



Climate Change Mitigation and Adaptation: The Legal Framework

Hrishikesh Manu¹

ABSTRACT

At the international, regional, and national levels, a complex legal framework addresses climate change mitigation and adaptation. The 1992 United Nations Framework Convention on Climate Change (UNFCCC) provides the overarching legal framework for international cooperation on climate change at the international level. The ultimate goal of the Convention is to stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent hazardous anthropogenic climate system interference. The Paris Agreement, which was adopted in 2015 under the UNFCCC, is a legally binding agreement that requires Parties to take action to combat climate change and to adapt to its impacts. Parties are required to regularly prepare, communicate and maintain successive nationally determined contributions (NDCs) that outline their efforts to reduce emissions and strengthen resilience to climate change. In addition to the United Nations Framework Convention on Climate Change and the Paris Agreement, a number of other international treaties and agreements address specific aspects of climate change mitigation and adaptation. For instance, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification address land use and biodiversity issues, which are crucial for both mitigation and adaptation. Several regional agreements and initiatives exist to combat climate change at the regional level. The African Union has established a Climate Change and Adaptation Fund to support adaptation initiatives on the continent. Countries have implemented a range of laws, rules, and policies to promote mitigation and adaptation activities at the national level. These can include renewable energy targets, carbon pricing mechanisms, and building codes that take into account the impacts of climate change. In addition, countries have produced national adaptation plans and policies that define the steps they will take to adjust to climate change's effects.

This paper will examine the legal framework that is relevant to the adaptation and mitigation of climate change. It will also explore the legal concerns that arise as a result of it, as well as the resulting conflicts.

Keywords: Climate Change, Mitigation, Adaptation, Legal Framework, Paris Agreement

Introduction

Climate change is one of the most critical global problems of our time, with the potential to have far-reaching and long-lasting consequences for the planet and its inhabitants. One of the most significant threats of climate change is rising sea levels, which can cause coastal flooding

¹ Assistant Professor of Law, Chanakya National Law University, Patna.

and erosion, threaten low-lying areas and small islands, and displace millions of people. As the planet warms, the polar ice caps and glaciers are melting, which contributes to sea level rise. Climate change also leads to more frequent and severe weather events, such as heat waves, droughts, floods, and storms. These events can cause loss of life and property damage, as well as disrupt agriculture and food production. In addition, climate change can lead to the spread of diseases and pests to new areas, and threaten the survival of many plant and animal species. To reduce these risks, it is essential that immediate actions are taken to slow and eventually stop the warming of the planet by reducing greenhouse gas emissions and increasing carbon sinks.

The legal framework for climate change mitigation and adaptation is primarily established at the international level through agreements such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. These agreements set goals for reducing greenhouse gas emissions and provide a framework for countries to work together to address climate change.

In order to stop additional warming of the planet, a strategy known as mitigation emphasizes cutting emissions of greenhouse gases. In most cases, efforts to mitigate climate change focus on either increasing energy efficiency or transitioning to renewable energy sources. There are several legal concerns that arise from attempts at mitigation. We need to figure out how to properly control emerging energy sources like geothermal.²

Although adaptation and capacity building are separate concepts, they are interconnected in significant manners. Successful adaptation strategies often involve enhancing the capabilities of individuals and institutions to carry out essential research, planning, and implementation endeavours. Capacity building initiatives should be customized to meet the distinct requirements of stakeholders, taking into account their current capabilities and the specific obstacles they encounter in tackling climate change. Furthermore, it is imperative to carry out both adaptation and capacity building initiatives within the framework of wider sustainable development objectives, such as the alleviation of poverty, promotion of gender parity, and stimulation of economic advancement. An integrated approach that takes into account the social, economic, cultural, and environmental factors that influence vulnerability and resilience to climate change is necessary.

² Powell, B. & Kauffman, R. (2020). *Climate change mitigation and adaptation*. Law Now, 44(4), 7

Adaptation is required to complement climate change mitigation. The IPCC defines adaptation as:

*The process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.*³

The law is a potent instrument for implementing climate change adaptation. The government may proactively adopt legislation for the goal of climate change adaptation, or it may indirectly address adaptation-related concerns.

