



CLIMATE CHANGE

INDIA'S COMMITMENTS



**BY
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As the world advances towards industrialization, greenhouse gases (GHGs) have emerged as a major concern, disrupting Earth's delicate balance. From methane to carbon dioxide, these emissions trap heat within the atmosphere, resulting in rising temperatures, unprecedented natural disasters, and dwindling biodiversity. With each passing year, the planet inches closer to irreversible consequences, underscoring the critical need to address climate change immediately.

Increasing economic growth and development across the globe since the Industrial Revolution, starting in the mid-eighteenth century, has led to rising greenhouse gas (GHG) emissions into the earth's atmosphere, preventing heat from being transmitted back to space in the right proportion. These GHGs include methane, carbon dioxide, nitrous oxide, fluorinated gases, and ozone in the troposphere (the atmosphere up to 15 kilometres from the earth's surface). However, ozone molecules in the stratosphere (the atmosphere above the troposphere up to 50 kilometres) are beneficial since they absorb part of the incoming ultraviolet (UV) rays from the sunlight. Water vapours, though

emitted naturally, also act like a greenhouse gas. GHGs allow heat from the sun to enter and absorb it, but they are somewhat opaque in transmitting this heat back to space. The process is similar to a greenhouse, which lets heat from sunlight in but not out at the same rate. Contrary to the bad reputation GHGs have earned, the earth would freeze if all the heat were transmitted back to space in their absence. It is the excess of GHGs accumulating since the late eighteenth century that has caused a major climate change crisis.

The average overall temperature on Earth has increased by more than 1.2 degrees Celsius since the late 1880s when temperature data started being scientifically documented. The decade of 2011–2020 has been the warmest on record compared to any previous decade. While the year 2023 was the warmest on record, the ongoing 2024 is already showing signs that the planet is getting hotter.

The heating up of the Earth is just the beginning of the devastating effects of wider climate change. These effects include high-intensity heat waves, forest fires, droughts, melting glaciers, floods, rising sea levels, storms, and diminishing biodiversity on land and in the oceans. If one starts documenting catastrophic events since the beginning of the 21st century, one can realize that such events are not just naysayers' frightening future storytelling but have already started happening in reality.

Global warming and climate change have been subjects of intense discussion since the early 1990s. Some research studies have indicated that we must halt and stop the increase in temperature at 1.5 degrees Celsius above pre-industrial levels by 2040, or else face multiple extremely adverse events. The issues of global warming and its wider impacts on climate change are no longer fiction to be recited for our planet's future, as many of the devastating impacts have already begun to be felt.

Global Actions

The United Nations Environment Programme (UNEP) was founded in 1972 following the landmark UN Conference



on the Human Environment, with its objectives to monitor the state of the environment, provide inputs to policy-makers, and consolidate responses to the world's environmental challenges. The UNEP has worked with 193 member states to address and help resolve the challenges posed by global warming and consequent environmental issues.

In 1987, the UNEP organized a meeting in Montreal to address ozone depletion in the stratosphere. The 46 participating countries acknowledged the Montreal Protocol to discuss the use of substances that deplete the ozone layer. These substances, known as ozone-depleting substances (ODSs), include various chemicals such as hydrochlorofluorocarbons (HCFCs), which are used worldwide in refrigeration, air-conditioning, and foam applications.

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The surge in global economic growth since the Industrial Revolution has resulted in a parallel increase in greenhouse gas (GHG) emissions into the Earth's atmosphere. This imbalance impedes the proper transmission of heat back into the cosmos.
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The Nairobi-based Ozone Secretariat at UNEP/Kenya assists and coordinates the ongoing discussions. At the 28th Meeting of the Montreal Protocol Parties held in Kigali, Rwanda, the countries reached an agreement to add HCFCs to the list of controlled substances, approving their gradual reduction by about 80 to 85 percent by the late 2040s. While developed countries were tasked with starting such a reduction in 2019, developing countries should target the same beginning in 2024.

The UNEP and the World Meteorological Organization (WMO) jointly established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC was tasked with preparing a comprehensive review of the scientific evidence about climate change and its socio-economic impact. The First

Assessment Report confirmed that human-induced climate change was a major threat and called for a global treaty to address the problem. The IPCC's technical reports provide information in response to requests from governments and international organizations.

Government members of the United Nations signed the UN Framework Convention on Climate Change (UNFCCC) in 1992 at a meeting held in New York, which came into effect in 1994 with ratification by 198 countries called Parties to the Convention. The primary focus was on addressing the most urgent environmental problems facing life on planet Earth. The UNFCCC aims to prevent "dangerous" human interference with the climate system. The Conference of Parties (COP), an annual

event, serves as the decision-making instrument of the Convention.

The COP is tasked with reviewing the national emission inventories submitted by the Parties and assessing their compliance with achieving the ultimate objective of the Convention. The first COP meeting was held in Berlin in 1995.

