementation. Landmark meetings such as COP3 (Kyoto, 1997), COP15 (Copenhagen, 2009), COP21 (Paris, 2015), and COP26 (Glasgow, 2021) have defined the trajectory of international climate law. More recently, COP27 (Sharm el-Sheikh, 2022) and COP28 (Dubai, 2023) emphasized loss and damage, leading to the establishment of a dedicated loss and damage fund, marking recognition of climate justice concerns of vulnerable states.

Climate finance is a vital dimension of international obligations. The Green Climate Fund (GCF), established in 2010, serves as the principal financial mechanism to support developing countries in mitigation and adaptation efforts. The long-standing pledge of developed countries to mobilize USD 100 billion annually has been a recurring subject of negotiation and contention, with debates over adequacy, transparency, and accountability of financial flows. Other initiatives, such as technology transfer mechanisms and capacity-building programs, aim to address equity concerns and enhance the participation of developing and least-developed countries.

## **Critical Issues in International Law**

Despite its institutional richness, the international climate regime faces several critical legal and structural challenges. First, the non-binding nature of commitments, especially under the Paris Agreement, undermines the certainty and predictability of outcomes. While reporting and review mechanisms encourage accountability, the absence of legally enforceable sanctions reduces incentives for compliance.

Second, compliance and enforcement remain weak. Unlike trade or investment treaties that allow for binding dispute settlement, climate agreements rely on political will and peer pressure. The Kyoto Protocol's compliance system was notable but proved ineffective due to lack of participation and enforcement capacity. The Paris Agreement, by contrast, opts for a facilitative, non-punitive approach, reflecting the political difficulty of imposing penalties in a highly sensitive area of sovereignty.



Third, there are tensions between national sovereignty and collective responsibility. While states acknowledge the global nature of climate change, many prioritize domestic development agendas and economic growth over stringent climate action. The CBDR principle remains contentious, as developing countries argue that historical emitters must bear a larger share of the burden, while developed countries push for universal participation. This tension is particularly acute in debates on carbon markets, technology transfer, and loss and damage.

### **Role of International Courts and Tribunals**

In recent years, international courts and tribunals have emerged as important arenas for climate accountability. The International Court of Justice (ICJ) has been approached by states and civil society to issue advisory opinions on the obligations of states concerning climate change. In 2023, the UN General Assembly formally requested the ICJ to clarify states' obligations to prevent harm to the climate system and to define potential legal consequences for failure to act. Such an opinion could reshape customary international law by grounding climate obligations in principles of environmental protection, human rights, and intergenerational equity.

At the regional level, human rights courts and commissions have increasingly recognized the link between climate change and fundamental rights. The European Court of Human Rights (ECHR), the Inter-American Court of Human Rights, and national constitutional courts have adjudicated cases where inadequate climate action was challenged as a violation of rights to life, health, and a clean environment. For instance, the Urgenda case in the Netherlands (2019) required the Dutch government to strengthen emission reductions based on human rights obligations. These developments indicate a judicial willingness to interpret existing human rights norms in light of the climate crisis.

The international legal framework on climate change has evolved from aspirational commitments under the UNFCCC to legally binding targets under Kyoto, and now to nationally driven voluntary contributions under Paris. While the institutional architecture has grown stronger, persistent challenges of compliance, ambition, and equity continue to hinder its effectiveness. Emerging climate litigation before international and regional courts signals a new frontier in accountability, complementing treaty-based commitments. Ultimately, the framework reflects a delicate balance between state sovereignty, developmental priorities, and the collective need to safeguard the planet for present and future generations.

### **National Legal and Policy Frameworks**

Climate change, though a global phenomenon, requires active intervention at the national level through constitutional mandates, legislative frameworks, judicial interpretations, and policy measures. Countries have sought to develop strategies that balance environmental protection with economic growth, yet the effectiveness of these frameworks varies widely depending on political will, institutional capacity, and socio-economic realities. India, as a rapidly developing

country, has adopted constitutional and legislative provisions to address climate issues, while other jurisdictions such as the United States, the European Union, and vulnerable small island nations have pursued their own approaches. Examining these legal and policy frameworks provides insight into both progress and limitations in addressing climate change.

