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Climate Action Plan

Evolution of India's Climate Action Plan

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Climate Change is one of the greatest threats faced by the humanity. India is also highly vulnerable to the impacts of Climate Change. In the initial phases of the Global negotiations for Mitigation and Adaptation of Climate Change, India was reluctant to take responsibility for Climate Action. But the decade following 2015, Paris agreement, India has emerged as a responsible actor. India is the only G20 country that is well on track to achieve its goals affirmed in NDC. India has made ambitious targets to be a Net Zero by 2070. This Paper Traces the evolution of India's Climate Change action Plan and also assesses its strengths and weakness.

Keywords: climate action plan, net- zero, NDC

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1. Introduction

Since 1970's the urgency of addressing the Climate Change has become a significant focus area within the Environmentalism. It emphasize the need for Mitigation of emissions of GHG's, transition to renewable and green sources of energy and adaptation of the effects of Climate Change. Hence there was beginning of series of international initiatives for Climate change. There was broad consensus by the scientists and Environmental activists that with the rise in the combustion of fossil fuels and release of carbon dioxide and other Green House Gases there have been changes in the atmospheric composition of these gases. This had lead to various changes in the climatic pattern. Thus Climate Change was defined as -"*Climate change means a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods."* (United Nations Framework Convention on Climate Change [UNFCCC], 1992).

Vulnerability of India to Climate Change- As per the reports of the IPCC (Inter -governmental Panel on Climate Change), World Bank and INCCA (Indian Network for Climate Change Assessment) India is highly vulnerable to the impacts of Climate Change. According to a report of the World Bank, with the increase of 2°C in Global temperature, Indian Monsoon will become highly unpredictable. Droughts will become more frequent in parts of North-Western India. The Glaciers will melt with the temperature increase of 2.5°C and this will impact the rivers which are fed by the melting snow of these glaciers like Ganges and Brahmputra. The report also predicted that by 2050`s the agriculture will be so much impacted that there will be need to import double of the amount of food grains (World Bank, 2024). According to a study of "How does climate change impact women and children across agro-ecological zones in India", conducted by M.S. Swaminathan Research Foundation (MSSRF), it was found that 70% of Indian districts are at very high risk of floods, droughts, and cyclones due to Climate Change (Porecha,2024). According to another survey based study conducted by the Yale Program on Climate Change Communication, India is among the most vulnerable countries to climate impacts.

Climate change has already begun to alter growing seasons in the country and, with around 50% of its population engaged in agriculture and other climate-sensitive sectors, the damage to productivity and health is significant (Press Trust of India [PTI], 2024) So it became imperative on the part of the Government and Indian Policy makers to make efforts for mitigating and adapting to the impacts of Climate change.

India and Climate Action- The Climate Change Performance Index (CCPI), which is published by the think tanks Germanwatch, New Climate Institute, and Climate Action Network International, monitors the emissions, renewable energy, and climate policy advancements of the biggest polluters in the world. It positions the India among the top 10 countries in a list of more than 60 nations evaluated for their climate change initiatives (PTI, 2024). In the climate performance index, the nation's standing has moved from 31 in 2014 to 10 in November, 2024 demonstrating its increasing dedication to climate action. According to it India is doing well enough in renewable energy resources, especially the solar energy. In 2021, the CEO of Niti Ayog, Amitabh Kant affirmed that *"India is one of the only G20 countries well on track to achieve its Nationally Determined Contributions".* He went on to say that according to a coalition of 14 international research groups, India is the only G20 country with policies that comply with 1.5 degrees. Prime Minister Narendra Modi also stated during Independence Day speech in 2024 that India is only G20 country which has achieved the target laid down in the Paris Agreement in 2015. He stated that *"We have met the climate targets set under the Paris Agreement ahead of schedule. India is the only nation among the G20 countries to do so, and we are proud of it"* (PTI, 2024). The same fact was stated by him while virtually Inaugurating India Energy Week in February 2025 (Sonu, 2024).

