International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Climate Change Policy of India: G20 Presidency and Climate Action

Sandeep Kumar[1], Nikhil Kumar Gautam[2]

Abstract

One of the greatest challenges for humanity is how to address climate change, in a coordinated manner globally. Address this catastrophe requires a massive effort that needs to be undertaken now, not later. IPCC report suggests two step that would be necessary to avoid this disastrous trend of climate change, first, industrialized nations would have to reduce CO_2 emissions by half by 2030, and second is to stop adding CO_2 to atmosphere altogether by the early 2050s. So, the world needs to consciously uncouple from fossil fuel to more toward a low carbon future. Much of the intended transition far from fossil fuel depends on G20 countries, which accounts for 80% of global GDP, avails 75% of international trade, and collectively consume 85% of the world's coal, oil, and natural gas annually. Recently, India has been ranked amongst top five countries in the world, and the best among the G20 countries, based on its Climate Change Performance. India jumps two spots higher, and is now ranked 8th as per Climate Change Performance Index (CCPI), 2023 published by German Watch, New Climate Institute and Climate Action Network International based in Germany. The aggressive policies of India towards climate change, and rapid deployment of renewables and robust framework for energy efficiency programs have shown considerable impact. As per CCPI report, India is on track to meet its 2030 emission targets. Currently, India has hosting its presidency toward G20 meeting 2023, and it will be an opportune time to show the world, about its climate mitigation policies such as deployment of renewable sources of energy and other energy transition programmes. The top 10 rank globally reflects that India is implementing energy transition programmes such as renewable capacity installation at much faster rate than anywhere in the world.

Keywords: - Climate Change, IPCC, UNFCCC, CCPI, Kyoto Protocol, Paris Agreement, G20, NDCs, NAPCC, and COPs.

Introduction:

Climate Change is an international environmental issue. In economic theory terms, it is a public good issue, requiring global collaboration to achieve effective results. Since the UNCCC was first established in 1992, there have been extensive international discussions, known as 'Conference of the Parties' or COPs, aimed at reaching a global agreement on emissions reduction. Binding commitments of **Kyoto Protocol,** Nationally Determined Contributions (NDCs) of **Paris Agreement** and now **Net-Zero Targets** are the few major outcomes of these COPs. Kyoto Protocol's climate targets were binding commitments which are compulsory to be achieved, but since COP 21 (Paris Agreement) the climate targets has become voluntary and self-generated in nature. Except Mexico, all other members of G20 have

[1] ***Professor & Ex-Head, Department of Economics, DDU Gorakhpur University, Gorakhpur (U.P.)***
[2] ***Asst. Professor, Department of Economics, Sant Vinoba PG College, Deoria (U.P.)***

announced their Net-Zero emission targets. Most of the G20 countries are the members of UNFCCC, and as G20 accounts for 80 percent of global GDP, and collectively consumes 85% of the worlds coal, oil, and natural gas annually, its role to mitigate climate change is determining. However, IPCC's 6th Assessment Report reiterates the need to stop burning fossil fuels to limit global warming to 1.5°C and pathway to achieve this, calls for reduction in the global use of coal by 95%, oil by 60% and gas by 45% by 2050 – relying heavily on abatement technologies like carbon capture and storage (CSS). Currently India holds the Presidency of the G20 from 1 Dec, 2022 to 30 Nov, 2023, with the presidency theme of **"Vasudhaiva Kutumbakam" or "One Earth - One Family - One Future".** As India is an enthusiastic country toward mitigate climate change, **"Green Development, Climate Finance & life"** is among its first priorities at G20. Previously, India has also achieved the target that it commits at Paris Agreement within its required timeline. India has also proposed **International Solar Alliance (ISA)** at COP 21 (Paris), which is now adopted by most of the UNFCCC members. India's these enthusiastic steps toward climate change mitigation represent itself as a leader of climate action within G20 countries.

Here, in this paper global climate actions are discussed briefly in the perspective of ongoing summit of G20. Paper also finds out the role of India in climate action among the G20 countries. Paper also analyzes the Indian policies toward climate change in the perspective to become global leader in climate actions.

Global Scenario in Climate Action

One of the greatest challenges for humanity is how to address, in a coordinated manner, the urgent need to mitigate climate change. With the establishment of UNFCCC in 1992, international discussions begin at the platform of COPs which have been organizing annually. Since COP started, several outcomes bring all the nations together to mitigate climate change. Major COPs and their outcomes are here in the Table 1.