### **India's Legal Framework**

The Indian Constitution provides a strong foundation for environmental protection, which has been gradually expanded to incorporate climate-related concerns. Article 21, which guarantees the right to life and personal liberty, has been interpreted by the Supreme Court to include the right to a clean and healthy environment. This judicial interpretation has transformed environmental protection from a directive principle into a fundamental right, thereby creating enforceable obligations on the State. Article 48A, placed under the Directive Principles of State Policy, directs the State to protect and improve the environment and safeguard forests and wildlife. Complementing this, Article 51A(g) imposes a fundamental duty on citizens to protect the natural environment, including forests, lakes, rivers, and wildlife. Together, these constitutional provisions form the bedrock of India's climate and environmental jurisprudence.

Judicial activism has played a critical role in strengthening India's environmental governance. Landmark cases such as *M.C. Mehta v. Union of India* and *Subhash Kumar v. State of Bihar*<sup>8</sup> broadened the scope of Article 21 to include environmental rights. The Supreme Court and High Courts have invoked the "polluter pays" principle, the "precautionary principle," and the "public trust doctrine" to hold industries and the government accountable for environmental degradation. Judicial interventions have often compensated for weak enforcement by executive agencies, ensuring that climate-related concerns are addressed within the broader framework of fundamental rights.

India's legislative framework has also evolved significantly. The Environment Protection Act, 1986, enacted in the aftermath of the Bhopal Gas Tragedy, remains the umbrella legislation for environmental protection. It empowers the central government to take all measures to protect and improve the environment. Complementing this law are the Air (Prevention and Control of Pollution) Act, 1981, and the Water (Prevention and Control of Pollution) Act, 1974, which regulate specific forms of environmental degradation. Beyond statutory laws, India has adopted major policy initiatives such as the National Action Plan on Climate Change (NAPCC), launched in 2008. The NAPCC outlines eight "National Missions," including the National Solar Mission, National Mission on Sustainable Agriculture, and National Water Mission, aiming to integrate sustainable development with climate mitigation and adaptation. Furthermore, each state has prepared its own State Action Plan on Climate Change (SAPCC), tailored to regional needs and vulnerabilities. While these frameworks highlight India's commitment, challenges remain in

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<sup>8</sup> *MC Mehta v. Union of India*, (1987) 1 SCC 395 (India)

terms of implementation, financial support, and integration of climate concerns into mainstream development.

### **Comparative Perspective**

The United States has had a fragmented and often polarized approach to climate policy. At the federal level, initiatives have fluctuated depending on political leadership. While the Obama administration adopted measures such as the Clean Power Plan and ratified the Paris Agreement, the subsequent withdrawal under the Trump administration reflected deep divisions over climate commitments. The Biden administration's re-entry into the Paris Agreement and its proposed Green New Deal-inspired measures underscore renewed federal engagement. Nevertheless, much of the progress in the U.S. has been driven by state-level initiatives, with states like California implementing ambitious climate legislation, renewable energy targets, and emission standards. This federal-state divide highlights both the opportunities and challenges in the American system.

The European Union has emerged as a global leader in climate governance. The EU Climate Law of 2021 legally binds member states to achieve net-zero greenhouse gas emissions by 2050, with an intermediate target of reducing emissions by 55% by 2030 compared to 1990 levels. The law also institutionalizes climate mainstreaming across all EU policies and mandates regular review and monitoring mechanisms. The EU's Emissions Trading System (ETS), one of the largest carbon markets in the world, reflects its market-based approach to emissions reduction. By embedding climate action into legally enforceable commitments, the EU offers a model of integrated and ambitious climate governance<sup>9</sup>.

Small island nations, particularly those in the Pacific such as Tuvalu, Kiribati, and the Maldives, represent the most vulnerable communities to climate change. Rising sea levels, coastal erosion, and extreme weather events threaten their very existence. Recognizing this existential risk, these nations have adopted robust adaptation strategies, including coastal defense projects, relocation planning, and climate-resilient infrastructure. Internationally, they have been vocal in climate negotiations, advocating for loss and damage financing and binding commitments from major emitters. Their domestic frameworks often emphasize adaptation rather than mitigation, given their negligible contribution to global emissions.

### **Challenges at the Domestic Level**

Despite significant legal and policy frameworks, domestic challenges remain pervasive across jurisdictions. In India and other developing countries, balancing rapid economic growth with sustainability poses a fundamental dilemma. Industrialization, urbanization, and energy demands often clash with environmental protection, leading to compromises in enforcement. Weak regulatory institutions, lack of transparency, and bureaucratic inefficiency further undermine the

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<sup>9</sup> *Milieudefensie v. Royal Dutch Shell*, C/09/571932/HA ZA 19-379 (Hague Dist. Ct. 2021).

implementation of environmental laws. Moreover, climate financing and technological capacity remain limited, hampering the ability to transition to low-carbon economies.