Under the third meeting of the COP

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Despite the negative reputation GHGs have garnered, the absence of these gases would lead to the Earth freezing, as they play a crucial role in retaining heat within the atmosphere. The overabundance of GHGs is responsible for precipitating the current climate change crisis.

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(COP3) held in Japan, governments signed the landmark Kyoto Protocol in 1997. The Kyoto Protocol initiated discussions about binding limits on the emission of GHGs and the ensuing costs of implementing a reduction in GHGs. The agreement was based on the principles and provisions of the UNFCCC, adopting the principle of "common but differentiated responsibility and respective capabilities". It places binding and heavier commitments on developed countries since they have contributed disproportionately to the accumulation of GHGs in the atmosphere.

Copenhagen, Denmark, hosted the 2009 United Nations Climate Change Conference, known as the Copenhagen Summit, marked by the 15th meeting of the Conference of the Parties (COP15). The Parties agreed to lim-

Strange, but Haryana doesn't have its own tree act

With green cover on decline, Haryana is gearing up to come up with its own Tree Act similar to the Delhi Tree Preservation Act, 1994. In the absence of a regulatory framework or formal mechanism in the state to curb felling of trees in areas that fall outside notified forests, obtaining clearance from the Forest Department is merely a formality.

Haryana is among states with the lowest green cover in India. Chopping down trees is also rampant in Gurgaon, mostly for construction of housing complexes and expressways. As per one data, the Forest Department receives 300 applications on an average in a month to cut trees in Gurgaon where majority of these applications are granted approval.

As per the then Haryana chief secretary Sanjeev Kaushal, "The urban local bodies (ULB) department is in the process of laying down the framework on a Tree Act for the state with few features of Delhi Tree Preservation Act, 1994, with no timeline to frame the Act."

In Delhi, a person while seeking permission to cut a tree, an individual if permitted has to deposit ₹34,500 with the Forest Department and plant 10 saplings (five by the Forest Department and the remaining be given by the concerned individual). Also, such individual gets back Rs 15,000 after five years when the Forest Department gives an undertaking that the saplings planted are healthy, and surviving.



it global warming not to exceed more than 2 degrees Celsius above pre-industrial levels, to be strengthened later to a more ambitious 1.5 degrees Celsius target after a review in 2015. Countries were expected to outline their specific mitigation pledges by January 2010. An agreement was reached to establish a Green Climate Fund, with developed countries providing \$30 billion to developing countries for their mitigation strategies in 2010-2012 and raising it to \$100 billion per annum through public and private finance by 2020.

In 2015, all UN members adopted Sustainable Development Goals (SDGs) to act on poverty alleviation, protect

the planet Earth, and ensure peace and prosperity for people across the globe by 2030. There are 17 mutually integrated SDGs, such that action on one would affect the results of other goals. Global development must ensure a balance across social, economic, and environmental sustainability. SDG-13 on Climate Action mandates taking urgent action to combat climate change and its impacts. Climate change has a bearing on four other SDGs: SDG-6 on Clean Water and Sanitation, SDG-7 on Affordable and Clean Energy, SDG-11 on Sustainable Cities and Communities, and SDG-12 on Responsible Consumption and Production. Five SDGs

are adversely affected in the absence of responsible global climate protection action, including SDG-1 on No Poverty, SDG-2 on Zero Hunger, SDG-3 on Good Health and Well-Being, SDG-14 on Life Below Water, and SDG-15 on Life on Land.

The year 2015 marked an important milestone with the UN Climate Change Conference of Parties held in Paris, France (COP21). Termed the Paris Agreement, a legally binding international Treaty was signed by 196 Parties in December 2015, which later came into force in November 2016. The aim was to



At COP26 in Glasgow, UK, in November 2021, emergency bells were rung to alert the global community about the less-than-desired achievements in mitigating climate change through effective actions taken by the Parties. The NDCs fell short of the targets. It called for a phase-down (not phase-out) of coal-powered electricity generation and not providing inefficient fossil-fuel subsidies. Developed countries were urged to keep their promise of providing \$100 billion in support to developing countries transitioning to clean energy generation. The phase-down of coal-powered electricity was a subject of intense debate since de-

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The warming of the Earth is merely the onset of devastating effects, encompassing high-intensity heat waves, forest fires, droughts, glacier melt, floods, rising sea levels, storms, and declining biodiversity both on land and beneath the oceans.

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strengthen the global response to the threat of climate change. By the end of the 21st century, the global temperature rise must be limited to below 2 degrees Celsius compared with pre-industrial levels and push for a more ambitious lower limit of 1.5 per cent Celsius. Developed countries are expected to assist developing countries with finance, technology, and capacity building. There would be binding commitments for all to publish respective Nationally Determined Contributions (NDCs) and to pursue achieving these in a timely manner. Transparency requires the Parties to submit their NDCs at five-yearly intervals.

veloping countries would still need this source of power for a longer duration through their green transition.

