Repercussions of Anthropogenic Climate Change: A Study on Strategies for Evaluating Vulnerability

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Introduction

In the contemporary world, mankind is becoming increasingly acquainted with the massive environmental damage done to our earth. Every day, we hear about rainforest depletion, depletion of resources, trees dying as a result of acid rain, pollutants in our lakes and rivers and the never-ending destruction of our planet's wildlife. One of the major causes of environmental pollution is the contribution of humans to climate change. Anthropogenic climate change is triggering catastrophes in the Earth's ecosystems and disrupting life as we know it.

Anthropogenic (or human-caused) climate change will have an impact on infectious diseases in humans due to higher temperatures and more significant climate variability influencing the development processes.[1] It also has a diverse impact on infectious disease transmission as a consequence of geographical disparities in warming, exposure to ambient conditions during the lifespan of infectious diseases and the correlation between climate and other conditions that affect severity.[2]

Climate change is anticipated to have a significant impact on public health. The adverse health implications of climate change will fluctuate depending on population group, geographical location, and public health response

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[1]Melanie Bannister-Tyrrell, David Harley and Tony Mcmichael, Detection And Attribution of Climate Change Effects on Infectious Diseases 448 (ANU Press).

[2] *Ibid* at 449.

capability. In the United States, the prevalence of respiratory disorders has increased dramatically in recent years[3]. Both climate change and air pollution have the potential to exacerbate respiratory issues. As a result of the fact that most allergic respiratory disorders, such as asthma and rhinitis, are seasonal and have climate-sensitive components, climate change may increase and intensify such allergic responses. Although this is a significant effect on the world's population as a result of human-caused climate change, several more topics addressing the repercussions of human-caused climate change are examined below. Climate change and air quality are inextricably linked. Climate change has the potential to degrade air quality by increasing or concentrating pollutants in the troposphere (the lower atmospheric layer). Naturally occurring causes of climate change in the early centuries comprised volcanic eruptions, variations in solar energy, and natural changes in greenhouse gas (GHG) concentrations. Human activities, such as industrialization and urbanization, release a significant quantity of carbon. Due to the fact that air quality is so intricately dependent on weather, it is particularly vulnerable to climate change. Higher temperatures will result in more frequent droughts and a greater risk of wildfires.[4] Climate change now influences all weather occurrences since all-weather develops in a different setting than previously. Climate change has increased probabilities and modified natural limitations, increasing the frequency and intensity of some forms of extreme weather.

The fundamental issue with anthropogenic climate change is the displacement of people caused by the consequences of climate change or who will be displaced in the future. The UN High Commissioner for Refugees (UNHCR)

[3] Noor Artika Hassan, Zailina Hashim And Jamal Hisham Hashim, *Impact of Climate Change on Air Quality and Public Health in Urban Areas,* Vol. 28 Asia Pacific Journal of Public Health 39, pp. 38S-48S(March 2016).
[4] *Id at 44*.

has acknowledged that the repercussions of climate change have forced people to relocate their homes in search of new lives in new places and states that the UNHCR will work on human rights issues related to climate change-induced population displacement as well as adapt much of its environmental planning and work to address the effects of climate change.[5]

The maxim of *sic utero tuoutalienum non laedas* (one needs to exercise one's own right so as not to cause harm to others) provides a framework for reducing pollution and environmental damage between nations.[6]

International conventions and treaties addressing anthropogenic climate change

Men in the twentieth century were oblivious to the magnitude of change in their natural settings. These human actions, starting with the mortal Homo sapiens, have resulted in an increase in the global average temperature as a result of an upsurge in greenhouse gases in the atmosphere. The overt impact of such maneuvers is climate change. Computing advances enabled the creation of increasingly complex and precise models of cause-and-effect linkages, in addition to the threats of climate change to humans and the ecosystem. As a result, experts urged world leaders to work together and explore diverse strategies to mitigate human climate change. In 1985, the 'International Conference on Assessment of the Role of Carbon Dioxide and Other Greenhouse Gases in Climate Variations and Associated Impacts' populated this into action.[7]

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[5]Shweta Jayawardhan , *Vulnerability and Climate Change Induced Human Displacement,* Consilience pp. 103-142 , 104 (2017).

