

INDIA STATE OF FOREST REPORT 2019

INTRODUCTION:

Every two years, Forest Survey of India (FSI) undertakes assessment of country's forest resources, the results of which are presented as the 'India State of Forest Report (ISFR)'. Since 1987, 15 such assessments have been completed and the current assessment is the 16th in the series. Based on the regular nation-wide mapping of forest cover, sample plots based national forest inventory and the specific studies conducted at the national level, the information presented in the ISFR 2019 is primary information on different parameters of the forest resources of the country.

FINDINGS:

A. Forest Cover:

- The total forest cover of the country is 7,12,249 sq km which is 21.67% of the geographical area of the country.
- The tree cover of the country is estimated as 95,027 sq km which is 2.89% of the geographical area.
- The total Forest and Tree cover of the country is 8,07,276 sq km which is 24.56% of the geographical area of the country.
- The current assessment shows an increase of 3,976 sq km (0.56%) of forest cover, 1,212 sq km (1.29%) of tree cover and 5,188 sq km (0.65%) of forest and tree cover put together, at the national level as compared to the previous assessment i.e. ISFR 2017.
- Forest cover within the RFA/GW has shown a slight decrease of 330 sq km (0.05%) whereas there is an increase of 4,306 sq km of forest cover outside the RFA/GW as compared to previous assessment of 2017.
- The top five States in terms of increase in forest cover are Karnataka (1,025 sq km), Andhra Pradesh (990 sq km), Kerala (823 sq km), Jammu & Kashmir (371 sq km) and Himachal Pradesh (334 sq km).
- Very Dense Forest has increased by a mere 1.4% between 2017 and 2019.

Forest Cover: The country's forest cover includes all patches of land with a tree canopy density of more than 10% and more than 1 ha in area, irrespective of land use, ownership and species of trees.

Very Dense Forest: A canopy density more than 70%.

Moderately Dense Forest: A canopy density between 40-70%.

Open Forest: A canopy density between 10-40%.

Tree cover: includes all patches of trees less than 1 ha.



- The **total forest cover in the tribal districts is 4,22,351 sq km**, which is **37.54% of the geographical area of these districts**. The current assessment shows a **decrease of 741 sq km of forest cover** within the RFA/GW in the tribal districts and an increase of 1,922 sq km outside.
- Total forest cover in the North Eastern region is 1,70,541 sq km, which is 65.05% of its geographical area. The current assessment shows a decrease of forest cover to the extent of 765 sq km (0.45%) in the region. Except Assam and Tripura, all the States in the region show decrease in forest cover.

TABLE 1 Forest and Tree cover of India in 2019

Class	Area (sq km)	Percentage of Geographical Area
Forest Cover		
Very Dense Forest	99,278	3.02
Moderately Dense Forest	3,08,472	9.38
Open Forest	3,04,499	9.26
Total Forest Cover*	7,12,249	21.67
Tree Cover	95,027	2.89
Total Forest and Tree Cover	8,07,276	24.56
Scrub	46,297	1.41
Non-Forest†	25,28,923	76.92
Total Geographic Area	32,87,469	100.00

* Includes 4,975 sq km under Mangrove Cover

† Non-forest includes Tree Cover (Percentage rounded off)

B. Mangrove Cover:

- Mangrove cover in the country **has increased by 54 sq km (1.10%)** as compared to the previous assessment.

C. Growing Stock:

- The total growing stock of wood in the country is estimated 5,915.76 million cum comprising 4,273.47 million cum inside forest areas and 1,642.29 million cum outside recorded forest areas (TOF).
- The average growing stock per hectare in forest has been estimated as 55.69 cum.

D. Carbon Stock in the forest:

- In the present assessment, **total carbon stock** in forest is estimated as **7,124.6 million tonnes**.
- There is an **increase of 42.6 million tonnes in the carbon stock** of the country as compared to the last assessment of 2017.
- The annual increase is 21.3 million tonnes, which is 78.1 million tonnes CO₂ eq.
- **Soil Organic Carbon (SOC) represents the largest pool of carbon stock** in forests, which has been estimated 4,004 million tonnes.
- The **SOC contributes 56% to the total forest carbon stock** of the country.

E. Wetlands:

- There are **62,466 wetlands** covering **3.83% of the area within the RFA/GW** of the country.
- The total number of wetlands located within the RFA/GW is 8.13%.
- Amongst the States, **Gujarat has largest area of wetlands** within RFA in the country followed by West Bengal.

Growing Stock:

Volume of all living trees in a given area of forest or wooded land that have more than a certain diameter at breast height.

Carbon Stock:

Forest carbon stock is the amount of carbon that has been sequestered from the atmosphere and is now stored within the forest ecosystem.



F. Forest and People:

- Dependence of fuelwood on forests is highest in the State of Maharashtra, whereas, for fodder, small timber and bamboo, dependence is highest in Madhya Pradesh.
- It has been assessed that the annual removal of the small timber by the people living in forest fringe villages is nearly 7% of the average annual yield of forests in the country.

G. Forest Fires:

- 3.89% areas is extremely fire prone, 6.01% is very highly fire prone and 11.50% is highly fire prone.
- Together this make around **21.40% forest area as fire prone**. Mizoram has had the highest number of fire alerts.

H. Tree Cover and Trees Outside Forest:

- The **total tree cover** of the country has been estimated **95,027 sq km**.
- There is an **increase of 1,212 sq km** in the extent of tree cover as compared to the 2017 assessment.
- The State having **maximum tree cover is Maharashtra (10,806 sq km)** followed by Madhya Pradesh (8,339 sq km), Rajasthan (8,112 sq km) and Jammu & Kashmir (7,944 sq km).
- Considering the percentage of geographical area of State/UTs, the Union Territory of Chandigarh shows highest percentage of tree cover (22.34%) followed by Delhi (8.73%), Kerala (7.56%), and Goa (7.34%).

I. Forest Types in India:

- In the current ISFR, a new chapter 'Forest Types and Biodiversity' has been added which presents findings of the **forest type mapping based on Champion & Seth classification (1968)** and the results of the first ever rapid biodiversity assessment of plant species in **the 16 Forest Type Groups**.
- In forest types, Tropical Dry Deciduous Forests group covers the largest area, 40.86% of the total forest area, followed by Tropical Moist Deciduous Forest with 17.65% and Tropical Semi-Evergreen Forest with 9.27% area.

J. Biodiversity in Indian Forests:

- In ISFR 2019, FSI has attempted assessing biodiversity in forests in India.
- The State of Karnataka has maximum species richness for trees, Arunachal Pradesh has maximum species richness for shrubs and Jammu & Kashmir has maximum species richness for herbs.
- The **State of Arunachal Pradesh has the maximum richness of species when all the three types of plants are taken into account**, followed by Tamil Nadu and Karnataka.

Tree Cover: Tree cover is defined as all tree patches of size less than 1 ha occurring outside the recorded forest area.

Trees Outside Forest (TOF):

Though TOF and tree cover appear as similar terms, but they are two different entities. TOF refers to all trees growing outside recorded forest area (RFA) irrespective of patch size which could also be larger than 1 ha.

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