



International Law in the Era of Climate Change: Emerging Issues and Responses

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Abstract

The global climate crisis has made a body of international climate change law one of the most complex and rapidly changing fields of international legal scholarship. This research critically assesses the development, effectiveness and shortcomings of international environmental and climate change law, focusing on some major legal instruments like the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol and the Paris Agreement. It also examines the new legal issues that have arisen such as displacement due to climate change, state responsibility, loss and damage, climate litigation and ocean governance in the context of sea level rise. The study is qualitative and analytical, while its type of research is secondary sources such as UN reports, IPCC assessment reports, scholarly literature and policy documents. The results indicate that international climate law, despite its considerable evolution in institutional structures and norms, is still not well implemented because of the lack of effective enforcement and the need for voluntary compliance. Although there is almost universal commitment under the Paris Agreement, current national commitments put the world on a projected pathway of 2.4-2.9°C warming by 2100, which is well below the 1.5°C target, meaning there is a significant gap in implementation (UNEP, 2023). The analysis also shows that global GHG emissions (around 37 billion tons of CO₂ per year) are still increasing, despite current legal commitments, and that these are currently not leading to actual reductions of emissions (Global Carbon Project, 2023). Moreover, internally displaced persons (IDPs) are affected by climate-related disasters, with an average of more than 26 million IDPs per year, and leave behind growing legal and humanitarian issues not sufficiently addressed by existing international refugee law frameworks (IDMC, 2023). The study demonstrates that international climate law is structurally imbalanced with respect to ambition and to capacity to enforce. It has been successful in setting up global norms and institutional procedures, but it is not adequate to guarantee scientific emission reduction requirements. The study emphasises the importance of better legal commitments, more effective compliance systems, a more rights-focused approach and new legal typologies for climate migration in order to better enable global climate governance.

Introduction

Climate change has become one of the greatest global challenges of the twenty first century, and has far-reaching implications for environmental stability, economic development and human health and wellness. Concentrating the green house gases in the atmosphere has resulted in global warming, melting of ice



caps, rising of sea level and rise in extreme weather conditions. The changes have rendered climate change a multi-state issue, one that states cannot tackle independently. Consequently, international law is becoming more and more vital to the process of fostering state cooperation and creating an organized international response to this threat.

In the history of international law, the development of international agreements and institutions has played a prominent role in the development of international law in response to the environmental issue. The Kyoto Protocol, the Paris Agreement, and the United Nations Framework Convention on Climate Change (UNFCCC) are all important pieces of legislation, each marking a major step in climate change control. These agreements take account of the principle of state sovereignty and the need to have different obligations for different countries, but such agreements also reflect the collective action of the international community in responding to the implications of climate change and to mitigating the effects of climate change (Bodansky et al., 2017). This has come about exemplifies a new legal framework, one that is more cooperative and flexible in addressing the issues related to complex, global environmental problems.

Concurrently, the period of climate change has created new dimensions to international law beyond what has already been established in the past, and they are the environmental regulation areas. More and more aspects of human rights, global security, migration and sustainable development are increasingly linked with climate change. The interwoven nature of these problems brings to light the multifarious nature of climate change as well as the challenges that it poses to regulatory systems that are already in place. It is important to have a deeper knowledge of the role of international law in the global framework, which is undergoing rapid changes, to understand the genesis of these issues, which are a product of the dynamic interplay between environmental changes and legal norms (Rajamani, 2016).

International law remains today an extremely important instrument for structuring international climate action and influencing state conduct in this rapidly evolving world. It sets the stage for international cooperation, discussion and the development of rules that will inform solutions to climate change on a global scale. It is very important to have a solid understanding of how international law works in the context of climate change for the purpose of examining the capacity of international law to deal with new problems and to support a project to coordinate action on the global level.

Research Objectives

- 1) To examine the role of international law in addressing climatic change and its evolving framework.
- 2) To identify key emerging legal issues linked to climatic change under international law.
- 3) To evaluate legal and institutional responses aimed at improving global climate governance.

Research Gap

The academic literature on climate change and international law is largely based on a legal perspective of the individual treaty, such as the UNFCCC, Kyoto Protocol and Paris Agreement, and has not yet focused on the integrated



analyses of the effectiveness of the collective of the treaties. Findings of most studies also tend to focus on issues other than legal dimensions of climate displacement, equity issues, and non-state actors separately, not as part of a common legal dimension. Moreover, there is a lack of critical analysis of the capability of international legal mechanisms to evolve to address the changing and complex nature of climate change, whilst maintaining state sovereignty and global responsibility. This work seeks to fill this gap by presenting a more integrated analysis of international law, with an emphasis on certain emerging issues and the effectiveness of existing responses in a coherent framework.

Research Methodology

The type of research used in this study is qualitative research, because it is a study that examines secondary data and analyzes international law related to climate change, particularly in terms of emerging issues and solutions. The qualitative method is appropriate in the study because it aims to assess the advancement of law, institutional arrangement and disagreements among scholars rather than make numerical connections. The study is conducted using an interpretive/analytical approach which will involve a systematic appraisal and critical analysis of existing literature, institutional reports and legal documents. In this research, I use a thorough doctrinal and analytical review using a I-I (interpretive-investigative) approach. This involves self-study of patterns, gaps and emerging developments in international climate law, and the assessment of existing law sources.

Data is collected from a variety of sources of secondary data with good information quality. Global climate governance rests on the cornerstone of international treaties and conventions, including the United Nations foundation Convention on Climate Change (UNFCCC) and the Kyoto Protocol, as well as the Paris Agreement. These resources are utilized. I also look at publications and reports produced by international bodies like the United Nations Environment Programme (UNEP), the Intergovernmental Panel on Climate Change (IPCC), World Bank climate finance reports and documents from the UN Human Rights Council regarding the link between climate and human rights.

Furthermore, a large amount of data is gathered from academic texts and peer-reviewed journal papers written by important researchers in the disciplines of international environmental law and climate governance. Academic journals such as *Review of European, Comparative and International Environmental Law*, *International Environmental Agreements*, *Journal of Environmental Law and Climate Policy* will be useful resources for academics. In addition, critical reviews of books/monographs will be carried out by various authors including Rajamani, Sands, Peel, McAdam and Birnie to provide a theoretical and conceptual framework.

The study also covers relevant decisions and case studies from local and international courts, including in the field of climate litigation. Readers will gain an appreciation of the application and interpretation of the principles of international law in these situations. In addition, the work of non-governmental organizations (NGOs), including Amnesty International, Greenpeace, Climate Action Network and the Grantham Research Institute on Climate Change, will be analyzed as reports and data sources, to gain insight into civil society views and actions around climate law.

Further, policy papers, working papers, conference proceedings and policy briefs



from research organisations and think tanks such as the Stockholm Environment Institute, IISD (International Institute for Sustainable Development) and CIEL (Center for International Environmental Law) will be consulted. These materials will help to understand the latest developments and discussions around policy, which are not always found at the usual academic sources.

Thematic and content analysis is used to analyze the secondary data obtained. This will need the ability to recognise recurring issues like climate justice, legal accountability, institutional efficiency, state compliance, and the formation of legal concerns. A methodical reading of legal texts, opposing academic texts, and the incorporation of results from numerous sources are the way the analysis will be done so as to develop a coherent understanding of the issue. This interpretative dimension helps guarantee an analytical, critical study with a conceptual core.

This approach can be used to thoroughly explore international climate law, drawing on a range of secondary sources and conducting a structured qualitative analysis. By relying on authoritative documents, academic publications, institutional reports, and case law, the study is both academically rigorous and reliable, offering a deep insight into current issues and answers regarding international law in the era of climate change.

Literature Review

Academic and policy literature view climate change as one of biggest local issues of our time. These repercussions extend from environmental degradation to the sustainability of economies, security of people and international governance. The study of international environmental law in the early stages focuses on the need for multistate legal action on transboundary environmental problems such as climate change, which are beyond the capacity of any one state to address (Sands & Peel, 2012). This basic knowledge I think makes climate change an international law governance challenge that demands international law coordination.

The ideas and soft-law mechanisms that shaped the commitments in international environmental law. The main principles of climate governance are: state accountability, transboundary harm prevention, precautionary approach and sustainable development (Birnie, Boyle, & Redgwell, 2009). They have influenced international agreements, and continue to be an explanation of climate obligations. Another area of scholarly research points to the fact that environmental laws are decentralized, have weak enforcement mechanisms, and lack in states' consent to be enforced, thereby making it difficult to address global issues such as climate change (Sands & Peel, 2012).