[6] Furqan Ahmad, *ORIGIN AND GROWTH OF ENVIRONMENTAL LAW IN INDIA*, Vol. 43 JOURNAL OF THE INDIAN LAW INSTITUTE pp. 358-387, (2001). https://www.jstor.org/stable/43951782

[7]J. Depledge, *A Breakthrough for the Climate Regime ?*, vol. 36 *Environmental Policy and Law*, 14, 14-19 (2006).

Subsequently, states were stimulated to consider developing enforceable conventions that would tackle emissions of greenhouse gases that were not addressed by the regime for protecting the ozone layer, namely the Montreal Protocol on Substances that Deplete the Ozone Layer of 1987 and the Vienna Convention for the Protection of the Ozone Layer of 1985. While the Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) in 1988 as an intergovernmental scientific organization to offer decision-makers an assessment of the most recent scientific study and its consequences on policies for prevention and modification, it was a mere inception.[8]

It is perhaps evident that there persisted a north- south split in how the developed and the developing States perceived climate change during the Second World Climate Conference in Geneva, in 1980. While the latter focused on the consequences of poverty and development of any future regime, the former at the time, looked at the intricacies inherent in it as essentially a scientific and environmental concern. These ostensibly united stances of the "North" and the "South" were rooted in various, and frequently at odds with one another, underlying interests in regard to commitments.
Moreover, owing to the lack of consensus on how much these emissions should be cut, the majority of Organisation for Economic Cooperation and Development (OECD) nations supported the implementation of an agreement that would lower global GHG emissions in the first group. The big magnet United States, on the other hand, opposed any responsibility to reduce emissions although agreeing in principle to the need for an environmental

[8]K. A. Baumert, *Participation of Developing Countries in the International Climate Change Regime: Lessons for the Future*, vol. 38 *The George Washington International Law Review, 365, 365-407* , (2006).

deal. The second group agreed that the new legal framework must not impede their ability to prosper economically. Aside from this stance, interests were divided: while fossil fuel consumers and oil exporting nations worried about the future use of their main sources of energy, the Small Island States and States with low-lying coastal regions formed an alliance to defend themselves against the threat of rising oceans.[9]

The IPCC, being instrumental in addressing anthropogenic climate change, is a rather pre-eminent scientific authority with a multi- faceted effect. Spearheading the world's climate change edicts, this arbiter of climate science has produced comprehensive assessment reports, underpinning the global climate and policy decisions. The IPCC's findings directly shape international climate agreements such as the Kyoto Protocol and the Paris Agreement, providing the scientific bedrock upon which emissions reduction targets and other climate-related measures are established. Moreover, the IPCC's consensus-building process fosters international cooperation, bridging gaps between nations with diverse interests and perspectives. Its work has not only raised public awareness about the importance of climate action, but it has also influenced the creation of successful adaptation and mitigation policies throughout the world. By emphasizing the vulnerability of populations and areas to climate impacts, the IPCC has played and continues to play a critical role in prioritizing support for those most impacted by climate change. Its rigorous scientific assessments and the ability to transcend political divisions make it an indispensable force in shaping the global response to the critical challenge of anthropogenic climate change.

[9]K. A. Baumert, *Participation of Developing Countries in the International Climate Change Regime: Lessons for the Future*, vol. 38 *The George Washington International Law Review, 365, 380* , (2006).

Aside from the incessant use of fossil fuels, land use and the paradigm shift, has impacted the global carbon budget through deforestation and land clearing. Deforestation and the slow warming of the oceans, has in turn, impacted the capacity to absorb carbon dioxide and decrease the land and sea carbon sink. The natural carbon sinks are unable to bind or convert all the carbon dioxide that is additionally released into the atmosphere. As a result, the concentration of carbon dioxide in the atmosphere increases. The IPCC had reported a 45% increase in carbon dioxide concentration over pre-industrial levels. This increasing carbon dioxide concentration absorbs the infrared radiation emitted by the planet's surface and traps the solar heat radiating from Earth toward space.

