

# Climate objectives and challenges of India's G20 presidency

---

[hindustantimes.com/ht-insight/climate-change/climate-objectives-and-challenges-of-india-s-g20-presidency-101684126606460.html](https://www.hindustantimes.com/ht-insight/climate-change/climate-objectives-and-challenges-of-india-s-g20-presidency-101684126606460.html)

May 15, 2023

## A look at nature-based climate solution

---

ByHindustan Times

**Authored by Kumar Manish and Maharaj K Pandit, assistant professor and professor & dean respectively, OP Jindal Global University.**

---

Most nations in global south are experiencing higher rates of climate warming exposing vast swathes of human population to the attendant risks and hazards. Of particular concern from the climate crisis perspective are the Asia-Pacific and the African regions. Two of the leading world economies located in Asia, China and India, together constitute one-third of global human population. Both nations contribute slightly more than one-third (~34%) of world's greenhouse gas (GhG) emissions, though India merely adds less than one-fourth (~6%) of China's share (27%). The Global Climate Risk Index 2021 by Germanwatch has classified most of the Asia-Pacific region countries in the top 50 list. India ranks 7th in terms of impacts due to climate related hazards and risks and is one of the top five nations having experienced the most intense heat during the past five years. Human fatalities in India caused by heatwaves have increased five-fold from merely 380 to about 1,600 between 2001-2015. Likewise, the Weather-Climate-Catastrophe-Insight Report 2023 has listed top 10 costliest floods between 1900 and 2022 of which 6 occurred in China amounting to economic losses to the tune of \$259 billion with four costliest floods striking between 2010 and 2021 resulting in \$162 billion economic losses. Given these staggering human and economic losses, the climate crisis-related impacts must be humanity's existential mission.



Climate change (Shutterstock/Representative image)

To mitigate the effects of the climate crisis, India has proposed an ambitious target of achieving net zero GhG emissions by the year 2070. India plans to generate 500 gigawatts (GW) of renewable energy coupled with reduction in net reduction in carbon emissions by one billion tonnes by the year 2030 (a laudable slashing by 22%). However, these targets do not inspire much confidence as most countries have repeatedly missed the pronounced targets. Despite promises and proclamations at China's 20th Party Congress in October 2022, and submission before the United Nations Framework Convention on Climate Change (UNFCCC) in November 2021 ahead of COP26 reassuring the world to achieve carbon neutrality 'before 2060', its national determined contribution (NDC) targets are 'highly insufficient'. Equally, China's commitment to reduce its energy dependence on coal notwithstanding, the nation's annual coal output touched the highest-ever figures in 2021 pushing coal consumption up by 4.7% with carbon emissions in 2021 surging by 3.7% in one year. India has also not succeeded in meeting its goal of adding 175 GW of renewable energy to its total power output by 2022 apropos data available from the Central Electricity Authority. India continues to rely on both fossil fuels and renewable energy through direct subsidies, tax breaks, price controls, and other forms of government assistance. Notably, fossil fuel subsidies are nine times more than those for the renewable energy and are mostly directed at petroleum.

Overemphasis on renewable energy sources in mitigating impacts of climate change are beset with problems ranging from financial to spatial resource even social constraints. We propose that instead of this renewables silver bullet approach to achieve climate mitigation targets, it may help to focus on nature-based climate solutions (NBCS) for climate crisis mitigation and adaptation. NBCS involve use of natural ecosystems and forests to reduce GhG emissions, capture and store excess carbon dioxide and support indigenous communities to adapt to climate change related risks such as sea-level rise, flooding, increased frequency of natural hazards such as cyclones, etc. For sequestering carbon, NBCS commonly rely on three routes: (i) protection of intact ecosystems, (ii) restoration of degraded ecosystems, and (iii) sustainable management of existing terrestrial and aquatic ecosystems.

NBCS were one of the key focus areas of discussion at the COP 26 summit in Glasgow in 2021. The estimates of International Union for Conservation of Nature (IUCN) indicate that nature-based solutions have the potential to achieve annual reduction of at least 5 giga-tonnes of carbon dioxide equivalents (GtCO<sub>2</sub>e) of GhG per year by the year 2030. Reports of International Federation of Red Cross and Red Crescent Societies and World Wide Fund for Nature indicate that NBCS can potentially reduce the intensity of climate-related hazards by 26% and help developing nations to save at least \$393 billion by the year 2050. In the Indian context, climate inaction may likely cost \$35 trillion and loss of 3-10% of the country's Gross Domestic Product (GDP) annually by the year 2100.

How do nature-based climate solutions work? Nature-based solutions for climate change mitigation helps to sequester (store) carbon in three forms – blue carbon (carbon stored in ocean and coastal ecosystems), green carbon (carbon stored in plants and soils) and teal carbon (carbon stored in freshwater wetlands). The highest potential in terms of carbon sequestration in India is blue carbon which has been calculated to be 700 million tonnes of carbon dioxide, or around 22% of the country's yearly carbon emissions. Likewise, the potential for green carbon sequestration in India is estimated to be seven billion tonnes of carbon. A United Nation Environment Programme (UNEP) Report has highlighted that over next 75 years, various forest management programmes of Government of India, would additionally result in 1,009 metric tonnes of carbon storage in the form of green carbon. Besides, there are numerous other ecosystem services that can accrue from conservation, restoring and managing green spaces.

To ensure continued assimilation of extra carbon emissions, indigenous nature-based solutions need to be promoted by the states with a focus to conserve, restore and manage native species and natural ecosystems. Successful watershed management projects in India covering 60 million hectares have resulted in soil and water conservation and increased soil organic carbon. In Rajasthan, the success story of Tarun Bharat Sangh is equated with the revival of 11 rivers and establishment of 11,800 johads (small earthen check dams for rainwater harvesting and groundwater recharge) using local indigenous nature-based solutions. Current agricultural operations in India produce about 408 million metric tonnes of carbon dioxide equivalents (MtCO<sub>2</sub>e) with rice, wheat, cotton and sugarcane being the highest contributors. Scientific studies have shown that the implementation of nature-based solutions for three main agricultural practices, namely fertiliser use, zero-tillage, and rice-water management, could reduce GhG emissions by more than 50%. With a considerable push from the Central Government in recent years toward organic and natural farming, India could potentially reduce GhG emissions by nearly 20-22%.

A fresh policy initiative must embrace integration of nature-based climate solutions as a critical and crucial component in the National Action Plan on Climate Change (NAPCC) of the Government of India. Of the eight national missions under NAPCC, nature-based solutions can be weaved into at least six missions, namely National Mission on Sustainable Habitat, National Water Mission, National Mission for Sustaining the Himalayan Ecosystem, National Mission for a Green India, National Mission for

Sustainable Agriculture and National Mission on Strategic Knowledge for Climate Change. Funds for this purpose may be allocated through the already existing flagship environmental programmes such as largely underutilized Compensatory Afforestation Funds, National Adaptation Fund for Climate Change and National Coastal Management Fund. Innovative fund utilisation under the Mahatma Gandhi National Rural Employment Guarantee Act can be an effective pathway for various nature-based climate solutions to mitigate the climate crisis. Lastly, looking for opportunities to integrate nature-based climate solutions in various policies, programmes, and planning documents can aid in accelerating its adoption within the framework for public investment.

India can lead the way in promoting nature-based climate solutions globally as a major part of climate change mitigation strategies.

*Authored by Kumar Manish and Maharaj K Pandit assistant professor and professor & dean respectively, Jindal School of Environment & Sustainability, OP Jindal Global University.*