2. Evolution of India's Climate Action Plan- To Trace the Evolution of India's Climate Change Action Plan it Could be Divided into 4 Phases

1. *Phase I from 1947-1972-* The country when it gained Independence from the colonial rule, prioritized its development, poverty eradication and

advancement over the issue of Environmental degradation. In this period of 1947-1972, there was not any such policy specifically concerned with the climate change because the global awareness of the issues of environment and Climate change was still under the process of emergence. There was lack of any specific ministry concerned with the issue of environment and climate change. Planning commission of India was established by a resolution of the government of India in March 1950 (Planning Commission, 1950). It formulated Five Year Plans (FYP) and annual plans for the resource management and development. In this period the primary focus of the planning commission was on the economic growth and industrialization of the country. Environmental conservation and protection was not a central issue of concern. In First FYP it was declared that *"the declared objective of the government to promote a rapid rise in the standard of living of the people by efficient exploitation of the resources of the country, increasing production, and offering opportunities to all for employment in the service of the community"* (Planning Commission,1951). The Second FYP was launched in year 1956 and it was supposed to further progress on the path laid down in the First FYP. In this as well there was no direct reference for the protection of environment and low carbon development. Even though coal was defined as the important source of the energy production, this plan put emphasis on the establishment of Hydro Power plants for energy production. It planned to generate 35 million kW from different sources (Planning Commission, 1956). In Third FYP launched in 1961-1966 there was reference to make assessment of the material, capital and human resources of the country and to formulate a Plan for the most effective balanced and optimum utilization of the country's resources. It provided that Any of the main energy sources in India, including coal, lignite, waterfalls, uranium and thorium, oil, natural gas, and refinery gases, can be used to produce electricity. Other potential sources include tidal power, wind power, geothermal power, and solar radiation, but thus far, their influence on India's electrical development had been minimal. It recognized that in contrast to coal, oil, natural gas, and nuclear fuels, which must be used to generate electricity, flowing water provides an endless source of energy, making hydroelectric power crucial.

The Fourth FYP (1969- 1974) made the observation that Planning for harmonious development was possible only on the basis of comprehensive appraisal of environmental issues and it was necessary therefore to introduce the environmental aspects into planning and development of country. Thus it was beginning of the India's concern for environmental protection.

2. *Phase II from 1972- 2007-* The year 1972 marked a turning point in the history of Environmental policy of India. United Nations Conference on Human Environment, also known as Stockholm Conference took place from 5 June -16 June, 1972. It was the first world conference which highlighted the issue of Environment. India Took part in that conference and reflected the interests of the countries of the Global South. Then Prime Minister of India Indira Gandhi represented the country and raised the voice in support of the developing countries. She stated that for Developing countries like India poverty was the biggest polluter. Therefore at international level India's stance prioritized Development and elimination of poverty over Environmental degradation. But still due to International awareness and influence there was initiation of policies and initiatives for protection of environment. This period is crucial in the history of the evolution of India's Climate Policy.

Committee on Human Environment- United Nations General assembly prior to the Stockholm conference asked the member countries to submit reports on the state of environment. In India the Committee on Human Environment was set up by the government under the chairmanship of Pitambar Pant, member of the planning commission. This committee was tasked to prepare the report and submit it. The report prepared by the committee highlighted the need to integrate and establish coordination between environmental policies and programs. As a result National Committee on Environmental Planning and Coordination (NCEPC) was established in 1972 under Department of Science and Technology. NCEPC was apex body established to advise in all matters relating to protection of environment (Singh, 1982). Its major objective was to promoting research in environmental problems and establishing facilities for such research wherever necessary (Singh, 1982).

