

GLOBAL DROUGHT OUTLOOK–2025

NEWS: **The Global Drought Outlook–2025**, presented by **the Organisation for Economic Co-operation and Development (OECD)**, underscores **a rising trend in the frequency and severity of droughts globally**.

- It highlights that countries like **India face significantly higher exposure**, lower adaptive capacity, and deeper livelihood dependencies on **climate-sensitive sectors** compared to **OECD nations**.

WHAT'S IN THE NEWS?

Global Drought Trends and Drivers

Drought Severity and Expansion

- Approximately 40% of the global land area is experiencing increased frequency and severity of droughts in recent decades.
- Long-duration droughts are becoming more common, with notable examples such as the **20-year drought in Mexico** and **severe 2022 droughts** across Europe and the U.S.
- Between 1900 and 2020, the global land area affected by drought has **doubled**, indicating a significant expansion in geographic impact.

Primary Drivers of Drought

- **Climate Change** is a dominant factor, as rising global temperatures lead to:
 - Increased evaporation from soil and water bodies.
 - Shifts in precipitation patterns, resulting in less predictable rainfall.
 - Reduced snowpack and glacier melt, leading to lower river flows and reservoir levels.
- Projections under a **+4°C warming scenario** indicate that drought frequency and intensity could increase by **up to seven times** compared to historical norms.
- **Human-Induced Drivers** include:
 - Widespread deforestation, reducing local humidity and water retention.
 - Urban expansion, which increases impervious surfaces and decreases water recharge.
 - Unsustainable agricultural practices, such as over-extraction of groundwater and mono-cropping, which degrade water-holding capacity of soils.

Ecological and Economic Impacts of Drought

Environmental Consequences

- Declining water availability accelerates **land degradation** and reduces the resilience of forests, wetlands, and grasslands.
- Shifts in vegetation composition and distribution are becoming common due to changing moisture regimes.
- Globally, **62% of aquifers** under monitoring are in decline, while many rivers have seen sharp **reductions in streamflow**, affecting biodiversity and downstream water availability.

Economic and Sectoral Losses

- **Global economic losses** from drought are increasing by an estimated **3% to 7.5% annually**.
- In **agriculture**, droughts during dry years can reduce crop yields by up to **22%**.
 - If drought durations double, **soybean and corn yields** may fall by up to **10%**, threatening food security.
- **Energy and trade sectors** are also highly vulnerable:
 - Droughts can reduce **river-based trade volumes by up to 40%**, limiting movement of goods.
 - **Hydroelectric generation may fall by over 25%**, increasing reliance on fossil fuels.
 - For instance, drought severely disrupted operations at the **Panama Canal**, a key global trade route.

Humanitarian and Geopolitical Impacts

- Although droughts account for only **6% of natural disasters**, they are responsible for **34% of disaster-related deaths**.
- They contribute to **mass displacement**, increasing vulnerability among rural and urban poor populations.
- **Water scarcity** exacerbates social inequalities and is increasingly seen as a **trigger for political unrest** and **regional conflicts**, particularly in water-stressed regions.

India-Specific Drought Challenges

Rising Flash Drought Risk

- India is witnessing an increase in **flash droughts**, particularly during the critical **southwest monsoon period (June–September)**.
- These are characterized by **rapid onset within weeks**, driven by high temperatures, intense solar radiation, dry winds, and sudden rainfall deficiency.
- Agricultural exposure to flash droughts in India is expected to rise by **20%–30% by 2100**.
- Such events offer **short warning periods**, posing a challenge to conventional drought management and crop planning systems.

Soil and Groundwater Stress

- Over **60% of Indian soils** showed a drying trend between 1980 and 2023.
- Projections indicate that by 2050, **central, northern, and peninsular India** will suffer from acute **soil moisture deficits**.
- India is the **largest extractor of groundwater globally**, with heavy usage in:
 - **Indo-Gangetic Plains**, including Punjab and Haryana.
 - **Maharashtra and Karnataka**, especially for water-intensive crops.

- Unsustainable extraction is causing critical stress on aquifers, particularly for irrigation, which supports nearly 60% of Indian agriculture.

Agricultural Vulnerability

- Over **50% of India's cultivated area is rainfed**, making it highly vulnerable to rainfall variability and droughts.
- Key water-intensive crops like **paddy and sugarcane** in Maharashtra, Andhra Pradesh, and Punjab are increasingly at risk.
- Doubling of drought duration could lead to **yield losses up to 10%** for major crops like **rice, soybean, and pulses**, affecting food and income security for millions.

Urban Water Challenges

- Major urban centers such as **Delhi, Bengaluru, and Chennai** are under severe water stress due to:
 - **Groundwater depletion.**
 - **Reduced recharge zones** because of construction and soil sealing.
- Rapid urbanization has compromised the **natural recharge capacity**, while demand continues to grow.

Governance and Institutional Gaps

- Current water and drought governance frameworks often **fail to incorporate hydroclimatic projections** into crop planning, infrastructure, or policy.
- Despite initiatives like **PM Krishi Sinchai Yojana (PMKSY)** and **Jal Shakti Abhiyan**, most states lack **climate-resilient and integrated drought strategies**.
- **Water abstraction charges** remain negligible, providing no real incentive for conservation.
- **Loss assessments** are often fragmented, leading to underestimation and weak response mechanisms.

Recommendations for Resilient Drought Management

Proactive Resilience Investments

- Studies show that **every \$1 spent on drought prevention can yield \$2–\$3 in benefits**.
- In agriculture and water sectors in India, resilience-building investments can yield **returns 5 to 10 times the cost**, through reduced crop losses and increased water security.

Integrated and Effective Water Policy

- Implement **Integrated Water Resource Management (IWRM)** approaches to balance use, replenishment, and conservation.
- Promote equitable distribution and **reduced dependence on groundwater**, especially in stressed areas.
- Strengthen legal and institutional frameworks to align water policy with **climate adaptation goals**.

Ecosystem-Based Approaches

- Incorporate **long-term climate and hydrological risks** into national and state-level water and land-use planning.
- Protect, restore, and manage **wetlands, forests, and watersheds** to improve water availability and natural regulation.

Drought-Resilient Agricultural Practices

- Promote **sustainable land use**, agroforestry, crop diversification, and soil conservation.
- Incentivize the shift to **drought-tolerant crop varieties** and **less water-intensive practices**.
- Improve **weather-based crop advisories**, precision irrigation (like drip/sprinklers), and soil health monitoring.

Strategic Risk Reduction

- Strengthen **drought early warning systems**, integrating satellite data, climate models, and ground reports.
- Invest in **risk-reduction infrastructure** (such as water harvesting, resilient irrigation) and **climate-proof rural livelihoods**.
- Align public funding and insurance schemes with **climate and drought vulnerability metrics**.

Collaborative Governance and Data Sharing

- Encourage **inter-state and inter-sectoral cooperation** for coordinated drought response and water management.
- Promote **knowledge sharing and best practices**, especially in watershed management and water budgeting.
- Ensure **community engagement** and participation in local water governance and planning processes.

Conclusion

- Droughts, often silent but deadly, pose a long-term threat to **water security, food production, ecological health, and economic stability**.
- Addressing drought risk requires a **strategic shift from reactive to proactive measures**, integrating science, policy, and community action.
- India's future sustainability will depend on **embedding climate resilience in water and agricultural governance**, securing the well-being of future generations through **balanced development and ecological restoration**.

Source: https://www.oecd.org/en/publications/global-drought-outlook_d492583a-en.html