

Tropical Forests and Extreme Droughts: El Niño 2023-24

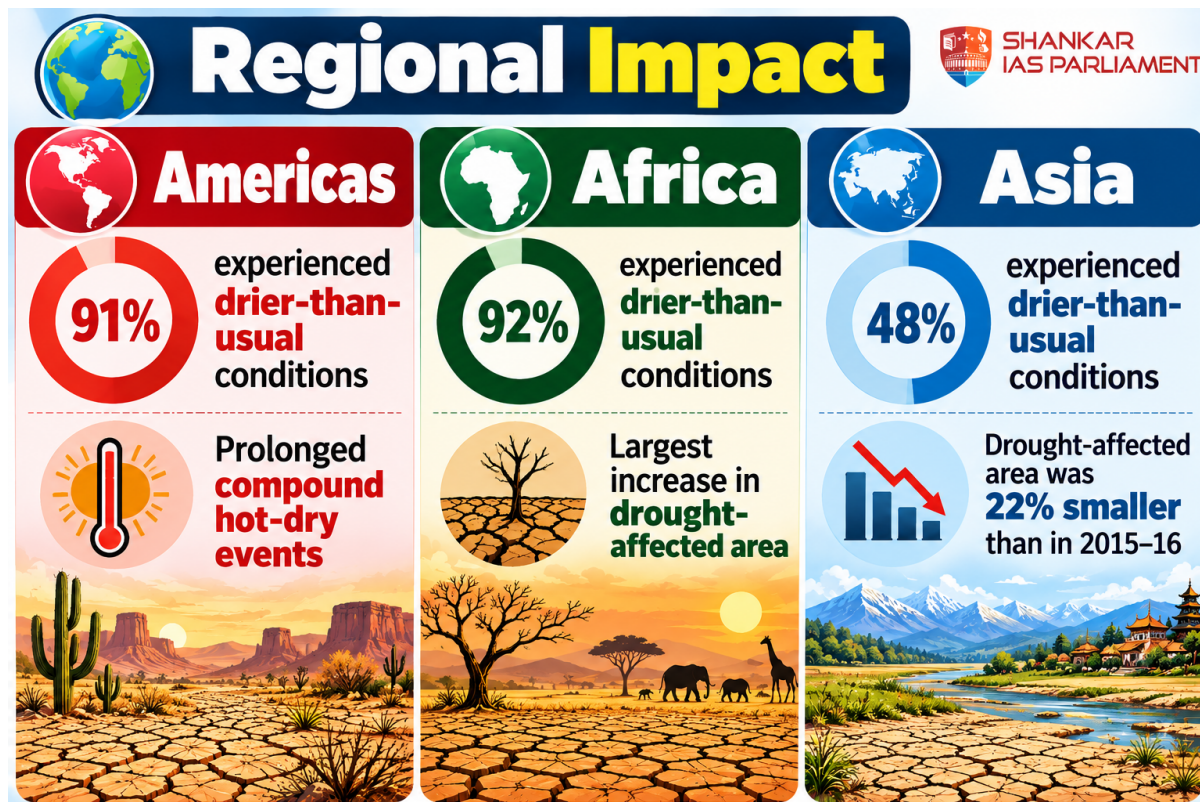
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Why in News?

A study published in Earth's Future reports that more than 75% of the world's tropical forests experienced unusually hot and dry conditions during the 2023-24 El Niño period.

Key Findings

- **Study period** - Climate data from 2000-2024; future projections from 2025-2100.
- **Area studied** - 15.9 million sq. km of tropical forests in the Americas (8.4 million sq. km), Africa (3.6 million sq. km), and Asia (3.9 million sq. km).
- **Compound hot-dry events** - Impacted about 88% of American, 89% of African, and 43% of Asian tropical forests.
- **Drought** - Drier-than-normal conditions impacted approximately 80% of pantropical forests.
- **Wet-season vulnerability** - About 80% of unusually hot and dry months occurred during the wet season, disrupting groundwater recharge.
- **Forest degradation** - Burned areas rose by about 9%, and reported degradation increased by 19% during 2023-24.



Impacts on Tropical Forests

- Tropical forests sequester approximately 1.2 petagrams of carbon annually (Pg C/year).
- Extreme heat and drought elevate tree mortality rates, increase the frequency of forest fires, and accelerate ecosystem degradation.
- Forests have the potential to transition from functioning as carbon sinks to becoming carbon sources.
- A decline in evapotranspiration diminishes atmospheric moisture recycling, which can intensify regional aridity.
- Consequences include biodiversity loss, disruption of hydrological and carbon cycles, and increased threats to local livelihoods.

Reference

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