

## AN ANALYSIS OF INDIA'S COMMITMENT TO CLIMATE CHANGE

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### ABSTRACT

*Long-term changes in temperature and weather patterns are referred to as climate change. These changes could be caused by natural processes, such as oscillations in the solar cycle. But since the 1800s, human activities primarily the combustion of fossil fuels like coal, oil, and gas have been the primary cause of climate change. Fossil fuel combustion produces greenhouse gas emissions that serve as a blanket around the planet, trapping heat from the sun and increasing temperatures. As emissions climb, greenhouse gas concentrations are at their greatest points in two million years. The finding is that the Earth has warmed by around 1.1°C since the late 1800s. The most recent ten years (2011–2020) were the warmest ever. India has made a commitment to cut its GDP's emission intensity by 45 percent by 2030. According to Climate Action Tracker (CAT), which is an independent scientific study provided by two research organizations monitoring climate action since 2009, this research paper will assess India's pledge in Conference of Parties (COP 26 & COP 27) and performance as per its commitment.*

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**Keywords:** *Climate Change, Greenhouse Concentrations, Conference of Parties, Human Activities, Climate Action Tracker.*

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### Introduction

#### **About Paris Agreement**

It is a global agreement on climate change that is enforceable by law. At COP 21 in Paris, it was approved by 196 Parties, and it became effective in November 2016. It is a historic agreement since it, for the first time, unites all nations in a common cause to make ambitious measures to mitigate climate change and adapt to its repercussions. It took the place of the former climate change pact known as the Kyoto Protocol.

According to the 2015 Paris Agreement, Countries must lay out a plan to keep global warming below 2°C and at most 1.5°C by 2100.

The joint agreement that all countries involved sign at the COP (Conference of Parties which is a decision-making body of UNFCCC) is the end outcome, but the actual work begins when nations are required to submit NDCs (Nationally determined contributions) every five years.

The three most significant of India's eight targets were to have 40 percent of installed electricity capacity come from renewable sources by 2030, reduce GDP emissions intensity by 33 to 35 percent (compared to 2005 levels), and add an additional 2.5 to 3 billion tons of carbon sinks through forest and tree cover by that year. These three goals were included in India's NDC submission.

India has high net emissions but low per-capita emissions despite being a big, populated country. However, over the course of several years of discussions, and international pressure, India eventually agreed to phase out fossil fuels.

The revised NDC aims to increase India's contributions to the Paris Agreement's goal of strengthening the global response to the challenge of climate change. Such a move will also assist India in establishing growth routes with minimal emissions. Based on the UNFCCC's guiding principles and provisions, it would defend the nation's interests and future development needs.

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Increase in global greenhouse gas emissions **projected** by 2030, compared to 2010, based on available national action plans



Reduction in global greenhouse gas emissions **needed** by 2030, from 2010 levels, to keep warming to no more than 1.5 degrees Celsius



COP 27 took place at Egypt in November 2022. Countries worldwide have gathered to discuss the state of the global response to the climate challenge and the next steps to address this existential crisis.

The "In Our LiFEtime" campaign was jointly launched by UNDP, MoEFCC, and the National Museum of Natural History (NMNH). It solicits thoughts from young people all across the world. The young will be urged to propose their scalable, sustainable, and globally shared climate actions.

India pledged to further up its climate action at the UNFCCC's 26th Conference of the Parties (COP26) in Glasgow, Scotland, by introducing the world to its five nectar ingredients (Panchamrit). The 'Panchamrit' stated at COP 26 is translated into improved climate targets by this modification to India's current NDC. The upgrade also advances India's long-term objective of becoming net-zero by 2070.

On October 2, 2015, India sent the UNFCCC its Intended Nationally Determined Contribution (NDC). The 2015 NDC included eight goals, three of which have quantitative targets for 2030. These goals include increasing the share of non-fossil energy in installed electric power to 40 percent, cutting the GDP's emissions intensity by 33 to 35 percent from 2005 levels, and creating additional carbon sinks of 2.5 to 3 billion tons of CO<sub>2</sub> equivalent through increased forest and tree cover.