Tiwari Committee recommendations 1980- The major turn in the history of environmental institution was the appointment of a committee for Recommending Legislative Measures and Administrative Machineries for Ensuring Environment Protection and to suggest ways for improvement of environment. The committee was led by N.D. Tiwari and also known as Tiwari committee. The appointment of this committee by Indira Gandhi then prime minister of India reflected the influence of the Stockholm conference of 1972, which set new standards for the member countries for the protection of environment. The major recommendation of the committee was -"*A Department of Environment (DOE) should be created at the centre immediately to provide explicit recognition to the pivotal role that environmental conservation must play for sustainable national development*" (Singh, 1982). The recommended department of environment was to be under the charge of the Prime Minister of India. As a result of the recommendations of the committee, a subsequent Department of Environment (DOE) was established by the government on November 1, 1981. The DOE was later upgraded by the Rajiv Gandhi in 1985 to level of ministry.

Another important player in climate change policy is the Bureau of Energy Efficiency (BEE), a statutory organisation created by the Energy Conservation Act (ECA) of 2001. Under the Ministry of Power's (MoP) guidelines, the BEE creates initiatives to promote energy efficiency and conservation in India through a range of legislative and marketing tools (Singh, 1982).

Legislations and Five Year Plans- Fifth FYP emphasised that the pursuit of development goals did not result in a decline in environmental conditions or a decline in quality of life. In this regard, several initiatives to improve the quality of life under the minimal needs program—such as rural health and sanitation, nutrition, drinking water, slum development, rural education, and primary education—were given a good amount of importance. These were supposed to reduce poverty levels and lessen environmental pollution and degradation in rural areas. This reflected the views represented by the Prime Minister Indira Gandhi at Stockholm that for the developing countries poverty was the biggest polluter. Hence the focus was on the programmes for elimination of poverty and development of all.

In Sixth FYP (1980-1985) there was a separate chapter on the environment. The Plan highlighted the causes of environmental degradation, which recognized that there was no consideration of environmental issues at level of policy making as well as there was lack of long term perspective in the process of planning. It recognized that many of the developmental projects had resulted into the deterioration of the environment. Therefore, in order to ensure that plans for development in all sectors are in harmony with the goal of maintaining the health of life-sustaining eco-systems and other environmental resources the process of Environmental Impact Assessment (EIA) was made anintegral part of the entire planning process. The purpose of an Environmental Impact Assessment (EIA) is to assess if a project, program, or even a piece of law has the potential to harm the environment. It also provided for programmes for Environmental Research and Development and monitoring of environmental quality (Planning Commission, 1980). The seventh plan was launched in year 1985, on the sidelines of the establishment of the Brundtland commission by the United Nations in 1983. The plan emphasized the idea of Sustainable development in harmony with the environment. It asserted the fact that development programs undertaken by the government had a negative impact on the environment. Environmental problems have arisen as unintended side-effects of the very attempts of development. Sustainable development in balance with the environment was the fundamental strategy of the Seventh Plan (Planning Commission , 1980). In year 1992, the United Nations Conference on Environment and Development, known as Earth Summit took place at Rio. It led to establishment of UNFCCC. India ratified the UNFCCC in 1993. India being a developing country had no legal obligations for emission cuts under the UNFCCC. But there was pressure from the developed countries (Annex I) countries for the voluntary emission reduction from the countries like India and China. Rio Declaration made the relationship between the environment and development more strict and required careful consideration. India's perspective on the environment was also altered by the global dynamics surrounding the environment-development debate. The shift was evident in legal jurisprudence, environmental awareness, policymaking, and legislation. At the planning level, the eighth five-year plan was analogous to the seventh in terms of the environmental priorities.

