

# Development of India's Climate Policy: From Rio to Sharm-el-Sheikh

**SANDEEP KUMAR<sup>1</sup> AND NIKHIL KUMAR GAUTAM<sup>2\*</sup>**

<sup>1</sup>Professor & Head and <sup>2</sup>Assistant Professor

<sup>1</sup>Department of Economics, DDU Gorakhpur University, Gorakhpur (U.P.) India

<sup>2</sup>Department of Economics, Sant Vinoba P. G. College, Deoria (U.P.) India

## ABSTRACT

Climate Change is one of the largest global environmental issues which needs a global collective action to resolve. Global consideration to address climate change through intergovernmental negotiations have been underway for nearly three decades and India has represented itself as an active player in all this process. Not only at international platform, but at domestic level India has been framed its climate policy as a balancing factor between development and environment. From the framing of United Nation Framework Convention on Climate Change (UNFCCC) to the gestation of Kyoto Protocol and therefore, the Nationally Determined Contribution (NDC) targets of Paris Agreement, India has been framed its climate policy which ensures that its content remained with the national interest. This paper explains the development path of climate change policy of India from the establishment of UNFCCC to the present situation of NDC target achievement. Paper also clarifies the factors responsible to shape the Indian climate policy to its current frame. Is current climate policy of India being justifiable on the basis of equity or we still proceed with the climate change framework developed by the north – paper also trying to find the answer of this question. Paper also put light on India's updated NDC targets.

**Key Words :** UNFCCC, Kyoto Protocol, NDC Targets, Paris Agreement

## INTRODUCTION

Climate Change is one of the largest global environmental issues which needs a global collective action to resolve. Global consideration to address climate change through intergovernmental negotiations have been underway for nearly three decades and India has represented itself as an active player in all this process. However, since gaining independence after 200 years of colonial rule in 1947, India's primary national purpose has been to eradicate its deep-rooted poverty, achieve modernization and development through agricultural and industrial growth. Due to early realization that any international agreement to curb greenhouse gas (GHG) emissions were directly related to nation's energy use on which future economic growth would depends,

governments were shaping their climate policy with their core national interest. Not only at international platform, but at domestic level India has been framed its climate policy as a balancing factor between development and environment. From the framing of United Nation Framework Convention on Climate Change (UNFCCC) to the gestation of Kyoto Protocol and therefore, the Nationally Determined Contribution (NDC) targets of Paris Agreement, India has been framed its climate policy which ensures that its content remained with the national interest.

However, within this decadal development of India's climate policy, there has been various responsible factors which shapes our climate policy in such a way that today India became a leading country in climate action, which is also appears in German Watch's *Climate Change*

*Performance Index 2023* as India improves its position from 10 to 8<sup>th</sup> position which is highest rank secure by any developing countries. This paper explains the development path of climate change policy of India from the establishment of UNFCCC to the present situation of NDC target achievement. Paper also clarifies the factors responsible to shape the Indian climate policy to its current frame. Is current climate policy of India being justifiable on the basis of equity or we still proceed with the climate change framework developed by the north – paper also trying to find the answer of this question. Paper also put light on India's updated NDC targets.

### **Genesis of India's Involvement in Climate Change Policy:**

Climate change and its scientifically proven impacts has been posing an extremely serious challenge to the emerging India. While it is also considerable that India's contribution very little in overall GHG emission in atmosphere and its per capita emission is also far lower than the global average. So, politically India stands safe to not to engage deeply with climate action. At the same time India has its own engagement with development challenges along with limited resources to address them all.

Rationally, India faces enormous and more immediate challenges of poverty eradication, providing access to basic needs of health, education, clean energy, water, and sanitation. Thus, the engagement with climate action appears less immediate than the development objective of the country. However, recent scientific evidence marks that climate change is accelerating. More extreme rainfalls, larger dry spells, increasing severe heat-waves and high sea level rise are expected to see.

Despite these complications, there is an overarching reason why India should engage with the global climate debate, as the development path without considering climate change has not been possible after the release of First IPCC Assessment report which was published in 1990, which reveals that the impacts of climate change will increasingly threaten development outcomes across the globe. So, there are at least four major reasons in which India has put its attention in the reasoning between climate and development demand.

