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Evolving Frameworks of International Law in Addressing Global Climate Change

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ABSTRACT

International law serves as a cornerstone for global cooperation in addressing climate change, offering a cohesive legal foundation for mitigation and adaptation efforts. This paper explores the historical evolution and contemporary dynamics of international climate law, emphasizing key milestones, the 1972 Stockholm Conference, the 1992 Rio Earth Summit, and the establishment of the United Nations Framework Convention on Climate



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Change (UNFCCC). It further analyzes the progression from the Kyoto Protocol's binding emission reduction commitments for developed nations to the Paris Agreement's flexible and participatory framework based on Nationally Determined Contributions (NDCs) and the "pledge-and-review" mechanism. This transition signifies a paradigm shift toward a polycentric model of governance that engages both state and non-state actors. The paper also examines the growing intersection between international climate law and other legal domains, particularly Human Rights Law, which underscores state obligations to safeguard fundamental rights, life and health from the impacts of climate change. Moreover, the emergence of climate litigation has become a transformative force, shaping legal norms, reinforcing accountability, and promoting principles like intergenerational equity and the duty of care. Despite notable progress, international climate law continues to grapple with persistent challenges, including the limits of state sovereignty, vague treaty language, and weak enforcement mechanisms. The principle of common but differentiated responsibilities (CBDR) remains central to debates over fairness and burden-sharing between developed and developing nations. Looking forward, strengthening global climate governance through enhanced compliance systems, technological integration, and adaptive legal frameworks is essential to ensure an equitable, inclusive, and resilient international response to the escalating climate crisis.

Keywords: Climate Change, Climate Litigation, Nationally Determined Contributions (NDCs), Climate Governance, UNFCCC, Paris Agreement

Introduction

International law is crucial in global climate change mitigation and adaptation efforts. It lays frameworks for nations to cooperate and ensures compliance. Some of the considerations that make international law significant are. Climate change is a problem that goes beyond the borders of a nation. All countries of the world need to respond and act in a unified manner. It is international law that provides the necessary unified legal architecture by adopting frameworks and treaties that create uniform standards and obligations for nations to reduce greenhouse gas (GHS) emissions and address climate change (Bodansky *et al.*, 2017; Mayer, 2018). International law constitutes the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol and the Paris Agreement. International law treaties establish legal obligations that require nations to address climate change. Climate change treaties impose incentives to reduce emissions and actively monitor compliance through rigorous adherence frameworks that include periodic reporting and assessment (Bodansky *et al.*, 2017). International environmental law is a negotiating framework that facilitates ongoing agreements and treaty refinements. It provides a framework through which countries can continuously advance their treaties and policies in relation to the dynamic and evolving scientific landscape. This interaction on climate change promotes effective and relevant international governance of climate change. (Brunnée, 2002; Aloamaka *et al.*, 2024).

Most international instruments move equity and justice issues to the forefront in the climate change discourse, and recognize the differential capabilities and responsibilities of developed and developing nations. This is pivotal in accommodating the fair distribution of burdens and benefits climate change takes (Gehring & Tokas, 2022; Weiss, 2008). The climate change perspective, international climate law focuses on the integration of other forms of international regulation, like trade and investment relations, to climate change. This is integration facilitates the accomplishment of multiple policy objectives and the creation of positive relations between climate change policies and other spheres of international law (Chan *et al.*, 2018; Schreurs, 2010).



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Climate Change Governance Responsibility from National Modes to Global Frameworks

The climate governance systems in many respects, have moved from national frameworks to global frameworks in climate action, in the distribution of functions to national and global systems, to rationales in climate action, and in predominant systems of governance. In the beginning, climate action was under the jurisdiction of the nation state. Each country was free to determine its own targets and strategies in the reduction of greenhouse gas emission. While this approach has been made, several issues have arisen because climate change is global, transcends all borders, and needs broader, coordinated approaches (Aykut *et al.*, 2020).