In developed countries, political polarization, competing economic interests, and uneven state-level commitments create inconsistencies in climate action. Small island nations face the added difficulty of limited resources and dependence on international support for adaptation measures. Across all contexts, the enforcement of environmental laws continues to be a weak link, underscoring the gap between legal commitments and practical realities.

## Judicial Responses and Climate Litigation

The judiciary across the world has emerged as a pivotal institution in shaping responses to climate change, especially where legislative or executive action has been inadequate or slow. Climate litigation has grown remarkably in recent years, transforming from isolated legal battles into a global phenomenon where courts are increasingly being asked to hold governments and corporations accountable for their environmental responsibilities. Such litigation not only tests the limits of environmental law but also brings into focus the intersection between human rights, constitutional protections, and ecological preservation. The rising trend demonstrates how judicial pronouncements have become essential in both compelling action and setting standards for sustainable governance.

Globally, one of the most influential cases in climate jurisprudence is *Urgenda Foundation v. Netherlands*<sup>10</sup>, decided by the Dutch Supreme Court in 2019. In this case, the court held the Dutch government legally obliged to take more robust action in reducing greenhouse gas emissions to meet its international commitments under the Paris Agreement. What made this judgment pathbreaking was its reliance on human rights obligations, particularly the right to life and the right to family life under the European Convention on Human Rights. The court reasoned that insufficient state action on climate change violated these rights, thereby imposing enforceable duties on the state. This decision reverberated globally as it demonstrated that governments can be held judicially accountable for failing to protect their citizens from the existential risks posed by climate change.

A similar landmark development occurred in Pakistan in *Leghari v. Federation of Pakistan* (2015)<sup>11</sup>, where a farmer filed a constitutional petition arguing that governmental inaction on climate adaptation violated his fundamental rights to life and dignity. The Lahore High Court ruled in his favor and ordered the creation of a Climate Change Commission to oversee the implementation of adaptation measures. This case was significant because it illustrated how courts in developing countries, where the impacts of climate change are especially acute, could use constitutional rights as a tool to demand governmental accountability. It also highlighted the

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<sup>10</sup> *Urgenda Foundation v. State of the Netherlands*, HR 19/00135 (Sup. Ct. Neth. Dec. 20, 2019).

<sup>11</sup> *Ashgar Leghari v. Federation of Pakistan*, (2015) W.P. No. 25501/2015 (Lahore High Ct., Pak.).

role of the judiciary as an enabler of institutional innovation by establishing new mechanisms to ensure compliance with climate obligations.

In India, climate-related litigation has often been pursued through the mechanism of public interest litigation (PIL), which has been instrumental in expanding the scope of environmental law. The Supreme Court's environmental jurisprudence has evolved through seminal cases that established a link between Article 21 of the Constitution—the right to life—and the right to a clean and healthy environment. For instance, in *MC Mehta v. Union of India*, the Court issued a series of directions on matters ranging from air pollution control to vehicular emissions, reflecting judicial willingness to intervene directly in policy implementation. Similarly, in *Subhash Kumar v. State of Bihar*<sup>12</sup>, the Court categorically recognized that the right to pollution-free water and air is part of the fundamental right to life. These rulings have laid the groundwork for using constitutional remedies to address environmental harms, including those arising from climate change.

The role of PIL in India is particularly noteworthy because it enables citizens and civil society organizations to bring environmental issues before the courts even without direct personal injury. This broad standing has allowed the judiciary to entertain cases where the larger public interest, particularly intergenerational equity and environmental sustainability, is at stake. In doing so, Indian courts have aligned themselves with global trends where climate litigation is increasingly viewed not only as an environmental issue but also as a human rights issue.

An emerging trend in climate litigation is the use of human rights law as a framework to address obligations of states and corporations. Courts worldwide are recognizing that climate change disproportionately affects vulnerable populations, thereby violating fundamental rights such as health, shelter, and livelihood. This shift underscores that the judiciary is no longer treating climate change as a mere policy issue but as a legal wrong that infringes upon basic rights. The integration of human rights with climate litigation has also provided litigants with a stronger legal basis to demand urgent and enforceable action.

