

‘Need to preserve Western Ghats’

Snehal Fernandes

4-5 minutes

With the Western Ghats traversing Kerala, Tamil Nadu, Karnataka, Goa, Maharashtra, and Gujarat, 11% of the carbon emissions from these six states, and 1.62% of India’s total emissions are sequestered by the forests in this green zone. These figures were part of a new study led by the Bengaluru-based Indian Institute of Science (IISc).

The study ‘Carbon Sequestration Potential of the Forest Ecosystems in the Western Ghats, a Global Biodiversity Hotspot’ was published last week in *Natural Resources Research*, an international peer-reviewed journal of the International Association for Mathematical Geosciences.

It stressed the importance of conserving this fragile ecosystem which plays an important role in moderating the global climate.

The two-member IISc team found that the forest ecosystem of the Western Ghats – one of 36 global biodiversity hotspots – stores 1,230 million tonnes of carbon in vegetation and soil worth 100 billion (\$1.4 billion at \$30 per tonne of carbon).

Each year, there is an annual increase of 37.5 million tonnes of carbon across the states that fall under the region. Researchers said that assessment of the Western Ghats’ potential to sequester carbon is important in the backdrop of India’s commitment to reduce emissions by 33%-35% by 2030, during the Paris Climate Change Agreement.

India currently emits 7% of the world’s total greenhouse gas emissions, and is the fourth-highest carbon emitter after China (27%), USA (15%) and the European Union (10%).

“Even though the Western Ghats constitute only 5% of the country’s geographical area, the region has been of tremendous help in the global scene,” said TV Ramachandra, principal investigator and professor at the Centre for Ecological Sciences (CES), IISc. “India needs to showcase the Western Ghats as an asset.”

The study found that large-scale changes in land use and deforestation in the Ghats over the last 33 years led to a decline in the evergreen forest cover; increase in average temperature by 0.5 degree Celsius, and decline in the number of rainy days.

Researchers have estimated that continued decline of forest cover due to land-use changes between 2018 and 2031 will erode the sequestration potential of 23 million tonnes of carbon.

“The woody biomass, roots, and microbes in the soil capture and store carbon. At present, most of the carbon sequestration occurs in Karnataka (central) and Kerala (southern) part of the Western Ghats. Maharashtra, which falls under the northern part, has a good degree of sequestration but also has a high rate of deforestation owing to development,” said Bharath Setturu, co-author and a professor, CES.

“Western Ghats provide food security to peninsular India as the Himalayas do for north India. Forests, also, play a decisive role in sustaining water,” said Ramachandra. “Our earlier studies showed that water is available in streams through the year when forests have native trees; for six to eight months with monoculture plantations, and four months where landscape is degraded.”

Changes in land use have also played a role in moderating the microclimate in the region, in terms of temperature increase and reduction in rainy days.

The study found that in the last century, temperatures along the coast rose by 0.31-1.1 degrees Celsius; 0.1-1.0 degrees Celsius in the Ghats, and 0.1-0.8 degrees Celsius in transition zones.

“The reduction in rainfall and increase in temperature can affect carbon stock in the region. Fixed soil carbon can be released into the atmosphere due to land-use change and an increase in temperature,” stated the study.