Multilateral treaties' climate change legal development is highlighted in the literature. UNFCCC 1992 is regarded as the backbone of the international climate control. Common but differentiated responsibilities (CBDR) acknowledges the need for all states to take action on climate change, but that the responsibility of states will differ in terms of previous emissions and development stage (Rajamani, 2016). The Kyoto Protocol enhanced this structure, by establishing legally binding carbon reduction targets for the rich countries. Yet, it was less used, and participation and enforcement were problematic throughout the world, limiting global carbon reductions.



In 2015 the Paris Agreement has transformed global climate law. It is different from previous agreements in its reliance on nationally determined contributions (NDCs) which enable countries to establish their own target of emission reductions (Bodansky, Brunnée, & Rajamani, 2017). This method is believed to boost engagement and agility while presenting legal security and ambition challenges. Bodansky (2016) argues that the Paris Agreement is a new paradigm of international climate law, one that is a mixture of enforceable procedural obligations and non-binding substantive commitments.

International climate frameworks are growing in number, but there is much that is critical of their effectiveness. There are many researchers who feel that the legal systems have not managed to curb GHG emissions that have been on the rise all over the world. This has led to debates on promises in legislation, and their implementation (Falkner, 2016). The Paris Agreement has introduced some compliance and accountability issues with regard to voluntary commitments. As a result, some scholars question the effectiveness of the international climate law to achieve environmental objectives due to its lack of unity and narrow political mandate (Rajamani, 2016).

This discussion has not only been concerned with effectiveness but also has included climate change's relationship with other international legislation. The human rights law is a key area. Climate Change is threatening the right to life, health, food and housing (UN Human Rights Council, 2019). This is reflected in a growing recognition by courts and international bodies of a state's climate change human rights obligations. International law now has a more expansive scope of norms as environmental and human rights law are now interwoven.

Climate induced migration and displacement is also coming to the fore. McAdam (2012) points out that although it is now accepted that climate change is a driver of forced migration, international refugee law does not cover environmental migrants. In the fields of sea-level rise, climate extremes and environmental degradation there is a legal gap in the protection of sea-level rise populations. This will be a greater topic for international legal discussion with the worsening impacts of climate.

This is a major literary problem as well—climate justice. This addresses the climate change effects and liability between the developed and developing countries. Rajamani (2016) says that CBDR is still a key factor in climate negotiations, but is gaining discussion. Developed governments, which are emphasizing current and future emissions, are meeting with developing countries that are calling for separate pledges from industrialized countries for historical emissions. This tension influences the interpretation of the law and discussions at international level.

Climate litigation has also been recognised as one of the significant developments in the international and domestic legal system in recent times. Increased judicial accountability for government and business inaction on climate change. Strategic climate litigation to advance legal obligations and improve climate policies is on the rise in the world, as noted by Setzer and Higham (2020). Without strong enforcement at the international level, this type of litigation demonstrates the change in climate governance by the courts.

Nonstate actors are more and more recognized in the literature with regard to climate governance.



The influence of international organisations, civic society, scientific communities and multinational enterprises on climate policy and implementation are growing. It is part of the broader trend towards a deeper shift in international law from state-centred to decentralised and polycentric governance (Keohane & Victor, 2011). These actors play a key role in developing, tracking and putting into practice climate commitments.

The literature also includes much on climate finance, climate technology transfer, etc. Financial and technological assistance is highlighted by the developing countries in order to achieve climate objectives. Climate finance measures are part of the Paris Agreement but the funding and distribution systems are not adequate to meet global needs (Roberts & Weikmans, 2017). This has an impact on the fairness and effectiveness of the international climate regime.

The literature has indicated that the international law has been changing from the environment management to the multi-layered governance structure system due to climate change. It also reveals persistent problems with enforcement, equity, institutionalism and legal means. The academic debates serve as a foundation for grasping the new issues and evaluating international climate law remedies.

Theoretical Framework

The study is based on the philosophy of Liberal Institutionalism, an important theory in the study of International Relations which seeks to understand how cooperation can occur between states through the use of international institutions, rules and regimes. Although the international system is anarchic, liberal institutionalism holds that states can achieve collective goals by forming and participating in international institutions and legal frameworks that minimize uncertainty, promote collaboration, and control behavior (Keohane, 1984). This idea is applicable, as climate change can be considered as a global and transboundary problem which could not be solved by any single state.

Liberal institutionalism sees international law as the primary means for international cooperation on climate change. The UNFCCC, Kyoto Protocol and Paris Agreement support the negotiation of state commitments, rule-making and monitoring. The frameworks are the liberal ones that believe greater engagement, openness, and shared norms will lead to compliance without central authority (Keohane & Nye, 2012). International climate legislation is much more than a collection of legal principles; it is an organised framework of cooperation.

Liberal institutionalism holds that absolute gains from collaboration are the drivers of participation in international regimes, even when there are distributional issues. As part of climate change, states recognize that environmental degradation, whether or not exposed or responsible, affects all of us. This has resulted in ideas such as common but differentiated responsibilities (CBDR) in international law to bring about a balance between equity and the collaborative spirit (Rajamani, 2016). These ideas are institutional strategies to deal with inequity and to sustain joint action.

The theory also helps to understand the constraints of international climate law, however. Liberal institutionalism acknowledges that there are no means to eradicate power imbalances or to ensure compliance within the realm of institutions. To solve these problems, they minimize transaction costs, make information more transparent, and make information sharing more accessible



(Keohane, 1984). To understand the climate legal challenges being faced by institutions, it is important to know these limitations.

The liberal institutional approach, embodied in the regime complex theory, explains how climate governance is achieved through a multitude of institutions instead of one. According to Keohane and Victor (2011), states, international organizations, financial institutions and non-state actors are responsible for managing climate change. As with everything else, fragmentation creates opportunities for innovation and opportunities for coherence challenges, especially in terms of climate law questions and solutions. Liberal institutionalism is generally a suitable theory for this study because it provides an explanation of how and why international legal cooperation has evolved and developed on climate change, how institutions shape state behaviour, and why there are still limitations in a context of extensive international legal arrangements. It offers a detailed account of the development of international climate law, and the emerging problems affecting its effectiveness in the international arena.

EVOLUTION OF INTERNATIONAL ENVIRONMENTAL LAW

3.1 Early Development: Stockholm Conference (1972) and Emergence of Environmental Law Principles

3.1.1 Historical background of international Environmental concerns

The gradual development of the foundations of international environmental law occurred as a result of the intensification of environmental deterioration across state borders brought about by industrialisation. During the time period following World War II, fast industrial expansion, urbanisation, and technical advancement led to a considerable increase in pollution levels, the depletion of resources, and ecological disruption. Environmental issues such as air pollution, water contamination, deforestation, and marine degradation are rapidly revealing transboundary implications, which demonstrates that environmental protection can no longer be completely confined to the jurisdiction of the home government (Sands & Peel, 2012).

By the late 1960s, there had been a considerable growth in the global awareness of environmental concerns as a result of scientific studies and environmental disasters. A growing number of members of the scientific community have expressed concern on the long-term effects of unregulated industrial expansion. For example, the worldwide carbon dioxide emissions increased from roughly 6 billion tonnes in 1950 to over 14 billion tonnes by 1970, which is a reflection of the increasing environmental pressure that is being caused by industrial economies (UNEP, 2021). Together, these advances laid the intellectual and political groundwork for international collaboration in the field of environmental protection.

3.1.2 Environmental Legal Developments Prior to the Stockholm Convention

Prior to 1972, international environmental law existed in a fragmented and sector-specific form, with the primary focus being on the management of fisheries, the conservation of animals, and the control of maritime pollution. On the other hand, there was no single worldwide legal framework for the authority to control the environment.

An important milestone in the early history of environmental protection law was



the Trail Smelter Arbitration in 1941 between the United States of America and Canada. The tribunal concluded that there is no right for the use of a state's territory in a way that will result in environmental damage to another state. This discovery is the basis of the no-harm concept that would become a key element in the development of international environmental law (Birnie, Boyle, & Redgwell, 2009). Also contributing to the gradual development of environmental norms were other early instruments, such as fisheries conventions and maritime pollution accords during the middle of the 20th century. Such early instruments, however, were very one-sided in their efforts to set an environmental standard.

