



ARCTIC WILDFIRES - GS III MAINS

Q. Arctic wildfires amplify risks globally for all of us and serve as a warning cry for urgent action. Discuss (10 marks, 150 words)

News: Why rising Arctic wildfires are a bad news for the world

What's in the news?

- Recently, Smoke from raging wildfires has once again darkened the skies over the Arctic.
- It is the **third time in the past five years** that high intensity fires have erupted in the region, **Europe's Copernicus Climate Change Service (C3S)** said.

Key takeaways:

- A majority of fires are in **Sakha, Russia**, where more than 160 wildfires have charred nearly 460,000 hectares of land.
- Wildfires have been a natural part of the Arctic's boreal forest or snow forest and tundra (treeless regions) ecosystems.
- However, in recent years, their frequency and scale in the regions have increased, primarily due to global warming. More worryingly, these blazing wildfires are fueling the climate crisis.
- All three factors, **rising temperatures, more frequent lightning and heat waves** will most likely worsen in the coming years, thereby causing more wildfires in the Arctic. By 2050, it is estimated that wildfires in the Arctic and around the world could increase by one-third, according to a report by the World Wild Fund.

Reasons for the Increased Incidents of Arctic Wildfires:

1. Global Warming:

- The Arctic has been warming roughly four times as fast as the world.
- While the global average temperature has increased by at least 1.1 degree Celsius above the pre-industrial levels, the Arctic has become on average around 3 degrees warmer than it was in 1980.
- This fast paced warming has led to more frequent lightning in the Arctic, which has further increased the likelihood of wildfires lightning-sparked fires have more than doubled in Alaska and the Northwest Territories since 1975, according to a 2017 study.

2. Slowdown of Polar Jet Streams:

- Soaring temperatures have also slowed down the polar jet stream responsible for circulating air between the mid and northern latitudes due to less of a temperature difference between the Arctic and lower latitudes.
- As a result, the polar jet stream often gets "stuck" in one place, bringing unseasonably warm weather to the region.



- It also blocks out low-pressure systems, which bring clouds and rainfall, possibly leading to intense heat waves, which can cause more wildfires.

Impact on Arctic Wildfires:

1. Greenhouse Gas Emissions:

- Wildfires release significant amounts of greenhouse gasses (GHGs) such as carbon dioxide (CO₂) into the atmosphere.
- While GHG emissions from wildfires are concerning, Arctic wildfires pose a greater threat due to the carbon stored in permafrost.

2. Permafrost Thawing:

- Arctic permafrost contains around 1,700 billion metric tons of carbon, including CO₂ and methane, which is about 51 times the global fossil fuel emissions of 2019.
- Wildfires destroy insulating layers of vegetation and soil, making permafrost more susceptible to thawing.
- Thawing permafrost releases ancient organic materials, leading to the decomposition and release of stored carbon into the atmosphere.
- This could prevent the world from limiting global warming to within the 1.5°C threshold, resulting in catastrophic and irreversible consequences.

WAY FORWARD:

1. Monitoring and Understanding Wildfires:

- Focus on conserving and sustainably using Arctic flora and fauna by mapping annual acreage burned, and incorporating relevant fire ecology and Indigenous Knowledge research.
- Evaluate the impacts of wildfires on Arctic ecosystems, air quality, and climate change.

2. International Cooperation on Wildfire:

International cooperation is crucial for effective wildfire response to

- Improve coordinated response among Arctic States and Permanent Participants to catastrophic wildland fires.
- Promote international cooperation and the possibility of contracting wildland fire resources across state boundaries.
- Coordinate training between relevant agencies to ensure effective and contemporary emergency prevention, preparedness, and response to wildland fires.

3. Applying Indigenous and Local Knowledge:

- Arctic communities, having lived with fire for millennia, are sharing their expertise to aid in the understanding, response, and adaptation to wildfires.
- The Gwich'in Council International leads much of the Arctic Council's work in this area, emphasizing the importance of Indigenous and local knowledge in addressing wildland fires.