

Forest fires

December 9, 2020

Throughout the world, forest fires affect human life and health, human property and well being, cultural and natural heritage, recreation, economic and social infrastructures and the balance of greenhouse gases. Climate change is also affecting our globe which exacerbates the current risks of forest fires. In this context one has to study about the vulnerability of India and how to tackle this global problem of forest fires.

In news: According to the Global Climate Report of the UN, 2020 is one of three hottest years ever recorded.

Placing it in syllabus: Environment

Static dimensions

1. What are the types of forest fires?

Current dimensions

1. Recent and the worst catastrophes in India and globe
2. Vulnerability in India
3. Strategies used to contain them in India
4. What needs to be done to contain them

Content:

Recent and the worst catastrophes in world:

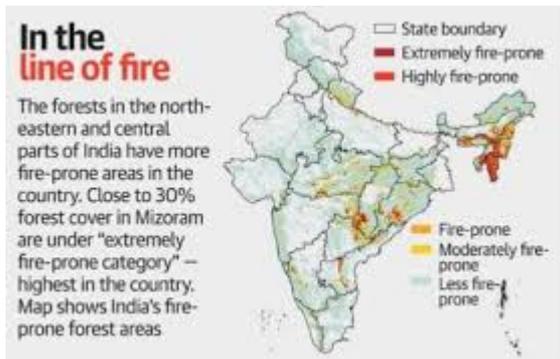
- The U.N. chief has warned that the **world was on the brink of a “climate catastrophe” in 2020.**
- According to the U.N.’s **World Meteorological Organization (WMO)’s State of the Global Climate report, 2020**, the past six years, **2015 to 2020**, are set to make up all six of the hottest years since modern records began in 1850.
- Apocalyptic fires, floods, cyclones and hurricanes are

increasingly becoming the new normal.

- Humanity is waging war on nature which is suicidal.
- As per the report, the average global temperature in 2020 is set to be about 1.2 degrees Celsius above the pre-industrial level and there is at least a one in five chance of it temporarily exceeding 1.5 degrees Celsius by 2024.
- Greenhouse gases in the atmosphere, the main driver of climate change hit record highs in 2019 and continued climbing in 2020.
- 2020 saw 'new extreme temperatures' on land, sea and especially in the Arctic. Wildfires consumed vast areas in Australia, Siberia, the US west coast and South America.
- Flooding in parts of Africa and southeast Asia led to massive population displacement and undermined food security for millions.
- The **heat in northern Siberia reached 38 degrees Celsius at Verkhoyansk on June 20, provisionally the highest known temperature anywhere north of the Arctic Circle.**
- The WMO said that more than 80% of the ocean area had experienced at least one marine heatwave so far in 2020.
- The sea level has risen at a higher rate due partly to increased melting of ice sheets in Greenland and Antarctica.
- **In the Arctic, the annual minimum sea-ice extent was the second lowest on record.**
- There were a record 30 named storms, including 13 hurricanes, formed in the Atlantic Ocean.

Vulnerability in India:

According to the 2019 report by the Forest Survey of India (FSI), about **21.40% of forest cover in India is prone to fires**, with forests in the north-eastern region and central India being the most vulnerable.



- The forest fire points (FFP) were analysed using a **moderate resolution imaging spectroradiometer (MODIS)**.
- The analysis showed that **extremely fire prone areas account for 3.89%** of total forest cover, **very highly fire prone areas account for 6.01%** and **highly fire prone areas for 11.50%**.
- **Mizoram** recorded the highest number of fire alerts (2,795).
- The seven States of the north-eastern region make up about one-third of alerts in the country.
- One of the major reasons for forest fires in the north-east is slash-and-burn cultivation, commonly called jhoom or jhum cultivation.
- **Central Indian States also record a high number of forest fire alerts, with Madhya Pradesh the highest** followed by Maharashtra and Odisha.
- The reasons for fires here are man made, particularly in cases where people visit forests and leave burning bidis, cigarette stubs or other inflammable materials.
- The thunderstorms are the most likely cause when it comes to natural reasons.
- High atmospheric temperatures and dryness (low humidity) offer favorable circumstances for a fire to start.
- Studies suggest that climate change influences forest fire frequency and intensity, resulting in forests becoming increasingly inflammable.