3.1.3 The Stockholm Conference, which took place in 1972

The first significant worldwide effort to address environmental concerns at the international level was the United Nations Conference on the Human Environment, which took place in Stockholm in 1972. Additionally, it marked the beginning of structured global environmental diplomacy by bringing together 113 governments, as well as international organisations and experts (UNEP, 2022). The conference came about as a result of mounting concerns that the degradation of the environment had developed into a worldwide crisis that required collective response. The negotiations, on the other hand, brought to light a huge gap between industrialised countries and developing countries. The protection of the environment was a top priority for developed states, while the eradication of poverty and economic development were the more important concerns for emerging countries. This geographical division between the North and the South had a profound impact on the development of environmental law in the decades that followed.

The establishment of a global framework for environmental protection, the promotion of international cooperation, the realisation of a balance between environmental protection and economic development, and the development of institutional mechanisms for environmental governance were some of the primary goals that guided the outcome of the conference.

3.1.4 Main Results Obtained from the Conference Held in Stockholm

The Stockholm Conference resulted in a number of basic results that have significant implications for contemporary environmental governance. Eventually, the foundation of international environmental law was established by the Stockholm Declaration, which was comprised of twenty-six principles. In addition to that, it was accompanied by an Action Plan that included 109 suggestions with the purpose of coordinating environmental policies over the entire world. One of the most important institutional achievements was the establishment of the United Nations Environment Programme (UNEP), which was responsible for establishing environmental governance within the framework of the United Nations. In addition, the conference was essential in bringing environmental concerns to the forefront of international policy discourse and in bringing about a greater awareness of environmental challenges on a global scale.

In particular, the foundation of the United Nations Environment Programme (UNEP) proved to be of great significance, as it evolved into the preeminent international organization that coordinates environmental operations and provides assistance for environmental governance across more than 190 member nations (UNEP, 2022).



3.1.5 Introduction of Environmental Law Principles to the Framework

In the Stockholm Declaration, several fundamental concepts were presented, which continue to have an impact on the development of international environmental law. This is referred to as the no harm principle and means that their activities do not harm the environment in other countries. Cooperation came to be an important concept, as ecological problems are transnational, and thus require the action of international organizations in collaboration.

The introduction of the concept of early foundations of environmental human rights thought in the conference, as an awareness of the importance of environmental conservation for human dignity and development. This strengthened the link between the quality of the environment and human flourishing. Even though sustainable development was not defined at the time, the concept began to be introduced. The idea caught the eye, and necessitated the integration of conservation and development.

3.1.6 Remarks Regarding the Limitations and Criticisms of the Stockholm Conference

In the Stockholm Declaration, several fundamental concepts were presented, which continue to have an impact on the development of international environmental law. This principle is known as the no-harm principle and it stipulates that activities under their control do not damage the environment in other countries. Cooperation came to be an important concept, as ecological problems are transnational, and thus require the action of international organizations in collaboration. In the Stockholm Declaration, several fundamental concepts were presented, which continue to have an impact on the development of international environmental law. This principle is known as the no-harm principle and it stipulates that activities under their control do not damage the environment in other countries. Cooperation came to be an important concept, as ecological problems are transnational, and thus require the action of international organizations in collaboration. Additionally, because the tools for enforcement were inadequate, the implementation was largely dependent on the voluntary actions of the state. Academics contend that although Stockholm did establish significant concepts, it did not establish substantial legal requirements, which necessitated further advancements in subsequent international conferences (Sands & Peel, 2012). The establishment of fundamental principles and the establishment of institutional frameworks were the two main contributions that the Stockholm Conference of 1972 made to the development of current international environmental law. The limits of the study, on the other hand, brought to light the necessity of adopting a more integrated approach to environmental concern and development, which was subsequently developed through future international environmental conferences.

3.2 Rio Earth Summit (1992) and Sustainable Development

When the 1980s came to a close, the scientific community had reached a strong consensus regarding the destruction of the globally interconnected environment. The notion of sustainable development was first presented in the Brundtland Report (1987), which defined it as development that satisfies the requirements of the present without jeopardising the ability of future generations to satisfy their



own needs. During the Rio Earth Summit in 1992, this idea was elevated to a position of prominence on the agenda.

The important results of the Rio Earth Summit included the Rio Declaration on Environment and Development, Agenda 21, and the United Nations Framework Convention on Climate Change (UNFCCC). Of these, the United Nations Framework Convention on Climate Change (UNFCCC) became the basic international law governing climate governance, which was then followed by other climate change agreements.

In recent years, sustainable development has arisen as a guiding idea that establishes a connection between economic development and pollution prevention. It emphasizes the need for inter-generational justice, environmental sustainability, development and ecological concerns.

3.3 Development of Climate Law: Kyoto Protocol (1997)

The Kyoto protocol was an important step towards international climate law, by legislatively binding high-income countries to carbon reduction targets. That is, it marked the first time that a general environmental principle gave way to one that could be made actionable under international law. Conversely, its reach was limited as there was no involvement from the large emitters, no legally binding commitments for developing countries, and compliance processes were unclear and challenging.

The Protocol also promoted the establishment of market-based procedures which were to reduce the costs of compliance. Some examples of this were the Clean Development Mechanism (CDM), Joint Implementation and carbon trading schemes. These approaches resulted in development of global carbon markets, but they also raised issues about environmental integrity and inequitable market implementation.

3.4 The Third Session of the Paris Agreement (2015): A new legal approach

The Paris Agreement has brought a major paradigm shift to how global climate governance is implemented, as it has replaced a top-down, legally binding set of emission targets with a bottom-up approach that is based on nationally determined contributions (NDCs). This is a universal approach to the governance of climate change, all states are required to develop their own climate action plans based on this framework.

The Agreement contains many key features: universal participation, the long-term temperature goal to limit global warming to well below 2 degrees Celsius – and to aim for 1.5 degrees Celsius – a framework of transparency and reporting, and a process for implementing compliance without any punitive measures. This flexibility has helped to achieve wide participation but has raised concerns about the enforcement power and the effectiveness of national pledges in achieving global climate targets (Bodansky, Brunnée, & Rajamani, 2017).

3.5 Key Principles of International Environmental Law

There are a number of fundamental ideas that continue to have an impact on climate governance, and these principles have influenced the evolution of international environmental law. In addition, the principle of the prevention of harm has remained a fundamental international responsibility principle, which requires governments to take steps to prevent pollution that crosses their



borders. Particularly in situations when there is significant or irreparable damage, the precautionary principle emphasises that environmental protection actions should not be delayed due to scientific uncertainty on the part of the government. Polluter pays gives the idea that the costs of pollution should be borne by those who cause it and the costs of reducing or alleviating pollution should be paid by those who cause it. The theory is the basis for modern environmental laws and carbon pricing policies. Last but not least, common but differentiated responsibilities recognize that every state has a responsibility for the protection of the environment but that the responsibilities are not equal, depending on the level of development, economic capacity and historic emissions of a state (Rajamani, 2016).

INTERNATIONAL LEGAL FRAMEWORK ON CLIMATE CHANGE

4.1 United Nations Framework Convention on Climate Change (UNFCCC)

The UNFCCC, adopted in 1992, at the Rio Earth Summit, is the backbone of the system of laws regulating the global climate. This is a comprehensive international convention, the first of its kind and it was specifically designed to tackle the problem of climate change as a global environmental emergency. The Convention recognizes that climate change is a "common concern of humanity" and sets the basis for international cooperation on reducing emissions of the greenhouse gases and adapting to the impacts of climate change. The major purpose of the United Nations Framework Convention on Climate Change (UNFCCC) is to stabilise the quantities of greenhouse gases in the atmosphere at a level that prohibits hazardous interference from humans regarding the climate system. Despite the fact that the Convention does not establish legally obligatory targets for the reduction of emissions, it does establish significant duties for all Parties. These commitments include the need to adopt national climate policies, submit periodic reports, and foster scientific and technological collaboration. Additionally, it presents the concept of shared but differentiated responsibilities (CBDR), which recognises that wealthy countries are more responsible for climate change than less developed countries due to the fact that they have a greater economic capability and a greater history of emissions (UNFCCC, 1992).