Table 1: Important COPs and their outcomes

Year & Place	Outcomes
1995, Berlin	The first COP to the UNFCCC, known as a COP where U.S. agrees to exempt developing countries from binding obligations.
1997, Kyoto	At the third Conference of Parties (COP-3) the Kyoto Protocol is approved, mandating developed countries to cut greenhouse gas emissions relative to baseline emissions by 2008-2012 period.
2001, Bonn	(COP-6) reaches agreement on term for compliance and financing. George Bush administration rejects the Kyoto Protocol; U.S. is only an observer at the talks.
2009, Copenhagen	COP-15 fails to produce a binding post-Kyoto agreement, but declares the importance of limiting warming to under 2°C. Developed countries pledge $100 billion in climate aid to developing countries.
2011, Durban	(COP-17) participating countries agreed to adopt a universal legal agreement on climate change as soon as possible, and no later than 2015, to take effect by 2020.

2015, Paris	COP-21, 195 nations sign the Paris Agreement, providing for worldwide voluntary actions (Nationally Determined Contributions – NDCs) by individual countries. Establishing International Solar Alliance (ISA) by India jointly with France. Concept of Net-Zero Emission emerges from here.
2022, Sharm-El-Sheikh	COP-27 closed with a breakthrough agreement to provide loss and damage funding for vulnerable countries hit hard by catastrophic effects of climate change, and agreed to the establishing of a fund and the necessary funding arrangements.

Despite all these continuous efforts, climate change is still a formidable challenge for the global community. On 21st March, 2023 the IPCC issued its most dire report, stating that global temperatures are now likely to rise above the 1.5℃ threshold in "the first half of the 2030s." This brings forward the 1.5℃ target by nearly 20 years. To avoid this disastrous trend, the IPCC report states that two steps would be necessary: first, industrialized nations would have to reduce CO_2 emissions by half by 2030, and second, stop adding CO_2 to atmosphere altogether by the early 2050s. It means the global economy need to make strong effort toward energy transition (from non-renewable to renewal energy source) now, not later and much of the intended transition can only be possible by scaling-up investment for reducing the energy dependency from fossil fuels and shifted toward renewable energy. Despite UNFCCC, G20 is a broad platform to collaborate for collective effort toward climate action as G20 members represents together 75% of international trade, 85% of GDP and two-third of the world population. Except Mexico, all other members of G20 have set their net-zero targets, but it is not enough to achieve 1.5℃ target, as IPCC reveals in its latest report. Climate actions need pace and consistency across the globe, which would be possible by collaboration in energy transition, technology transfer – which requires a better leadership and broad platform as G20 is.

G20 and its Potential in Climate Action

The G20 comprise a wide range of socio-political structures, strategic interests, resource capacities and development journeys, with myriad opportunities and challenges. But they all face grave climate related economic and humanitarian risks as the world hurtles toward 3.2℃ warming (IPCC 2023), which could splash global GDP by 18% by 2050. While India, Brazil and Indonesia are among the most climate vulnerable G20 countries (Swiss Re, 2021a), the USA, UK and Canada could also lose 10% - and China almost a quarter – of their GDPs (Swiss Re, 2021b).

The G20 has evolved beyond its economic agenda to address emerging intricate issues like agriculture, energy, environment, development, digitalization, education, health, culture, tourism, and security. The interlinkages of global energy, commodity and services value chains need the G20 to strategically and sensitively-collaborate to support each other's energy transitions and economic transformations, respecting national circumstances and priorities. The G20 commands immense resources, holding most of the world's renewable energy and green hydrogen patents (IRENA, 2022). Most of the G20 countries have announced net-zero goals, spread around the mid-century mark. These countries have options to reduce their fossil fuel footprints by retiring existing plants and infrastructure or retrofit them with technologies to reduce emissions, avoid new projects, and scale up renewables like solar and wind. It is crystal-clear that G20 have the potential to decoupling their economies from fossil fuel despite it need

a good leadership that gave pace to climate actions by proper collaboration among member countries. India ranks first among all G20 members in terms of overall climate performance **(Table-2)**, owing to its significantly low per capita contributions to carbon and GHG emissions, now have G20 presidency for the year 2023.