First, India is a country that is deeply vulnerable to climate impacts. Potential climate impacts are sufficiently large that they could likely serve as a barrier to fully

achieving India's development aspirations. Second, development-focused actions and interventions are closely intertwined with climate change related objectives. For example, adoption of clean and efficient energy may also help to reduce GHG emission. Third, climate change policy is significant to India's engagement with other countries and the global community, with implications for India's energy economy and foreign policy. As climate change is real and India's energy economy has to be shaped strongly by global context through energy trade and technology development patterns, therefore, India's involvement in climate action is necessary for country's development. Climate change is highly likely to affect energy prices across different supply sources, as well as patterns of investment in research and development, both with implications for India's energy planning. And lastly, fourth, if India has not involved in global climate policy, then there would be chances of policy shifting towards the favor of developed countries, as India leads the developing countries, its involvement is necessary into global climate policy.

So, India has several strong reasons for actively participation in global climate change policy. Moreover, climate change as a foreign policy issue is rising in the global agenda, and India's engagement with the issue is material to its aspirations as a rising power. Historically India is not responsible for climate change, but as the third largest annual emitter it may have a responsibility to vulnerable populations to engage climate change policy. Well, this not mean that India has prioritize climate action over development. As climate action are not always costly to development actions but sometimes complementary, a possible path forward exists for India to engage with both climate and development productively.

### **Phase I – Rio Earth Summit: Beginning of UNFCCC:**

India's intention to play an active role in the international negotiations on climate change was clearly appearing early on. United Nations General Assembly (UNGA) has passed a resolution (44/207) in 1989 which asks its member states to urgently prepare a so called 'framework convention' to address the global issue of climate change. Without wasting time, India has been articulated its view on the issue and building an effective collaboration with south. In April 1990, New Delhi had convened a conference of 'Selected Developing Countries on Global Environmental Issues' where India

succeeded in securing the general support of the developing world for its basic international positions on climate change. These were:

- The primary responsibility for reducing GHG emissions causing the problem of climate change rested with the developed world since they were the ones responsible for producing the bulk of these emissions.
- The emission of developing countries was still very low and needed to grow to meet their future development and poverty reduction targets, and hence no GHG reduction targets could be prescribed for them.
- Any formal agreement on climate change needed to provide for technology transfer and funds for developing countries to help them address this challenge (Ministry of Environment and Forests, 1990).

India also played a vital role in shaping the background conditions against which the convention negotiations were held. For example, the original draft of the *First Assessment Report* of the IPCC had noted that both developed and developing countries had 'common responsibilities' on climate change. However, recognizing that what got agreed to here could significantly impact the future commitments that countries would have to accept, India worked closely with other developing nations to ensure that this was amended to become the 'common but differentiated responsibilities' (CBDR) of industrialized and developing countries (Rajan 1997). India also played a key role to ensuring that the convention negotiations were undertaken through an 'Intergovernmental Negotiating Committee' operating under the direct authority of the UNGA – to allow for 'openness, transparency, universality and legitimacy' and the 'full participation' of all states (World Meteorological Organization – WMO/ United Nations Environment Programme – UNEP, 1990) – rather than through other specialized forums, such as UNEP or IPCC, which were being advocated by developed countries at that time (Sengupta, 2012).

Through these efforts, India was largely successful in securing its core positions in the convention negotiations. Thus, the final text of the UNFCCC adopted at Rio in 1992 clearly acknowledges that 'the largest share of historical and current global emissions' originated in developed countries; that per capita emissions in developing countries were 'still relatively low' and their

future share of global emissions would need to 'grow to meet their social and development needs': that 'Parties should protect the climate system on the basis of equity and in accordance with their common but differentiated responsibilities and respective capabilities' (CBDR & RC); and that accordingly, the developed countries Parties should take the lead in combating climate change' (UNFCCC 1992: Preamble, Article 3.1).

### **Phase II – UNFCCC to Kyoto Protocol:**

From Indian perspective, the UNFCCC has clearly recognized that poverty eradication and economic and social development are the first and intense priorities of the developing countries, so, the effective implementation of their commitment to the convention should be depend on the extent that how far the developed countries would fulfill their own commitment with regard to finance and technology transfer which had explained under the Article 4.7 of the convention. In 1994, UNFCCC has come into force, and the central commitment of UNFCCC for developed countries to stabilize their emission to 1990s levels by 2000, has reviewed for its adequacy in convention. At the first Conference of Parties (COP 1) which was held in Berlin in 1995, developed countries, however, attempted to shift the focus of this review by calling on the 'more advanced' developing countries to also take on mitigation commitments and for the establishment of 'new categories' in the UNFCCC other than developed (Annex I) / developing (non-Annex I) division. (Oberthur and Ott 1999). However, at this northern demand, both the European Union (EU), led by Germany, and the Alliance of Small Island States (AOSIS) were strongly in favour to develop a new protocol to the UNFCCC that would give strong grip to the Convention by prescribing specific legally binding mitigation 'target and timetables' for countries. However, this was opposed by the OPEC members and by a US-led coalition JUSCANZ which include Japan, Canada, Australia, and New Zealand. Utilizing these differences, India has also convened a 'Green Group' of 72 developing state that jointly called for the development of a strong legally binding protocol but without any additional commitments for developing countries (Paterson, 1996).