According to the revised NDC, India is now committed to reducing the GDP's emissions intensity by 45 percent from 2005 levels by 2030 and generating nearly half of all installed electric power capacity from sources other than fossil fuels. "To put forward and further disseminate a healthy and sustainable way of life based on traditions and values of conservation and moderation, especially through a mass movement for "LIFE"- "Lifestyle for Environment" as a cornerstone to addressing climate change," states the amended NDC. The choice to adopt enhanced NDCs indicates India's dedication to decoupling economic growth from greenhouse gas emissions at the highest level.

After carefully evaluating our national conditions, the principle of common but differentiated obligations, and the individual capabilities, India's updated NDC was created (CBDR-RC). India's revised NDC confirms our determination to pursue a pathway with low carbon emissions while also making an effort to meet sustainable development objectives.

The modified NDC serves as the roadmap for India's switch to greener energy from 2021 to 2030. The revamped framework will present a chance to improve India's manufacturing capacity and increase exports, along with many other government measures, such as tax breaks and incentives like the Production Linked Incentive scheme for promoting manufacturing and adoption of renewable energy. Overall, it will boost the number of green jobs in fields like renewable energy, clean energy industries, the automotive industry, the production of low-emission products like electric vehicles and extremely energy-efficient appliances, and cutting-edge technologies like green hydrogen.

The new National Development Plan (NDP) of India will be executed over the years 2021–2030 via programs and schemes of pertinent Ministries/Departments and with the necessary assistance from States and Union Territories. To increase India's efforts in both adaptation and mitigation, the government has developed a number of projects and programs. Under these plans and programs, appropriate actions are being taken in a variety of areas, including water, agriculture, forestry, energy, business, sustainable mobility and housing, waste management, circular economy, and resource efficiency, among others. The aforementioned actions have allowed India to gradually separate economic growth from greenhouse gas emissions. Indian Railways alone will reduce emissions by 60 million tonnes yearly by achieving its Net Zero goal by 2030. Similar to this, India is decreasing emissions by 40 million tonnes a year thanks to a large LED bulb push.

India has so far financed the majority of its climate initiatives with local funds. However, one of the commitments and duties of the developed countries under UNFCCC and the Paris Agreement is to transfer technology and provide new and additional financial resources to address the global climate change crisis. India will also need its fair share of these global financial and technological resources.

India's NDC does not obligate it to take any sector-specific mitigation measures. India wants to gradually lower its total emission intensity and boost its economy's energy efficiency while also safeguarding the weaker sections of the economy and society.

### **Climate Action Tracker (CAT) Analysis of India's Performance**

India presented its Long-term Strategy for Low Carbon Development (LTS) at COP27. This document breaks down activities by sector but only covers current policies and a broad course for the future. India intends to keep developing coal in the long run based on its LTS. Overall, there is very little information supplied, and there is no emissions pathway showing how India can achieve net zero

emissions by 2070. It is still unknown if India's goal of reaching net zero greenhouse gas emissions by 2070 applies to all greenhouse gas emissions or only CO<sub>2</sub>. The LTS in India is rated as "Poor" by the CAT.

India declared revised aims at COP26 in November 2021 and formally filed their amended NDC plans in August 2022. In comparison to its first NDC, it increased the importance of both its 2030 emissions intensity target and the percentage of electricity that will come from non-fossil fuel sources.

Even while the targets appear more ambitious on paper, India will already meet them with its present level of climate action, thus the new targets won't result in further cuts to emissions. However, India's NDC rating against its fair contribution to the 1.5°C temperature limit has increased by one category to "Insufficient," but the country's total CAT rating has remained unchanged at "Highly insufficient."

A 500 GW non-fossil capacity objective was also announced by Prime Minister Modi at COP26. The NDC update does not include this aim. Given that the 500 GW does not exceed existing government goals, it might at most result in modest reductions in actual emissions.

In essence, India has replaced its first NDC targets (that would have been overachieved) with targets close to its current level of climate action. India needs to propose further cuts in 2030 emissions, conditional to international finance, to put India on a 1.5°C pathway.

According to our analysis, India will easily meet its NDC target under the country's existing policies. Due to lockdown measures taken in reaction to the pandemic, the Indian economy saw a decrease in emissions in 2020; however, the economy has since recovered, and 2021 emissions are greater than our original projections.

