Key highlights

India State of Forests Report-2023

Contents

INDIA STATE OF FOREST REPORT(ISFR) – 2023

1. About the report

- **Released by:** Ministry of Environment, Forest and Climate Change (MoEFCC)
- The report is an assessment of India's forest and tree cover, which is published every two years by the Forest Survey of India under the MoEFCC.
- The first survey was published in 1987, and this is the 18th edition.
- It carries out an in-depth assessment of the forest and tree resources of the country based on interpretation of Remote Sensing satellite data and field based National Forest Inventory (NFI).

The Forest Survey of India has listed four categories of forests which are:

- **Very Dense Forest** (with tree canopy density of 70% or above)
- **Moderately Dense Forest** (tree canopy density of 40% or above but less than 70%)
- **Open Forest** (tree canopy density of 10% or above but less than 40%)
- **Scrub** (tree canopy density less than 10%)

DID YOU KNOW

National Forest Policy, 1988 provides for having a **minimum of 1/3rd** of total land area of country under forest or tree cover as a national goal.

1.1 Major Findings of ISFR 2023

- **Forest and Tree Cover:** The total forest and tree cover of India stands at **8,27,357 sq km**, accounting for 25.17% of the country's geographical area. This includes **7,15,343 sq km (21.76%)** as forest cover and **1,12,014 sq km (3.41%)** as tree cover.
- **States with High Forest Cover:** 19 states/UTs have more than 33% of their geographical area under forest cover.
- Among these, 8 states/UTs—Mizoram, Lakshadweep, Andaman & Nicobar Islands, Arunachal Pradesh, Nagaland, Meghalaya, Tripura, and Manipur—have over 75% forest cover.
- **Increase in Forest and Tree Cover:** There has been a total increase of 1,445 sq km in forest and tree cover, comprising 156 sq km of forest cover and 1,289 sq km of tree cover.
- The **northeastern states continued to record a declining trend in forest cover. Only Mizoram recorded an increase of 178 sq km.**
- An assessment of forest cover **across the Western Ghats was done for the first time.** It showed that the area earmarked as eco-sensitive by the **Centre lost 58.22 sq km of forest cover since 2013.**

1.2 Top Contributors

- **Maximum Increase in Forest and Tree Cover:** Chhattisgarh, Uttar Pradesh, Odisha, and Rajasthan.
- **Maximum Increase in Forest Cover:** Mizoram, Gujarat, and Odisha.
- **Largest Forest and Tree Cover (Area-wise):** Madhya Pradesh, Arunachal Pradesh, and Maharashtra.
- **Largest Forest Cover (Area-wise):** Madhya Pradesh, Arunachal Pradesh, and Chhattisgarh.

1.3 Carbon stock

- The country's forest carbon stock is estimated at **7,285.5 million tonnes**, with an increase of 81.5 million tonnes compared to 2021.

- Arunachal Pradesh (1,021 Mt) followed by Madhya Pradesh (608 Mt), Chhattisgarh (505 Mt) and Maharashtra (465 Mt).
- India's carbon stock has reached **30.43 billion tonnes of CO2 equivalent,** exceeding the 2005 base year by 2.29 billion tonnes, nearing the 2030 target of 2.5–3.0 billion tonnes.

1.4 Comparison of data

Properties	ISFR 2023	ISFR 2021
Total Forest and Tree Cover	**25.17% (8,27,357 sq km)**	**24.62%**
Net Forest Cover	**21.76% (7,15,343 sq km)**	**21.71%**
Net Tree Cover	**3.41% (1,12,014 sq km)**	**2.91%**
Total Mangrove Cover	**4,992 sq km**	**4,999 sq km**

CHANGE IN DENSE FOREST COVER 2003-2023

	2021-23	2003-2013	2013-2023	2003-2023
LOST				
VDF to NF	295	288	1277	1565
MDF to NF	3362	6714	15086	21800
VDF to scrub	24	5	65	70
MDF to scrub	313	144	1153	1297
Disappeared	**3994**	**7151**	**17581**	**24732**
VDF to OF	228	134	1128	1262
MDF to OF	5166	6414	22249	28663
Total loss	**9388**	**13699**	**40958**	**54657**
GAINED				
NF to VDF	56	43	483	526
NF to MDF	839	3631	7554	11185
Scub to VDF	1	0	54	54
Scrub to MDF	102	105	1043	1148
OF to VDF	496	124	2567	2691
Plantations	**1494**	**3903**	**11701**	**15604**
OF to MDF	8610	6122	34301	40423
Total gain	**10104**	**10025**	**46002**	**56027**
NET CHANGE	716	-3674	5044	1370