Ultimately, the India-led coalition succeeded in winning over the EU to its side and in persuading the JUSCANZ group to drop its insistence on additional developing country commitments. And it flourished as 'Berlin Mandate,' which was adopted at the end of COP

I that called for the development of a protocol with quantified emissions reduction targets only for developed countries and clearly notified that the process should 'not introduce any new commitments' for developing countries (UNFCCC, 1995).

After two year of intense negotiation(1996-1997), Kyoto Protocol was formally adopted by UNFCCC at COP 3 in December 1997, where developed countries were agreed to take on individual, quantified, legally binding emission reduction targets to reduce their collective emissions by 5 percent below 1990 levels over the first commitment period of 2008-12 (UNFCCC 1997).During first commitment period (2008-2012), a concept of 'voluntary commitment' for developing countries were attempted to introduce, however with G77 specially with China, India successfully fend this off. Till 2001 COP negotiations were focused on the framework and rules for implementing Kyoto Protocol, including its flexible market-based mechanisms that had been assisted for developed countries to meet their mitigation targets.

One of these flexible mechanisms, the Clean Development Mechanism (CDM), which allowed developed countries to implement specific emission reduction projects in developing countries and use the generated carbon credits to meet their own mitigation target, was the particular interest to India. Initially, India has opposed for it that it was a Northern ploy to shift emission reduction obligation to the south, but at last India has accepted this as sensing that the CDM offered a valuable opportunity for it to gain foreign investment and clean technology from the west. Indeed lately, India along with China, became a global leader in hosting CDM projects in the both commitment periods of Kyoto Protocol. Kyoto Protocol was formally adopted at COP 7 in 2001 as 'Marrakesh Accords', and formally entered into force in 2005 just after COP 11 in Montreal. However, US decision not to ratify the Protocol marks a question on meaningful outcomes of this protocol, although, the discussion turned to what would happen to the climate-regime, once 'first commitment period' come to an end.

At other side, Indian government took a number of steps domestically at this time, which showed the growing importance that it accorded to tackling this issue – including the launch of a National Action Plan on Climate Change (NAPCC) in 2008 that outlined concrete measures across eight key areas to promote 'development objectives while also yielding co-benefits for addressing

climate change effectively' (Prime Minister's Council on Climate Change – PMCCC, 2008); with staying at their international stand towards climate action.

On the other hand, developed countries has forcefully raised the issue of developing countries participation as China was projected to surpass US as the world's largest emitter in 2007 and India to be third largest GHG emitter by 2015 (International Energy Agency, 2007).

### **Phase III – Copenhagen to Paris Agreement :**

A significant shift in India's climate foreign policy were witnessed in July 2009, when UPA return to power in general elections and signed the 'Major Economic Forum (MEF) Leaders Declaration on Energy and Climate' at a meeting held alongside the G8 Summit in L'Aquila, Italy. This declaration asking for MEF countries to work together to rise in global temperature 'ought not to exceed 2°C and to identify a 'global goal' to reduce 'global emission by 2050' (MEF, 2009).

The fact that India's political leadership was now willing to reconsider its international stance became further clear when Jairam Ramesh, newly appointed environment minister, actively attempted to reframe India's traditional position on climate change in the months leading up to the Copenhagen Summit. Stressing repeatedly that India was highly vulnerable to climate change – and also that it needed to be seen internationally as 'a leader who is shaping the solution' on the issue – Ramesh argued that it was now in the country's own interest to go beyond its original 'per capita convergence' position and adopt a more aggressive 'per capita plus' approach, whereby specific 'performance targets' could be assigned through domestic legislation, or executive action, to key sectors of the country's economy (Ghosh 2009). In the final parliamentary debate held just prior to COP 15, environment minister declared that India would go to Copenhagen with a 'positive frame of mind' and was prepared to be 'flexible', but stressed there were three 'non-negotiables' that it would not compromise on any 'legally binding' for emission reduction. However, Jairam Ramesh was announced that India would voluntarily reduce the 'emission intensity' of its GDP by 20-25 percent by 2020 compared to its 2005 level through domestic mitigation actions, arguing that to do so would be in India's best interests (Lok Sabha 2009). It was the first time that India formally put forward a concrete numerical pledge in relation to climate mitigation on the

global table.

