

## DATA &amp; ANALYSIS

## Reading India's tree cover data

India publishes detailed forest data. The categories the data uses are worth understanding before drawing conclusions from any single headline figure.

The Arborist Team 6 min read

The Forest Survey of India (FSI) publishes the India State of Forest Report (ISFR) every two years. It is the country's official record of forest and tree cover. Each edition produces headline figures that are widely cited in ministry briefings, sustainability reports, and policy discussions.

The categories the FSI uses are precise. Understanding how they fit together helps in interpreting the numbers.

### Forest cover and tree cover

The ISFR uses two distinct measures. **Forest cover** is land of more than one hectare with at least 10% canopy density, regardless of ownership. **Tree cover** is everything else: smaller patches and isolated trees outside the forest area, estimated through sampling.

The distinction has practical implications. An apartment colony with mature trees adds to tree cover, not forest cover. A degraded shrubland with sparse vegetation can fall within forest cover. A roadside plantation will, over time, become tree cover.

The two measures are often quoted together as "green cover." The combined figure can move in different directions from its components — gains in tree cover or open forest can occur alongside losses in dense natural forest.

### Density classes

Within forest cover, the FSI uses three density classes: Very Dense Forest (canopy density of 70% or more), Moderately Dense Forest (40–70%), and Open Forest (10–40%). Each class differs significantly in carbon storage, biodiversity value, and ecosystem services per hectare.

Because the classes carry different ecological weight, tracking changes across classes adds information that a single aggregate number does not. A net increase in total forest cover may sit alongside a decline in the dense classes, which is the case in recent ISFR editions.

The most recent ISFR, released in 2024, reported a net increase in combined forest and tree cover. Within that total, dense and moderately dense classes declined, partially offset by gains in open forest and tree cover outside recorded forest areas.

*A hectare of dense forest and a hectare of open forest are recorded as the same hectare in the aggregate. The ecological values they represent are different.*

### Trees Outside Forests

The FSI also estimates **Trees Outside Forests (TOF)** — street trees, campus trees, agroforestry, sacred groves, farm-bund trees, plantations, and parks, anything outside legally designated forest areas. TOF is estimated separately, primarily through sampling and remote sensing, and the methodology has known limitations.

TOF is the category most directly relevant to urban and corporate decisions. Trees on private land, ULB-managed public land, and corporate campuses sit largely within it. Changes in TOF are also harder to observe directly — a street tree felled for road widening, a campus tree removed for construction, or a farm tree cleared for crops typically does not appear in forest department records.

### City-level data

City-level tree data is less standardised than national data. Some Indian cities have produced tree censuses or canopy estimates — Bengaluru through academic and citizen mapping, and Mumbai, Delhi, Hyderabad, and Chennai at various points with different methodologies. Programmes under the Smart Cities Mission and AMRUT have funded green-space inventories in selected cities.

Satellite-derived canopy datasets — ESA WorldCover and the University of Maryland's Global Forest Change product among them — allow canopy mapping at moderate resolution without local fieldwork. These are not a substitute for ground-verified tree inventories, but they are useful for tracking trends and prioritising areas for closer study.

### What follows from reading the data this way

Three implications follow from working with the FSI's own categories.

**Plantation reporting becomes more informative with composition.** A total sapling count carries different weight depending on species mix, survival rate, location, and canopy contribution at maturity.

**Canopy targets benefit from a measured baseline.** Several Indian cities have committed to canopy targets. A baseline canopy measurement, available now from satellite data at low cost, makes progress against those targets measurable.

**TOF carries a substantial share of urban ecosystem value.** Policy frameworks and corporate tree-management practices that engage with TOF directly have a wider scope of action than those focused only on designated forest areas.

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Published by The Arborist Team. The Arborist Team is an arboriculture and digital tree-management practice based in India.

**FURTHER READING** Forest Survey of India ([fsi.nic.in](http://fsi.nic.in)) · ESA WorldCover ([esa-worldcover.org](http://esa-worldcover.org)) · Bhuvan Indian Geo-platform ([bhuvan.nrsc.gov.in](http://bhuvan.nrsc.gov.in))