The United Nations Framework Convention on Climate Change (UNFCCC) at the institutional level, has a structured governance system that is based on the highest decision-making body: the Conference of the Parties (COP). The Conference of Parties (COP) meet once a year to determine progress, agree on new commitments and review implementation. Both the Subsidiary Body for Scientific and Technological Advice (SBSTA) and the Subsidiary Body for Implementation (SBI), which are both responsible for providing advice on both policy and technical matters, are examples of supporting entities. As of now, it has the most number of Parties, 198, to any international treaty (UNFCCC, 2024). The United Nations Framework Convention on Climate Change (UNFCCC) has developed into a complex institutional system over the course of time, with practically universal participation.

In spite of the fact that it has a large number of participants, the United Nations Framework Convention on Climate Change has been criticised for having inadequate enforcement tools. Considering that it relies on voluntary promises, its effectiveness in ensuring compliance is severely limited. However,



it continues to play a vital role in the regulation of the global climate since it serves as the basis for later agreements, such as the Kyoto Protocol and the Paris Agreement, by providing the legal and institutional framework upon which they are constructed.

4.2 Kyoto Protocol

The Kyoto Protocol was ratified in 1997 and has been in force since 2005, bringing a radical change to the international climate law with the establishment of legally binding emission reduction goals for the rich countries. It did this by turning the UNFCCC's fundamental principles into particular pledges, which led to the UNFCCC becoming operative. In the first commitment period (2008-2012), the countries in the Annex I of the Protocol have pledged to reduce their total GHG emissions by some five per cent below 1990 levels.

The concept of developed and developing countries was one of the key elements of the framework that was set up by the Kyoto Protocol. While the richer countries were required to legally binding targets, the developing countries were not required to make targets binding cut-backs. The use of this is an example of the concept of 'common but differentiated responsibilities'. The intention of such a method was to achieve some balance between the economic development and equity issues; but it also faced criticism on its effectiveness in relation to the environment.

The Protocol introduced various new market based mechanisms such as emissions trading, Clean Development Mechanism (CDM) and Joint Implementation (JI). These mechanisms enabled countries to accomplish their commitments in a cost-effective manner. Specifically, these mechanisms played a crucial role in the development of global carbon markets, and only the Carbon Diversion Mechanism (CDM) has seen some 7,800 projects and billions of certified emission reductions in action since its launch (UNEP, 2020).

The Kyoto Protocol, however, had a significant number of restrictions. One of the serious shortcomings was the pact's non-participation of the significant emitters, including the United States which did not ratify the deal. Moreover, a number of economies undergoing a swift transition like China and India had no set requirements legally binding, causing problems with the effectiveness and equity of environmental policies. As a result, although there are legally binding commitments, global emissions have risen during the period of the Kyoto Protocol, by almost one third from 1990 to 2010 (IPCC, 2014). The lack of these features highlighted the need to have a more comprehensive and flexible global climate regime.

4.3 Paris Agreement

A bottom-up approach that is based on Nationally Determined Contributions (NDCs) has replaced a top-down legally binding paradigm in international climate law, which was represented by the Paris Agreement, which was ratified in 2015. It represents a major paradigm shift in the international climate law. The Paris accord brings a new spirit compared to the Kyoto Protocol since it is the first climate agreement to involve all countries, developed and developing, in submitting their climate action plans. The overall objective of the Agreement is to limit global warming to well below 2°C and as close as possible to 1.5°C compared to pre-industrial levels. In order to maintain the 1.5°C objective within reach, the International Panel on Climate Change (IPCC) has conducted



scientific evaluations that indicate that global emissions need to decrease by around 45% by the year 2030 (in comparison to the levels in 2010). This is a reminder of the importance of improving the implementation (IPCC, 2018).

The transparency framework of the Paris Agreement is a key pillar of the agreement: Nations have to report on a regular basis their emissions and their progress on their nationally determined contributions (NDCs). This system will achieve accountability through international assessment and peer pressure as opposed to punitive enforcement. A "global stocktake" process is also included in the Agreement. This process will take place every five years to review progress towards the collective goals achieved, and to shape future climate aspirations.

Although the Paris Agreement is supposed to be applicable to everyone, worries have been expressed about the lack of enforcement in terms of commitments. The current policies could produce a rise in temperature between +2.4 to +2.9 degrees Celsius as predicted (UNEP Emissions Gap Report, 2023). This is a widely held belief that the current non-deficit commitments (NDCs) are not adequate to fulfil the 1.5 degree Celsius objective. Achieving the gap between aspiration and actualisation remains a major challenge in international climate action.

4.4 The role of the international organizations

International organisations are playing a crucial role in all three aspects of the process, formulation, implementation and monitoring of international climate law. The United Nations system is the key institution, as the main institutional structure for the governance of the global climate. In this context, the United Nations Framework Convention on Climate Change Secretariat will be tasked with coordinating the negotiations, convening the Conference of Parties (COP) meetings and support climate agreements implementation.

One of the key roles played is that of the Intergovernmental Panel on Climate Change (IPCC), which provides scientific assessments used to inform policy makers. The Intergovernmental Panel on Climate Change (IPCC) does not undertake new research but rather compiles existing scientific studies, to produce comprehensive assessment reports. IPCC was set up in 1988. Its reports are typically regarded as the benchmark for international climate conversations, representing the scientific backing. The scientific basis for international climate talks is usually regarded as being set by its reports. For example, the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (2021-2023) bore that the human activity is undoubtedly causing the phenomenon of global warming and highlighted the importance of an urgent reduction in emissions.

The other United Nations organisations also contribute significantly, offering support on climate adaption projects, capacity building programmes and climate financing projects, among others, namely the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP) and the World Meteorological Organization (WMO). Through collaboration, these institutions can help to close the scientific, policy, and policy implementation gap at the international level.

4.5 The legal nature of climate agreements and the compliance mechanisms.

Perhaps one of the most controversial questions of international climate law is



what is soft law and what is hard law. Hard law, by contrast to soft law, is legally binding obligations based on enforceable duties, and whose influence is normative, rather than political. There has been a consistent shift toward the harsher point-in-time climate law (the Kyoto Protocol) and the more flexible “law” (the Paris Agreement) in the history of climate agreements.

It is often said that the Kyoto Protocol is a hard law one because it establishes emission targets which can be legally binding for industrialised countries. However, the widespread participation and enforcement strategies were not adequate and, as a result, the overall effectiveness of the program was compromised. However, in contrast, the Paris Agreement can be seen as a model of soft law, such as the one that values participation and flexibility more than forceful enforcement.

Much remains to be worried about on compliance mechanisms efficacy under international climate law. While there are mechanisms in place to improve accountability, such as reporting requirements and transparency frameworks and global review mechanisms, there is no robust enforcement measure that can ensure that countries achieve their targets. In the case of compliance, however, it also relies heavily on domestic political dynamics and diplomatic pressure and reputational incentives.

Both the advantages and the drawbacks of international environmental regulation are reflected in this hybrid system. On the one hand, it makes it possible for a large number of people to participate and brings about the formation of a consensus; on the other hand, it raises worries about whether or not voluntary pledges are adequate to confront the warming climate catastrophe. Legally binding commitments and actual emissions reductions are becoming ever further apart, making it more and more difficult to decide whether or not the international climate policy is working.

EMERGING LEGAL ISSUES IN CLIMATE CHANGE

5.1 Climate-Induced Displacement

The displacement of people as a result of climate change has emerged as one of the most important humanitarian and legal concerns of the era of climate change. Due to climatic changes like global temperature rise, rising sea levels, desertification and floods, millions of people are being forced to move from their homes. This is particularly the case in the vulnerable regions of Asia, Africa and in small island developing States. The Internal Displacement Monitoring Centre (IDMC) reported that on average, climate-related disasters caused over 26 million IDPs annually, from 2010 to 2020. These displacements were mainly caused by extreme weather events (IDMC, 2023). Although this term is not a legal one according to international law, the notion of “climate refugee” has come about as a consequence of this increasing trend.

Generally speaking, the term “climate refugee” is applied to the members of a community or individuals that are forced to move due to sudden or gradual changes in their environment that are linked to climate change. The Refugee Convention of 1951, however, only applies to persons who are fleeing persecution on the basis of race, religion, nationality, political opinion or belonging to a particular social group. This is in line with this legal definition, environmental degradation is not included. This is in part because those who have been forced to flee as a result of climate change are not part of the formal framework of international refugee law, leading to a significant gap in refugee protection



(McAdam, 2012).