Alongside state accountability, corporate responsibility has become an essential focus of climate litigation. Corporations, particularly those in the fossil fuel and energy sectors, are increasingly being held accountable for their contribution to greenhouse gas emissions. Litigation strategies now target corporate disclosure obligations, demanding transparency regarding environmental risks and sustainability commitments. The growing importance of ESG (Environmental, Social, and Governance) responsibilities has reinforced the expectation that corporations must integrate climate-related concerns into their governance structures. Courts are beginning to examine whether failure to disclose or act on such risks constitutes a breach of fiduciary duty or a violation of consumer protection laws. These developments reflect a broader movement towards embedding corporate accountability into the framework of climate governance.

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<sup>12</sup> *Subhash Kumar v. State of Bihar*, AIR 1991 SC 420 (India).

Overall, judicial responses to climate change have reshaped the contours of environmental law by linking climate obligations to fundamental rights and corporate responsibilities. Courts in both developed and developing nations are increasingly proactive, recognizing that climate inaction threatens not just ecosystems but the very foundation of human dignity and survival. Climate litigation thus represents a powerful tool for bridging the gap between aspirational commitments and enforceable obligations, making the judiciary an indispensable actor in the global fight against climate change.

## **Challenges and Gaps in the Legal Response to Climate Change**

Despite the growing recognition of climate change as one of the most pressing global threats, the legal response at both international and domestic levels remains inadequate and fragmented. While significant strides have been made in creating frameworks such as the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement, their effectiveness has often been questioned due to weak commitments, poor enforcement, and lack of political will. The result is a legal architecture that struggles to match the urgency of the climate crisis.

One of the foremost challenges is the inadequacy of binding commitments under international law. The Paris Agreement, for instance, represents a milestone in global climate diplomacy, but its reliance on nationally determined contributions (NDCs) rather than legally binding emission reduction targets reflects a compromise between ambition and political feasibility. Countries are free to set their own targets and timelines, leading to vast disparities in commitments and outcomes. Moreover, there are no robust punitive mechanisms for non-compliance, which means that even when states fall short of their commitments, there are few consequences. This voluntary character has slowed down global mitigation efforts, undermining the collective goal of limiting global warming<sup>13</sup>.

At the domestic level, legal frameworks are often fragmented and inconsistent. Many countries have enacted climate or environmental laws, but these are frequently piecemeal, sector-specific, or poorly harmonized. For instance, while some nations have ambitious renewable energy targets, they may simultaneously support fossil fuel industries through subsidies or weak regulations. In developing countries, laws addressing climate issues often exist on paper but lack clarity, coherence, or institutional coordination. This fragmentation prevents the creation of a unified legal regime capable of driving long-term systemic change.

Another significant gap lies in the lack of effective enforcement and compliance mechanisms. Even where strong environmental or climate laws exist, enforcement agencies often face challenges such as inadequate resources, political interference, or corruption. Internationally, the

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<sup>13</sup> Lavanya Rajamani, *Differentiation in the Emerging Climate Regime*, 14 Theoretical Inquiries L. 151 (2013).

absence of a binding enforcement authority similar to the World Trade Organization in trade law means that climate obligations are frequently aspirational rather than mandatory. As a result, compliance relies heavily on goodwill, diplomatic pressure, or public accountability, none of which provide sufficient assurance in the face of escalating climate threats.

A further limitation is the insufficiency of climate finance and technology transfer, particularly for developing and vulnerable countries. International commitments such as the Green Climate Fund were intended to mobilize resources, but pledges often fall short of promised amounts, and disbursement is slow. Moreover, access to advanced technologies needed for renewable energy, adaptation, and resilience remains constrained by intellectual property rights and lack of equitable sharing mechanisms. This financial and technological gap exacerbates inequality, as poorer countries—often the most affected by climate change—struggle to implement necessary mitigation and adaptation measures.

The influence of political resistance and vested interests also hampers legal progress. Powerful fossil fuel lobbies, industrial stakeholders, and certain governments with high carbon dependence resist ambitious climate laws, fearing economic disruption. This has resulted in watered-down legislation, delays in implementation, and, at times, outright denial of climate science. Legal frameworks, no matter how well designed, often falter in the face of such entrenched interests, highlighting the need for stronger public participation and accountability mechanisms<sup>14</sup>.

Finally, there is a growing call for recognizing “ecocide” as an international crime under the jurisdiction of the International Criminal Court (ICC). Current international criminal law addresses genocide, crimes against humanity, war crimes, and aggression, but it does not include large-scale environmental destruction, even when such destruction threatens human survival. Recognizing ecocide would create direct individual accountability for corporate executives, political leaders, or others who authorize massive environmental harm. This could fill a major legal gap by elevating environmental protection to the same level of importance as human rights and humanitarian law.