The objective of mitigation strategies is to curtail or prevent the release of greenhouse gases into the atmosphere. These strategies encompass a diverse array of methods, including the adoption of novel technologies and sustainable energy sources, enhancing the efficiency of existing equipment and practices, and modifying individual behaviours and consumption patterns. Mitigation efforts encompass a broad spectrum of actions, ranging from extensive undertakings such as the establishment of advanced public transportation systems and the deployment of renewable energy grids, to more localized and individualized measures such as the development of energy-efficient cook stoves and the advocacy of bicycling and walking as viable means of transportation.⁴

Addressing the Effects of Climate Change

Addressing the effects of climate change is a complex and pressing issue that requires global cooperation and action from governments, organizations, businesses, and individuals. Adaptation and mitigation strategies can help communities and ecosystems prepare for and cope with the impacts of a changing climate. Adaptation strategies include developing drought-resistant crops, constructing sea walls to protect against rising sea levels, and planning for more frequent natural disasters. Addressing climate change requires coordinated efforts at the international level. This includes international agreements, such as the Paris Agreement, which aims to keep the global temperature increase below 2°C above pre-industrial levels.

Adaptation is required to address the impacts of climate change because adaptation is the only available and suitable reaction to certain problems. Adaptation along with mitigation is

³ https://www.ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-AnnexII_FINAL.pdf, accessed on 02 Feb 2023

⁴ UNEP, <https://www.unep.org/explore-topics/climate-action/what-we-do/mitigation> accessed on 02 Feb 2023

acknowledged as one of the means of attaining sustainable development, which improves the economic situation of the poor, who are most sensitive to climate change.⁵

So far, governments and politicians have had only moderate success in putting into place an international climate agreement to limit GHG emissions around the world. As an alternative, there are often calls in the political world to make unilateral progress on mitigation to increase global mitigation. The main argument in favour of such a strategy is that progress in mitigating climate change will force other countries to act in the same selfless way, which will make climate change better. Economists, on the other hand, have often said that unilateral measures of mitigation policy may not be very effective because other players just crowd them out. In the absence of a global agreement or a world government, each country decides on its own how to handle climate change. When countries plan their climate policies, they have to think about how all the other players will react.⁶

International law provides a framework for addressing climate change by establishing obligations and responsibilities for countries to take action to reduce greenhouse gas emissions and mitigate the impacts of a changing climate. The UNFCCC, which was adopted in 1992, is the cornerstone of international efforts to address climate change. It sets the objective of stabilizing greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human interference with the climate system. The Kyoto Protocol, which was adopted in 1997 under the UNFCCC, established binding targets for developed countries to reduce their emissions of greenhouse gases.

The Paris Agreement, which was adopted in 2015 under the UNFCCC, builds on the principles of the UNFCCC and aims to strengthen the ability of countries to deal with the impacts of climate change. The Paris Agreement sets a target of limiting global temperature rise to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C.

UNFCCC Mitigation and Adaptation Initiatives

The UNFCCC recognizes both mitigation and adaptation as essential components of climate change mitigation and has established a variety of mechanisms and strategies to support and promote these efforts. Article 4.1 of the UNFCCC mandates that countries must develop and

⁵ Rosencranz, A., Singh, D., & Pais, J. G. (2010), Climate change adaptation, policies, and measures in India, *Georgetown International Environmental Law Review*, 22(3), 576

⁶ Heike Auerswald, Kai A. Konrad and Marcel Thum, Adaptation, mitigation and risk-taking in climate policy, *Journal of Economics*, Vol. 124, No. 3 (2018), pp. 269-287

implement national and regional plans to combat climate change. These plans should include specific actions to mitigate the effects of climate change and be regularly reviewed and revised.⁷

Article 4.1(d) of the UNFCCC mandates that all member nations promote sustainable practices and collaborate to safeguard and enhance the capacity of natural resources such as forests, oceans, and other ecosystems to absorb and store greenhouse gases not regulated by the Montreal Protocol. This includes preserving and managing these resources to assure their continued effectiveness in mitigating climate change's effects.