VDF: Very Dense Forest (canopy over 70%) | **MDF:** Moderate Dense Forest (canopy 40-70%)
OF: Open Forest (canopy 10-40%)| **Shrub** (canopy under 10%) | **NF:** Non-Forest (no canopy)

Source: ISFR 2003-23

1.5 Regional Performance

- The Western Ghats Eco-Sensitive Areas (WGESA) **covers 60,285.61 km², with 44,043.99 km² (73%)** under forest cover.
- The total forest and tree cover in the Northeastern region is **1,74,394.70 km²** which is 67% of the geographical area of these states.

1.6 Highest Forest Cover (Percentage of Geographical Area)

- Lakshadweep: 91.33%
- Mizoram: 85.34%
- Andaman & Nicobar Islands: 81.62%
- **Timber Production:** The annual potential production of timber from trees outside forests is estimated at 91.51 million cubic meters.

1.7 Achievements

- **Bamboo Bearing Area:** India's bamboo-bearing area is estimated at 1,54,670 sq km, reflecting an increase of 5,227 sq km since the 2021 assessment.
- **Carbon Stock:** The total carbon stock in India's forests is estimated at 7,285.5 million tonnes, marking an increase of 81.5 million tonnes compared to the previous assessment.

1.8 Forest Fire

- The top three states with the most fire incidents in the 2023-24 season are Uttarakhand, Odisha, and Chhattisgarh.

1.9 Concerns

- **Mangrove Cover Decline:** India's mangrove cover has decreased to **4,991.68 sq km, a reduction of 7.43 sq km**
- **Gujarat recorded the largest loss,** with a decrease of 36.39 sq km compared to the last assessment, followed by Andaman and Nicobar Islands.
- While **Andhra Pradesh and Maharashtra** experienced increases of 13.01 km² and 12.39 km², respectively.

1.10 Disappearance of Dense Forests

- **Since 2021:** 3,913 sq km
- **Since 2003 (Two decades):** 24,651 sq km (more than 6.3% — of its dense forests).

1.11 Agroforestry

- The total tree green cover under agroforestry in India is **estimated at 1,27,590.05 square kilometers.**
- There has been an increase of **21,286.57 square kilometers** in agroforestry tree green cover since 2013.
- The total growing stock under agroforestry is estimated at **1,291.68 million cubic meters, showing a 28.56% increase compared to 2013.**

1.12 Trends in Forestry Parameters (2013–2023)

- **Expansion of Green Cover**:
  - Forest cover has increased by **16,630.25 sq km** across the country over the decade.

- Tree cover has expanded by **20,747.34 sq km** during the same period.
- Mangrove cover has grown by **296.33 sq km**, reflecting efforts to conserve and restore coastal ecosystems.

- **Improved Soil Health**:
  - Soil health has shown significant improvement, with **87.16% of areas now having shallow to deep soil**, compared to **83.53% in 2013**.
  - Soil organic carbon levels have risen from **55.85 tonnes per hectare** to **56.08 tonnes per hectare**, enhancing soil structure, stability, and aggregation.
  - Soil organic carbon, a key component of soil organic matter, plays a crucial role in improving soil fertility and promoting sustainable forestry practices.
- **Reduction in Biotic Pressures**:
  - Biotic pressures on forests, such as grazing, illicit felling, and man-made fires, have reduced from **31.28% in 2013** to **26.66%**.

