Forest Fires

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Why is in news? Heat, aridity, clear skies: why forests are already ablaze in the Nilgiris

For almost a week, forest fires have been raging in the Coonoor forest range in the Nilgiris in Tamil Nadu.

The Indian Air Force joined the ongoing firefighting efforts of the state forest department, deploying an Mi-17 V5 helicopter to **conduct multiple "Bambi Bucket" operations** that dumped some 16,000 litres of water on the fires.

About Bambi Bucket" operations:

The Bambi Bucket, also called a **helicopter bucket or a helibucket**, is a specialised container that is suspended by cable under a chopper.

It can be filled by lowering into a river or pond before being flown above a fire and discharged aerially by opening a valve at the bottom of the bucket.

The Bambi Bucket is especially helpful in fighting wildfires that are difficult or impossible to reach from the ground.

Around the world, helicopters are frequently commissioned to fight forest fires.

How common are forest fires in India?

November to June is considered to be **forest fire season in India**, with hundreds of thousands of small and large fires burning every year, especially from February onward as summer approaches.

April-May are usually the **worst fire months** across the country.

The **biennial India State of Forest Report (ISFR)** published by the Forest Survey of India (FSI) under the Ministry of Environment, Forest and Climate Change recorded in its 2019 report that **more than 36% of India's forest cover was prone to frequent fires**.

About 4% of the forest cover was 'extremely prone' to fire, and another 6% was 'very highly' fire prone (ISFR 2019).

Globally, about 3% of the total forest area, or about 98 million hectares of forest, were affected by fires in the year 2015, **mostly in the tropical regions**.

According to the FSI, **severe fires break out in dry deciduous forests**, while evergreen, semi-evergreen, and montane temperate forests are comparatively less prone to fires.

The forests of **Northeast India, Odisha, Maharashtra, Jharkhand, Chhattisgarh, and Uttarakhand** are the **most vulnerable** to fires during the November to June period.

In March 2023, large bushfires raged in Goa, triggering an investigation into whether they were "man-made".

In 2021, a series of forest fires broke out in Uttarakhand, Himachal Pradesh, Nagaland-Manipur border, Odisha, Madhya Pradesh, and Gujarat, including in wildlife sanctuaries.

Forest fire situation - this year:

Over the past one week, the **highest number** of forest fires have been reported from **Mizoram** (3,738), Manipur (1,702), Assam (1,652), Meghalaya (1,252), and Maharashtra (1,215), as per FSI data.

Satellite data generated by Indian Space Research Organisation (ISRO) tools, showed that forest fires have been on an uptick since early March along the Konkan belt in Maharashtra, south-coastal Gujarat along Gir Somnath and Porbandar, southern Rajasthan and adjoining south-western districts of Madhya Pradesh, coastal and interior Odisha, and adjoining Jharkhand.

In South India, most forest covered areas of Andhra Pradesh, Karnataka and Tamil Nadu have seen fire incidents over the past week.

Are forest fires in South India unusual?

Some forest areas in Andhra Pradesh and Telangana are **fire-prone**.

However, according to the FSI, forests in **southern India are comparatively less vulnerable** to fires, as the vegetation type is mainly evergreen or semi-evergreen.

That said, Tamil Nadu has been reporting wildfires in its forests in recent years.

Reason for the fires this year:

Forest fires have **man-made as well as natural causes**.

A majority of forest fires are a result of **human carelessness** like discarded cigarettes, camp fires, burning of debris, and similar other processes.

Amongst natural causes, **lightning is the most common** originator.

Forest fires **need a conducive atmosphere** to spread. **Hot and dry temperatures and high tree density** are some of the factors that help the spread of forest fires.

This year, **high aridity, above-normal day temperatures**, **clear sky conditions, and calm winds** during the early phase of the summer season are some of the contributory factors for the spike in forest fire incidents in southern India.

Last month was **exceptionally hot over Southern India** in particular. This **February was South India's hottest since 1901**, and January was the fifth warmest in more than a century.

There has been an **early availability of dry biomass** in these forests since the winter season itself.

The IMD has **warned of the prevalence of Excess Heat Factor (EHF),** a value that predicts the chances of a heatwave over a region, to be **significantly higher than normal** over western Andhra Pradesh and neighbouring Karnataka.

In the **absence of rain and prevailing high temperatures**, the IMD has classified almost all districts of southern India under 'mild' aridity.

Impact of forest fires on ecosystems:

Forest fires **destroy the habitats** and the intricate relationships of **diverse flora and fauna** leading to loss of ecosystems and biodiversity.

Almost every year, forest fires are witnessed across different forest regions which **persistently reduce the quality of certain forest features** like soil fertility, biodiversity, and ecosystems.

The huge clouds of smoke instigated by wildfires **lead to massive air pollution**.

Trees and vegetation when are burned, it means **more greenhouse gases increases** in the atmosphere, **resulting in global warming.**

Forest fires **kill beneficial soil microorganisms** that are responsible for breaking down the soil and promoting soil microbial activities. The burning of trees and vegetation cover also leaves the soil bare making it readily vulnerable to soil erosion.

Trees and vegetation cover **acts as watershed protectors** since approximately all the water comes from forest-derived water tables. Whenever they burn, the natural protection systems for water tables, streams, and rivers may be affected.

Health Concerns regarding wildfires:

Smoke of wildfires contains various **harmful pollutants, fine particulate matter, carbon monoxide, volatile organic compounds and nitrogen oxide**s.

It may accentuate health risks of millions of residents living in vicinity to the affected areas.

Due to this pollution exposure the health effects are many which can **range from relatively minor to more serious** . For instance -

Minor - eye and respiratory tract irritation.

Major health effects - exacerbation of asthma and heart failure and premature death.

Most affected segment of the society will be children, pregnant people, older adults and people with heart or lung disease. Hence it impacts on the quality of life and right to health as people are forced to breathe in this foul air.

As per an estimate by Amnesty International 115 million people’s health are impacted by this.

Measures to control:

National Policy on Forest Fire: finalized by the government

National Plan for forest fire management: National Forest Fire Danger Rating System, Fire fighting tools and machinery (e.g. Fire Beaters, Pulaskis Tools, Forest Fire Showel, etc.)

Forest Fire Prevention & Management Scheme (FFPMS, 2017): a revised version of the Forest Management Scheme

Community participation: by the involvement of NGOs, Voluntary Organisations, Village Forest Committees (VFCs), etc.

Institutionalize the partnership with forest fringe communities

Devise a forest fire forecasting system at the local level

Forest Fire Monitoring: FSI uses NASA'sMODIS(Moderate ResolutionImagingSpectro-radiometer)andVIIRS (VisibleInfraredImagingRadiometerSuite)satellites for its Forest fires alert system 2.0

Use of technology (such as Remote Sensing, GPS, and GIS) in planning, developing and operationalizing Fire management systems.

Conclusion:

Forest fires incidents have increased due to global warming. Destruction of forests is a crisis and need immediate action. Fast initial attack measures are required with a vigorous follow up action. Special emphasis should be given to research, training, and development.