At Copenhagen, developed countries put their voice to bypass Kyoto Protocol, and insist to develop a new climate action framework 'more undifferentiated international agreement', where all major GHG emitter, developed and developing both, would have similar mitigation obligations subject to similar levels of international scrutiny.

However, in the accord negotiation, India with BASIC Alliance (India, China, Brazil, and South Africa), jointly resist this mounting pressure against US-led north. They collectively also ensured that some of the fundamental principles and provisions of the UNFCCC (such as CBDR, Equity, 'new and additional' finance, and recognition for the 'overriding priorities' of poverty eradication and development) were suitably acknowledged and referenced in the Accord. A 'differentiated' framework for recording the 'quantified economy wide emissions targets' of developed countries and the 'nationally appropriate mitigation actions' of developing countries that both agreed to submit under the Accord was also ensured (UNFCCC, 2010).

At the end of this negotiation, countries were formally agreed to extend the 'dual-track' mode of negotiation (introduced in COP 11, to discuss second commitment period of Kyoto Protocol and insisted a separate parallel dialogue on long-term cooperative action to discuss the future commitment of non-ratifying countries (e.g., U.S. & Australia) or for those who has not any binding commitment for emission reduction, that are developing countries – UNFCCC, 2006), and the political understandings reached under the Copenhagen Accord – on restricting temperature rise to 2 °C, monitoring the mitigation commitments and actions of developed and developing countries, developed country commitment on finance, etc., were successfully anchored within the Cancun Agreement at COP 16 the following year.

From COP 16 to COP 18 (2012), the discussion was similar as Kyoto Protocol survived on papers, although at COP 18 in Doha, on the insistence of the south – Kyoto Protocol was extended from 2012-2020 for so called 'second commitment period'.

The period between 2012 and 2015 focused primarily on designing a new global climate agreement based on the new terms defined at COP 17 in Durban. At COP 19 in Warsaw, Poland, all parties to the UNFCCC were invited to voluntarily prepare and communicate their

'bottom-up' national-level pledges on climate action – or Intended Nationally Determined Contributions (INDCs) – in support of the 2015 agreement. COP 20, held in Lima, Peru in 2014, continued to develop the contours of this new agreement. At this juncture, the formal compromise was ultimately agreed to on this Lima was that the 2015 agreement would reflect the principle of CBDR 'considering different national circumstances' (UNFCCC 2015). In other words, no longer would the original Rio concept of 'differentiation' – as understood in terms of a strict divide between Annex I and Non-Annex I party obligations and treatment – apply.

Consequently, the Paris Agreement that was finally adopted at COP 21 in December 2015 incorporated the principle of differentiation within its next in a very different manner than had been originally conceptualized under the UNFCCC and its Kyoto Protocol. Nevertheless, it represented a clear shift from the UNFCCC/Kyoto Protocol framework in its much more symmetrical treatment of all parties, developed and developing alike, than had previously been the case, which India – ultimately in the end – was left with little choice but acceptable.

However, just prior to COP 21, in October 2015, India communicated its own updated national pledge, or INDC, to the UNFCCC. In this, India significantly enhanced its earlier pre-Copenhagen pledge of 2009, agreeing to reduce the 'emission intensity' of its GDP by 33-35 percent by 2030 from 2005 levels (Government of India 2015). Along with this, India's INDC also included other specific time-bound targets to increase both the share of the country's non-conventional energy and its national tree and forest cover, among other measures.

At COP 21 itself, Honorable Prime Minister Narendra Modi made effort to position India as a country that was fully aware of its global responsibilities on this issue. Modi Government also launched a new initiative together with France - the 'International Solar Alliance' – aimed at significantly expanding the global adoption of solar energy, especially across the tropics. This was in addition to the domestic decision that the Modi government had previously taken in June 2015 – to increase India's national solar power generation capacity fivefold, from 20 GW to 100 GW by 2022, compared to the original goal that had been set in its NAPCC in 2008. Indian Government has officially ratified the Paris Agreement in October 2016, which subsequently successfully entered into force in November 2016.