The non-legality of this has implications especially in coastal areas and states of low lying islands. Although these nations such as Bangladesh, Maldives, and Pacific Island countries are at the brink of extinction because of the rising sea level, there is no binding international mechanism that will guarantee protection or removal of populations affected by these threats. The legal gap highlights the critical need to review existing legal structures and/or find new solutions within existing international law that can respond to mobility caused by climate change.

5.2 State Responsibility & Liability

The issue of the responsibility of the states is one of the most challenging legal challenges faced by international law in the context of climate change. In the past, for a state to be held accountable, the harm associated with the wrongdoing had to be identifiable and there had to be a direct link between the harm and the wrongdoing. Climate change is, however, a cumulative phenomenon of emissions across the various states over a long time, making it extremely challenging to complete an attribution.

The International Panel on Climate Change (IPCC) projects that the concentration of CO₂ has risen from approximately 280 parts per million (ppm) by volume to more than 420 parts per million (ppm) by volume since the Industrial Revolution and is projected to continue increasing. The developed countries have been responsible for most of the fossil fuel emissions in history. Notwithstanding this, the identification of specific climatic harms with individual governments is still not easy because of the diffuse, global nature of GHGs. It poses a challenge both from a legal and scientific perspective.

A linkage between emissions and a particular event, like a flood or drought, is a major challenge in the legal framework. Unlike traditional pollution testing, climate change has multiple causes and consequences that take a long time to manifest. The efforts to invoke traditional ideas of international duty are made more difficult as a result of this.

In this context, the relevance of the International Court of Justice (ICJ) has grown and its role has become more and more relevant. States' responsibilities in the field of climate change could be clarified with the help of advisory opinions and perhaps a controversial situation. A growing number of island States have taken recourse to the International Court of Justice (ICJ) in recent years to seek advisory opinions on the legal obligations of States with regard to climate change. This means that there is an expanding trend towards incorporating climate responsibility into international law.

5.3 Loss and Damage

Loss and damage is a term that is used to describe the harms that are caused by climate change and cannot be averted by the implementation of adaptation or mitigation strategies. This includes irreversible impacts like the loss of territory, territory's cultural heritage, infrastructure, biodiversity, and the destruction of the land itself—even in extreme cases. The issue has become a big issue in international climate negotiations.

The first official mention of this issue was the Warsaw International Mechanism on Loss and Damage, set up by the United Nations Framework Convention on Climate Change (UNFCCC) in 2013. However, it is not so much a matter of paying monetary compensation, but rather one of information



exchange and technical support. The industrialised countries have so far been unwilling to embrace liability-based compensation schemes and the developing countries have long argued that financial compensation for the damages caused by climate change should be paid by historical polluters.

While there are significant differences between industrialised and developing countries, the issue of loss and damage has been a subject of debate. Climate justice and historical responsibility are two topics that are prioritised by developing nations, whereas developed countries place more of an emphasis on risk management strategies and systems that are funded voluntarily. In 2022, at the Conference of the Parties (COP27), an unprecedented proposal to create a special fund for loss and damage was agreed upon. The operational aspects of this agreement are still being discussed, but it's a major political move.

5.4 Climate Litigation

Climate litigation is a rapidly growing field of litigation and has grown to become a forum that increasingly sees the courts used to ensure compliance with climate commitments and demanding accountability from governments and corporations. Setzer and Higham (2023) report that the number of climate-related cases is now rapidly growing to over two thousand cases in total from around the world, from which only a handful were identified in 2010.

As these cases are being filed, they are being brought to domestic, regional, and international judicial bodies. Some countries like Netherlands, Germany and Pakistan have given landmark decisions which demand their respective governments to improve their climate change policies. One of the most striking examples is the case of Urgenda Foundation against the Netherlands. In this instance, the Dutch Supreme Court ruled that the Dutch government had a legal obligation to reduce emissions pursuant to human rights obligations.

Climate litigation is a sign of the shift in international climate governance, from mainly the diplomatic stage to the judicial stage. In the past, there were fewer courts interpreting environmental protection 'rights' under human rights and constitutional law, but this is changing. But there are still some challenges to overcome in terms of limitation of jurisdiction, enforcement of judgements, and how countries' courts interpret the issues.

5.5 Ocean Governance and sea-level rise

One of the most significant difficulties in international law, both from a legal and geopolitical standpoint, is provided by rising sea levels. It is estimated that global sea level rise has been about 20 centimetres since 1900, and the current rate of sea level rise is around 3.3 millimetres per year (IPCC, 2021). This threatens the lives of the low-lying coastal countries, as well as the small island developing states (SIDS).

Rising sea levels due to UN convention 1982 of the law of the sea is one of most crucial legal matters to be addressed. Due to erosion and submergence, shorelines are changing and questions are being raised regarding stability of exclusive economic zone (EEZ) and territorial seas. In the event that baselines are redrawn in accordance with physical topography, numerous island states run the risk of losing considerable marine territory and the economic rights that are associated with it.



Issue	Legal Challenge	Impact
Sea-level rise	Changing coastlines	Loss of territorial waters
Island submersion	State extinction risk	Loss of sovereignty
Maritime boundaries	UNCLOS interpretation issues	Disputes over EEZs
Displacement	Population relocation	Statelessness concerns

Small island governments like Tuvalu, Kiribati and the Maldives are facing existential threats, and this poses new questions that have never been raised from the point of view of international law on statehood, sovereignty and continuity. Whether or not a state can continue to exist even if a territory becomes completely or partially uninhabitable is a topic of contention among academics. The fact that these issues exist demonstrates that the legal frameworks that are now in place are not adequate to deal with climate-induced spatial transformation.

New legal challenges in the framework of climate change, which are complex and diverse, highlight the trend of international law facing a new set of challenges beyond traditional environmental law. Ineffective legal frameworks exist today on climate induced displacement, state accountability, loss and damage and climate litigation, to name a few areas where these are evident. In light of these difficulties, there is an urgent need to develop laws in response to the escalating impact of climate change on the world's system of governance.

EFFECTIVENESS AND LIMITATIONS OF INTERNATIONAL LAW IN CLIMATE GOVERNANCE

6.1 Weak Enforcement Mechanisms

One of the major weaknesses of the international climate law is a lack of strong enforcement mechanisms. International law is a decentralised system, as opposed to domestic legal systems, and is implemented in a fashion that brings in a significantly level of dependence on the will of sovereign states to comply with the law. Most of the climate accords, including the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, are primarily enforced through voluntary compliance, reporting requirements and peer reviews.

For the Paris Agreement, for instance, it is built around nationally determined contributions (NDCs) which allow States to set their own targets for emissions reduction. Even though this flexible structure has led to the growing number of countries providing NDCs (nearly 195 countries have provided NDCs) there are no stringent enforcement mechanisms in place. As a result of this, states may be in breach of their obligations, without suffering instant legal ramifications. Even the current commitments around the world will leave the planet at 2.4°C to 2.9°C by the end of the century (United Nations Environment Programme 2023). This is much higher than the 1.5°C target and highlights the gap between what governments have committed to, and what is happening.

Thus, this voluntary compliance is a symptom of a larger structural limitation of international law: that of sovereignty constraining the creation of centralised enforcement bodies. Because of this, political will and the pressure of reputations are more important than legally binding obligations for successful implementation.

6.2 Sovereignty vs Global Responsibility

One of the basic conflicts in the international law field of climate change is



between the sovereignty of states and the responsibility of the environment. While the concept of sovereignty gives states the power to regulate activities within their national territory, the need to act together to address climate change often makes it impossible to make decisions on a one-off basis.

Due to concerns about economic growth, energy security and local political concerns, many states remain reluctant to fully embrace strict climate mandates. Whereas in developed countries, the responsibilities are often accepted without any concerns that it may affect them in their ability to compete in the global market, developing countries often reject such responsibilities. Tight emission limits are believed to be a constraint to industrialisation in developing countries. This contradiction has been in the foreground since the Rio Earth Summit when it comes to climate negotiations.

The compromise between these two groups has been the notion of common but differentiated responsibilities (CBDR) which remains a controversial issue. Emissions make for a different focus – developed states focus on the rising emissions of emerging economies and developing states focus on their historical emissions. Moreover, this debate has been and remains to influence the results of negotiations and limits the area of global climate agreements.