The UNFCCC, established in 1992, provides the overall framework for addressing climate change. It convenes annual conferences (COPs) where nations negotiate and make commitments to combat climate change. The primary objective of the UNFCCC is to stabilize greenhouse gas concentrations in the Earth's atmosphere to prevent the climate system intact and not degraded. Here's a brief overview of the UNFCCC and its impact on anthropogenic climate change. The UNFCCC provides the overarching framework for global efforts to combat climate change. It addresses the issues of how human activities have altered the fundamental conditions that have permitted life to thrive on Earth. The projected outcomes include an increase in average global surface temperature and alterations in global weather patterns. Climate change will have an impact on agriculture and food security, as well as biodiversity, ecosystems, and forestry. The ultimate goal of the Convention is to keep greenhouse gas concentrations in the atmosphere stable enough to preclude human-caused impacts on the climate system.[10]

[10] *The United Nations Framework Convention on Climate Change,* Vol. 3 Botanic Garden Conservation International (BGCI) 44, 44(1999), https://www.jstor.org/stable/24753842.

It serves as a platform for negotiations, discussions, and agreements among nations on climate-related issues. These meetings have resulted in landmark agreements such as the Kyoto Protocol and the Paris agreement.[11]

Based on the instructions contained in Article 18 Kyoto Protocol, the Conference of the Parties, functioning as the Meeting of the Parties to the Protocol (CMP), established a non-compliance mechanism in December 2005 to facilitate the successful implementation of the Kyoto Protocol commitments, particularly to support the credibility of the carbon market and transparency of accounting by parties.[12] At the conclusion of first commitment period, the Kyoto Protocol had 192 parties, representing an almost worldwide membership, who had agreed to one of the most innovative international compliance control mechanisms.[13]

The Kyoto Protocol, established in 1997 under the United Nations Framework Convention on Climate Change (UNFCCC), placed a central focus on addressing the anthropogenic (human-caused) aspect of climate change. This landmark treaty obligated developed countries, known as Annex I Parties, to commit to legally binding emission reduction targets during the first commitment period, spanning from 2008 to 2012. This emphasis on binding targets underscored the recognition of human activities as a primary driver of climate change and the imperative for concrete actions to curtail emissions. Moreover, the Protocol introduced innovative market-based mechanisms like emissions trading and the Clean Development Mechanism

[11] *United Nations Framework Convention on Climate Change, May 9, 1992, S.Treaty Doc No.102-38*

[12] Clare Breidenich, Daniel Magraw, Anne Rowley and James W. Rubin, *The Kyoto Protocol to the United Nations Framework Convention on Climate Change,* Vol. 92 THE AMERICAN JOURNAL OF INTERNATIONAL LAW 315, pp. 315-331 (1998).

[13] RODA VERHEYEN AND CATHRIN ZENGERLING, CLIMATE CHANGE: INTERNATIONAL LAW AND GLOBAL GOVERNANCE 771-772 (Nomos VerlagsgesellschaftmbH 2013).

(CDM), aimed at incentivizing cost-effective emission reductions and emphasizing the role of human-driven emissions in the climate challenge. The Kyoto Protocol led to some emissions reductions in developed countries, particularly in Europe. It also helped pave the way for market-based approaches to emissions reduction, although its effectiveness varied among countries. The Kyoto Protocol had significant impacts on addressing anthropogenic climate change. It introduced legally binding emission reduction targets for developed countries, driving tangible reductions in greenhouse gas emissions across various sectors. Moreover, the Kyoto Protocol raised global awareness about the role of human activities in climate change, fostering a sense of collective commitment to addressing the issue. It also spurred policy innovation, promoting the development of renewable energy, energy efficiency, and emissions reduction technologies. While the Protocol faced challenges, such as limited participation from major emitters, it laid the groundwork for subsequent agreements like the Paris Agreement, which sought to build on its successes and address its shortcomings in a more inclusive and comprehensive manner.[14]