At COP26, India contributed to weakening the Glasgow Climate Pact language to a short-term "phasing down" of coal in the power sector, while India is continuing with its ambition to increase coal capacity. Another 26 GW of coal capacity is expected to be constructed by 2026–2027, according to the Draft National Electricity Plan. Due to the cheap cost of solar and wind energy, there is growing evidence of the economic disadvantages of coal compared to renewable energy. The majority of coal plants struggle with profitability risk, stranded assets, and financial sustainability. India reiterated its intention to keep developing coal in its LTS, which was submitted during COP27. Additionally, India is growing its presence in foreign oilfields in Brazil and Russia.

India still supports both fossil fuels and renewable energy through direct subsidies, tax breaks, price controls, and other forms of government assistance, although fossil fuel subsidies are nine times bigger than those for renewable energy and are mostly directed at petroleum.

The Indian government has introduced a number of policy tools to encourage the creation and application of renewable energy technology as well as energy efficiency. It has also amended the National Energy Conservation Act of 2001 and developed a green hydrogen policy. These regulations will play a significant role in decarbonizing India's industrial sector and provide opportunities for energy savings in commercial buildings and other industrial sectors.

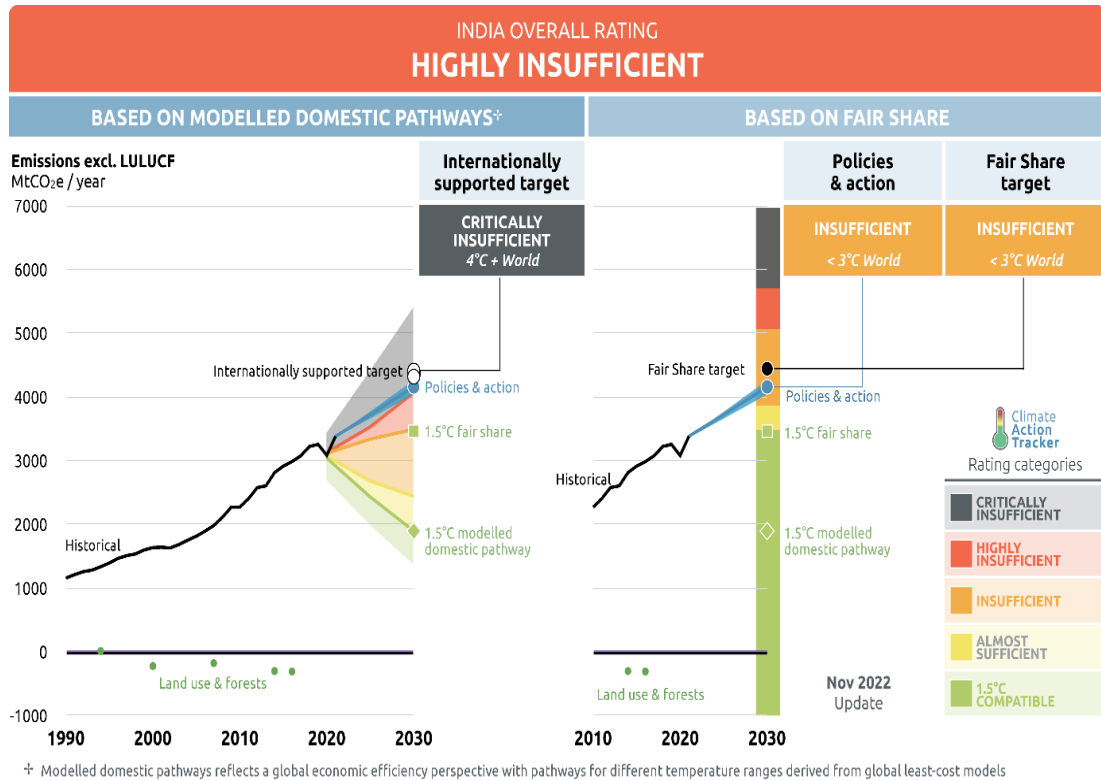
### **Overall Rating**

The CAT classifies India's climate aims and commitments as "Highly inadequate," meaning that they are incompatible with the 1.5°C temperature limit set forth in the Paris Agreement.

Although it will not increase real-world emission reductions beyond its existing level of climate action, its amended NDC strengthened its targets on paper. When compared to India's fair share contribution, its new emissions intensity objective is "Insufficient," an improvement of one category.

