

## Remote sensing data shows massive diversion of forest land in Munnar

Thousands of hectares of forest land in Munnar, one of the world's greatest biodiversity hotspots, have disappeared, remote sensing data shows



The remote sensing data also shows a massive increase in areas under plantations, agriculture and urban settlements while substantial reduction in open areas in Munnar. Photo: iStockphoto

**Bengaluru:** Thousands of hectares of forest land in a region of Kerala that is one of the world's greatest biodiversity hotspots have disappeared, remote sensing data shows.

Data obtained by two researchers working on a project at the Indian Institute of Science (IISc) shows 7.71%—or 13,638.43 hectares—of forest land in Devikulam revenue taluk in the western ghats just don't exist anymore.

The data, accessed by Ramkrishnan Ramabhadran, an assistant professor at Coimbatore-based Amrita School of Engineering, and T.V. Ramachandra, head of the Center for Ecological Studies at IISc in Bengaluru, has been reviewed by *Mint*.

## THE VANISHING FORESTS OF MUNNAR

Kerala's Munnar, blessed with lush greenery, is under threat from encroachment. Remote sensing data shows 7.71% of what was a forest area in 1973 in Devikulam-- the revenue block of which Munnar and some surrounding panchayats are part of-- is not a forest anymore. For perspective, the rate of forest depletion for overall Kerala between 1980 and 2016 is only 3.6%, which in itself is the third highest proportion of forest land diversion among Indian states. The data shows 13638.43 hectares (136.38 sq km) of forest land in and around one of the greatest biodiversity hotspots on earth, Western Ghats, just don't exist anymore.



Description	Area (in Sq Km)		Difference (in sq km)	% Area Covered		Difference (in %)
	1973	2016		1973	2016	
Forest Cover	1,474.6428	<b>1,338.25855</b>	-136.38	83.38	<b>75.67</b>	-7.71
Plantations	75.024	<b>134.6109</b>	59.59	4.24	<b>7.61</b>	3.37
Agricultural Land	91.8828	<b>200.67664</b>	108.79	5.2	<b>11.35</b>	6.15
Water Bodies	5.3028	<b>31.18839</b>	25.88	0.3	<b>1.76</b>	1.46
Urban Area	0.3672	<b>50.02652</b>	49.66	0.02	<b>2.83</b>	2.81
Open Area	121.3488	<b>13.77851</b>	-107.57	6.86	<b>0.78</b>	-6.08
<b>Total</b>	<b>1,768.5684</b>			<b>100</b>		

\*Increased due to construction of Dams/Analysed images are of different seasons

Source: Data and maps from public-funded Landsat satellites in the US, obtained by Mint after a special request made to researchers Ramkrishnan Ramabhadran and TV Ramachandra who are studying Kerala's forest loss and drought situation using remote sensing data at IISc.

For perspective, the rate of forest depletion for all of Kerala between 1980 and 2016 was 3.6%—the third-highest proportion of forest land diversion among Indian states.

The denuded area discovered by satellites is near the tourist resort of Munnar, a hilly region that plays a crucial role in Kerala's forest ecology.

Last week, the state government put a pause on eviction drive to clear encroachments in Munnar, which created an uproar.

Spanning about 19,239 sq km, forests form almost half of the state's total area.

Idukki district, which includes Munnar, tops the state's districts in forest cover (3,770 sq km) and Devikulam accounts for more than one-third of this. There are three national parks in the area, and three rivers originate here.

The remote sensing data also shows a massive increase in areas under plantations, agriculture and urban settlements while substantial reduction in open areas in Munnar. The data substantiates official reports of rampant encroachment that has facilitated the emergence of Munnar as a top tourist destination—the single biggest reason for the degradation of the region's biodiversity.

Land use changes at this scale underline the failure of regulatory mechanisms to prevent encroachment, said Harish Vasudevan, lawyer and environmental activist based in Kerala.

Ironically, he said, it should be harder to build anything in Munnar than anywhere else in Kerala.

About 86,000 hectares in Munnar and Cardamom Hill Reserve is forest land, as identified by a special committee constituted of



Besides, construction in the region is supposed to be only allowed for two purposes—agriculture and residential use, which itself requires sanctions all the way up from panchayat to the revenue department. Apart from these, from time to time, authorities impose further curbs like a bar on building more than three storeys.

All of this, however, exists only on paper.

Hundreds of huge construction projects have cropped up in the area, violating all norms. In 2005, an empowered committee appointed by the Supreme Court visited Munnar and discovered hundreds of forged title deeds, made to encroach forest lands. The violators included then parliamentarians, relatives of ministers and political leaders.