The Paris Agreement begins with a preamble that recognizes "the intrinsic relationship between climate change, sustainable development, and efforts to eradicate poverty" and acknowledges "that climate change is a common concern of humankind. The Paris Agreement, acknowledging the human role in climate change, sets ambitious global temperature goals, aiming to limit the increase in global average temperature to well below 2 degrees Celsius above pre-industrial levels, with an aspiration to limit it to 1.5 degrees Celsius. It employs Nationally Determined Contributions (NDCs) for each country to outline their emissions reduction targets and actions, emphasizing

[14]*Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec.10, 1997, 2303 U.N.T.S.162*

transparency and accountability. Regular global stocktakes assess collective progress, informed by science, with a focus on enhancing ambition over time to address the human influence on the climate. Additionally, the agreement reaffirms the commitment to provide financial support for developing countries to tackle the anthropogenic consequences of climate change and promote sustainable development. The Paris Agreement represents a historic global consensus on climate action. Its impact includes increased commitments to emissions reduction, mobilization of climate finance, and a framework for monitoring progress.[15]

The United Nations High Commissioner for Refugees (UNHCR) is an international organization dedicated to saving lives, preserving rights, and building a brighter future for those who are compelled to leave their homes due to atrocities and persecuting forces. The United Nations has authorized UNHCR to safeguard and uphold the rights of refugees. In the aftermath of World War II, the United Nations General Assembly formed UNHCR in 1950 to assist millions of refugees who had lost their homes. Over the longer term, they collaborate with nations to reform and monitor refugee and asylum laws and practices, ensuring human rights are respected. UNHCR has been protecting the rights of refugees for 72 years. With representatives in 135 countries, UNHCR is the world's most prominent organization safeguarding individuals compelled to flee to safety. At least 108.4 million people are forced to relocate worldwide.[16]UNHCR is identifying sustainable solutions to the refugee crisis by aiding governments and, subject to the agreement of the government's involved, non-profit organizations in facilitating the voluntary return of such refugees or their integration into new national communities.

[15]*Paris Agreement to the United Nations Framework Convention on Climate Change, Dec.12, 2015*

[16]UNHCR global website, https://www.unhcr.org/about-unhcr (last visited Sept. 14,2023).

Individuals abandoning places for reasons related to the environment fall outside the 1951 Convention's precise description of a refugee. As a result, the often-used phrase 'climate refugee' is erroneous.[17]According to the Office of the United Nations High Commissioner for Refugees' Statute, all refugees have acquired a new nationality and are protected by the country of their new nationality.[18]

On 7th February of 2023 certain UN organizations such as The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)[19], the Climate Action Team at the Executive Office of the Secretary-General of the United Nations (EOSG/CAT), and the Trilateral Cooperation Secretariat (TCS) collaborated to virtualize a high-level forum to share policy practices and explore collaboration on the carbon neutrality transition between China, Japan, and the Republic of Korea.[20]

China, Japan, and the Republic of Korea have reiterated their determination to minimize carbon emissions with the aim to achieve carbon neutrality, and they are crucial entities as major economies in the global response to the climate crisis. The Forum operated as a timely platform for bringing together government officials as well as experts from international organisations and academia to solidify and reiterate the three countries' leadership in reducing emissions in order to achieve carbon neutrality.[21]

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[17] Shweta Jayawardhan , *Vulnerability and Climate Change Induced Human Displacement,* Consilience pp. 103-142 , 113 (2017).
[18]*id.* at 13.
[19]ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC, https://www.unescap.org/news/second-forum-carbon-neutrality-goals-china-japan-and-republic-korea-affirms-need-trilateral#+ (last visited Aug.30, 2023).
[20]*Id.* at 16.
[21]*Id.* at 16.