International climate law is often opting for flexible over more hardline approaches, and a greater focus on participation than compliance. Because of the tension between the concepts of sovereignty and responsibility, international climate law is more often adopting flexible approaches than enforcing them, and emphasises participation over enforcement.

The juxtaposition of legal regimes.

6.3 Legal regimes and their fragmentation.

Another major weakness in international climate legislation is the lack of coordination of the various legal instruments. Some of the overlapping legal frameworks which govern climate governance are environmental law, international commerce law and human rights law. Climate governance does not have a single cohesive legal system, but is spread across many connected systems. This fragmentation often gives rise to inconsistencies and conflicts among the various legal systems. Environmental constraint, for example, which could result in a carbon tax or that might ban imports of goods with high emissions levels, could, in some cases, be at odds with trade regulations, which are under the auspices of the World Trade Organization (WTO). Similarly, the importance of the environment is also becoming recognized in the field of human rights, but not where environmental treaties require environmental protection to be a human right.

Legal Regime	Focus	Key Challenge in Climate Governance
Environmental Law	Emissions reduction, ecosystems protection	Weak enforcement mechanisms
Trade Law (WTO)	Free trade, market access	Conflicts with carbon regulation policies
Human Rights Law	Protection of fundamental rights	Indirect climate obligations
Investment Law	Investor protection	Limits on environmental regulation



This discredited climate governance system also contributes to the legal uncertainty, and impairs the coherence of global climate governance. This system has been called a "regime complex" by a number of academics, such as Keohane and Victor (2011), who stress that it is not a system based on a central authority but consists of several autonomous institutions.

6.4 The political and economic factors are also constraints.

Another key factor that influences the effectiveness of international climate regulation is political/economic constraints. The interests of the great nations have a significant influence on the global climate negotiations that are in process, especially those of the large economy, with high emission levels. The results of the global climate change debate have significant impacts on countries such as the United States of America, China, the European Union and India.

In the case of developing economies, energy demand and industrial development are priority and often environmental obligations are secondary considerations. This is particularly the case in less developed countries. The International Energy Agency (2023) reports that fossil fuels account for approximately 80% of global energy use, underscoring the continued dependence of the world's economy on carbon-based energy sources.

Political instability, elections, sectorial lobbying at home, are some of the factors that affect the behaviour of states in the international negotiation. Politically, this often leads to climate promised weakened and/or delayed due to pressures within the country. This leads to a gap in the implementation of the international accords and national ones.

6.5 Institutional Weaknesses

In addition, lack of institutional deficiencies hamper the effectiveness of international climate law. The United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Environment Programme (UNEP) all have important roles to play with regard to coordination and scientific assessment of climate change, but none of them have the same binding authority as a compliance enforcer.

United Nations Framework Convention on Climate Change (UNFCCC) acts primarily as a forum for negotiation and not as any real enforcer. The organization can facilitate dialogue and monitoring but cannot provide any fines for states which don't comply. Similarly, the Paris Agreement is designed in terms of procedures of reporting and openness, not sanctions. This institutional architecture is a conscious decision to emphasize wide participation and decreases the possibility for enforcement.

The Intergovernmental Panel on Climate Change (IPCC) provides scientific credibility to the climate negotiations process, but is not a regulator. It's only fair to assess and report on the situation. While not being able to enforce environmental laws over sovereign governments, UNEP is in favour of environmental governance.

Institution	Role	Limitation
UNFCCC	Negotiation and coordination	No enforcement power
IPCC	Scientific assessment	No policy enforcement
UNEP	Environmental	Limited legal authority



	coordination	
COP	Decision-making forums	Consensus-based, slow decision-making
Conferences		

Another reason for the slowdown in implementing ambitious climate action is decision-making that is consensus oriented. Consensus among more than 200 countries often leads to watered down 'committed actions' reducing the effectiveness of the institution.

There are a number of interconnected restrictions that limit the effectiveness of international climate law. These limits span ineffective enforcement mechanisms, between-sovereignty and global-duty, fragmented legal regimes, political and economic restrictions, and institutional shortcomings. In addition, although international law has proven to be effective in setting up a global cooperation framework, its ability to ensure compliance and to achieve substantial emission reductions remains limited. The complexity of global climate regulation in these challenges points to the structural complexity of the regulation process, but also to the difference between legal duties and environmental effects in the world.

REFORMING INTERNATIONAL CLIMATE LAW

7.1 Strengthening Legal Frameworks

The need to improve the legal foundations of international climate law have grown in scholarly and policy debates due to the increasing discrepancy between global climate commitments and global emissions. To this day, a significant portion of the climate regime is carried out by means of soft law instruments. This is especially true in the context of the Paris Agreement, which is based on the concept of voluntary nationally determined contributions (NDCs). As a result, almost everyone is involved in this strategy, but it has also raised concerns about the effectiveness of the legal system, especially given the ongoing growth of global emissions.

Current nationally determined contributions (NDCs) put the world on pace for a temperature increase of 2.4°C to 2.9°C by the year 2100, which is significantly higher than the 1.5°C target provided by the Paris Agreement, as stated in the UNEP Emissions Gap Report (2023). This is an indication that voluntary commitments cannot be the only way to achieve the goals agreed upon for the global climate community. As international climate law moves towards increasingly binding legal obligations, academics recommend that it should be progressively shifted from the "soft" to the "hard" law category (Bodansky, Brunnée & Rajamani 2017). This is particularly the case regarding emission reduction targets, the timing of the end of fossil fuels and reporting requirements for compliance.

However, changing a soft law to hard law brings political and practical barriers. Because of concerns about their sovereignty and the need to maintain economic competitiveness, states continue to be reluctant to embrace stringent legal commitments. In this sense, a major focus of reform plans is a hybrid model of a legally binding procedure and a substantive promise which is incrementally reinforced over time.

7.2 Enhancing Compliance Mechanisms

One of the areas of climate law reform that has been most discussed since the original proposal was put forward is strengthening compliance procedures.



Currently, the main forms of enforcement are transparency, peer review and reputational pressure, and not legal consequences. This has resulted in increased engagement; yet, it has not ensured that adequate implementation has taken place.

The implementation of graded fines, financial penalties, trade-related measures, and conditional access to climate funds for governments that do not comply with the climate change regulations are all included in the reform plans. Advanced monitoring technologies that harness satellite technology, artificial intelligence and real-time monitoring of emissions are also increasingly being explored to facilitate transparency and accountability.

As previously noted, global emissions need to drop by about 45 percent by 2030 to allow for global temperature to remain below 1.5 degrees Celsius, according to the International Energy Agency (IEA, 2023). Existing legal frameworks can easily become symbolic in nature without the provisions of monitoring and corrective action mechanisms that are enforceable.

Proposed Reform	Function	Expected Impact
Carbon sanctions	Penalize high emitters	Increase compliance pressure
Monitoring technology	Satellite-based tracking	Improve transparency
Climate-linked finance	Conditional funding	Incentivize compliance
Trade measures	Carbon border adjustments	Reduce carbon leakage

7.3 Integrating Climate and Human Rights Law

A key approach that is being taken in the international climate law reform is integration of environmental protection into human rights law. There is increasing recognition that climate change is a direct threat to fundamental human rights, including the right to life, health, food, water and housing. The United Nations Human Rights Council (2019) states that climate change is one of the factors which make it harder for people around the world to enjoy a number of their human rights.

This linkage has also been strengthened by the courts in a number of different jurisdictions. The European Court of Human Rights and national courts in the Netherlands and Germany, among others, have come to the conclusion that inadequate climate action could be a breach of constitutional and human rights obligations. This judicial trend is reflective of a wider trend that has been in play in recent years – the recognition of environmental rights as legally enforceable rights.

Among the reform recommendations is the international law based legal recognition of a right to a healthy environment (RHE). Although it has been recognised by over 150 countries in their national constitutions (UNEP, 2022), it is not yet internationally binding. Increasing this legal recognition will significantly boost accountability and give climate-related litigation more legal leverage.

7.4 Addressing Climate Refugees

One of the most pressing legal gaps in international law is the lack of statutory definition of the term 'climate refugee'. Already, millions of people have been displaced because of sea rise, extreme weather events and environmental



degradation. According to the Internal Displacement Monitoring Centre's (IDMC) findings, climate-related disasters forced more than 26 million people to flee their homes within their own country every year over the past 10 years.