"Environment, ecology and development must be balanced to meet the needs of the society. In the interest of sustainable development it would be necessary to take measures to preserve, conserve and nurture, the fragile and critical ecosystems" (Planning Commission, 1992). The Ninth FYP launched in year launched in 1997 was based on the Agenda 21 of the Rio declaration of 1992. By requiring projects to be approved based on environmental impact assessments, environmental concerns are being included into decision-making processes related to development. In the same year Kyoto Protocol was formulated at Kyoto during COP-3 which offered market based mechanism for the adaptation and mitigation projects of Climate change. It had the influence on the Ninth FYP. As stated in the plan that a combination of market-based economic tools and regulatory measures are used to try to manage and conserve resources for development (Planning Commission, 1997). It was for the first time after 50 years of Independence that the issue of Global warming, Ozone depletion and climate Change were regarded as major global Environmental issue. Hence from then onwards the concern for the particular issue of Climate Change separate from the umbrella problem of the Environmental degradation started gaining momentum in Indian policy making. It defined India as an insignificant contributor to the GHG emissions at global level (Planning Commission, 1997). It was evident that the nation's planning process was beginning to take climate change seriously. But there was absence of any law or initiative specifically concerned with the Climate Change. As in this phase (from 1972-2007) two important international conferences took place focusing on the issue of environment and climate change. It had a great influence on the planning of the country. Moreover it could be also observed that given the situation of the increasing Balance of Payment Crisis (BOP) in the country which eventually led to adoption of New Economic Policy in 1991 was also an important factor for Country's growing concern for the Climate Change. It viewed the market mechanism of the UNFCCC and Kyoto Protocol like Clean Development Mechanism (CDM) as a source of foreign funding which would help country in development of Green technologies, projects and infrastructures.

3. *Phase III from 2007-2014-* In this period there was a shift in India's climate policy both because of the increasing international pressure on the country particularly from USA as well as transformation of the country from a developing country to a newly industrialized country. Developed countries particularly USA was putting pressure on India as well as China to make commitments to reduce the emission intensity of their GDP and refuse to take any commitments without any commitment from these countries. India with other emerging economies formed a grouping known as BASIC group. As India's economy had transformed into a newly industrialized one, it needed to build friendly relations with the other big industrialized countries, specifically USA. Prime Minister Manmohan Singh's friendly approach to USA's President George W Bush and his seriousness to the issue of Climate Change was crucial to the shifting the nature of the Indian Climate Policy both at international and National level. At COP-15 Indian for the first time made the voluntary commitment to reduce the emission intensity of the GDP by 20-25 % by 2020 at levels of 2020. At national there was launch of new institutions and formulation of the National Action Plan on Climate Change.

Prime Minister Council on Climate Change (PMCCC) - Prior to COP-15 at Copenhagen in 2008, Manmohan Singh established the advisory council to Prime Minister on climate change known as – PMCCC in year 2007. The council was chaired by Prime Minister and its function was to advise so that to respond effectively to the challenges posed by climate change. It was also supposed to advise on the matters of international negotiations on climate change at both bilateral and multilateral levels (Prime Minister's Office, 2008). Another important happening was formation of the Prime Minister's Special Envoy on Climate Change (Special Envoy) under the PMO. Ministry of Environment and Forest also played a crucial role in this phase under the Minister Jairam Ramesh. He was a key player in the climate change treaty talks in Cancun (2010) and Copenhagen (2009).

In January 2010 a group of experts was established by the Planning Commission to develop a low-carbon economy strategy for India which was known officially as Expert Group on Low Carbon Strategies for Inclusive Growth (LCEG). Aim of the expert group was to review existing research on low carbon growth and low carbon pathways for India that has been prepared by different organisations, carry out additional analyses as needed to evaluate different low carbon options for the Indian economy,

and provide a report detailing the roadmap for low carbon growth in India. After analysing the relative benefits and drawbacks of many important alternative low-carbon options, the panel would create an Action Plan with a suggested schedule and goals beginning in 2011 that could be incorporated into the Twelfth FYP process (Deora, 2010). The Planning Commission and the MoEF organised it together. LCEG submitted its report in 2014 after 4 years which was beyond the targeted time period. Therefore was limited in influencing the policy formulation (Dubash &Joseph, 2016). In this report there it was affirmed that it is possible to fulfill the commitment to reduce emission by 20-25% by 2020, but this require huge investment. If it is made through domestic resources, it will result in slowing down growth of GDP as investment to other section would be lowered. It highlighted need for Climate Finance from developed countries for fulfillment of its commitments.