Table-2: Climate Performance Index (CPI) Ranking of the G20 Countries

Sr.no.	Countries	CPI Ranking	Sr.no.	Countries	CPI Ranking
1.	*India*	*8th*	11.	*Turkey*	*47th*
2.	*United Kingdom (UK)*	*11th*	12.	*Argentina*	*49th*
3.	*Germany*	*16th*	13.	*Japan*	*50th*
4.	*European Union (EU)*	*19th*	14.	*China*	*51th*
5.	*Indonesia*	*26th*	15	*United State of America (USA)*	*52nd*
6.	*France*	*28th*	16.	*Australia*	*55th*
7.	*Italy*	*29th*	17.	*Canada*	*58th*
8.	*Mexico*	*31th*	18.	*Russian Federation*	*59th*
9.	*Brazil*	*38th*	19.	*Korea*	*60th*
10.	*South Africa (S.A.)*	*44th*	20.	*Saudi Arabia*	*62nd*

Source: ***https://www.ccpi.org***

Status of Climate Action in India

India is one of the 197 countries that has promised to limit the increase of global temperature to no more than 1.5℃ by 2030. India is already operationalizing action plan to mitigate climate change named as ***National Action Plan on Climate Change*** (NAPCC), which includes eight action plans that are now under operation. India is also working on a long-term roadmap to achieve its target of ne zero emission by 2070. Union Cabinet of India, has approved India's updated Nationally Determined Contributions (NDCs) to be communicated to the UNFCCC. The updated NDC seeks to enhance India's contribution towards achievement of the strengthening of global response to the threat of climate change, as agreed under the Paris Agreement. Earlier, India submitted its intended NDC to UNFCCC on 2 Oct, 2015. That NDC comprised eight goals; three of these have quantitative targets upto 2030 namely, cumulative electric power installed capacity from non-fossil resources to reach 40 percent; reduce the emission intensity to GDP by 33 to 35 percent compared to 2005 level and creation of additional carbon sink of 2.5 to 3 billion tonnes of CO_2 equivalent through additional forest and tree cover.

As per updated NDC, India now stands committed to reduce Emission Intensity of its GDP by 45% by 2030, from 2005 level and achieve about 50% cumulative electric power installed capacity from non-fossil fuel based energy resources by 2030. The decision on enhanced NDCs demonstrate India's commitment at the highest level for decoupling of economic growth from GHG emissions. Updated NDC will be implemented through programs and schemes of relevant ministries/departments and with due support from States and Union Territories. India's update NDC also reaffirms our commitment to work towards a low carbon emission pathway, while simultaneously endeavoring to achieve SDGs. The

Government has launched many schemes and programs to scale-up India's actions on both adaptation and mitigation. Appropriate measures are being taken under these schemes and programs across many sectors, including water, agriculture, forest energy and enterprise, sustainable mobility and housing waste management, circular economy, and resource efficiency, etc. These measures have progressively decoupling the economic growth from GHG emission in India.

India as G20 Leader in Climate Action

In both its GHG emissions and its vulnerability to climate change, India one of the most significant countries in the world. At national level, India's climate change policies are subsumed in its economic-industrial and human development policies, which came first in priorities. According to a report from OECD and the Pew Centre, India, through normal policy developments is *"making significant progress in limiting GHG emissions,"* through energy efficiency improvements and environment friendly energy development. Also, India is participating in the Clean Development Mechanism (CDM) of the UNFCCC by **National Clean Development Mechanism Authority (NCDMA)** and actively participating in the development of proposed UNFCCC mechanism called Reducing Emissions for Deforestation and Forest Degradation (REDD). According to Amitabh Kant – The CEO of **NITI Aayog**, *'India is the only G20 nation well on track to achieve the goals mentioned under the Paris Agreement.'* Though India updated its climate pledges in line with commitments made at the previous summit, experts have slammed New Delhi for not setting ambitious targets. However, India has a new target to be a Net-Zero Emission nation by 2070.

India has been ranked amongst top 5 best performing countries in the world on climate action. **Climate Change Performance Index (CCPI) 2023,** puts India at the best among G20 countries. India jumps 2 spots higher, and is now ranked 8th as per CCPI, 2023 published by **German Watch, New Climate Institute** and **Climate Action Network International** based in Germany. The latest report of CCPI, released at COP27 in Nov, 2022, shows Denmark, Sweden, Chile, and Morocco as the only four small countries that were ranked above India as 4th, 5th, 6th and 7th respectively. The first, second and third ranks were not awarded to any country. In effect therefore, India's rank is the best among all large economies and G20 as well (Table 2). Much of the intended transition away from fossil fuel depends on G20 countries, which accounts for 80% of global GDP, and collectively consume 85% of the worlds coal, oil, and natural gas annually. At the first meeting of **Energy Transition Working Group (ETWG)** of India's G20 presidency in Feb, 2023, the G20 agreed on the need to prioritize energy security and diversify supply chains underscoring that transition pathways should depend on each country's "energy base and potential". The Aggressive policies of India towards rapid deployments of renewables and robust framework for energy efficiency programs have shown considerable impact. As per the CCPI report, India is on track to meet its 2030 emission target (compatible with a well-below 2°C scenario). The CCPI rank globally reflects that India is implementing Energy Transition Programmes such as renewable capacity installation at much faster rate than anywhere in the world. Thus, India has already become a leader of climate action, and now it has the presidency of G20 in current year of 2023, which will be an opportunity to become a Vishwa Guru in climate action.

