



Drought in the Amazon Rainforest

For Prelims: [Amazon Rainforest](#), [El Niño](#), [Greenhouse gases](#), [Amazon river dolphins](#)

For Mains: Environment Pollution and Degradation, Conservation

Source: [IE](#)

Why in News?

The [Amazon Rainforest](#), often referred to as the "lungs of the earth," is currently facing an unprecedented and **severe** [drought](#).

- This environmental crisis is causing significant disruptions to the **lives of Indigenous people, impacting the entire ecosystem.**

What are the Contributing Factors to Drought in the Amazon Rainforest?

- **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 of 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.**

What are the Impacts of the Drought Caused in Amazon Rainforest?

- The drought has caused water levels to drop drastically in many rivers, including the **Rio Negro a tributary of the Amazon, one of the world's largest rivers by discharge levels**, which has fallen to a record low level.
- This has left tens of thousands of people stranded in remote jungle villages, with **limited access to food, drinking water, medicine, and other supplies.**
 - Some communities have reported outbreaks of diseases such as **diarrhoea and skin infections due to the contaminated water.**
- The drought has also affected the biodiversity and wildlife of the rainforest. Hundreds of fish and [Amazon river dolphins](#) also known as **boto or pink river dolphin**, have been found dead, their rotting carcasses polluting the water. Many animals are also suffering from hunger and thirst, as their habitats and food sources are shrinking.
- The drought has also increased the **risk of forest fires**, which have reached a record high in some areas.
 - The fires have destroyed large swathes of vegetation, released huge amounts of [carbon dioxide into the atmosphere](#), and created a thick haze of smoke that has worsened the air quality and visibility in many cities.

Amazon Rainforest

- These are large tropical rainforests occupying the **drainage basin of the Amazon River** and its tributaries in northern South America and covering an area of 6,000,000 square km.
 - 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**, Peru, and also parts of Guyana, Colombia, Ecuador, Bolivia, Suriname, French Guiana, and Venezuela, the **Amazon River Basin is the world's largest drainage system.**
- It is bounded by the **Guiana Highlands** to the north, the **Andes Mountains** to the west, the **Brazilian Central Plateau** to the south, and 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.



UPSC Civil Services Examination, Previous Year Question (PYQ)

Prelims

Q. Which one of the following pairs is correctly matched? (2013)

	Geographical Feature	Region
(a)	Abyssinian Plateau	Arabia
(b)	Atlas Mountains	North-Western Africa
(c)	Guiana Highlands	South-Western Africa
(d)	Okavango Basin	Patagonia

Ans: (b)

Exp:

- Abyssinian Plateau is a plateau in Ethiopia (Africa) located at an elevation of 1388 metres above sea level.
- Atlas Mountains are a series of mountain ranges in northwestern Africa, running generally southwest to northeast. It forms the geologic backbone of the countries of the Maghreb (the

western region of the Arab world) – Morocco, Algeria, and Tunisia.

- **Guiana Highlands** is the region in northern South America where Brazil, Guyana, and Venezuela meet at Mount Roraima. It is bounded by the Orinoco and **Amazon river basins**, and by the coastal lowlands of the Guianas.
- The Okavango river basin is the fourth-longest river system in southern Africa. It is an endorheic basin (watershed which does not drain to the sea) found in southwestern Africa.
- **Therefore, option (b) is the correct answer.**

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