When compared to a projected 1.5°C emissions trajectory for the country, India's conditional NDC target—an increase in non-fossil capacity—remains "Critically insufficient." Due in significant part to greater historical emissions, India's expected emissions in 2030 under its present level of climate action are higher than our previous assessment and now fall inside the "Insufficient" range.

India should set goals that will hasten the implementation of climate change policies and encourage real carbon reductions. To transition to a 1.5°C pathway, the nation will require international assistance.



**Policies & Action**

In comparison to its fair share contribution, CAT rates India's present policies and actions as "Insufficient."

It predicts that emissions will be greater than they were in our previous estimate in 2030 if India's present policies and actions are followed. India's policies and actions are now rated as "Insufficient" rather than "Almost sufficient." Despite the fact that India's forecast rate of rise in emissions has slowed since our last update, historical emissions for the previous few years have been revised upward, in part due to a quicker than anticipated recovery from the pandemic. As industry recovered from COVID, there was a stronger demand for energy, which was fueled by the continued high percentage of coal and other fossil fuels in the energy mix.

India has big goals for renewable energy; as of September 2022, India had installed a total of more than 118 GW of renewable energy (excluding large hydro). In terms of renewable energy installations in 2021, India came in third behind China and the USA. However, it is highly improbable that India would be able to meet its goal of 175 GW of renewable energy capacity by 2022.

Indian Prime Minister Modi declared at COP26 that his country would reach 500 GW of non-fossil capacity by 2030. This aim, which is higher than the previous 450 GW target, is not addressed in the amended NDC but is included in the draught National Electricity Plan 2022.

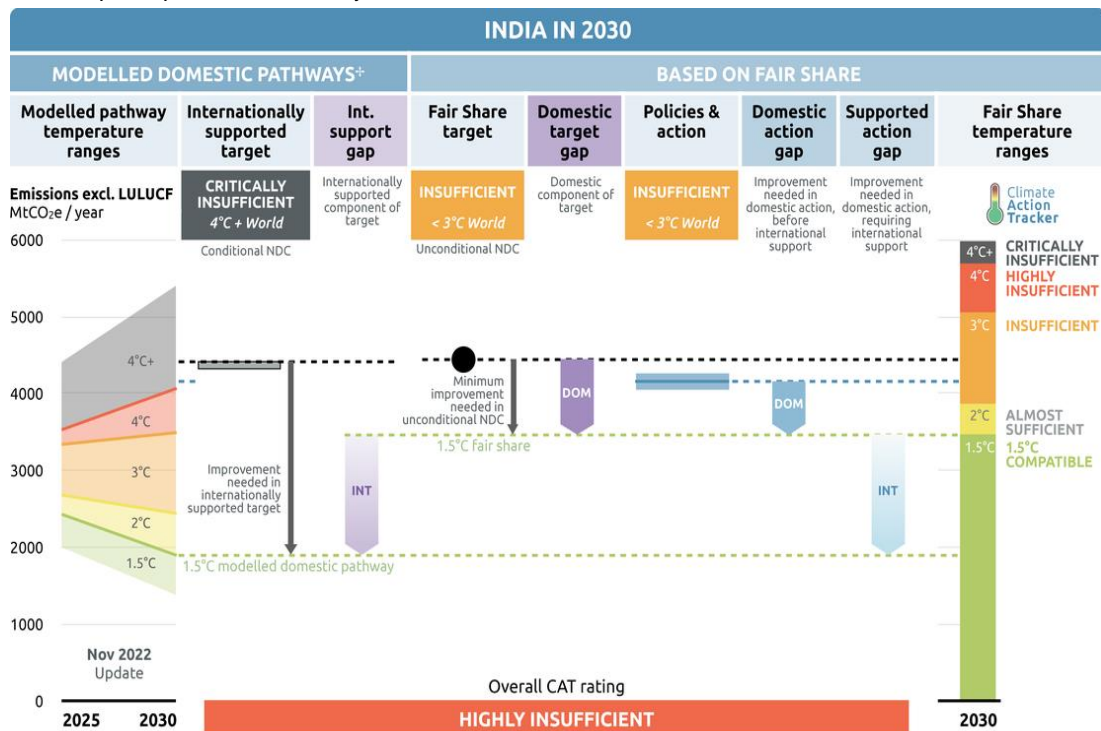
The Ministry of Power has created an expert committee to present a proposal to stop building new coal-based power plants after 2030. However, the production and usage of coal continue to be a problem. India still has the second-largest coal pipeline in the world, and the government is still supporting coal.