Challenges of Climate Action in India

It is true that India is performing well towards climate change, which is also appears in its ranking at CCPI, but climate actions are not an easy task. Successfully responding to climate change requires navigating global politics, promote transition from fossil fuel to renewable energy and balancing growth with the environment. If India is to successfully tackle climate change – both in terms of mitigation and adaptation, it will need to face-off several challenges towards the path of climate action. Here are current challenges for India towards climate action.

1. **Climate Change Policy & Global Politics**

India is the third largest emitter of greenhouse gases in the world, but in cumulative term, its shares are small imparted marginal harm. According to data compiled by the Global Carbon Project, a research organization, around half of CO_2 emissions since 1750 have come from Europe and the United States of America. Their prosperity, driven mostly by unregulated industrialization, has made them better-equipped to adapt to climate change while inflicting collateral damage on poorer nations.

Addressing this inequality lies at the heart of international climate negotiations. At the UNFCCC, developing countries including India have pressed developed ones to pay for their past excesses. Previous treaties, such as the Kyoto Protocol, though have partially succeed to do this. The latest accord, the 2015 Paris Agreement, takes a different approach. The 197 signatory countries have promised to limit global temperature increase to just 1.5℃ over pre-industrialization level, but each country has set its own targets. India, for instance, has promised to cut its emission intensity (emission per unit of GDP) by 33-35% by 2030 compared to 2005 levels and now in updated NDC India has committed to reduce the emission intensity by 45% by 2030 to 2005 levels. However, Climate Action Tracker, a research unit tracking climate change policy, reveal that few countries have committed enough to meet the Paris target. India's policies are on track to help limit global average temperature rise to 2℃ but most countries are failing to meet even this target. And, at the other extreme, the second largest contributor to worldwide emissions, the US, has pulled out of the agreement itself. India's G20 presidency brings an opportunity to present strongly the principle of polluters pay to developed country, who have higher carbon footprint since their industrialization.

2. **Reducing India's Coal Dependency for Energy**

Phasing out coal is key to achieving climate action targets. In India, coal-fired power plants contribute 40% of India's fossil fuel emission and 13 percent of the ambient PM 2.5. According to one estimate, 68% of India's greenhouse gas emissions come from energy production, which remains largely reliant on coal power plants. The government is trying to wean off coal by investing significantly in renewable energy, expanding capacity ad incentivizing private sector investment. However, it is also true that in India coal production supports millions of lives and livelihoods – either directly or indirectly. The Coal India Limited alone has over 270,000 departmental workers. Transition from coal will bring social insecurity to these workers. Yet, given coal's centrality to the country's power, it is uncertain how far it can be displaced, especially since integrating renewable energy into the grid can be costly. The government projects that by 2030, 40% of electricity generation can come from non-coal sources. Estimates from the International Energy Agency (IEA) suggest that this target could be met. India's electricity demand is expected to triple by 2030, with coal sources projected to account for around 57% of electricity generation – within India's Paris Agreement target, but still a significant figure.

3. **Adopt Climate-Insensitive Agriculture Policy**

A significant chunk of India's fiscal resources is directed towards improving the lot of farmers, but these efforts may be generating unintended consequences that hurt the very people they are meant to help. For instance, the minimum support price (MSP) combined with helpful electricity and fertilizer subsidies, encourages farmers to grow water-intensive crops, such as paddy, even if their land is ill-suited to do so (for instance Punjab). This is partly why, despite widespread water shortages, India is a net exporter of water due to excess water used in agricultural exports. Taken together, India's agricultural policies aggravate water shortages, encourage crop burning and do little for climate change mitigation. Changing these policies may be politically delicate, but one potential solution put forth by several economists is cash transfers. With cash in hand, farmers may become more judicious in their use of inputs such as water and fertilizer.

4. **Balancing Growth and Environment**

Ultimately, tackling climate change is a balancing act between the present and future. Fuel-guzzling cars, for instance, may delight their current users but can drain resources from the future. Like governments everywhere, the Indian government will have to strike a balance on inter-generation equity.

One way to do this would be to frame more holistic goalposts. Current policies seek to maximize GDP, which does not capture the potential for future prosperity entirely.