#### Phase IV –Post Paris Climate Policy of India:

Paris Agreement was a low-ambition emissions control regime, with a structure favouring developed countries and distributing the burden unfairly among 'all countries' by ignoring historical responsibility, while allowing developed nations to substantially defer enhanced commitments under the Kyoto Protocol till the new commitments kick in.

However, the story does not come to an end with the Paris Agreement. There is still much more work to be done. The issue of dealing with the higher ambition 1.5 °C goal is yet to be dealt with an effective manner, yet with sensitivity towards the perception of the island states and LDCs. The anticipated upward revision of NDCs is to take place in 2020, and unless some meaningful science-based metric is worked revisions in such a way as to ensure adequacy to meet the 2 °C goals, the world may again well be left with another ineffective set of voluntary pledges.

India has undoubtedly faced many challenges in the ahead year of Paris Agreement. However, lessons from the negotiations thus far, if learned well, has proven useful, and India has going well to approach the negotiations differently than in the past, focusing on broader outcomes rather than on daily skirmishes. India's national interest, given the severe climate impacts it is likely to face in the years to come.

At COP 22 held in Marrakesh, Morocco, 122 out of 193 signatories had ratified the Paris Agreement, representing more than 79% of global emissions. Developed and developing countries had agreed on upholding the agreement. COP 23 held in Bonn, Germany specially focusing on preparing rule for Paris Agreement and highlighted their concern over Small Island nations as they are more vulnerable to climate impacts. Finally at COP 26 which was held in Glasgow, United Kingdom, Parties were agreed on Paris 'Rulebook' and the developed countries nations have reaffirm their duty to fulfil the pledges of providing \$100 billion annually from developed to developing countries.

After COP 26, in August, 2022 India is submitted its updated NDCs which is more enthusiastic than the previous one, showed India's deep concern over climate change.

As per the updated NDC, India now stands committed to reduce 'emission intensity' of its GDP by 45 percent by 2030, from 2005 level and achieve about 50 percent cumulative electric power installed capacity

from non-fossil fuel-based energy resources by 2030. The approval of this NDC takes forward the Honorable Prime Minister's vision of sustainable lifestyles and climate justice to protect the poor and vulnerable from adverse impacts of climate change. This enhanced NDCs demonstrates India's commitment at the highest level for decoupling of economic growth from GHG emissions.

India's updated NDC has been prepared after carefully considering our national circumstances and the principle of common but differentiated responsibilities and respective capabilities (CBDR & RC). India's updated NDC also reaffirms our commitment to work toward a low carbon emission pathway, while simultaneously endeavoring to achieve sustainable development goals.

#### India's Behaviour Toward Global Climate Policy Negotiations

From the very beginning of global climate negotiation, India continued to resist any fundamental changes to UNFCCC/Kyoto Protocol regime that it managed to successfully negotiate in the 1980s and 1990s, in the years that followed, may be attributed also to four factors. *First*, developed countries deliver on its promises, either in terms of reducing its own GHG emissions or in providing technology and finance to the LDCs. In this situation, there was little reason for India to unilaterally change its foreign policy on this issue, especially now that it had international law on its side. *Second*, there was a general consensus within India that India's external position on climate change was legitimate and valid and did not require any changing. *Third*, formulating India's external climate policy has traditionally been the preserve of a relatively small group of government officials and diplomats from the Ministry of Environment Forest (MoEF) and Ministry of External Affairs, who believes that their core traditional positions are right, and have found little reason to change their worldwide and normative positions on this issue over time. And the *fourth* reason is the generally limited role that science and scientists, barring some expectations, have played in determining India's official policies on climate change over the years. Notwithstanding the successive IPCC reports, economic and developmental consideration, and not environmental concerns or science, have been the predominant forces that have driven India's external thinking and policies on this issue.