The comprehensive strategy for mitigating climate change recognizes that greenhouse gases (GHGs) originate from a variety of sources and that each GHG type has a distinct impact on the climate. To effectively combat climate change, all of these sources and sinks of greenhouse gas emissions must be evaluated collectively. Calculating global warming potentials (GWPs) for each GHG is one approach. GWPs make it possible to compare the emissions of various gases using a singular CO₂-equivalent (CO₂e) metric. For instance, methane has a much higher GWP than carbon dioxide, indicating that a given quantity of methane emissions has a much greater impact on the climate than the same quantity of CO₂ emissions.⁸

National Adaptation Plans (NAPs) are an integral part of global efforts to mitigate the effects of climate change, especially in vulnerable nations. NAPs are a procedure by which countries assess their vulnerability to climate change, identify adaptation priorities, and develop strategies and actions for building resilience. The UNFCCC recognizes NAPs as a crucial mechanism for enhancing developing countries' adaptation efforts.⁹

NAPs provide nations with a structured methodology for assessing and addressing their susceptibilities to the effects of climate change. Typically, the NAP procedure includes multiple phases, such as evaluating present and anticipated climate hazards, identifying adaptation preferences, conducting cost-benefit analyses, and developing and implementing adaptation strategies. NAPs are typically developed through a participatory and inclusive process that incorporates a variety of stakeholders, including government entities, community members, non-governmental organizations, and private businesses.¹⁰

⁷ Article 4.1(c), Promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors.

⁸ Daniel Bodansky, Jutta Brunnee, Lavanya Rajamani, *International Climate Change Law*, Oxford University Press, First Edition, p. 133

⁹ UNFCCC. (2019). Decision 4/CMA.1: Modalities for the Implementation of the Paris Agreement.

¹⁰ UNFCCC. (2012). Technical Guidelines for the National Adaptation Plan Process. Available at, <https://unfccc.int/resource/docs/2012/cop18/eng/08.pdf> accessed on 08 March 2023

Financial Mechanism

The financial mechanism of climate change mitigation and adaptation refers to the funding and financing strategies used to address the impacts of climate change. This includes both reducing greenhouse gas emissions, which cause climate change, and adapting to the impacts that are already being felt around the world. Climate change mitigation requires significant investments in low-carbon technologies and infrastructure, such as renewable energy, energy efficiency, and carbon capture and storage. Adaptation requires funding for measures such as building sea walls, improving water management systems, and relocating communities at risk of flooding. In accordance with the principle of 'Common but Differentiated Responsibilities,' the United Nations Framework Convention on Climate Change (UNFCCC) requires developed countries to provide financial resources "to assist developing countries in meeting their UNFCCC obligations and implementing the treaty's objectives."¹¹

Under the United Nations Framework Convention on Climate Change (UNFCCC), there are several financial mechanisms in place to support climate change mitigation and adaptation efforts globally. These mechanisms are designed to provide funding and technical assistance to developing countries to help them transition to low-carbon and climate-resilient economies. The Green Climate Fund (GCF) is a key financial mechanism under the UNFCCC, established in 2010 to support developing countries in their efforts to address climate change. The GCF provides financing for a wide range of activities, including renewable energy, energy efficiency, and adaptation projects.

The Clean Development Mechanism (CDM) is designed to encourage investment in low-carbon technologies in developing countries and to promote sustainable development. The CDM allows developed countries to earn carbon credits for financing emissions reduction projects in developing countries.

The financial mechanisms under the UNFCCC are designed to support developing countries in their efforts to mitigate and adapt to the impacts of climate change, and to promote sustainable development. They play a critical role in ensuring that the necessary resources are available to address the challenge of climate change and to build a more sustainable future.

Outside of the UNFCCC, the most significant multilateral endeavour is the Climate Investment Funds of the World Bank. In response to the Bali Action Plan of 2007, these funds were established in 2008 with \$6.1 billion in promises from ten donor nations, including the United

¹¹ United Nations Framework Convention on Climate Change (adopted 9 May 1992, entered into force 21 March 1994) 1771 UNTS 107 (UNFCCC) art 3(1) 4(1) (3) (4) and (5).

States (\$2 billion), the United Kingdom (\$1.5 billion), and Japan (\$1.2 billion). The funds are administered by boards in which both donors and recipients have an equal say. There are two distinct funds: the Clean Technology Fund, which includes programs in electric power, transportation, and energy efficiency, and the Strategic Climate Fund, which supports new development approaches that involve adaptation to specific climate challenges and complement development activities.¹²

In 2010, the World Bank estimated that adaptation to a 2°C increase in average temperature between 2010 and 2050 would cost between \$70 billion and \$100 billion per year. The United Nations Environment Programme (UNEP) estimated in 2016 that the true cost of adapting to climate change in developing countries could range between \$140 and \$300 billion per year by 2030 and between \$280 and \$500 billion per year by 2050. According to the report, "to prevent an adaptation gap, the total adaptation money available in 2030 must be around six to thirteen times more than international public finance today."¹³