One of the most important changes in global climate governance is the move away from setting legally binding, country-specific targets and shifting into “self-set, voluntary” targets as was the case in the 2009 Copenhagen Accord and the subsequent incorporation of these features in the 2015 Paris Agreement. This change shows a shift to a more flexible and possibly more democratic form of governance in which a variety of actors, including non-state participants, contribute to climate governance. The fusion of continuous pledging and review with the rhetoric designed around the Paris Agreement aims to institute a 'managed' culture of low carbon future, which speaks to the shift in the broader management culture pervasive in global governance institutions (Mcgee & Steffek, 2016). Moreover, the incorporation of climate justice principles into global governance frameworks has widened the scope of climate justice from the environment to the associated issues of human rights and global injustices. This change is evident in the ways climate change is framed as an issue of social inequity and uneven vulnerability, resonating with the Paris Agreement and the activism of civil society organizations (Gach, 2019). The Open Governance Data and Regional Integration Project are based on the premise that Open Data Governance enhances accountability and citizen participation through improved public sector data and analysis. The project also proposes that openness actively promotes inclusive regional integration. As such, Open Governance Data and Regional Integration is about converging the affordances of Open Data Governance and regional integration. It aims to enhance intra-regional integration through the regional integration initiatives data collected through the Open Data Governance framework (Eyo-Udo *et al.*, 2025).

The evaluation of the Immediate, Short, and Long-term Outcomes of the Open Governance Data and Regional Integration Project should provide the Implementation work-out framework, including the work-out objectives and expected results for the next phase data regional integration and Open Data Governance initiatives. The feedback from Implementation should shape the project trajectories and the recommended interventions. The learning from Evaluative feedback should also inform the expected challenge and success evidence for the project (Osifo *et al.*, 2025)

The Project should enhance the expected, perceived, and perceived value of Open Data Governance. Failure to deliver value to stakeholders might lead to anticipated and perceived risks, and motivate stakeholders to take preventive actions to remove perceived value and performance gaps. Projects designed without stakeholder value and risk evaluation will have poor project outcomes. Risks to integrity and stakeholder trust can also arise from lack of value. The Project should enhance perceived value will improve trust and mitigate risks (Safoev *et al.*, 2025)

Historical Evolution



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Early Frameworks of International Law on Climate Change (Stockholm 1972, Rio 1992)

The early frameworks of international law on climate change were pivotal in the development of the global response to global environmental challenges. This development is chronologically captured by the Stockholm Conference in 1972 and the Rio Earth Summit in 1992, as given in (Table-1) (Contini & Sand, 1972). The 1972 Stockholm Conference on the Human Environment marked the first landmark international environmental diplomacy and the first intergovernmental conference on the environment. The conferences in motion the Stockholm Declaration on the Human Environment, which recognized the importance of environmental protection and conservation, as well as the need to educate the populace on the issues. The Declaration sparked global discussions on the environment, which eventually led to the establishment of the first generation of structured environmental policies in numerous countries (Gupta & Singhal, 2017). For the first time, global leaders were alerted to the interrelationship of human development activities and environmental degradation and reminded to think globally in addressing the challenges (Ezeonu, 2000).

The Rio Earth Summit in 1992 helped formally initiate international efforts to organize a response to climate change. Rio produced the Rio Declaration on Environment and Development, which framed 27 principles on sustainable development and global cooperation. Rio also produced Agenda 21, a comprehensive action plan on sustainable development; and Rio facilitated the establishment of the UNFCCC (Palmer, 1992; Sánchez & Croal, 2012).

UNFCCC remains the foundational treaty of international climate change law. The treaty frameworks developed in this period significantly set the stage in establishing global partnership, the foundational elements of treaties, and agreements. These treaties framed the discourse on the relationship of the environment and the economy, and the social dimensions, especially in the context and the sequels of negotiations and conventions that are currently shaping international climate policies (Bernstein, 2002; Saryal, 2018).