To fulfil rising energy demands, an additional 26 GW of coal capacity would be operational by 2026–2027, according to the Draft National Electricity Plan. 32 GW of coal capacity was being built as of July 2022. The risk of stranded assets would rise as a result. Additionally, the administration intends to increase the usage of LNG, which might leave gas infrastructure stranded and increase reliance on imports.

To be aligned with the Paris Agreement's 1.5°C temperature limit, India needs to phase out coal use from its power sector by around 2040.

The government continues to push its hydrogen strategy, which is a crucial step forward for decarbonization of refineries and fertilizer plants where fossil fuel is utilized as feedstock. The policy has set a target of five million tonnes per annum (MTPA) of green hydrogen production by 2030 and it is estimated that this policy will cut the cost of green hydrogen production by roughly 40-50 percent. The government is seeking to create an obligatory 'green hydrogen purchase obligation' for industrial users. The Green Hydrogen Policy also encourages the use of green hydrogen for storage purposes. Many significant firms in India are stepping forward to invest in green hydrogen and battery manufacturing.

India revised its 2001 Energy Conservation Act in August 2022 to encourage energy efficiency and conservation, control the energy usage of specific machinery, appliances, buildings, and industries, and introduce a market for carbon credits. Numerous significant sectors have already taken significant steps in the direction of renewable energy, and some have voluntarily set goals to improve thermal substitution. Targets to be set up for various industrial sectors under the Act need to go beyond what the industrial participants have already achieved.



<sup>+</sup> Modelled domestic pathways reflects a global economic efficiency perspective with pathways for different temperature ranges derived from global least-cost models

**Internationally Supported Target**

It is rated critically insufficient by CAT.

The three primary components of India's 2022 NDC are:

- An aim to achieve 50% of installed electric power capacity from non-fossil fuel sources by 2030.
- A target to reduce emissions intensity by 45 percent below 2005 levels by 2030.
- A target to create a carbon sink of 2.5 to 3 GtCO<sub>2</sub>e by increasing forest and tree cover by 2030.

India stated in its revised NDC that it will need international assistance to reach its goal of 50% non-fossil capacity, yet under its existing policies, it is already on course to reach 60–67% by 2030.

When compared to the extent of reductions required on Indian soil in order for the target to be 1.5°C compatible, CAT rates this target as "Critically insufficient." India will require international assistance to move toward a 1.5°C trajectory, and significant improvement in this target is required.

According to the "Insufficient" classification, India's emissions must significantly increase by 2030 in order to comply with the 1.5°C temperature target. India's goal is at the less demanding end of what would be a fair share of the global effort and is incompatible with the 1.5°C temperature limit unless other nations make significantly deeper cuts and comparable higher efforts. If every nation adopted the same strategy, temperatures might exceed 2°C and even reach 3°C.

India's fair share rating went from "Highly insufficient" to "Insufficient" with its updated NDC, but a greater objective is required if India is to contribute its fair part.

India's net carbon sink in 2016 was 308 MtCO<sub>2e</sub>. In spite of intentions to increase the amount of forest cover by 2.5 to 3 GtCO<sub>2e</sub> by 2030, India's amended NDC maintains the country's aim for the land and forestry sector. The National Mission of Green India's underlying framework saw the adoption of numerous policies and initiatives.

India established a goal to cover 33 percent of its land area with forests in its National Forest Policy from 1988. As of 2021, the country's forest and tree cover made up 24.6% of its total land area, a barely noticeable rise since 2013 (from 24 percent)

India's 2070 net zero aim was made public by Prime Minister Narendra Modi at COP26 in 2021, and the country's Long-term Strategy for Low Carbon Development was presented at COP27 (LTS). The net zero target is rated as "Poor" by CAT.

### Conclusion

According to Climate Action Tracker India's overall performance remain Insufficient, stronger targets needed for India to contribute its fair share. Though Indian government is working to enhance manufacturing capabilities through production linked incentive scheme, tax concessions, Innovative technologies. Green Hydrogen Policy and an amendment of the National Energy Conservation Act of 2001 are going to be instrumental in decarbonizing India's industrial sector, and will provide greater opportunity for energy savings in buildings and industry sectors.

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