NATIONAL ACTION PLAN ON CLIMATE CHANGE (NAPCC) - Manmohan Singh's Government launched the NAPCC in June 2008 a week prior to the G8 summit in Japan. It was formulated by PMCCC to show the seriousness of the government regarding the threat of climate change. It was based on the co- benefit approach which aimed to promote development as well as addressing climate change effectively. There were eight sector-specific mission plans for it. In order to consolidate the sector's current mitigation strategies and achieve the shared objective of reducing emissions, each mission was created as an umbrella of those policies. A few of the current policies were strengthened by amendments, new policies were created, institutional and capacity requirements were determined. These were-

- National Solar Mission (NSM),
- National Mission for Enhanced Energy Efficiency (NMEEE),
- National Mission on Sustainable Habitat (NMSH),
- National Water Mission (NWM),
- National Mission for Sustaining the Himalayan Ecosystem (NMSHE),
- National Mission for a Green India (GIM),
- National Mission for Sustainable Agriculture (NMSA)
- National Mission on Strategic Knowledge for Climate Change (NMSKCC)

All the plans were brought under the control of six union ministries i.e. NSM under Ministry of New and Renewable Energy, NWM under Ministry of Water Resources, River Development and Ganga Rejuvenation, GIM under Ministry of Environment, Forest and Climate Change (MoEF&CC) within a separate cell, NMSHE & NMSKCC under Ministry of Science & Technology, NMEEE under Ministry of Power, NMSH under Ministry of Housing and Urban Affairs and NMSA under Ministry of Agriculture & Farmers Welfare. In light of the upcoming IPCC AR4 and the highly anticipated 2009 Copenhagen meeting, the missions were hastily drafted. Consequently, it took six years for ministries to eventually approve every mission.

According to Dubash, NAPCC was essential in launching India's national climate change framework in three ways: institutional, policy, and narrative. From a narrative perspective, the NAPCC brought the North's leadership in climate mitigation and its active domestic climate policy into line with an international negotiating position that remained centred on differentiated responsibilities. From an institutional and policy standpoint, the NAPCC launched a number of policymaking initiatives centered on eight national "missions," each supported by an institutional framework that established connections with several line ministries (Dubash & Gosh, 2019).

4. *Phase IV from 2014 Onwards-* In the lead-up to the Paris Climate Summit, India made the decision to take a more proactive, ambitious, and forward-looking stance under his direction. The INDC for the nation reflects this. India was crucial to the success of the Paris Climate Summit, and many international leaders recognised Prime Minister Modi's direct involvement in the historic approval of the Paris Agreement. It was admirable that he took the initiative to form an International Solar Alliance to advance solar energy globally (Saran, 2025). Important changes underwent in the Institutional arrangements concerned directly or indirectly with the Climate Change. There was formation of new institutions; new initiative had been taken both at domestic as well as international level. Seriousness and commitment of India was represented by submitting its Intended Nationally Determined Contributions (INDCs) to the UNFCCC in 2015. The Union Environment Ministry pledged to reduce the GDP's emissions intensity from 2005 levels by 33–35% by 2030.

Union Minister for Environment, Forests, and Climate Change Prakash Javadekar described India's INDCs as "balanced and comprehensive," adding that the country's climate change targets were much more ambitious than those of other wealthy nations for a developing country (Vidya, 2021).