Table 1. Timeline of Key International Climate Frameworks and Events

Year	Event/Agreement	Key Outcomes/Principles	References from Document
1972	Stockholm Conference on the Human Environment	Stockholm Declaration; First global recognition of environmental protection and human-environment interrelationship.	Contini & Sand (1972); Ezeonu & Ezeonu (2000); Gupta & Singhal (2017)
1992	Rio Earth Summit (UNCED)	Rio Declaration; Agenda 21; Establishment of UNFCCC as foundational treaty for climate change.	Palmer (1992); Sánchez & Croal (2012); Bernstein (2002); Saryal (2018)
1997	Kyoto Protocol	Legally binding emission reduction targets for developed (Annex I) countries; Market-based mechanisms (e.g., emissions trading).	Bohringer (2003); Breidenich <i>et al.</i> , (1998); Sugiyama & Takeuchi (2008); Moret <i>et al.</i> , (2023);



			Rosen (2015); Aldy & Stavins (2007)
2015	Paris Agreement (COP21 under UNFCCC)	Voluntary Nationally Determined Contributions (NDCs); Goal to limit warming to below 2°C; Pledge-and-review system; Emphasis on equity and non-state actors.	Milkoreit (2019); Streck <i>et al.</i> , (2016); Hermwille (2016); Oberthür (2016); Scott <i>et al.</i> , (2016); Moret <i>et al.</i> , (2023)
2022	COP27	Establishment of Loss and Damage Fund; Focus on climate justice and equity for vulnerable nations.	Naylor & Ford (2023); Toussaint (2023)

Kyoto Protocol and the Development of Climate Change Law

The Kyoto Protocol first introduced legally binding international treaties established to reduce the emission of greenhouse gases. In the 1997 Kyoto Protocol, the first targets to reduce greenhouse gases for developed countries were established, as given in (Figure-1) (Bohringer, 2003). The Protocol's impact on global climate change policies, however, is still a subject of discussion, and some argue that the Protocol's impact on global climate change policies is quite limited. Critics of the Kyoto Protocol argue that the instruments and mechanisms established by the Protocol to achieve the emission reduction targets internationally lack cohesion, that they are too market-oriented, while also being too limited in scope and too restrictive in the rights of the countries that they are imposed on (Mor *et al.*, 2023). The emission reduction commitments are limited to Annex I countries, which include mostly developed countries, while China and India were not bound to emission reduction targets. Some critics suggest that the Protocol was a poorly designed agreement and that it set back the international community's ability to respond to climate change by twenty years. Some of the concerns included limited windows for action and short-sighted targets that locked in behavior and failed to account for the differing economic realities of countries and dependence on emissions-intensive development paths (Rosen, 2015). These factors meant that the Protocol was able to offer little in the way of meaningful global climate mitigation, particularly since most developing nations, which had no obligations in the Protocol, were able to release emissions at will (Aldy & Stavins, 2007). Additionally, the Protocol's rigidity meant that the more integrated approaches to climate action that were subsequently taken with the Paris Agreement would unavoidably be limited. In stark contrast to the Kyoto Protocol, the Paris Agreement relies on voluntary nationally determined contributions (NDCs), which meant that countries were able to set their own targets. This was a massive leap in international climate policy, rather than countries being given legally binding targets, climate policy was designed with pledges, which allowed for the variability in national circumstances, thus encouraging broader participation (Mor *et al.*, 2023).

