

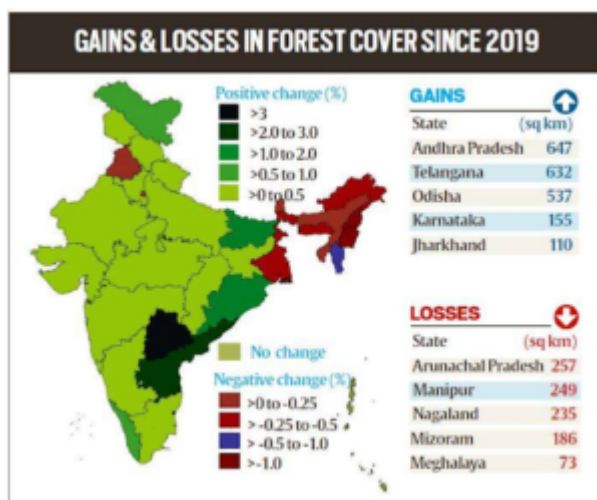
# India State of Forest Report, 2021

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**In news**– Forest Survey of India, Ministry of Environment Forest and Climate Change has published the India State of Forest Report, 2021 recently.

## **Key highlights of the report-**

- Published **biennially**, the report is an assessment of the forest and tree resources of the country.
- **The first survey was published in 1987, and ISFR 2021 is the 17th.**
- The ISFR-2021 provides information on forest cover, tree cover, mangrove cover, growing stock, carbon stock in India's forests, forest fire monitoring, forest cover in tiger reserve areas, above ground estimates of biomass using SAR data & climate change hotspots in Indian forests.
- The **forest and tree cover of the country is 80.9 million hectares** which is **24.62 percent** of the geographical area of the country.



- **As compared to the assessment of 2019, there is an increase of 2,261 sq km in the total forest and tree**

### **cover of the country.**

- Out of this, the increase in the forest cover has been observed as 1,540 sq km and that in tree cover is 721 sq km.
- While ISFR 2021 has shown an increasing trend in forest cover overall, the trend is not uniform across all kinds of forests.
- **Three categories of forests are surveyed** – very dense forests (canopy density over 70%), moderately dense forests (40-70%) and open forests (10-40%). Scrubs (canopy density less than 10%) are also surveyed but not categorised as forests.
- Increase in forest cover has been observed in open forest followed by very dense forest.
- **Area-wise Madhya Pradesh has the largest forest cover** in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
- **In terms of forest cover as percentage of total geographical area, the top five States are Mizoram (84.53%), Arunachal Pradesh (79.33%), Meghalaya (76.00%), Manipur (74.34%) and Nagaland (73.90%).**
- As per report, 17 states/UT's have above 33 percent of the geographical area under forest cover .
- Out of these states and UT's, five states/UTs namely **Lakshadweep, Mizoram, Andaman & Nicobar Islands, Arunachal Pradesh and Meghalaya have more than 75 percent forest cover.**
- **Total carbon stock in the country's forest** is estimated to be 7,204 million tonnes and there is an increase of 79.4 million tonnes in the carbon stock of the country as compared to the last assessment of 2019. **The annual increase in the carbon stock is 39.7 million tonnes.**
- The report estimates that by **2030, 45-64% of forests in India will experience the effects of climate change and rising temperatures,** and forests in **all states (except Assam, Meghalaya, Tripura and Nagaland) will be highly vulnerable climate hot spots.** Ladakh (forest cover

0.1-0.2%) is likely to be the most affected.

- **India's forests are already showing shifting trends of vegetation types**, such as Sikkim which has shown a shift in its vegetation pattern for 124 endemic species.
- **The assessment of the report is based on interpretation of LISS-III data from Indian Remote Sensing satellite data (Resourcesat-II) with a spatial resolution of 23.5 meters with the scale of interpretation 1:50,000 to monitor forest cover and forest cover changes at District, State and National level.**

### **Mangroves-**

- **Total mangrove cover in the country is 4,992 sq km and an increase of 17 sq Km in mangrove cover** has been observed as compared to the previous assessment of 2019.
- **Top three states showing mangrove cover increase are Odisha (8 sq km) followed by Maharashtra (4 sq km) and Karnataka (3 sq km).**

### **Forest fires-**

- **In 2019-20, 1.2 lakh forest fire hotspots** were detected by the SNPP\_VIIRS sensor, which increased to 3.4 lakh in 2020-21.
- **The highest numbers of fires were detected in Odisha, Madhya Pradesh and Chhattisgarh.**

### **Assessment of tiger reserves-**

- **In the present ISFR 2021, FSI has included a new chapter related to the assessment of forest cover in the Tiger Reserves, Corridors and Lion conservation area of India.**
- It has found that the forest cover in tiger corridors has increased by 37.15 sq km (0.32%) between 2011-2021, but decreased by 22.6 sq km (0.04%) in tiger reserves.
- **Buxa (West Bengal), Anamalai (Tamil Nadu) and Indravati**

**reserves (Chhattisgarh) have shown an increase in forest cover.**

- **The highest losses have been found in Kawal** (Telangana), Bhadra (Karnataka) and the Sundarbans reserves (West Bengal).
- Pakke Tiger Reserve in Arunachal Pradesh has the highest forest cover, at nearly 97%.

### **Other assessments-**

- FSI, in collaboration with Space Application Centre (SAC), ISRO, Ahmedabad, initiated a **special study for estimation of Above Ground Biomass (AGB) at pan-India level**, using L- band of Synthetic Aperture Radar (SAR) data.
- **FSI in collaboration with Birla Institute of Technology & Science (BITS) Pilani**, Goa Campus has performed a study based on **'Mapping of Climate Change Hotspots in Indian Forests'**, using computer model-based projection of temperature and rainfall data, for the three future time periods i.e. year 2030, 2050 and 2085.
- **Special thematic information on forest cover** such as hill, tribal districts, and north eastern region has also been given separately in the report.

### **Concerns-**

- A **1,582 sq km decline in moderately dense forests, or "natural forests"** is worrisome.
- **The decline, in conjunction with an increase of 2,621 sq km in open forest areas – shows a degradation of forests in the country**, with natural forests degrading to less dense open forests.
- Scrub area has increased by 5,320 sq km, indicating the complete degradation of forests in these areas.
- The Northeast states account for 7.98% of total geographical area but 23.75% of total forest cover.
- The forest cover in the region has shown an overall

decline of 1,020 sq km in forest cover.

- While states in the Northeast continue to have some of the largest forested areas, such as Mizoram (84.5% of its total geographical area is forests) or Arunachal Pradesh (79.3%), the two states have respectively lost 1.03% and 0.39% of their forest cover, while Manipur has lost 1.48 %, Meghalaya 0.43%, and Nagaland 1.88%.

### **Forest Survey of India-**

- FSI is a premier national organization under the union Ministry of Environment and Forests, responsible for assessment and monitoring of the forest resources of the country regularly.
- Established on June 1, 1981, the Forest Survey of India succeeded the “Pre Investment Survey of Forest Resources” (PISFR), a project initiated in 1965 by the Government of India with the sponsorship of FAO and UNDP.
- The main objective of PISFR was to ascertain the availability of raw material for establishment of wood based industries in selected areas of the country.
- In its report in 1976, the National Commission on Agriculture (NCA) recommended the creation of a National Forest Survey Organization for a regular, periodic and comprehensive forest resources survey of the country leading to creation of FSI.