But we found that there have been significant changes were seen in India's foreign climate policy specially from Copenhagen and Paris, even with effort

to defend the old regime over time. However, there are several responsible factors behind it, five of them are here:

*First*, emergence of new powerful new voices within India's policymaking bodies on climate change and particularly, the internal shift in the balance of power between its political and bureaucratic leadership on this issue. *Second*, develop the understanding of the core interests of the topic over time, due to release of new IPCC reports, new scientific knowledge enhanced which helped to choose their best interest into policies, which stimulate policy shifting. *Third*, emergence of options that climate action is complementarily enhanced with development projects, so climate action has not been implemented at the cost of development. Like renewable energy enhancement are delivered as climate action and its development aspect is its cost-effectiveness rather conventional energy. *Fourth*, dominations of non-state actors toward the issue such as Centre for Science and Environment (CSE) and The Energy and Resource Institute (TERI), whose view were largely compatible, and even helped to shape, India's traditional positions at the topic. *And fifth*, emergence of India as a powerful economy and political actor on the global stage, since the implementation of new economic policy in 1991, also had impact in driving the recent changes seen in its climate foreign policy, with its political leadership on the climate action such as – Introduction of International Solar Alliance (ISA) and India's updated NDCs.

### Conclusion and Way Forward:

India has undoubtedly been one of the central players in international climate negotiations over the last three decades. From early years of 1990s (UNFCCC establishment) to the current year of 2022 (COP 27 held in Sharm El Sheikh), India has continuously participated in all the conventional negotiations actively, with its own views of seeking a balance between development and climate action. This interest based conceptualization of the international climate framework – and the desire to secure enough policy space within it to ensure its future development, principally maintains India's international behaviour on this issue over the years. India also represents itself as the leader of developing countries as having a strong normative sentiment, based on the notion of equity and justice, that tackling climate change was not the responsibility of developing countries like India as the problem was primarily caused by developed nations.

India's updated NDC and its 8<sup>th</sup> position in Climate Change Performance Index 2023 reveals about its effective policy towards climate action. India has made significant progress in renewable energy capacity installation – ranking at 4<sup>th</sup> in the world 2022. India Government has been hailed by Climate Action Tracker - CAT (an independent scientific project), for implementing comprehensive policy measures to encourage renewable energy, including capacity targets, improvements to administrative processes and incentives for the domestic production of solar technologies, and ramping up the production of green hydrogen. India has also announced its Net Zero Target to be achieved by 2070.

But reliance on coal power continues to be a drag on ambition. Currently, government is pushing for increased domestic coal production and plans to build substantial new coal power capacities between 2027 and 2032 under the latest electricity plan- which is necessary for the required demand of electricity in the country. India also wants to increase its Liquefied Natural Gas (LNG) imports. But it should be remembered that India had achieved its firstly introduced NDC targets at earlier than promises. And its current climate policy framework is so futuristic and enthusiastic that it will likely to achieve its Updated NDC targets and its Net Zero Target as early as first NDCs were achieved.

### REFERENCES

- Agarwal, Anil, Sunita Narain, and Anju Sharma (1999), "*Green Politics: Global Environmental Negotiations*". New Delhi: Centre for Science and Environment.
- Atteridge, Aaron, Manish Kumar Shrivastava, Neha Pahuja, and Himani Upadhyay (2012), "*Climate Policy in India: What Shapes International, National and State Policy*". *Ambio*, 41(1): 68-77
- Dubash, Navroz K., Radhika Khosla, Ulka Kelkar, and Sharachandra Lele (2018), "*India and Climate Change: Evolving Ideas and Increasing Policy Engagement*". *Annual Review of Environment and Resources*, 43: 395-424. Available at <https://doi.org/10.1146/annurev-environ-102017-025809>
- Government of India (GoI), (2015), "*India's Intended Nationally Determined Contribution: Working towards Climate Justice*". Ministry of Environment, Forest and Climate Change, GoI, New Delhi
- Rajamani, Lavanya (2016), "*The 2015 Paris Agreement:*

- Interplay between Hard, Soft and Non-Obligations*".  
Journal of Environmental Law, 28(2): 337-58 <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1847812>
- Ghosh, Prodipto (2012). "*Climate Change Debate: The Rationale of India's Position*", Handbook of Climate Change and India: Development, Politics and Governance, pp. 157-67, Oxford University Press.  
<https://unfccc.int/process/the-kyoto-protocol/mechanisms>  
<https://climateactiontracker.org/countries/india/2019-06-17/>  
<https://www.orfonline.org/research/climate-performance-index/>
- Vihma, Antto (2011), "*India and the Global Climate Governance: Between Principles and Pragmatism*", The Journal of Environment & Development, 21(1): 69-94.  
Available at <https://doi.org/10.1177/1070496510394325>  
<https://www.carbonbrief.org/analysis-which-countries-are-historically-responsible-for-climate-change/#why>

\*\*\*\*\*