Reflecting on the ramifications of the Kyoto Protocol, there is a great deal of value in the statement, "the Kyoto Protocol is the epitome of legally binding international agreements to address climate change" (Breidenich *et al.*, 1998; Sugiyama & Takeuchi, 2008). Previous agreements highlighted the necessity of a framework when "most climate negotiating states" (Boer & K checkpoints to ensure climate agreements on their border). The Kyoto Protocol forcing states to draft domestic legislation to regulate climate change demonstrates the "non-self-executing" principle in international agreements on International Agreements (Boer & K checkpoints to ensure climate agreements on their



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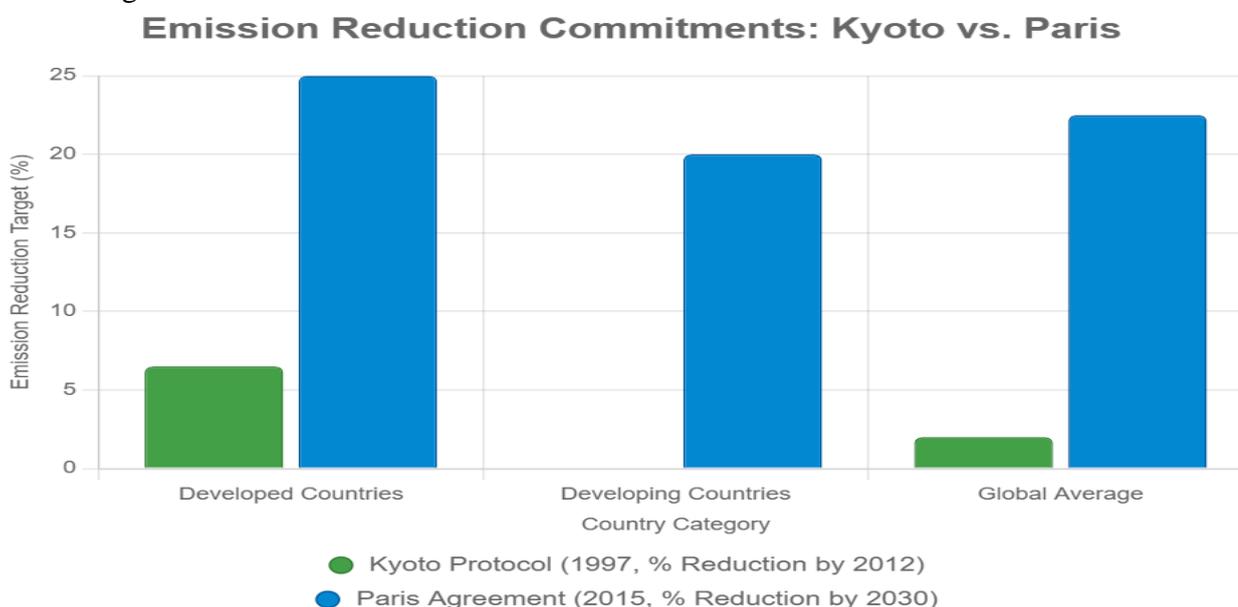
The Kyoto Protocol forcing states to draft domestic legislation to regulate climate change demonstrates the “non-self-executing” principle in international agreements. The Agreement additionally implemented the “pledge-and-review” system, which was a significant departure from the legally binding target of prior agreements, such as the Kyoto Protocol. The flexibility of this system allows countries to set their own target with accountability attempts placed through periodic reviews of target setting. This captures a measure of accountability through the transparency of the reviews and progress assessments (Milkoreit, 2019). The provision of periodic reviews is also a testament to the innovative nature of the Agreement in which emphasis is placed on long-term goals and ongoing plans. As global parties engage with these goals collaboratively and cooperatively through the regular, global stocktaking exercises, dynamic cooperative action is elicited from all parties. This system is designed to promote the increasing ambition and action of all parties over time (Streck *et al.*, 2016).

Integrating social and economic relations with changes to climate incorporates a broader social, economic, and transformational challenge to and through development. The transition to a low-carbon economy is now part of global economic restructuring, and the interest in economic development is now focused on low-emission alternatives (Hermwille, 2016).