India's stand on combating anthropogenic climate change

India being one of the largest developing countries having more than seven hundred million population which resides in rural areas and majority depending on the sectors which are climate sensitive i.e, forest, agriculture and fisheries which makes them inevitably dependent upon natural resources such as water, mangroves, grassland, coastal zone etc. Therefore, it makes India more vulnerable to climate change. The most impactful potential of climate change is change in the monsoon in India and twenty percent of the country's gross product is agriculture and allied activities. Over the decade there has been a significant shift in the rainfall patterns across the country which in turn increases the socio-economic vulnerability of India as well.

Various treaties and conventions to combat climate change act as a tool for combating climate change at domestic level, however the lack of self-execution nature of international treaties makes them dependable on the degree of implementation done at the domestic level. Domestic implementation of International treaties and covenants involves a collaborative effort of all the pillars of government; legislature, executive, judiciary and central, state and local administrative bodies. In India, the domestication of international obligations is complied by enabling domestic legislation. In order to comply with UNFCCC, India has passed an enabling statute, i.e, National Biodiversity Act, 2002. Article 4(1)[22] b of the convention mandates each to develop, update periodically and publish in national repositories of Green House Gas (GHG) emissions and its removal by sinks, by using comparative methodologies as agreed in the conference by parties.

[22]United Nations Framework Convention on Climate Change, UN WOMEN – HEADQUARTERS, https://www.unwomen.org/en/how-we-work/intergovernmental-support/climate-change-and-the-environment/united-nations-framework-convention-on-climate-change (last visited Aug 4, 2023).

India has also taken steps to comply with the mandates of Article 12 (1) (a)[23] by taking the initiative of 'stock-taking' even before the convention has come into existence. India has prepared inventories in 1991, 1996 and in 1998 under the aegis of Asia Least Cost Greenhouse Gas Abatement Project (ALGAS)[24]. India has also used IPCC 1996 guidelines for transparent and comparable inventory. India has started receiving funding from Global Environment Facility in 2001 for its NATCOM Project[25], which was implemented and executed by the Ministry of Environment and Forest, Government of India. Recently, India has promised to for COP 26 named as 'Panchamrit' in which India has promised to reduce emission intensity of the country's GDP by Forty five percent by 2030 and net zero emission by 2070.[26] The Prime minister has conceptualized this mass movement as 'LIFE'- 'Lifestyle for Environment as a key to combating Climate Change'.[27]

The Kyoto protocol[28] is also one of the significant plans of action adopted by the international community. India became the party to the protocol on 26th August, 2002 and has implemented this soft law through establishing

[23]conveng.pdf, https://unfccc.int/resource/docs/convkp/conveng.pdf (last visited Nov 16, 2023).

[24]Anonymous, *Asia Least-Cost Greenhouse Gas Abatement Strategy (ALGAS) Reports*, (2014), https://www.adb.org/publications/series/asia-least-cost-greenhouse-gas-abatement-strategy-algas (last visited Nov 16, 2023).

[25]India's second national communication to the United Nations Framework Convention on Climate Change, https://primarysources.brillonline.com/browse/climate-change-and-law-collection/indias-second-national-communication-to-the-united-nations-framework-convention-on-climate-change;cccc000920150009003 (last visited Nov 16, 2023). See also, Preparation of Third National Communication (TNC), UNDP, https://www.undp.org/india/projects/preparation-third-national-communication-tnc (last visited Nov 16, 2023).

[26]Home, THE OFFICIAL WEBSITE OF MINISTRY OF ENVIRONMENT, FOREST AND CLIMATE CHANGE, GOVERNMENT OF INDIA, https://moef.gov.in/moef/ (last visited Nov 16, 2023).

[27]PM acknowledges commitment by G20 countries to urgently accelerate actions to address environmental crises and challenges, https://www.g20.org/en/media-resources/press-releases/september-2023/pm-acknowledgement/ (last visited Nov 16, 2023).