5. **Climate Finance in India**

Climate Finance, will unlock opportunities an enable technology and knowledge transfer from the developed to the developing countries, which need capacity and resources to fight climate change at the pace the world demands today. G20 contains all the three largest greenhouse gas emitters China, USA, and India, while India announced a set of more ambitious emission reduction targets and joined the global bandwagon by announcing a net zero goal by 2070, it is now important to demystify climate finance in the context of subnational climate action and regional properties. At COP15 of the UNFCCC in Copenhagen in 2009, developed countries committed to a collective goal of mobilizing USD 100 billion per year by 2020 for climate action in developing countries, but the commitment is not fulfilled. India's **National Action Plan on Climate Change (NAPCC)** and **States Action Plan on Climate Change (SAPCCs)** are the major climate action activities which are still financed by domestic resources on the country. Now, at COP 27 at Sherm El-Sheikh a new fund as **'Loss and Damage Fund'** is projected, with intent to compensate the most vulnerable countries for damages from climate linked disasters.

Conclusion and Way Forward:

To avoid the disastrous trend of climate change, IPCC report states that two steps would be necessary – industrialized nations would have to reduce CO_2 emissions by half by 2030, and 'stop adding CO_2' to atmosphere altogether by the early 2050s. It means the world needs to consciously uncouple from fossil fuel to move toward a low carbon future. It can only be possible by the collective effort by all the nations. Most of the intended transition away from fossil fuel depends on **G20** countries, which accounts for 80% of global GDP, and collectively consume 85% of world's coal, oil, and natural gas on annually basis. Many of the G20 nations are also trade fossil fuels for revenue and for stabilizing their Balance of Payments. Among G20 nations, India establishes itself as the best nation in the climate action – best effort for mitigation and adaptation of climate change. Climate Change Performance Index (CCPI) has ranked India

as best nation for climate action among G20 nations. Currently, India has the presidency of G20 nations. And it would be an opportune time to show the world, about its climate mitigation policies such as deployment of renewable sources of energy and other energy transition programme.

The G20 presidency by India is development oriented, climate aware agenda anchored in the Sanskrit verse 'Vasudhaiv Kutumbakam', which means – the world is one family – aspires to reinvigorate multilateralism, while its vision of life: "Lifestyle for Environment" focused on sustainable production and consumption and green development. Under the presidency of India, G20 must adopt a structured, long-term perspective to predict energy market shift and climate risks to improve decision-making; plan unique transition pathways based on national circumstances and global imperatives; and bring the collaboration with likeminded countries and organisations to help close resources, technology, finance, and capacity gap. Best at climate action among G20 nations reflects that India is implementing energy transition programmes such as renewable capacity installation at much faster rate than anywhere in the world, which is also appears in the updated NDC targets of the country.

References:

1. Shuva Raha & Tulika Gupta (2023), *"The G20 & GDP: The Cost of Uncoupling from Fossil Fuls",* Global Solution Journal, The Council of Energy, Environment, and Water (CEEW), Issue-9, Global Solutions
2. Singh V.P. and Sharma N. (2021), *"Mapping Costs for Early Coal Decommissioning in India"*, New Delhi, CEEW
3. D'Souza and Debosmita Sarkar, "Climate Performance Index: A Study of the Performance of G20 Countries in Mitigation," ORF Occasional Paper No. 391, February 2023, Observer Research Foundation.
4. Crippa M., Guozzardi D., and Others (2021), *"GHG emissions of all world countries – 2021 Report"*, EUR, Publication office of the EU, Luxembourg 2021.
5. Swiss Re. (2021), *"The Economics of Climate Change: no action not an option",* Zurich: Swiss Re. Institution
6. IEA (2022), *"World Energy Outlook: 2022",* Paris, International Energy Agency (IEA)
7. IPCC (2023), *"AR6 Synthesis Report: Climate Change 2023".* Geneva, Intergovernmental Panel on Climate Change (IPCC)
8. PIB (2023, Feb 6), *"G20 Energy Transition Working Group deliberations conclude successfully with shared views and consensus on priority areas"*, Press Information Bureau (PIG), Government of India.
9. Nurton, J. (2020). *"Patenting trends in renewable energy,"* Retrieved Jan 11, 2023, from https://www.wipo.int/wipo_magazine/en/2020/01/article_0008.html
10. https://www.reuters.com/business/energy/oil-gas-industry-earned-4-trillion-last-year-says-iea-chief-2023-02-14/
11. https://www.ceew.in/blogs/challenges-and-way-forward-for-transitioning-indias-coal-economy
12. https://www.thethirdpole.net/en/hub/climate-change-in-india/