In addition, the Paris Agreement promotes the participation of nonstate actors and subnational authorities, recognizing their importance in the realization of climate objectives. This flexible system promotes a multitude of efforts and actions at different governance tiers, which is directed towards the global decarbonization target (Oberthür, 2016).

Last, the legal structure of the Paris Agreement provides for considerable emission reporting and climate risk management adaptation measure legal visibility. Such visibility is designed to foster mutual trust and encourage the exchange of best practices and technologies (Scott *et al.*, 2016).

Figure 1: Evolution of Emission Reduction Commitments: Kyoto Protocol vs. Paris Agreement





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UNFCCC and COP Meetings in Legal Frameworks for Climate Governance

The UNFCCC and its COP meetings are fundamental in developing and evolving legal frameworks for climate governance. The UNFCCC starts the process of international collaboration to stabilize harmful greenhouse gases, and to prevent dangerous anthropogenic interference with the climate system. In this context, COP meetings serve as the fundamental climate policy commitment and legal framework negotiation meetings. The UNFCCC has facilitated international cooperation by holding regular meetings where most of the world's 197 actors engage in joint negotiations and implementation deals on climate change. The meetings seek the establishment of agreements such as the Paris Agreement in 2015, which was adopted in COP21, and which seeks to limit the rise of global temperatures to under 2 degrees Celsius (Wang *et al.*, 2016). The UNFCCC COP meetings are critically vital in the policy-development climate change process. It is the only global opportunity provided by the United Nations to signatory parties to review progress and discuss new scientific advances to climate change and international commitments. The endorsement of a fund to address loss and damage at COP27 internationally, for example, has been hailed as a historic global climate policy action (Naylor & Ford, 2023; Toussaint, 2023). For example, climate governance and the legal frameworks in the climate positive actions policy sphere were changed after the UNFCCC COPs and the UNFCCC climate frameworks through action initiated the climate positive global policy changed (Widerberg, 2017).

The UNFCCC seeks to address the complexity and uncoordinated global governance systems by providing governance to the climate actions initiatives, emissions, and climate change technology. This coordination contributes to the development of integrated and systematic legal approaches that can handle climate change (Van Asselt & Zelli, 2013).

Adaptive and Polycentric Governance

The unfolding governance framework under the UNFCCC is described as a polycentric system because climate governance is performed at various levels, including local and international jurisdictions. This system improves legal systems by offering flexibility and the ability to innovate to respond to specific legal environmental needs (Van Asselt, 2018).

Inclusivity and Justice

The recent COP meetings have acknowledged the importance of justice and equity in climate governance. Specifically, the varied responsibilities and vulnerabilities of parties. The incorporation of loss and damage mechanisms is a clear manifestation of climate justice (Toussaint, 2023).

New Legal Mechanisms

Innovative climate litigation is repositioning international law in the context of global climate change. The innovative legal approaches are shaping and influencing cross-border and domestic legal systems. One of the notable impacts of climate litigation on international law is the enforcement and expansion of the scope of international legal instruments on the environment and human rights. Climate litigation is increasingly relating the legal ramifications of climate changes to human rights. This is illustrated by the recent case on the recognition of a right to a clean, healthy, and sustainable environment by the United Nations General Assembly (Global Climate Litigation Report: 2023 Status Review, 2023).

Such lawsuits contend that climate change alters the enjoyment of several human rights and compel the Courts to order the governments to take more drastic steps on climate



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change. Moreover, climate litigation is facilitating the achievement of the international instruments such as the Paris Agreement due to the interface of domestic litigation and international commitments. This interface advances the effectiveness of the legal regimes and the progress made on international agreements, as it advances the interface-goals of the agreements (Wegener, 2020). This, in turn, gives legal standards to the action of climate change at the global and domestic levels. Climate litigation continues to refine international frameworks and guide the progression of principles of transnational liability. This paves the way for lack of a centralized system and the rise of multi-level governance whereby governance systems function on different tiers and in different jurisdictions. This is evident in the global emissions trading systems and the establishment of cross-border liability frameworks for climate harms (Peel *et al.*, 2012).