[28]What is the Kyoto Protocol? | UNFCCC, https://unfccc.int/kyoto_protocol (last visited Nov 16, 2023).

Designated National Authority (DNA)[29] to comply with the requirement enunciated under Article 12[30] of the protocol i.e, 'Clean Development Mechanism' (CDM)[31]. The requirement for legislative approval was not required for complying with this principle as India practices single window clearance through inter-ministerial committee which is one of major praiseworthy practice of India.

However, if we zoom in to India's approach to combat climate change, it can be bifurcated into four facets which entail (a) allocation of resources for combating climate change (b) implementation of legislative measures (c) action plan (d) carbon markets.

India has adopted multiple policies and set up institutions for its implementation to reduce reliance on fossil fuels and foster renewable energy. India established a separate ministry for unconventional energy resources in 1992[32]. The five-year plans were also reflected the notion of mitigation of climate change, the eight one[33] showcased plan for implementing renewable energy, the ninth[34] one addressed the issue of carbon monoxide and suggested the demand and supply of energy consumption to promote nuclear and renewable energy. The tenth five[35] year plan projected the Coal Bed Methane

[29]CDM: Designated National Authorities (DNA), https://cdm.unfccc.int/DNA/view.html?CID=101 (last visited Nov 16, 2023).
[30]What is the Kyoto Protocol? | UNFCCC, *supra* note 28.
[31]The Clean Development Mechanism | UNFCCC, https://unfccc.int/process-and-meetings/the-kyoto-protocol/mechanisms-under-the-kyoto-protocol/the-clean-development-mechanism (last visited Nov 16, 2023).
[32]EXP AND PROD - UNCONVENTIONAL | Ministry of Petroleum and Natural Gas | Government of India - Ministry of Petroleum And Natural Gas, https://mopng.gov.in/en/exp-and-prod/unconventional (last visited Nov 16, 2023).
[33]ch7.pdf, https://www.mospi.gov.in/sites/default/files/Statistical_year_book_india_chapters/ch7.pdf (last visited Nov 16, 2023).
[34]APPROACH TO THE NINTH PLAN (1997-2002), https://mpplanningcommission.gov.in/fiveyearplan/Approach%20to%20Ninth%20Plan%20Chapter-3.htm (last visited Nov 16, 2023).
[35]appdraft_1.pdf, https://www.education.gov.in/sites/upload_files/mhrd/files/document-reports/appdraft_1.pdf (last visited Nov 16, 2023).

for power generation. The tenth five-year plan[36] targeted the increase in the capacity of clean energy by fourteen percent.

India has come up with multiple action plans which can be safely said that has contributed greatly to climate change mitigation so far. The first action plan launched by India was the National Action Plan on Climate Change (NAPCC) in 2008 which consisted of varied national missions and imposed accountability as well by requiring the ministries to submit detailed reports on implementation to the prime minister's council created for mitigation of climate change[37]. The missions were namely, National Solar Mission[38], National Mission for Enhanced Energy Efficiency[39], National mission on sustainable habitat[40], National mission for sustaining the Himalayan ecosystem[41], National mission for a 'Green India'[42], National mission for sustainable agriculture[43] and National mission on strategic knowledge on climate change[44].

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[36]*Id.*

[37]IPCC report on Mitigation of Climate Change scientifically establishes India's position on the historical responsibility of developed countries for consuming the carbon budget, https://www.pib.gov.in/www.pib.gov.in/Pressreleaseshare.aspx?PRID=1813642 (last visited Nov 16, 2023).

[38]Jawaharlal Nehru National Solar Mission (Phase I, II and III) – Policies, IEA, https://www.iea.org/policies/4916-jawaharlal-nehru-national-solar-mission-phase-i-ii-and-iii (last visited Nov 16, 2023).

[39]NMEEE | BUREAU OF ENERGY EFFICIENCY, Government of India, Ministry of Power, https://beeindia.gov.in/en/programmes/nmeee (last visited Nov 16, 2023).

