

Western Ghats forest cover vital for Tamil Nadu's South-West monsoon rainfall

Researchers have found one more reason why urgent steps have to be taken to stop deforestation in the Western Ghats. | Photo Credit: [The Hindu](#)

Researchers have found one more reason why urgent steps have to be taken to stop deforestation in the Western Ghats. The dense vegetation in the Western Ghats determines the amount of rainfall that Tamil Nadu gets during the summer monsoon.

A team led by Prof. Subimal Ghosh from the Department of Civil Engineering at the Indian Institute of Technology (IIT) Bombay has found that dense forests of the Western Ghats contribute as much as 40% of moisture to the southwest monsoon rainfall over Tamil Nadu during normal monsoon years. The average contribution is 25-30%. But during monsoon deficit years, the contribution increases to as high as 50%.

The study found the forests of Western Ghats contribute as much as 3 mm per day of rainfall during August and September over a "majority of locations" in Tamil Nadu and 1 mm per day during June and July.

The [study published](#) in the journal *Geophysical Research Letters* also found that deforestation of the Ghats led to 0.25 degree C increase in surface temperature across the State. The work was done in collaboration with Prof. Raghu Murtugudde of University of Maryland and Dr K. Rajedran from CSIR-Fourth Paradigm Institute (CSIR-4PI), Bangalore.

To study the role of vegetation cover in the Western Ghats in supplying moisture to the southwest monsoon rainfall, the researchers used models to compare the contribution of Western Ghats with and without the forest cover.

The researchers found a significant drop in rainfall in the range of 1-2.5 mm per day when the vegetation cover was removed from the Western Ghats. This translates to an average of 25% of the total monsoon rainfall over Tamil Nadu. But only small parts of Kerala get affected by deforestation in Western Ghats.

The team selected three years (1993, 1999, and 2002) when Tamil Nadu experienced extreme deficit in summer monsoon rainfall. They found that deforestation over Western Ghats reduced rainfall over the State by 40-50% during all the three years. "The effect of deforestation is more during the deficit years than monsoon surplus years," says Supantha Paul from IIT Bombay and first author of the paper. "During the three extremely monsoon deficit years studied, we found Tamil Nadu gained the most from vegetation in Western Ghats. If there is no vegetation in the Ghats then Tamil Nadu will be severely impacted especially during the monsoon-deficit years."

The forest cover in the Ghats acts as a capacitor for moisture supply to Tamil Nadu. During the break period during the monsoon season when there is sharp decrease or no rainfall for three consecutive days, the impacts of deforestation in the Ghats on the rainfall over Tamil Nadu is higher compared with the wet spell of the monsoon period.

While the decline in rainfall during the break period is widespread across the State, during the wet spells the contribution of vegetation in the Ghats to rainfall is mostly over the southern part of the State and is 25-30%. "The Western Ghats acts as a capacitor. The forest land and vegetation gets recharged with water during the wet spell and during the break periods moisture is released and which contributes to rainfall to the State," says Prof. Ghosh.

The researchers also crosschecked the role of vegetation in supplying moisture to southwest monsoon rainfall by tracking the source of the moisture. The results of this were consistent with the model with and without vegetation. So the results were not coincidental," says Prof. Ghosh.

Receive the best of The Hindu delivered to your inbox everyday!

Please enter a valid email address.

Three interesting happenings in the world of science from the week gone by: Why men have a thing for blondes; a mutant to fight plastic waste pollution; and an eye in the sky looking for life.

END

Downloaded from **crackIAS.com**

© **Zuccess App** by crackIAS.com

crackIAS.com