At COP21, Paris in 2015 Mr. Modi specifically mentioned the plan to develop 175 GW of renewable power by 2022, increase the percentage of non-fossil fuel power to 40% by 2030, and lower the carbon intensity of growth by 33–35% compared to 2005 levels. He added that by raising taxes and reducing subsidies, fossil fuel dependence would be lessened and that forest cover would be increased to absorb 2.5 billion tonnes of carbon dioxide. Enhancing public transport and increasing city efficiency would change cities. At COP26 in Glasgow in 2021, Prime Minister Shri Narendra Modi declared that India would cut the emissions intensity of its GDP by 45% from 2005 levels and build 500 GW of fossil fuel-free power generating capacity by 2030 (MEA, 2023). In the short term, this is one of the biggest rises in the ambition of responsible climate leadership. Additionally, the Prime Minister declared that India would achieve net zero status by 2070. This offers India ten more years after 2060, when China declared its intention to achieve net zero. Given that India is still in its infancy, this makes sense (Shankar, Agarwal & Indani, 2024). Domestically, within few months of the formation of the Government, The name of Ministry of Environment and Forest was expanded to Ministry of Environment, Forest and Climate Change (MoEFCC). The shift in terminology shows that the government recognizes the significant threat posed by climate change. Since the ministry has designated climate change as one of its three focal points, the government has made it apparent that it views climate change as a problem with domestic ramifications (ET Bureau, 2014).

After the Ratification of Paris Agreement in 2016, India updated its first Nationally Determined Contribution (NDC) to Paris agreement. There were total 8 goals mentioned in the NDC, three among which are quantitative in nature. These are:

1. to reduce the emissions intensity of its GDP by 33-35% from 2005 levels by 2030.
2. to achieve about 40 percent cumulative electric power installed capacity from non fossil fuel based energy resources by 2030.
3. to create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030 (International Energy Agency, 2024).

The remaining five objectives concern a healthy and sustainable way of living, a clean and climate-friendly route to economic growth, developing climate technology skills, and raising both local and foreign funding (PTI, 2017).

The Paris Agreement also obliges the countries to update their NDC's after every five years so India updated its NDC in 2022. Prime Minister Modi in COP-26 at Glasgow in year 2021 has given the principle of 'Panchamrit' (Five Nectar elements) for India's enhanced Climate policy (Srivatsan, 2021). This principle of Panchamrit was included in the updated NDC. The update was a step to achieve the long term goal of reaching Net- Zero by 2070 as put forward by Prime Minister Modi at COP-26, in 2021. The updated NDC aims to increase India's contributions to the Paris Agreement's goal of boosting the international response to the threat posed by climate change. India will be able to introduce low-emission growth routes with the aid of such measures. Based on the UNFCCC's tenets and rules, it would defend the nation's interests and future development requirements. The two important updates made in the NDC's are-

1. Emission Intensity – The total amount of emissions for each GDP unit is known as emissions intensity. The goal to reduce the emission intensity of the GDP has been increased from 33% from level of 2005 to 45% by 2030 at levels of 2005 (Government of India, 2022). According to a December 2020 statement by former Environment Minister Prakash Javadekar, India had already met its pledge to reduce its emissions intensity by 21% of GDP (Priyali, 2022).

2. Non- Fossil Fuel based Energy - The goal to increase the 40 percent cumulative electric power installed capacity from non fossil fuel based energy resources has been updated to 50 percent of the cumulative installed electric capacity from non fossil fuel resources (Government of India, 2022).

3. Assessment of India's Climate Actions and Initiative

Major Emissions Sectors of India's Economy- After China and USA, the third-highest emissions are from India. Despite of its high GHG's emissions, India is still under the process of development and has to go a long journey to become a developed country. India aspires to be a developed country by 2047 which marks the 100 year of its Independence (Bajpai,2023). The process of development of India is crucial for any action to Mitigation of the Climate Change. A huge, still-industrializing nation like India, has significant energy needs, which raises the possibility of skyrocketing greenhouse gas emissions (GHGs). India is struggling to meet both national and international climate change targets while also attempting to swiftly develop equitable economic growth to satisfy the shifting requirements and lifestyle ambitions of its 1.4 billion people.

Therefore, it should not be surprising that India has been leading the worldwide effort to combat climate change (Mehta,2023).