[40]NMSH-2021.pdf, https://mohua.gov.in/upload/uploadfiles/files/NMSH-2021.pdf (last visited Nov 16, 2023).

[41]NMSHE_Mission_document.pdf, https://dst.gov.in/sites/default/files/NMSHE_Mission_document.pdf (last visited Nov 16, 2023).

[42]Green India Mission, https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1944377 (last visited Nov 16, 2023).

[43]National Mission for Sustainable Agriculture, https://nmsa.dac.gov.in/ (last visited Nov 16, 2023).

[44]NMSKCC_mission document 1.pdf, https://dst.gov.in/sites/default/files/NMSKCC_mission%20document%201.pdf (last visited Nov 16, 2023).

If we evaluate India's carbon market as India's stand on mitigating climate change, it has proved to be a very significant tool for such mitigation. The carbon market of India is collaborative with CDM projects which are registered with the executive body of CDM known as CBM Executive Board (CDM-EB) and also a few uncollaborative carbon reduction projects.[45] This has led to the fostering of investment in India due to sustainability as India at present holds second position in the list of Certified Emission Reduction Units (CERU) as issued by UNFCCC.[46]

India has filed its first Nationally Determined Contribution (NDC) in 2015 as a party to the UNFCCC and its Paris Agreement. It included, among other things, the following two measurable objectives: To attain about 40% of its total installed capacity for electric power generation from non-fossil fuel based energy sources by 2030; and to decrease the emissions intensity of its GDP by 33 to 35 percent by 2030 compared to 2005 level.

Both of these goals have been accomplished far earlier than expected. An impressive 186.46 MW, or 43.81% of the entire cumulative electric power installed capacity, may be attributed to energy resources that do not rely on fossil fuels as of October 31, 2023. In its third national submission to the UNFCCC in December 2023, India reported a 33% decrease in the emission intensity of its GDP from 2005 to 2019. In August 2022, India revised its NDC, increasing the target to 45% by 2030 from the 2005 level and the target for cumulative electric power installed capacity from non-fossil fuel-based

[45]Carbon Projects, NATIONAL INDIAN CARBON COALITION, https://www.indiancarbon.org/carbon-projects/ (last visited Nov 16, 2023).

[46]Ministry of Power & Ministry of Environment, Forests & Climate Change to develop Carbon Credit Trading Scheme for Decarbonisation, https://pib.gov.in/pib.gov.in/Pressreleaseshare.aspx?PRID=1923458 (last visited Nov 16, 2023).

energy resources to 50% by 2030. These revisions aim to reduce emissions intensity of GDP.[47]

Way forward and suggestions

The core causes of climate change fueled by human activity have been effectively addressed through measures to control anthropogenic climate challenges. Raising awareness, promoting mitigation and adaptation solutions, and fostering international cooperation have all been made possible through international agreements, scientific organizations like the IPCC, and grassroots initiatives. However, given the urgency of the climate problem, more must be done to protect vulnerable people, transition to sustainable practices, and cut greenhouse gas emissions. The awareness among masses after India's internationally appreciated climate change mitigation still remains a concern. The treaty following requires complex steps to be followed. A comprehensive legislation with a proper executive body will go a long way for mitigating climate change on the domestic level.

To protect the future of our planet and provide a sustainable and resilient world for future generations, we must all work together to control anthropogenic climate challenges. The fundamental approach to mitigation typically entails reducing human (anthropogenic) GHG emissions. Prevention can also be accomplished by improving the potential of carbon sinks, such as reforestation and reduced forest destruction or logging. Other mitigation strategies include moving to low-carbon energy sources like wind, solar, and nuclear energy, as well as growing forests and other "sinks" to remove more CO2 from the atmosphere.

[47]India achieves two targets of Nationally Determined Contribution well ahead of the time, https://pib.gov.in/PressReleseDetail.aspx?PRID=1987752 (last visited Dec 18, 2023).