The Paris Agreement¹⁴, under the United Nations Framework Convention on Climate Change (UNFCCC), aims to strengthen the ability of countries to deal with the impacts of climate change. One of the key elements of the Paris Agreement is the provision of climate finance to support developing countries in their efforts to mitigate and adapt to the impacts of climate change. Under the agreement, developed countries have agreed to provide financial resources to assist developing countries in their transition to low-carbon and climate-resilient economies. The Paris Agreement calls for the mobilization of a significant amount of financial resources from a variety of sources, including public and private financing, to support climate change mitigation and adaptation efforts. The GCF is a key financial mechanism under the Paris Agreement, established to provide financial resources to developing countries for low-carbon and climate-resilient projects. The GCF is supported by contributions from developed countries.

The Paris Agreement calls for the creation of National Adaptation Plans (NAPs), which are designed to help developing countries integrate adaptation into their development planning and decision-making. The NAPs are supported by financial resources from the GCF and other international and national sources.

¹² Frank Ackerman, *Financing the Climate Mitigation and Adaptation Measures in Developing Countries*, https://unctad.org/system/files/official-document/gdsmdpg2420094_en.pdf, accessed on 30 Jan 2023

¹³ Charles Di Leva, *Financing Climate Mitigation and Adaptation*, *Carbon & Climate Law Review*, Vol. 11, No. 4, Special Issue on the Changing Prospects for Climate Law and Policy in the US (2017), p. 317

¹⁴ Adopted in 2015

The Paris Agreement requires that developed countries report on their provision of financial resources, and that developing countries report on the use of these resources, to ensure transparency and accountability. The agreement encourages public-private partnerships as a way to mobilize private sector investment in low-carbon and climate-resilient projects.

Building trust between developing and developed countries is necessary for achieving the Paris goals, as especially the poorest countries require assistance in addressing climate impacts for which they share little responsibility.

Climate Change Adaptation and Human Rights

Climate change has significant impacts on human rights, as it exacerbates existing inequalities and creates new ones, particularly for vulnerable communities and individuals. Climate change adaptation measures must be implemented in a way that respects, protects, and fulfils human rights.

In recent years, private and public actors have endeavoured to apply human rights law to the issue of climate change in light of the growing amount of data regarding the escalating and discriminatory impact of climate change. Such a human rights framework has special normative appeal due to the reality that those who are already vulnerable to human rights violations due to characteristics such as poverty, geography, gender, ethnicity, disability, and age are also likely to face the worst climate change effects.¹⁵

In diplomatic, non-governmental, and academic efforts to study the effects of a changing climate, the link between climate change and human rights is becoming clearer. For example, in March 2008, the UN Human Rights Council passed Resolution¹⁶, which was the first UN resolution to recognize that climate change is an immediate threat to people and communities around the world and has major effects on the enjoyment of human rights. The resolution asked the OHCHR to do a "detailed analytical study on how climate change affects human rights." The OHCHR Report made strong claims about the many ways climate change affects human rights.

Like other enduring concerns in environmental justice, adaptation is likely to be a highly contextual and even individual experience. There will be wealthy elites in even the poorest countries, and there will always be those in the wealthiest civilizations who lack the resources to adapt to climate change. However, adaptive capacity is often correlated with general

¹⁵ Margaux J. Hall and David C. Weiss, *Climate Change Adaptation and Human Rights: An Equitable View*, *Climate Change: International Law and Global Governance* (p. 274). Nomos Verlagsgesellschaft mbH.

¹⁶ Resolution 7/23

capability at the global, national, local, group, and individual levels. Developing nations and their citizens are especially vulnerable to the negative effects of climate change on health, security, and stability.

Most international agreements protecting human rights do not have effective mechanisms for enforcing those agreements. Whether or not NGOs have access to information on the State's fulfilment of human rights, and whether or not the treaty body committee has the time and expertise to review the report and question state representatives all play a role in how effective the treaty body monitoring system is. The treaty body monitoring system's efficacy may also depend on the media's interest in the issue, the committee's ability to follow up on insufficient reports, and the quality of the committee's concluding conclusions. There are a lot of hiccups throughout the process.¹⁷

It is crucial that national and regional governments start including human rights concerns in adaptation decision-making immediately. The National Adaptation Programme of Action for many of the world's least developed states shows that developing a policy framework to guide state and local governments in making informed adaptation decisions is often the first step in putting an adaptation plan into action. Human rights standards and protections should be considered in decision-making processes if human rights are to be safeguarded in the face of climate change.