As of December 2024, India's GHG's emissions excluding Land Use and land use change forestry (LULUCF) were 3132 MtCO2 eq (Shankar, Agarwal, & Idnani, 2024, p. 4). In the sector wise emissions release of India, the highest share is of the energy sector which accounts for the 75.81% of the total emissions released. Then at number second is Agricultural sector which has share of 13.44%, followed by Industry- 8.415 and at last the waste accounts for 2.34% of emissions released by Indian economy. If we deconstruct the highest emission releasing sector, the energy sector, electricity production is the biggest source of emission release which is 52% (Shankar et al., 2024, p. 4-5). Hence the energy sector is crucial for its net zero journey. In India, the single biggest source of CO_2 emissions is the power industry. In order to increase the effectiveness of its economy, India must now reconcile its ambitious climate goals with its growing energy needs.

India's initiatives to lower its emissions intensity and raise its proportion of clean energy in installed capacity are important milestones in fulfilling its pledges to combat climate change and promote sustainable development.

India is getting closer to reaching its 2030 NDC commitments as of October 2024, having installed 203 GW of renewable energy and lowered the GDP's carbon intensity by 33% (between 2005 and 2019) (Bureau of Energy Efficiency, 2024, p. 1). Fossil fuels today make up the majority of energy sources and are responsible for 75% of greenhouse gas emissions. India's energy sector is expanding rapidly, which is in line with the nation's expanding population. Over the last ten years (2013–14 to 2023–24), the primary energy supply rose by 54.5 percent, from 589 Mtoe to 910 Mtoe (Bureau of Energy Efficiency, 2024, p. 4). Therefore India stands at a point where it is needed to balance the multiplying demand of the electricity with the ambitious climate goals so as to increase the energy efficiency.

The cumulative installed energy capacity of India as of March, 2025 is 475 GW (India Climate & Energy Dashboard, n.d.). Despite the government's efforts over the last ten years, which have nearly doubled the proportion of renewable energy resources in the generation of energy and power. Between 2013–14 and 2023–24, renewable energy capacity more than doubled, going from 76 GW to 191 GW. As of October 24, Roof-top Solar (RTS) had grown by an astounding 45 percent a year since 2017–18, from 1.06 GW in 2017–18 to 14.45 GW in 2024–25 (Bureau of Energy Efficiency, 2024, p. 4). But still the fossil fuels or the non- renewable resources are the major sources for energy production in India. Especially the Coal, whose share is 46.68% in energy production(India Climate & Energy Dashboard, n.d.). There is decrease of just 7% in use of coal for energy production from 2013-14 to 2023-24. India currently is the second largest importer of Coal after China. Therefore under mission of Self- Reliant India, focus is on increasing the domestic production of the coal. The target is set to achieve the production of 1000 million tonnes of coal domestically. The current production is of 998 million tonnes of Coal.

4. Conclusion

The overdependence of the country on coal for energy production is an obstacle on its journey towards Net- Zero. There is need to put emphasis on the increasing the share of renewable sources in energy production. India has an abundance of renewable energy resources. Assuming that solar PV modules cover 3% of the wasteland area,

the National Institute of Solar Energy (NISE) has calculated the nation's solar potential to be approximately 748 GW. Furthermore, according to a recent study conducted by the National Institute of Wind Energy (NIWE), India has a potential for wind energy of about 1164 GW at 150 meters above ground. Other renewable resources outside solar and wind include 42 GW from biomass, 21 GW from small hydro, and 133 GW from large hydro(Bureau of Energy Efficiency, 2024, p. 23). Therefore to reach Net Zero India needs to focus on to maximium utilization of vast potential of energy production from the Renewable resources.