This restructuring provides the necessary localization of governance systems to ensure effectiveness, nesting systems within higher order international systems that target climate change adaptation and mitigation in a localized context. Important climate litigation work is being done in the Global South, where the development of new and innovative climate litigation strategies is occurring despite significant resource and capacity limitations. These legal strategies advance and innovate domestic legal frameworks. These, in turn, can influence international climate change law by way of new legal arguments and precedents that can be adopted by other jurisdictions (Setzer & Benjamin, 2019).

Significant cases, like those in Germany, influence and develop new international legal constructs of climate change, including the duty of care of the state, intergenerational equity, and the protection of the environment. These place the basis of new international law on the reformation of domestic law and change the discourse of climate legislation in different countries (Minnerop, 2021).

Human Rights Law, Trade, and Investment Law in Evolving Climate Governance

Human Rights Law

Recently, human rights treaties' legal obligation to mitigate climate change has been integrated into the 'duty' paradigm within human rights law. It supports the idea that states should reduce their greenhouse gas emissions to adequately 'protect' the enjoyment of certain rights, notably the rights to life, health, and property, where climate change impacts are present, as mentioned in (Table-1) (Mayer, 2021). The addition of human rights considerations to climate governance frameworks creates and strengthens compelling reasons, both moral and legal, to reduce emissions and equates climate change with human dignity and welfare. More human rights law also speaks to the unfortunate fact that vulnerable and marginalized communities disproportionately bear the climate change and policy impacts. This provides avenues for the individuals or communities to seek redress or influence climate-related law and policy (Sands, 2021).

Interaction of Trade Law with Environmental Protection Policies: Interactions of International trade law with policy frameworks on the environment complicates the design and implementation of regulations. Trade liberalization advocates argue that it makes possible economic growth that may positively affect the environment. This said, conflicting situations do exist. For example, trade agreements may give economic interests of corporation's priority over the environmental and health protection regulations, thereby hindering the implementation of effective measures to combat climate change and health issues (Shaffer *et al.*, 2005).

Sustainable trade agreements, which are an improvement on the past, seek to incorporate the principles of the development of the environment, aiming to align economic development with environmental protection. The integration of trade and climate policies remains the most important issue to ensure trade facilitates rather than contradicts the



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attainment of global environmental objectives (Mishra, 2024).

Investment Law

Investment Law reflects how foreign investments are regulated in relation to protection of the environment. Historically, investment treaties have prioritized investor protection for the treaties themselves. More recent reforms to the treaties include protection of the environment, the public, and human rights (Garcia *et al.*, 2015). In the last few years, treaties have included provisions to promote sustainable development and support investments in new, “green” technologies, helping to direct investments and funds toward climate positive initiatives, as given in (Table-2) (Gehring & Tokas 2022). Additionally, the introduction of human rights in the rights discourse of investments will help to address the unjust inequities for marginalized and vulnerable communities who are impacted by resource extraction and investments (Cotula 2020).

Table 2: Role of Intersecting Legal Areas in Climate Governance

Legal Area	Role in Climate Governance	Key Contributions	Challenges	References
Human Rights Law	Links climate impacts to rights (e.g., life, health).	Duty to mitigate; Addresses vulnerabilities.	Enforcement varies by jurisdiction.	Mayer (2021); Sands (2021)
Trade Law	Aligns economic growth with environmental protection.	Sustainable trade agreements.	Prioritizes corporate interests over regs.	Shaffer <i>et al.</i> , (2005); Mishra (2024)
Investment Law	Directs funds to green technologies.	Reforms include environmental protections.	Historical bias toward investor rights.	Garcia <i>et al.</i> , (2015); Gehring & Tokas (2022); Cotula (2020)

Challenges and Gaps

Many international climate agreements like those under UNFCCC and Kyoto Protocol use purposely ambiguous language. Such vague provisions become questionably enforceable and accountable to specific target and obligations (Bodansky *et al.*, 2017).