1.13 Challenges Identified in the India State of Forest Report (ISFR) 2023

- **Reduction in Moderately Dense Forest (MDF) and Open Forest (OF)**:
  - MDF and OF areas have experienced significant declines across several states due to factors such as urbanization, agricultural expansion, and infrastructure development.
- **Forest Loss in Eco-Sensitive Zones**:
  - Forest cover in the eco-sensitive areas of the **Western Ghats** has reduced by **58.22 sq km** over the last decade, posing threats to biodiversity and ecological stability.
  - Declining forest areas in biodiversity hotspots jeopardize ecological balance and species conservation.
- **Increased Forest Fire Incidents**:
  - Rising forest fire occurrences have caused extensive damage to biodiversity and the regenerative capacity of forests.
  - The **2023–24 season** recorded the highest fire incidents in **Uttarakhand, Odisha, and Chhattisgarh**.
  - Approximately **32.06% of forests** are now categorized as "highly fire-prone."
- **Growing Pressure on Forest Resources**:
  - Unsustainable demand for timber, fuelwood, and non-timber forest products (NTFPs) is straining forest ecosystems.
  - The heavy reliance of rural and tribal communities on forest resources further exacerbates the issue.
- **Habitat Fragmentation and Loss**:
  - Infrastructure projects, mining activities, and urban expansion are leading to habitat fragmentation, particularly in regions like the Himalayas and the Western Ghats.
- **Weak Forest Management and Monitoring**:

- Insufficient monitoring and inadequate enforcement in forested areas contribute to issues such as illegal logging and encroachment.

- **Overuse of Forest Resources**:
  - Excessive extraction of NTFPs, grazing, and wood collection has accelerated forest degradation.
- **Declining Biodiversity**:
  - Habitat destruction and poaching are causing a loss of native species, particularly in biodiversity hotspots like the Western Ghats.
- **Desertification and Soil Erosion**:
  - Deforestation is leading to desertification and significant soil erosion, especially in arid and semi-arid regions.
- **Consistent Decline in Eco-Sensitive Zones**:
  - Ecologically sensitive regions, including the **Western Ghats**, have witnessed a continuous reduction in forest cover over time.
  - This decrease indicates better floral biodiversity, improved habitats for fauna, and overall healthier forest ecosystems

1.14 Conclusion

Besides providing vital information for monitoring the country's forest and tree resources, the data given in the ISFR serves as a useful source of information for the policy makers, planners, State Forest Departments, research organisation, line agencies involved in various developmental works, academicians, civil society and others interested in natural resource conservation and management.

KEY TERMS

- **Recorded Forest Area:** Area recorded as forest in Government records.
- **Forest Cover:**
  - Includes land with **a tree canopy density exceeding 10% irrespective** of ownership and legal status.
  - It also includes orchards, bamboo, and palm and covering at least one hectare in area. It also includes plantations.
- **Tree Cover:** Includes all patches of trees occurring outside the Recorded Forest Area which are of **size less than 1 hectare, irrespective of canopy density.**
- **Dense Forest:** Areas with a canopy density **of 40% and above.**
- **Very Dense Forests (VDF):** Lands with forest cover having a **canopy density of 70% and above.**
- **Open forests (OF):** Lands with forest cover having a canopy density between **10-40%.**
- **Trees Outside Forest (TOF):** All trees growing outside recorded forest areas irrespective of patch size.

FOREST SURVERY OF INDIA (FSI)

- **Establishment:**
  - **The Forest Survey of India (FSI) was formed on 1st June 1981, taking over from the Pre-**Investment Survey of Forest Resources (PISFR), which had been launched in 1965.
  - The **National Commission on Agriculture (NCA), in 1976,** proposed the establishment of a National Forest Survey Organization, leading to the creation of FSI.
  - The PISFR was initiated by the Government of India in collaboration with **the Food and Agriculture Organization (FAO) and United Nations Development Programme (UNDP).**
- **Parent Body:** FSI functions under the Ministry of Environment, Forests, and Climate Change, Government of India.
- **Core Objectives:**
  - FSI's primary role is the regular assessment and monitoring of forest resources in the country.
  - It also provides support in training, research, and outreach activities related to forestry.
- **Infrastructure and Regional Presence:**
  - FSI is headquartered in Dehradun, with regional **offices in Shimla, Kolkata, Nagpur, and Bangalore.**
  - **A sub-centre for the Eastern Zone operates from Burnihat, Meghalaya.**