References

1. Achanta N, & Amrita. (1993). *The climate change agenda: An Indian perspective*. Tata Energy Research Institute.

2. https://timesofindia.indiatimes.com/india/barack-obama-used-race-personal-chemistry-jan-26-visit-to-win-pm-modi-on-paris-climate-deal-says-ex-aide/articleshow/69208108.cms

3. Bidwai, P. (2012). *The politics of climate change and global governance*. Orient Blackswan.

4. Blah, M. (2016). Commitments inked in Paris: Can India deliver by 2020?. *India Quarterly*, *72*(4), 343–360.

5. Bush W, G. (2001, March). *Text of a letter from the president*. Retrieved 8 September 2025, from: https://georgewbush-whitehouse.archives.gov/news/releases/2001/03/20010314.html

6. Dash, S. K. (2007). *Climate change: An Indian perspective*. Ahmedabad: Centre for Environment Education.

7. Dubash K., N. (2011). *Handbook of climate change and India—Development, politics and governance*. Routledge.

8. Dubash K., N. (2019). *India in a warming world: Integrating climate change and development*. Oxford University Press.

9. Engberg-Pedersen, L. (2011). *Climate change negotiations and their implications for international development cooperation*. Copenhagen: Danish Institute for International Studies.

10. Ghosh, P., Jaitly, A., & Tata Energy Research Institute. (1993). *The road from Rio: Environment and development policy issues in Asia*. New Delhi: Tata Energy Research Institute.

11. Giddens, A. (2009). *The politics of climate change*. Cambridge: Polity.

12. Grubb, M. (2010). Copenhagen: Back to the future? *Climate Policy*, *10*(2), 127–130. https://doi.org/10.3763/cpol.2010.ED83

13. Gupta, J. (2001). India and climate change policy: Between diplomatic defensiveness and industrial transformation. *Energy & Environment*, *12*(2–3), 217–236. https://doi.org/10.1260/0958305011500715

14. Horimoto, T. (2017). Explaining India's foreign policy: From dream to realization of major power. *International Relations of the Asia-Pacific*, *17*(3), 463–496. https://doi.org/10.1093/irap/lcx011

15. Jha, Vyoma. (2014). The coordination of climate finance in india. *Center for Policy Research*.

16. Kaur, A., & Verma, S. S. (2025). Understanding India's role in international climate negotiations from a social constructivist perspective. *India Review*, *24*(1), 36–54. https://doi.org/10.1080/14736489.2025.2454794

17. Maslin, M. (2014). *Climate change: A very short introduction* (3rd ed.). Oxford: Oxford University Press.

18. McCormick, J. (1995). *The global environmental movement* (second). John Wiley and Sons Limited.

19. Michaelowa, K., & Michaelowa, A. (2012). India as an emerging power in international climate negotiations. *Climate Policy*, *12*(5), 575–590. https://doi.org/10.1080/14693062.2012.691226

20. Mohan, Annirudh. (2017). From Rio to Paris: India in global climate politics. *ORF Occassional Paper*.

21. Never, B. (2014). *Knowledge system and change in climate governance*. Routledge.

22. Olsson, M., Atteridge, A., Hallding, Karl, & Hellberg, Joakim. (2010). *Together alone? Brazil, South Africa, India, China (BASIC) and the climate change conundrum*. Stockholm Environment Institute.

23. Oppenheimer, M., & K. Anttila-Hughes, J. (2016). The science of climate change. *Princeton University*, *26*(1), 11–30.

24. Paterson, M., & Grubb, M. (1992). The international politics of climate change. *International Affairs (Royal Institute of International Affairs 1944-)*, *68*(2), 293–310. https://doi.org/10.2307/2623216

25. PTI. (2024, September 18). *India should not be seen as 3rd or 4th-largest GHG emitter due to low per capita emissions: Minister*. Retrieved from: https://www.thehindu.com/news/national/india-should-not-be-seen-as-3rd-or-4th-largest-ghg-emitter-due-to-low-per-capita-emissions-minister/article68654924.ece

26. Rajamani, L. (2007). India's negotiating position on climate change: Legitimate but not sagacious. *Centre for Policy Research*.

27. Sahu, G. (2014). *Environmental jurisprudence and the Supreme Court: Litigation, interpretation, implementation*. New Delhi: Orient Blackswan [u.a.].

28. Sathaye, J., Shukla, P. R., & Ravindranath, N. H. (2006). Climate change, sustainable development and India: Global and national concerns. *Current Science*, *90*(3), 314–325.