The legal response to climate change is constrained by weak commitments, fragmented laws, poor enforcement, inadequate resources, political resistance, and the absence of robust international accountability. Bridging these gaps requires not only stronger legal frameworks but also the political courage to confront vested interests and recognize the environment as a fundamental right. Without such reforms, the law will remain a lagging instrument in the fight against climate change.

## **The Way Forward: Strengthening Legal and Policy Frameworks**

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<sup>14</sup> Jutta Brunnée, *International Legal Accountability through the Lens of Climate Change*, 14 CCLR 159 (2020).

The way forward in addressing climate change lies in strengthening legal and policy frameworks at both the international and domestic levels. The international legal architecture must move beyond voluntary pledges and aspirational goals to establish binding commitments on emission reduction, adaptation, and climate finance. Current frameworks such as the Paris Agreement have created a platform for global cooperation, but the absence of enforceable obligations has limited their effectiveness. A legally binding regime with compliance mechanisms, accountability provisions, and penalties for non-compliance would enhance global trust and ensure that nations do not shirk their responsibilities. Such reforms are necessary to close the gap between scientific imperatives and political will.

Equally significant is the recognition of climate justice, which rests on the principle of differentiated responsibilities. Developing nations, particularly those in the Global South, are disproportionately affected despite contributing the least to greenhouse gas emissions. Legal and policy frameworks must therefore ensure equitable access to resources, adaptation funds, and technologies, while holding historically high-emitting nations accountable for their share of responsibility. Climate justice also requires mechanisms for addressing “loss and damage” suffered by vulnerable communities, particularly in small island states and least developed countries.

Promoting green technology transfer and climate finance is central to this agenda. Without adequate resources and access to low-carbon technologies, developing countries will struggle to transition to sustainable economies. International cooperation should prioritize capacity building, affordable finance, and incentives for private sector investment in renewable energy and climate-resilient infrastructure. Legal frameworks can play a role in removing barriers to technology transfer and ensuring transparency in climate finance commitments.

Integrating human rights into climate governance represents another crucial step. Climate change threatens fundamental rights such as the right to life, health, and a clean environment. Recognizing these rights within climate laws and policies would strengthen accountability and enable individuals and communities to seek judicial remedies. Courts have already demonstrated their willingness to interpret constitutional rights in a climate-conscious manner, and encouraging such judicial proactiveness can set powerful precedents.

India, in particular, requires climate-specific domestic legislations to complement its existing environmental laws. While policies like the National Action Plan on Climate Change provide direction, a comprehensive climate law with clear targets, institutional mechanisms, and monitoring frameworks is essential. Civil society organizations, youth movements, and transnational networks also have a vital role to play in mobilizing public opinion, pressuring governments, and fostering global cooperation. Ultimately, a holistic and multi-level approach combining legal reforms, judicial activism, and social participation will pave the way for an effective response to the existential challenge of climate change.



## **Conclusion**

Climate change today stands as the most pressing existential global predicament of our time, threatening not only ecosystems and biodiversity but also the very survival of humanity. Its impacts transcend geographical boundaries, destabilize economies, displace communities, and intensify social inequalities. Despite decades of negotiations, policy measures, and judicial interventions, the collective global response remains fragmented and inadequate in the face of accelerating environmental degradation. The gap between commitments and actions underscores the urgency of rethinking and strengthening our legal, institutional, and societal responses to this crisis.

The inadequacies of current legal frameworks highlight the need for more binding, enforceable, and inclusive mechanisms. International agreements, while significant, often lack strong compliance systems, and domestic legislation is either outdated or insufficiently implemented. Furthermore, the resistance from vested interests, particularly the fossil fuel industry, continues to hinder effective climate action. Recognizing these shortcomings is crucial for building a more resilient and future-oriented legal architecture that addresses both mitigation and adaptation.

At the heart of this challenge lies the principle of shared but differentiated responsibilities. Developed nations, as historical contributors to greenhouse gas emissions, bear a greater obligation to provide finance, technology, and capacity-building support to developing countries. However, developing nations too must commit to sustainable development pathways that align with the goals of global climate justice. Only through this balance can equity and effectiveness be achieved in combating climate change.

Moving forward requires a multi-level approach that integrates international cooperation, domestic law reforms, proactive judicial interpretation, and active citizen participation. Climate change must be seen not merely as an environmental concern but as a legal, ethical, and survival imperative for humanity. The fight against it demands a united global response where law serves not only as a tool of regulation but also as an instrument of justice, solidarity, and hope for future generations.

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