State sovereignty is a key element of any law of nations and restrains from outside agreement enforcement. Thus, climate frameworks depend on self-enforcement, which may result insufficient cooperation, as self-interests of nations may misalign with the climate change goals (Wagner, 2001)

Climate agreements, like most international environmental treaties, do not have adequate enforcement mechanisms. Attempts to impose trade restrictions as a means of enforcement may backfire if the actions are perceived as lacking credibility and legitimacy. Deficient enforcement results in insufficient action on climate change (Barret *et al.*, 2008; Hoffman *et al.*, 2022).

The success of international treaties often hinges on their national implementation. The integration of international commitments into domestic law is one of the most important functions of a state when it comes to the implementation of international law treaties. Since dominant international legal theories focus predominantly on “delegated” international law, thus the lack of disregard of a bottom-up approach is the primary cause of ineffective



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treaty commitments (Marauhn & Zimmermann, 2007).

The complexity of Integration with Other International Laws: Investment treaties close the legal space for many states to enact legal regulations aimed at aggressive climate change mitigation. If states perceive that their economic obligations under investment treaties may conflict with climate obligations, they may be discouraged from taking aggressive climate action (Gehring & Tokas, 2022).

Policy surveillance and compliance transparency is crucial for effective treaty implementation. Many treaties struggle to provide adequate framework of accountability, thus limiting the ability to track national efforts due to a lack of robust systems monitoring, reporting and verifying emissions and actions (Aldy, 2014).

The issues of equity and responsibility between developed and developing nations gives rise to international climate change law, and greatly impacts international climate agreements and their national implementations. Developing countries increasingly rely on climate-sensitive sectors such as agriculture and fishing, which make them susceptible to the impacts of climate change. Although such vulnerabilities exist, they are typically overlooked in the development of global climate policies. This can lead to increased harm through policies that lack sensitivity to the potential exacerbation of vulnerabilities (Adger & Mace, 2006; Okereke, 2010). Common but differentiated responsibilities remain a cardinal principle of global climate change legally binding treaties, specifically the Kyoto Protocol and the UNFCCC. This principle states that all states are required to address climate change, but developed countries have a higher historical responsibility. Thus, developed countries should prioritize climate change mitigation and assist developing countries through financial and technology transfers (Jacoby *et al.*, 2009).

Equity challenges influence the willingness of nations to work together on comprehensive climate accords. For instance, Lange argues that developed nations are more likely to achieve agreements if they believe that the burdens of emission reductions will be equitably shared. The fairness of global climate finance initiatives also depends on how international climate initiatives are coordinated, along with the allocation of financing responsibilities among the nations involved. Coordinated action at the intermediate level, relative to the scope of international treaties, can mitigate distortions along the equity axes and address discrepancies in relative efforts and available financing (Pickering *et al.*, 2015).

Equity challenges arise with climate change adaptation as well. Countries that are most affected by climate change are least equipped to deal with adaptation. This places a disproportionate share of the adaptation burden on those countries. This inequity must be countered by international support, climate change adaptation integrated within the scope of national development plans, and sufficient resources to support these efforts (Mertz *et al.*, 2009).

The intricacies of climate change as a justice problem involve the additional layers of intergenerational and international justice. Environmental policies involve justice and fairness without deepening present inequalities and ensuring a fair transition for the ancestors of the present (Resnik, 2022). Anthropogenic climate change constitutes an environmental problem with global intergenerational justice implications (Vanderheiden, 2008).

The principles of equity and responsibility are of paramount importance in the formulation of effective and operative global climate change legislation, as well as international collaboration and the distribution of finances for climate change mitigation and adaptation. This highlights the importance of environmental justice and the complexity of international environmental governance (Adger & Mace, 2006; Jacoby *et al.*, 2009; Okereke, 2010).