Strategies used to contain them in India:

National Action Plan on Forest Fires:

- The MoEFCC has prepared a National Action Plan on Forest Fires in 2018 after several rounds of consultation with all states and UTs.
- The **objective of this plan** is to minimize forest fires by informing, enabling and empowering forest fringe communities and incentivizing them to work in tandem with the State Forest Departments.
- The plan intends **to substantially reduce the vulnerability of forests across diverse forest ecosystems** in the country against fire hazards, enhance capabilities of forest personnel and institutions in fighting fires and swift recovery subsequent to fire incidents.

Forest Fire Prevention and Management scheme:

- The MoEFCC provides forest fire prevention and management measures under the Centrally Sponsored Forest Fire Prevention and Management (FFPM) scheme.
- It is the **only centrally funded program specifically dedicated to assist the states in dealing with forest fires.**
- Nodal officers for forest fire prevention and control have been appointed in each state.
- The FFPM **replaced the Intensification of Forest Management Scheme (IFMS) in 2017.**
- Funds allocated under the FFPM are according to a center-state cost-sharing formula, with a 90:10 ratio of central to state funding in the Northeast and Western Himalayan regions and a 60:40 ratio for all other states.
- It also **provides the states the flexibility to direct a portion of the National Afforestation Programme (NAP) and Mission for Green India (MGI) funding toward forest**

fire work.

What needs to be done to contain them?

The World Conservation Union (IUCN), The Nature Conservancy (TNC) and The Worldwide Fund for Nature (WWF) along with multilateral agencies, governments, private sector and local communities have developed integrated fire management approaches that have following **core elements**.

- Supporting research to improve the understanding of forest fires and their ecology, ecological and social costs and benefits, causes and management options.
- Building awareness amongst policy-makers, the public and the media of the underlying causes of catastrophic forest fires.
- Mandating and equipping managers to implement integrated fire management programs.
- Involving local communities and land managers in management planning and implementation, assisting them to participate effectively.
- Developing and enforcing compatible and mutually reinforcing land-use laws that provide a legal basis for the ecologically appropriate use of fire.
- Discouraging land management practices that predispose forests to harmful fires.
- Promoting management strategies to mimic natural fire regimes, including techniques such as prescribed burns and managed wildfires.
- Avoiding manipulating natural or well-established fire regimes.
- Establishing reliable fire monitoring systems that provide early warning of high fire risk and fire occurrence, and include evaluation of ecological and human impacts of fire.
- Preventing further forest loss and degradation from recurrent catastrophic fires, and reduce fire risk in forested landscapes, through ecologically appropriate

restoration.

What are the types of forest fires?

- **Surface Fire** – This type of fire spreads along the ground as the surface litter (senescent leaves and twigs and dry grasses etc) on the forest floor and is engulfed by the spreading flames.
- **Underground Fire (Muck fires)** – In most of the dense forests a thick mantle of organic matter is found on top of the mineral soil. This fire spreads in by consuming such materials. These fires usually spread entirely underground and burn for some meters below the surface. This fire spreads very slowly and in most of the cases it becomes very hard to detect and control such type of fires. They may continue to burn for months and destroy vegetative cover of the soil.
- **Ground Fire** – These fires are fires in the subsurface organic fuels, such as duff layers under forest stands, Arctic tundra or taiga, and organic soils of swamps or bogs. The smoldering underground fires sometimes changes into Ground fire. This fire burns roots and other material on or beneath the surface together with the layer of organic matter in various stages of decay. They are more damaging than surface fires, as they can destroy vegetation completely.
- **Crown Fire** – A crown fire is one in which the crown of trees and shrubs burn, often sustained by a surface fire. A crown fire is particularly very dangerous in a coniferous forest because resinous material given off burning logs burn furiously. On hill slopes, if the fire starts downhill, it spreads up fast as heated air adjacent to a slope tends to flow up the slope spreading flames along with it. If the fire starts uphill, there is less likelihood of it spreading downwards.
- **Firestorms** – Among the forest fires, the fire spreading most rapidly is the firestorm, which is an intense fire

over a large area. As the fire burns, heat rises and air rushes in, causing the fire to grow. Temperatures inside these storms can reach around 2,000 degrees Fahrenheit.

Mould your thought:

1. Discuss the vulnerability of India to forest fires. What strategies are adopted to contain these fires?

Approach to the answer:

- Write about India's vulnerability to forest fires
- Draw map showing regions
- Write about the strategies followed
- Way forward