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## Role of Forest in Climate Change

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This article is based on editorial “Turning down the heat: on forest restoration”, which appeared in The Hindu on 11 July 2019. It talks about the role of forest in climate change mitigation.

Forest has an enormous potential in mitigating climate change through forest restoration. **Trees and other vegetation fix carbon as part of photosynthesis and soil too holds organic carbon from plants and animals.** The amount of soil carbon varies with land management practices, farming methods, soil nutrition and temperature.

Recently, a study has estimated that it is possible to add 0.9 billion hectares of canopy cover worldwide which can then mitigate up to two-thirds of historical greenhouse gas emissions. This would then prevent or delay the worst impacts of climate change. But forest restoration always remains on the back burner in global as well as national policy matters.

During the run-up to the Paris climate change meeting in 2015 (COP-21) under the United Nations Framework Convention on Climate Change, each country decided the level and kind of effort it would undertake to solve the global problem of climate change through Nationally determined contributions (NDCs).

### **India's INDC, to be achieved primarily, by 2030**

- To reduce the emissions intensity of the GDP by about a third.
- A total of 40% of the installed capacity for electricity will be from non-fossil fuel sources.
- India also promised an additional carbon sink (a means to absorb carbon dioxide from the atmosphere) of 2.5 to 3 billion tonnes of carbon dioxide equivalent through additional forest and tree cover by the year 2030.

Though in a recent study, the Forest Survey of India (FSI) has estimated, along with the costs involved, the opportunities and potential actions for additional forest and tree cover to meet the NDC target.

- Apart from the direct impact of forest on climate mitigation, its other benefits in support of both people and nature are considerable:
  - Globally, 1.6 billion people (nearly 25% of the world's population) rely on forests for their livelihoods, many of whom are the world's poorest.
  - Forests provide US\$ 75–100 billion per year in goods and services such as clean water and healthy soils.
  - Forests are home to 80% of the world's terrestrial biodiversity.
- Therefore, the additional increase in carbon sinks, as recommended in this report, is to be achieved in the following ways:
  - Restoring impaired and open forests
  - Afforesting wastelands
  - Agroforestry
  - Through green corridors
  - Plantations along railways, canals, other roads, on railway sidings and rivers
  - Urban green spaces
- The FSI study concludes that if 70% of impaired forests is restored. The total increase in the carbon sink will amount to 3.39 billion tonnes of CO<sub>2</sub> equivalent by 2030, at would cost around ₹2.46 lakh crore.

## Natural Forests

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- India has yet to determine how its carbon sink objectives can be met.
- Locking up the carbon from the atmosphere in trees, ground vegetation and soils is one of the safest ways with which to remove carbon.
- Natural Forests improve water quality, store water in wetlands, prevent soil erosion, protect biodiversity, and potentially provide new jobs.
- According to the estimates, allowing land to be converted into forests naturally will sequester 42 times the carbon compared to land converted to the plantation, or six times for land converted to agroforestry.
- Forms of green cover like plantations, do not mitigate climate change and also do not improve biodiversity or provide related benefits.

## Type of Restoration

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The amount of carbon stored depends on the type of forest restoration carried out.

- Vast monocultures of plantations are being proposed in some countries, including in India, but these hold very little carbon; when they are harvested, carbon is released as the wood is burned.

- India, therefore, needs to ensure that deforestation is curtailed to the maximum extent. Also, the area allocated to the restoration of impaired and open forests and wastelands in the FSI report should be focussed entirely on natural forests and agroforestry.
- Once natural forests are established, they need to be protected.
- Instead of plantations, growing food forests managed by local communities would have additional co-benefits. Active forest management by local people has a long history in India and needs to expand to meet climate, environment and social justice goals.

## What can be done globally?

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- Initiating and supporting international efforts to combat forest loss and degradation, including those under the **New York Declaration on Forests** to halve global natural forest loss by 2020, and end it by 2030.
- Driving the restoration of 150 million hectares of degraded landscapes and forest lands by 2020 and 350 million hectares by 2030 through the Bonn Challenge.  
Reaching the 350 million hectare target could sequester up to 1.7 gigatonnes of carbon dioxide equivalent annually.
- **Enabling rights-based land use** ensures **community involvement** in land-use outcomes.  
**Strengthening community control over forests** will also help to alleviate poverty, empower women and men, enhance biodiversity, and sustainably manage forests.
- Engaging the private sector and striving to make sure benefits – such as those from Reducing Emissions from Deforestation and Forest Degradation (REDD+) – are equitably shared with local landowners and forest communities.

Forests are one of the most important solutions to addressing the effects of climate change. Approximately 2.6 billion tonnes of carbon dioxide, one-third of the CO<sub>2</sub> released from burning fossil fuels, is absorbed by forests every year. Therefore increasing and maintaining forests is an essential solution to climate change.

### ***Drishti Input:***

Climate adaptation needs to be equally accompanied by climate mitigation. Discuss the statement in light of the role played by the forest in mitigating climate change?