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News: Drought in Amazon

- The Amazon Rainforest, often referred to as the "lungs of the earth," is currently facing an unprecedented and severe drought.

Amazon Rainforests

- Amazon rainforests are a group of large tropical rainforests occupying the drainage basin of the Amazon River & its tributaries in Northern South America & covers an area of 60,00,000 km².
- The Amazon Basin supports the world's largest rainforest, which accounts for more than half the total volume of rainforests in the world.
- Comprising about 40% of Brazil's total area, it is bounded by the Guiana Highlands to the north, the Andes mountains to the west, the Brazilian central plateau to the south & the Atlantic Ocean to the east.
- Tropical forests are closed-canopy forests growing within 28 degrees north or south of the equator.
- They are very wet places, receiving more than 200 cm of rainfall per year, either seasonally or throughout the year.
- Temperatures are uniformly high - between 20°C and 35°C.



Factors contributing to the drought in Amazon Rainforests

El Niño Phenomenon

- The **El Niño** phenomenon is identified as one of the key drivers of drought in the **Amazon**.
- It results in abnormal warming of the surface waters of the Pacific Ocean, which subsequently affects rainfall patterns.
- In the **Amazon region**, El Niño leads to decreased humidity and reduced rainfall, exacerbating drought conditions.

High Water Temperatures in the Northern Tropical Atlantic Ocean

- Another weather phenomenon is the **unusually high-water temperatures in the northern tropical Atlantic Ocean**. Due to warmer ocean waters, heated air rises into the atmosphere, which then reaches the Amazon rainforest. The warm air inhibits the formation of clouds, causing rainfall to drop sharply.

Anthropogenic Climate Change

- Human-induced climate change is making the situation worse.
- Deforestation, primarily caused by activities like agriculture and logging, hampers the Amazon's ability to regulate climate and retain moisture.
- The destruction of vast areas of vegetation also contributes to rising temperatures, creating a cycle of increasingly severe droughts.
- This lack of vegetation leads to reduced evapotranspiration and, consequently, an increased susceptibility to drought.

Mining Activity

- Unregulated mining activity in the region contributes to the problem by creating land banks that impede river navigation.
- The alteration of aquatic and terrestrial ecosystems through mining also releases pollutants and greenhouse gases into the environment, further affecting the climate.

Hydroelectric Dams

- The construction and operation of hydroelectric dams in the Amazon, particularly on the Madeira River a major tributary of the Amazon contribute to drought scenarios.
- The creation of reservoirs for power generation alters natural river flows and affects aquatic and terrestrial ecosystems.

- The decomposition of organic matter in these reservoirs releases methane, a potent greenhouse gas, into the atmosphere.

Transportation Infrastructure

- The construction of infrastructure, like highways, can have detrimental effects on the rainforest by cutting through conserved areas, increasing deforestation, and intensifying climate anomalies in the biome.

Impacts on the Water Cycle

- All these factors collectively disrupt the natural water cycle in the Amazon region.
- These lead to a decrease in water volume in rivers, prolonged droughts, and negative consequences for aquatic fauna, riparian habitats, and local communities dependent on these water resources.