

## Climate Action

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From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale. And according to the United Nations, without drastic action today, adapting to these impacts in the future, will be more difficult and costly. We know that the Greenhouse gases occur naturally and are essential to support life, by keeping some of the sun's warmth from reflecting back into space and making Earth livable. However, anthropogenic activities, mainly, deforestation and industrialization have upset the balance. India as a party to the United Nations Framework Convention on Climate Change is required to periodically communicate the greenhouse gas inventory for all the sectors as National Communication and we are doing it since 2004. As per the recent report to the UNFCCC, emission from India stood at 2607.49 million tonnes of carbon equivalent. Out of the total emissions, energy sector accounted for 73%, industrial processes, 8%, agriculture 16%, waste sector 3% and Land Use, Land Use Change and Forestry sector contributed 12% of the total emissions. Emissions recorded from the forestry sector comes from deforestation and forest degradation. Apart from this international reporting, periodic assessment of forest carbon is an indicator of ecosystem services from forests. We know forests play an important role in mitigation and adaptation to climate change and carbon sequestration by forests has attracted much attention globally as it is a relatively inexpensive method of mitigation of climate change. According to a report by FAO, the world's forests, store an estimated 296 Gt of carbon. Globally over the past 25 years, the carbon stock in forest biomass has decreased by almost 17.4 Gt, equivalent to a reduction of 697 million tons per year. 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.

Forest Survey of India, in 2019, has reported the carbon stock in India's forests as 7124.6 million tons. Arunachal Pradesh has the maximum carbon stock of 1051.32 million tonnes followed by Madhya Pradesh (588.73), Chhattisgarh (480.25) and Maharashtra (440.51) million tonnes of carbon. Though the southern states of Karnataka, Andhra Pradesh, Tamil Nadu and Kerala were among the four top ranked states, in terms of tree diversity, they were at 7<sup>th</sup>, 11<sup>th</sup>, 12<sup>th</sup> and 13<sup>th</sup> positions in terms of carbon stock among the 36 states and Union Territories in India. The per hectare carbon stock at the national level is 100.03 tonnes and only 11 states and UTs could record a carbon stock above the national average and Kerala with 100.72 tonnes is the only south Indian state with a carbon stock above the national average. Sikkim has the maximum per hectare carbon stock of 171.04 tonnes followed by Andamans 167.09 tonnes. Apart from estimating the total carbon stock in India as 7124.6 million tonnes, the Forest Survey of India has also reported an annual increase in carbon stock to the tune of 21.3 million tons. The positive trend is encouraging and we, the citizens of India are bound to grow more trees to combat climate change. Estimates show that nearly two billion hectares of degraded land across the world, offer opportunities for restoration.

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