

# Forest Fire

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## Manifest Pedagogy

With increasing frequency of natural disasters the topic of Disaster management has gained significance in UPSC. The prominent example of which is the Urban flooding questions in UPSC 2017. In the light of forest fires in Himalayas and western Ghats and also forest fires of California and Scandinavian countries this topic is very relevant to UPSC. Interlinkage with climate change could also be one of the dimension.

## In news

California forest fire

## Placing it in syllabus

Disaster management

Ecology and environment

## Static Dimensions

1. What is a forest fire?
2. Causes of forest fire
3. Impact of forest fire

## Current dimensions

1. Incidents of forest fire in recent times
2. Climate change and forest fire
3. Forest protection strategies
4. National action plan on forest fires
5. NDMA guidelines.

# What is Forest fire?

A forest fire is a natural disaster and poses a threat not only to the forest wealth but disturb the bio-diversity and the ecology and environment of a region. Forests fires are as old as the forests themselves. Natural fires have been a disturbance of several ecosystems throughout evolution thus plants have adapted to this regime. Man-made fires have also coexisted in equilibrium with ecosystems for centuries, but the continuous increment in pressure on forests and unmanaged fire caused by stakeholders, has led to adverse consequences for the diversity and structure of forests

**A forest fire can be described as an unclosed freely spreading combustion, which consumes the natural fuels of a forest that consist of duff, grass, weeds, brush and trees.**

## Causes of forest fire

Forest fires are caused by Natural causes as well as Man-made causes

### Natural Causes

- Many forest fires start from natural causes such as lightning which set trees on fire
- High atmospheric temperatures and dryness (low humidity) offer favourable circumstance for a fire to start. In dry season, friction leading to sparks by rolling stones in the mountainous areas may lead to forest fires
- In bamboo areas, forest fires may occur by the rubbing together of clumps of dry bamboos.
- Volcanic eruptions also lead to forest fires naturally
- In the past twenty years, the fire events in India have strongly been linked with the presence of El Nino conditions affecting the monsoon movements.

## **Man-made causes**

- More than 90% forest fires are caused by human beings, deliberately (for personal gains or rivalry) or merely due to negligence or just by accident. Forest fires sometimes originate due to accidental or unintentional reasons.
- Graziers and gatherers of various forest products starting small fires to obtain good grazing grass as well as to facilitate gathering of minor forest produce like flowers of *Madhuca indica* and leaves of *Diospyros melanoxylon*
- The centuries old practice of shifting cultivation (especially in the North-Eastern region of India and in parts of the States of Orissa and Andhra Pradesh).
- The use of fires by villagers to ward off wild animals
- For concealing the illicit felling – Smugglers and poachers many times start forest fires to hide the stumps of illicit felling. The poachers use forest fires for terrorizing wild animals and hunting too.
- Fires started accidentally by careless visitors to forests who discard cigarette butts.
- Burning farm residue- After a harvest, farmers set fire to their agricultural fields. Many times, when these fires are not put out completely, may spread to the adjoining forest areas

## **Impact of forest fire**

Fires are a major cause of forest degradation and have wide ranging adverse ecological, economic and social impacts, including:

- loss of valuable timber resources
- degradation of catchment areas
- loss of biodiversity and extinction of plants and animals
- loss of wildlife habitat and depletion of wildlife

- loss of natural regeneration and reduction in forest cover
- Global warming- By causing the release of greenhouse gases (GHG), forest fires contribute significantly to climate change. Warmer climate leads to forests becoming dryer and degraded, which increases their vulnerability to fire.
- loss of carbon sink resource and increase in percentage of CO<sub>2</sub> in atmosphere
- change in the microclimate of the area with unhealthy living conditions
- soil erosion affecting productivity of soils and production
- ozone layer depletion
- health problems leading to diseases
- loss of livelihood for tribal people and the rural poor, as approximately 300 million people are directly dependent upon collection of non-timber forest products from forest areas for their livelihood.

## **Incidents of forest fire in recent times**

California forest fire of 2018

Scandinavian forest fire in summers of 2018

El-Nino events and extensive forest fires of Australia in 2010

Forest fires of Uttarakhand and Himachal Pradesh in 2016

Forest fires of Western Ghats 2015 and 2017

## **Forest protection strategies in India**

The policy on fires in Indian forests has historically been one of strict suppression. This was first officially articulated in the Indian Forest Act of 1927, which considered the setting of fires a punishable offence. Yet, even today, almost a century later, fire continues to be an annual

phenomenon in almost all Indian forests. In addition, it made mandatory for all forest- dependent people to provide assistance in preventing and controlling fires. The extant National Forest Policy (1988) also stresses forest protection against encroachment, grazing and fire. Furthermore, it advocates the adoption of modern fire management practices for the prevention and control of forest fires. In the wake of this, there have been a series of centrally sponsored forest fire protection and control schemes since 1985, each of which has laid particular emphasis on the adoption of modern techniques and equipment in the prevention and control of forest fires. In addition, a set of national guidelines on forest fires, which was issued to all states in 2000, stressed the importance of community involvement in forest fire prevention and control through the Joint Forest Management (JFM) Program.

## **Forest fire and disaster management**

After the Intervention of NGT, the central government has framed **National Action Plan on Forest Fire**

- Forest Risk Zonation and mapping
- Prevention of forest fires
  - Effective communication strategy for awareness generation
  - Capacity building for communities
- Increasing the resilience of forests to fires
- Forest floor biomass management
- Forest fire preparedness
- Digitization of forest boundaries
  - Promoting greater adoption of the Forest Fire Alert System:
    - Improving Ground based Detection
    - Strengthening engagement with local communities:
- Fire suppression through training of staff
- Post fire management

- Coordination with other agencies

## **Forest fire and NDMA guidelines**

The action plan should incorporate the following suggestions:

- The action plan should aim to strengthen forest fire prevention, preparedness and response mechanism across various levels within the forest department.
- It should be developed after having an interactive consultation process with a variety of mechanism across various levels within the forest department.
- A framework to strengthen skills and increase capacities to effectively address the menace of forest fires has to be provided to the forest department
- Forest personnel's services needs to be upgraded to manage forest fire and reduce the risks.
- Better coordination between key stakeholders at different levels, especially at the local levels has to be ensured.
- High professionalism on forest fire management has to be promoted among the forest departments.
- Partnerships based on complementarities and mutual comparative advantages with other stake holders like NGOs and Community based organizations (CBOs)

## **Test yourself: Mould your thoughts**

Assess the effectiveness of forest fire management strategies as part of disaster management and suggest suitable measure.