Despite this, the Refugee Convention of 1951 does not recognize environmental displacement as a solid ground for the recognition of refugee status. This means that climate induced migrants are not legally protected under the international refugee law. This is an important humanitarian and legal issue in the particular case of populations residing in low elevation island nations and on sensitive coastal areas.

Regional relocation arrangements and migration framework are additional ideas for reform, as are new international legal concepts regarding climate change induced displacement. As academics like McAdam (2012) argue, the current refugee law is inadequate and needs to be extended and/or complemented with new legal instruments specifically targeting climate migration.

Issue	Current Legal Status	Proposed Reform
Climate displacement	Not recognized under 1951 Convention	New legal category needed
Cross-border migration	No binding framework	Regional relocation agreements
Stateless island populations	Legal uncertainty	International protection regime

7.5 Improving Global Cooperation

Yet, even though the worlds' collaboration is necessary and important in the regulation of the international climate, there is still a lack of collaboration between governments. The key institutions for fostering co-operation are the UN Framework Convention on Climate Change (UNFCCC), the UN Environment Programme (UNEP) and the Intergovernmental Panel on Climate Change (IPCC); however, they are severely constrained by political division and conflicting national interests.

Recommendations for reform include a focus on strengthening multilateral collaboration through better financial arrangements, technology transfer and steps towards capacity building in developing countries. The need for climate funding cannot be underestimated, and developing countries need a lot of support to reach their climate change adaptation and mitigation goals. In order to achieve their requirements for climate adaptation and mitigation, poor nations may require more than one trillion dollars yearly by the year 2030, according to estimations provided by the OECD.

Furthermore, it is important to build connections between the South and the North and to ensure a fair distribution of responsibilities based on the principle of common but differentiated responsibilities (CBDR), in order to find better ways to collaborate internationally. If the negotiations over climate change are to avoid further deadlock and limited implementation, there must be a collaborative effort among all parties.

7.6 Innovative Legal Approaches

In recent years, a greater research focus has been placed on the creation of new legal processes with an aim to enhancing international climate governance. One possibility that could be adopted is the idea of the climate clubs. Here, a club of countries will have more ambitious climate policies and apply trade-related



incentives or disincentives to non-club member countries. This strategy aims to tackle the problem of free riders in the framework of global climate governance by introducing financial incentives for participation.

Another technique that is currently being developed is known as carbon border adjustment mechanisms (CBAMs), which are able to apply tariffs on imported goods based on the amount of carbon that they contain. The European Union has taken the first steps to establish CBAM regulations, as part of its carbon leakage mitigation and global emission reduction goals. The tools reflect and represent a trend towards the linkage of climate policy and international trade law.

Innovative Tool	Description	Purpose
Climate clubs	Group-based cooperation with incentives	Encourage stronger commitments
Carbon border adjustments	Tariffs on carbon-intensive imports	Prevent carbon leakage
Digital monitoring systems	AI and satellite emissions tracking	Improve enforcement
Green finance frameworks	Sustainable investment standards	Support climate transition

These innovative approaches are part of a broader transformation in international climate law, towards more integrated, interdisciplinary and enforcement-oriented governance.

It is necessary to take a multi-faceted strategy in order to reform international climate law. Such measures should encompass enhanced legal framework, strengthened compliance mechanisms, incorporating human rights protections, tackling climate induced displacement, better global cooperation, and the implementation of innovative governance instruments. These reform options are a stepping stone to the evolution of international law, which is a result of the growing climate crisis, though political and structural challenges remain.

FINDINGS AND DISCUSSION

8.1 General Findings of the Study

As seen in the previous chapters, in the course of the time, the world has seen significant development of the legal structure concerning climate change and environment but it remains structurally weak concerning the effective enforcement of legal rules and regulations. The fact that international climate law has grown in a progressive but uneven manner is one of the most important conclusions. It has developed in steps from less formal principles (Stockholm 1972) to more formal structures (UNFCCC and Kyoto Protocol, Paris Agreement), but it has not yet matured to a level of effective compliance.

The report shows that despite the vast majority of countries being officially involved in the climate system through the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement, global GHG emissions are still on the rise. The worldwide Carbon Project (2023) reports that the annual worldwide CO₂ emissions have reached around 37 billion tonnes, which indicates that the legal promises that have been made have not resulted in adequate mitigation efforts. This shows that there is still a great gap between what actually exists in the environment and what is now called for under international law.



8.2 The Efficiency of International Climate Law

The results indicated that while international climate law has succeeded in setting norms and building institutions, it has not been successful enough to implement its provisions. It has been possible to achieve universal involvement through the use of instruments such as the Paris Agreement; however, the fact that these instruments rely on voluntary pledges limits their effectiveness.

The shift from the Kyoto top-down to the Paris bottom-up system led to an increased role of politics, but also to a reduced role of the law in enforcing the agreement. Despite the fact that Kyoto imposed legally enforceable targets, the worldwide influence of the conference was diminished. In contrast, Paris did not impose any binding obligations for emissions cuts, but did secure inclusion of the world.

This is where the issue of efficacy versus participation in climate law comes in as a big structural problem in international law.

8.3 Major Legal Loopholes

In light of the investigation, many important legal gaps in the international climate regime have been detected:

First, there is no overall legal framework to respond to climate-induced displacement, leaving millions of people affected without protection under international refugee law. Second, although science has increasingly come to understand that emissions are a contributing cause of climate change, there is no clear definition of a legal responsibility or compensation for damages caused by climate effects that can be used to hold a state accountable.

Third, loss and damage remains a highly politicized issue and a legal one that is not resolved. Although institutional mechanisms exist under the UNFCCC there are no legally binding compensation mechanisms. Fourthly, there is a disjointedness of international legal regimes, the environmental and the trade law regimes operate side by side, without a clear structure of climate regulation.

Legal Gap	Impact	Severity
Climate displacement	No legal protection for climate migrants	High
State liability	No enforceable responsibility system	High
Loss and damage	Weak financial compensation structure	High
Legal fragmentation	Policy inconsistency across regimes	Medium–High

8.4 Political Economy of Climate Governance

Another finding that can be drawn from these data is that the political and economic power institutions have a relatively strong influence on international climate law. Who the large emitter and industrialised countries are in the negotiations determines the route the negotiations will take. This results in concessions, often with the effect of making legal requirements less stringent.

Developing countries focus more on economic competitiveness and internal political constraints than do more developed countries. Historical accountability and equity also are more important in developing countries. This continued polarization in the north-south relationship continues to affect negotiations' results and limits the potential of global agreements to be aspirational.

Global climate governance is therefore not only legal in nature, but, in fact, permeated by international political economic dynamics, concludes the study.



8.5 Institutions and Governance Structures: Their role in the process

International organisations, such as the UN Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC) and the United Nations Environment Programme (UNEP) are found to be important actors in the formation of climate governance. But they have limited enforcement powers and, apart from advisory and coordination functions, are very little involved in enforcement.

The Intergovernmental Panel on Climate Change (IPCC) delivers the scientific soundness and the United Nations Framework Convention on Climate Change (UNFCCC) promotes discussions and the United Nations Environment Programme (UNEP) supports environmental co-operation. None of these, on the other hand, is able to impose legally-binding enforcement obligations on governments. This institutional constraint greatly limits the overall effectiveness of the law governing climate change on a global scale.

Amongst the most significant is that the international climate is not legally required but is dependent on political will. This is due to the role of soft coordination mechanisms as a prerequisite to global climate governance, rather than legal enforcement.

8.6 Climate Litigation as a New Source of Enforcement: Implications

One of the many striking conclusions of this study is that the climate litigation is quickly becoming a more significant alternative enforcement mechanism. It is becoming increasingly common for courts in a variety of jurisdictions to interpret constitutional and human rights laws in order to impose climate commitments on corporations and states.

There have been markedly more cases reported and it is estimated that this will exceed 2000 globally by the year 2023 (Setzer & Higham, 2023). Through landmark cases, like *Urgenda v. Netherlands*, it is proven that domestic courts can contribute significantly when international systems are not very effective in improving the accountability for climate change.

This indicates judicialization of climate governance, that is the increasing role of courts as complement to international legal instruments.