The more recent Conference of Parties (COPs) meetings were held in Sharm el-Sheikh, COP27 (Egypt) in November 2022, and COP28 in Dubai (UAE) in December 2023. Some of the earlier pledges were reiterated at these events.

COP27 highlighted that the red line must not be crossed, and the world must do its best to contain the temperature hike at 1.5 degrees Celsius. There was an emphasis on establishing a loss and damage fund to help vulnerable countries during climate

catastrophes and a re-emphasis on mobilizing financial support for developing countries.

COP28 highlighted the findings of the first round of stock-taking of what was pledged in the Paris Agreement. Progress has been too slow in terms of reducing GHG emissions, strengthening resilience to climate change, and providing the promised technological and financial support to vulnerable developing countries. Governments were asked to speed up meeting their earlier pledges.

The moral of this discussion is that the danger to the globe posed by warming and the resulting climate change has not been reduced as was wished and pledged in many of the earlier accords.

In its most recent report, the WMO has warned of a high likelihood (80%) that the average global temperature would exceed 1.5 degrees Celsius in at least one of the next five years. The chance of such a breach was close to zero in 2015.

India's Commitments

India committed to the UNFCCC's call to reduce GHG emissions. The Prime Minister's Council on Climate Change released a National Action Plan on Climate Change (NAPCC) on June 20, 2008. The key element of the NAPCC was to achieve sustainable environmental objectives and ensure the high growth rates required to raise the living standards of the vast majority of people.

The NAPCC consists of eight national missions, each being implemented and executed by a different nodal ministry of the central government. Each of these missions is in different stages of evolution:

1. National Solar Mission: Ministry of New and Renewable Energy
2. National Mission for Enhanced Energy Efficiency: Ministry of Power, through the Bureau of Energy Efficiency
3. National Mission on Sustainable Habitat: Ministry of Housing and Urban Affairs
4. National Water Mission: Ministry of Jal Shakti

5. National Mission for Sustaining the Himalayan Ecosystem: Ministry of Science and Technology
 6. National Mission for a Green India: Ministry of Environment, Forest, and Climate Change
 7. National Mission for Sustainable Agriculture: Ministry of Agriculture and Farmers Welfare
 8. National Mission on Strategic Knowledge for Climate Change: Ministry of Science and Technology
- India submitted its first Biennial Update Report (BUR) in January 2016, providing information on the country's national GHG inventory for the year 2010. The BUR-2 was submitted in December 2018, providing information on the GHG inventory for the year 2014. The

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2005 levels

5. Achieving the target of net zero emissions by 2070

Consequently, the Government of India submitted its revised Nationally Determined Contributions (NDCs) to the UN-FCCC in August 2022:

At the COP28 meeting, India reaffirmed its commitment to work together for the common objective of a greener, cleaner, and healthier planet, recognizing that we have One Earth, we are One Family, and we share One future. "India has been at the forefront of supporting action-oriented steps at the global level in response to climate change. We have always held the view that people and the planet are inseparable and that human well-being and Nature are intrinsically linked. In our endeavor to decouple

Revised NDC in 2022	Current Status
1. Reduce the Emissions Intensity of its GDP by 45% by 2030 from the 2005 level	33% reduction in emissions intensity of GDP as of 2019.
2. Achieve about 50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, with the help of the transfer of technology and low-cost international finance, including from the Green Climate Fund (GCF)	45% of installed capacity from non-fossil fuel-based sources as of April 2024.
3. Create an additional carbon sink of 2.5 to 3 billion tonnes of CO2 equivalent through additional forest and tree cover by 2030	1.97 billion tonnes of additional carbon sink as of 2024 (2005 base year).
4. Achieve the target of net zero emissions by 2070	2.83 billion tonnes of CO2 emissions in 2022.

BUR-3 was submitted in February 2021, providing the requisite information for 2016.

Later, India presented five elements (Panchamrit) of its climate action at COP26 in Glasgow (UK) in November 2021:

1. Reach 500 GW of non-fossil energy capacity by 2030
2. 50% of electricity requirements will be from renewable electricity by 2030
3. Reduction of total projected carbon emissions by one billion tonnes from 2021 to 2030
4. Reduction of the carbon intensity of the economy by 45% by 2030 over



economic growth from greenhouse gas emissions, India has successfully reduced the emission intensity vis-à-vis its GDP by 33% between 2005 and 2019, thus achieving the initial NDC target for 2030, 11 years ahead of the scheduled time. India has also achieved 40% of electric installed capacity through non-fossil fuel sources, nine years ahead of the target for 2030. Between 2017 and 2023, India has added around 100 GW of installed electric capacity, of which around 80% is attributed to non-fossil fuel-based resources. We have, therefore, revised our NDCs upwards, indicating our deep commitment towards enhanced climate action." ■