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Future Directions

The issue of strengthening global governance to develop more effective international climate change laws encompasses a variety of approaches, ranging from legal to institutional to multilateral, which recent scholarship has begun to analyze. Primarily, a polycentric perspective, such as those advanced by Elinor Ostrom, promises greater adaptability, among other things, and invites a wider range of participants into the climate governance arena (Dorsch & Flachsland, 2017).

By incorporating governance structures at the multilayered (i.e., multilateral, national, and subnational as well as nonstate) levels, such an approach provides the opportunity for localized and bespoke initiatives to act in consonance with and individuals' international initiatives. This type of climate governance system invites and encourages the experimentation and learning necessary to adjust frameworks to the new information and technologies relevant to climate governance. Moreover, as the global governance literature recognizes, the cities of the global North such as Chicago, Birmingham, and Vancouver, provide innovative local governance examples of how to incorporate climate justice into social equity frameworks (Mckendry, 2015).

This also suggests that, in the absence of social equity at the global scale, climate policy (carbon) mitigation will be unjust. Also, to further consolidate these initiatives, the integration of policy and legal frameworks, and consolidation of institutional arrangements will be valuable. This means the consolidation of compliance mechanisms around international norms, the legally robust integration of policy frameworks with scientific assessments, and the integration of policy frameworks around climate however controversial. Also, the partnership of the state and the private sector along with inclusive stakeholder integration will be valuable. This is to encourage the consolidation and integration of policy with climate governance (Adanma & Ogunbiyi, 2024). The future frameworks for international climate law will also need to focus on innovation and technology. Climate sustainability goals will be easier to achieve when technology is used to track emissions and assess the impacts of climate policies and energy system optimization. With that said, there will always be integration challenges. Therefore, strategic adaptive governance frameworks that account for and respond to the evolving ecosystems and stakeholder systems will be necessary. Finally, the required strengthening of global governance in climate law remains primarily the result of climate governance poorly covering the requisite scales of jurisdiction and the required integration of legal, institutional, scientific, and cooperative relations (Harris, 2021).

Conclusion

The need for adaptive, binding, and inclusive frameworks of international law to the issue of global climate change stems from a combination of factors. Perhaps the most impactful element is the cross-cutting character of the climate crisis on global of the social, environmental, and economic systems, and structures, globally. Extreme poverty, which undermines adaptive capacity, exacerbates the social impact of the climate crisis laden with extreme weather, disrupted ecosystems, and harmful impacts on human health and livelihoods. Adaptive frameworks are fundamental since the effects of climate change are complex and multi-dimensional. These frameworks allow countries to modify their policies and plans based on new research and changing climate conditions. The capacity to change policies quickly in response to climate conditions is one of the most important factors in dealing with the serious consequences of climate change. The reason binding frameworks are necessary is to guarantee compliance and participation of all countries in climate obligations. The Paris Agreement is an example of an inclusive, binding agreement that is notable for its success in the climate negotiating arena. By requiring countries to set



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and achieve commitments, it establishes a tiered accountability system that fuels the treaty's ambitious goals. As a result of the uneven impacts of climate change, the inclusion of all countries in the negotiation process is essential. Diverse participation, especially from marginalized and at-risk communities, is necessary in climate change governance. This adheres to the ethical principles of climate justice, which seeks to address inequitable distribution and empower the most impacted and least culpable societies, especially in the developing world. In addition, inclusive frameworks facilitate the incorporation of Indigenous wisdom and local viewpoints, thus bolstering the cultural relevance and effectiveness of strategies devised for tackling climate change. This decolonized response to climate change advances the global climate change discourse for responsive approaches by integrating different knowledge systems and methodologies. In the context of global climate change, adaptive, binding, and inclusive international legal frameworks are crucial in the moving from piecemeal approaches to the more radical shifts required for meaningful sustainable development.

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