8.7 International Human Rights and Climate justice are integrated.

The results support the growing acknowledgment of climate change in the field of human rights principles of law. The impact of climate change directly threatens a number of fundamental rights such as the right to life, health, food and housing. Judicial and institutional reforms have occurred on a number of fronts that are beginning to recognize the protection of the environment as a challenge to human rights.

Although there has been significant progress, the study results indicate that the right to a healthy environment has not yet become an international law imperative in general. As a result, there is a lack of uniformity around the legal protection available on a regional basis, severely limiting world-wide accountability.

8.8 A discussion on overall assessment of international climate law

The entire discussion reveals a paradox of international climate law: it's growing but not being enforced. It creates an impetus for lawlessness. On one side, the scale of the legal system has grown and its participation in various aspects of



social and political life has increased, while on the other side the complexity of the institutions of the legal system has expanded. However, its potential to achieve real emission reductions and to ensure compliance remains limited.

The results suggest that the current system is a hybrid type of governance, sharing the characteristics of soft law, political bargaining, scientific direction and developing judicial involvement. This is the most appropriate model to capture the current situation. Yet, though it is supposed to be inclusive, this model doesn't have the coercive power necessary to ensure the outcomes of the environment are consistent with scientific urgency.

The study suggests that a failure to reform institutions – especially enforcement institutions, the enforceable nature of the rules, and the allocation of duties based on equity – will result in a growing disparity between legislation and reality. Given the aforementioned, international climate law can be characterized as a legal system, which is developing and yet has missing parts. It has proven effective in raising awareness at an international level, building institutional mechanisms and setting norms, but is still not enough to face the urgency of the climate emergency. The key to measuring the effectiveness of the system will be to narrow the implementation gap between the written pledges and what actually happens. This may be achieved by deepening partnerships, new laws and institutions and institutional changes.

CONCLUSION

The aim of this research was to explore how international environmental and climate change law has developed, is organised, functions and faces new challenges, especially in the context of the rapidly intensifying global climate crisis. The study focused on the evolution of international environmental law from the Stockholm Conference of 1972 to the Rio Earth Summit of 1992, the Kyoto Protocol of 1997 and the Paris Agreement of 2015. Furthermore, the study examined the role of these instruments as a whole in the construction of the present architecture of global governance on climate change.

In contrast, though, there has been relatively little development of enforcement and compliance measures in international climate law, despite the massive strides taken in norm articulation, institutionalization and global inclusion. One of the most significant findings of this study is that. The transition from top-down, legally binding obligations of the Kyoto Protocol into the Paris Agreement's bottom-up, voluntary approach is a major strategic move that is supposed to help achieve everyone in's ability to participate. The other side of the equation, however, is that this change has been part of the longstanding gap between what countries promise and what they deliver in the way of emission reduction.

The data clearly show that GHG emissions are still on the rise, currently at ~37 Gt of CO₂ per year on the global scale (Global Carbon Project, 2023). This is despite the fact that many of the climate agreements are ratified. This seems to be the situation because there is no sufficient mitigating measure yet in place based on the international legal obligations. The report accordingly makes a structural mismatch between the ambitions of the global climate regime and the competences to deliver on those ambitions evident.

Another major finding is that a number of interrelated problems exist in the field of international climate legislation. These constraints are weak enforcement mechanisms, state sovereignty concerns, political and economic



interests, institutional constraints and weak legal frameworks. These limits combine to reduce the ability of international law to hold States to their climate change responsibilities. Compliance, however, is primarily voluntary, political and reputation-driven, not legally enforced compliance.

Another finding of this research is that new challenges are emerging in the legal framework, including those relating to relocation due to climate change, climate responsibility of States, loss and damage caused by climate change, climate litigation and sea-level rise. The existence of these problems clearly shows that climate change is not only an environmental issue, but a legal, humanitarian, economic and geopolitical crisis, which is not yet sufficiently addressed by current international law.

The research also shows that climate justice is increasingly becoming a central topic of international debates, especially with regard to the principle of common but differentiated obligations and the notion of historical responsibility. Global accords continue to be hindered in their ability to achieve their goals and their effectiveness due to the continuous divisions that exist between industrialised and developing countries.

In conclusion, international climate law is a legal system that is in the process of developing but is yet lacking in its whole. It has done well to create a global norm and institutional structure to address climate change, but the implementation of this structure is constrained by the political facts and structural legal gaps in place. The most important challenge that needs to be tackled at this stage is not the absence of international legal mechanisms but the gap between what the laws require and their application in practice.

Based on this, the study concludes that effective legal enforcement, increased international cooperation, integration of climate justice principles and new and creative legal solutions will be key drivers to improving the governance of the global climate.

POLICY RECOMMENDATIONS

The results of this research and the discussion thereof lead to several recommendations for policy. The recommendations are designed to make international climate change law more effective, and to overcome the current boundaries of regulation. The study's results indicate that the international climate system needs to be incrementally and also structurally adjusted. These reforms should concentrate on strengthening world cooperation, enhancing the legal enforcement of laws and ensuring climate justice for the disadvantaged people.

First, the international community is urged to make efforts to strengthen the legal status of the climate commitments in the existing frameworks, such as the Paris Agreement. There is no binding power behind the current system of Nationally Determined Contributions (NDCs), despite the fact that it has ensured that everyone is able to participate. So countries should progressively adopt more binding emission reduction trajectories, especially for the larger emitters and maintain flexibility for developing countries. This would bridge the ever widening climate commitment–emission divide, leaving the globe on a path of warming between 2.4°C and 2.9°C (UNEP, 2023). This would be helpful as it would help lower current emissions.

Second, the need to enhance compliance and monitoring mechanisms in the global climate framework is great. International institutions, including the



United Nations Framework Convention on Climate Change (UNFCCC), should be provided with various types of advanced monitoring devices such as satellite-based emissions tracking, artificial intelligence systems and standardised worldwide reporting frameworks. In addition, soft enforcement measures like financial incentives for climate change, depending on compliance and mechanisms for reputational accountability, should be used to improve compliance.

Third, the research indicates that human rights law and climate change law needs to be formally linked into the legal system. The recognition of a universal right to a healthy environment under international law would significantly bolster legal accountability and safeguards for potentially affected population. Further, this would enable national and international courts to interpret failure to act on climate change as a breach of fundamental human rights and lead to more judicial oversight over climate governance.

Developing a new international legal framework for climate migrants is the fourth step that needs to be taken immediately in order to address climate-induced displacement. The current 1951 Refugee Convention does not include environmental displacement, thus leaving millions of people without any legal protections. It would be advantageous to develop a new protocol or a new treaty to formally recognise the legal status for people displaced because of climate change and to create mechanisms for relocation and protection, as well as for burden-sharing between governments.

For the fifth, it is recommended that the international community create a more robust and fair loss and damage finance system. While the loss and damage fund at COP27 is a positive development, it is critical that it becomes functional with clear and predictable and adequate commitments by rich countries to provide funding. These should be adjusted according to the countries' historic emissions and since they are able to pay. The long-standing demands for climate justice would be addressed, and vulnerable countries who are experiencing irreversible climate impacts would get support as a result of this decision.

Sixth, the governance of the global climate should improve through development of more effective institutional coordination and cooperation mechanisms. There should be more cooperation between international organizations like the United Nations Environment Programme (UNEP), the United Nations creation Program (UNDP), the Intergovernmental Panel on Climate Change (IPCC), and the United Nations Framework Convention on Climate Change (UNFCCC) for a better alignment of scientific research and policy development and implementation. Further, technology and climate finance transfers should be strengthened to support the developing countries in meeting their climate objectives.

Overall, the study recommends that innovative legal and economic tools like carbon border adjustment mechanisms (CBAMs), climate clubs, and market-based carbon pricing mechanisms should be promoted. These techniques have the potential to assist in the reduction of carbon leakage, provide incentives for compliance, and provide encouragement for increased global engagement in efforts to decrease emissions. However, these must be designed with care so as to not have an out-of-proportion effect on the economies still developing. In addition, they have to be compliant with the principles of equality and common but differentiated duties.

In conclusion, it is important to note that a solution to the issue of climate



change requires legal measures, institutional changes, financial equity, and innovative approaches and policies to governance. Since international climate law alone can not simply be a symbolic commitment to action on climate change if it is to be both practical and enforceable, there must be a global approach that is mutually cooperative and balanced.

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