Climate change adaptation measures must be developed and implemented in a transparent and participatory manner, taking into account the views and needs of affected communities and individuals. This includes the right to receive information on the impacts of climate change and the measures being taken to address them. Climate change adaptation measures must respect, protect, and fulfill human rights, ensuring that the most vulnerable communities and individuals are not left behind. This requires a human rights-based approach to adaptation, which prioritizes the needs and perspectives of those most affected by climate change.

Climate change adaptation and mitigation in India

India's per capita carbon dioxide emissions may be low, and its historical emissions may have been negligible compared to those of some developed nations, but its annual greenhouse gas emissions rank third in the world. This is as a result of factors such as a growing population, an expanding economy, and rising energy demands. In addition, India's unique topography, demographics, and economic inequality make it exceedingly vulnerable to the effects of

¹⁷ *Supra* note 15.

climate change. An increase in the likelihood of catastrophic weather events, a rise in sea level, the draining of Himalayan glaciers, water scarcity, and food insecurity are examples of these vulnerabilities. Therefore, India must take immediate action to reduce its greenhouse gas emissions and acclimate to climate change's effects.¹⁸

The Indian government has launched a range of policies, programs, and initiatives with the objective of mitigating greenhouse gas emissions, advancing the use of renewable energy, and increasing climate resilience. These efforts are detailed in the Nationally Determined Contributions (NDCs) submitted to the UNFCCC.

India has consolidated its Nationally Determined Contributions (NDCs) for the Paris Agreement into a series of "enhanced targets" aimed at achieving net zero emissions by 2070. India's net zero agenda is ambitious and comparable to that of other industrialized nations, despite its low historical contribution to greenhouse gas emissions.¹⁹

The National Action Plan on Climate Change (NAPCC) launched in 2008 is considered a crucial policy for climate change mitigation in India. The proposed plan comprises of eight distinct missions that are centered on particular domains, such as solar energy, energy efficiency, sustainable habitat, and water conservation.

India has emerged as a prominent figure in global climate change negotiations, championing the concerns of developing nations and advancing a trajectory of sustainable, low-emission growth. The nation has officially endorsed the Paris Agreement and presented its Nationally Determined Contribution (NDC) outlining a target to decrease emissions intensity by 33-35% by the year 2030 relative to the levels recorded in 2005.

India's current climate action plans, like those of other developing nations, are motivated by an awareness of the dangers and the financial penalties of inaction. Investments in environmentally friendly technologies and robust infrastructure can protect the economy against climatically caused risks in the future, according to India's 2021–22 Economic Survey. India's efforts to combat climate change have primarily been funded by domestic green financing sources up to now. The organization of its investment platform is currently a top priority as a means of directing the expanding pool of worldwide sources of climate funding.²⁰

¹⁸ Shibani Ghosh, *Litigating Climate Claims in India*, 114 *AJIL Unbound*, 45–50 (2020)

¹⁹ <https://www.lse.ac.uk/granthaminstitute/explainers/how-is-india-tackling-climate-change/> accessed on 14 Feb 2023

²⁰ *Ibid.*

Conclusion

Adaptation is required to address the impacts of climate change because adaptation is the only available and suitable reaction to certain problems. Adaptation along with mitigation is acknowledged as one of the means of attaining sustainable development, which improves the economic situation of the poor, who are the most sensitive to climate change.

Adaptation to climate change on a global scale may cost hundreds of billions of dollars annually. Scaling up resources, using public funds, engaging the private sector in developing and implementing financial risk management mechanisms that encourage adaptation, and incorporating adaptation measures into national policies are just some of the suggested mechanisms for raising money that have been proposed by the UNFCCC. To guarantee that money reaches the most vulnerable groups in society, the UNFCCC also suggests developing suitable institutional and operational structures.

A human rights approach to adaptation would place an emphasis on gathering information at the local level to back up adaptation efforts, in line with the focus of human rights law on individuals and communities. The international consensus on some values that can serve as the foundation for greater cooperative action toward adaptation can be expressed most effectively through a human rights-based approach to adaptation.

There is no denying that the issue of climate change is a complicated and multi-dimensional dilemma; hence, any solutions that are successful will need to take on a variety of shapes. A robust regime of efforts toward both adaptation and mitigation will be required.
