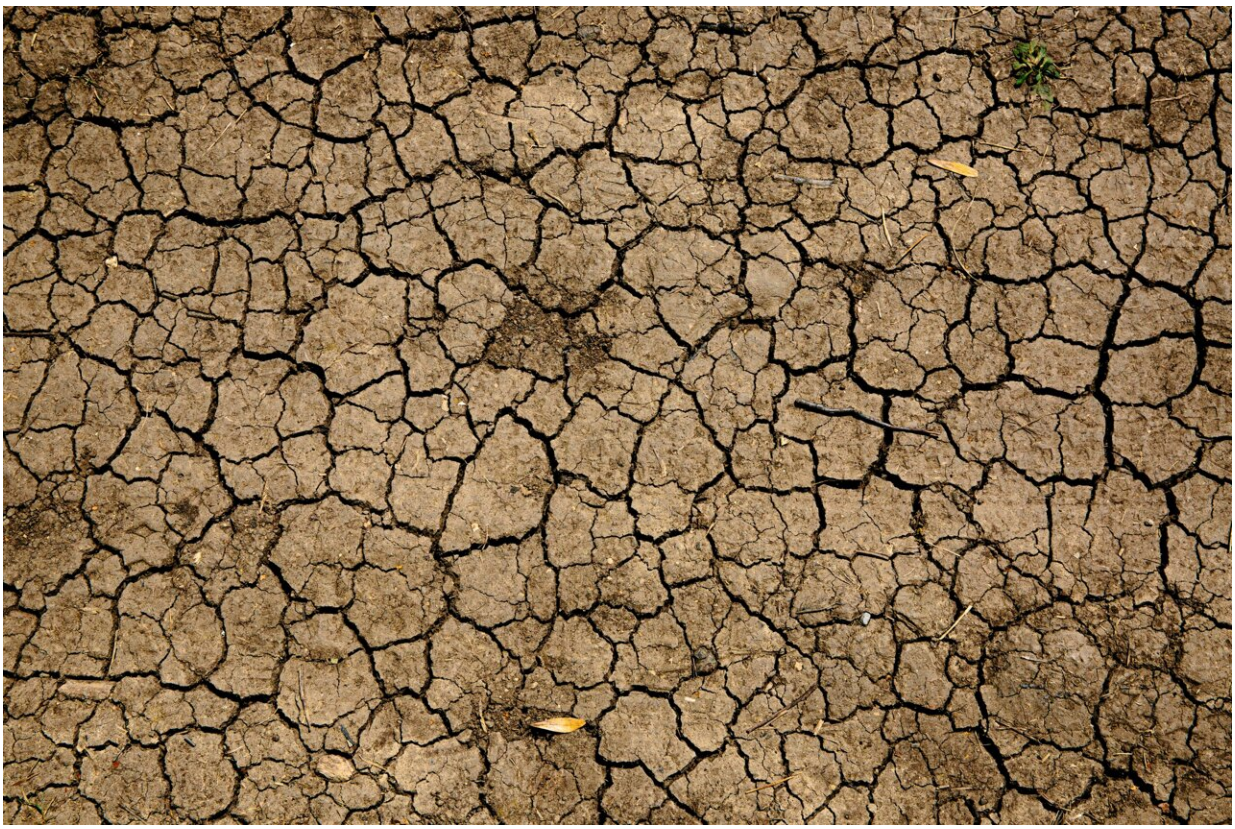
'Silent devastation' of drought set to increase globally under climate change, says UN report

December 1 2023



Credit: Unsplash/CC0 Public Domain

Recent drought-related data compiled by the UN point to "an unprecedented emergency on a planetary scale, where the massive

impacts of human-induced droughts are only starting to unfold."

According to the report, "Global Drought Snapshot," launched by the UN Convention to Combat Desertification (UNCCD) at the outset of COP28 climate talks in the UAE, few if any hazard claims more lives, causes more economic loss and affects more sectors of societies than drought.

UNCCD is one of three Conventions originated at the 1992 Earth Summit in Rio de Janeiro. The other two address climate change (UNFCCC) and biodiversity (UN CBD).

Says UNCCD Executive Secretary Ibrahim Thiaw, "Unlike other disasters that attract media attention, droughts happen silently, often going unnoticed and failing to provoke an immediate public and political response. This silent devastation perpetuates a cycle of neglect, leaving affected populations to bear the burden in isolation."

"The Global Drought Snapshot report speaks volumes about the urgency of this crisis and building global resilience to it. With the frequency and severity of drought events increasing, as reservoir levels dwindle and crop yields decline, as we continue to lose biological diversity and famines spread, transformational change is needed."

"We hope this publication serves as a wake-up call."

Drought data, selected highlights:

- 15%–20%: Population of China facing more frequent moderate-to-severe droughts within this century (Yin et al., 2022)
- 80%: Expected increase in drought intensity in China by 2100 (Yin et al., 2022)
- 23 million: people deemed severely food insecure across the

Horn of Africa in December 2022 (WFP, 2023)
- 5%: Area of the contiguous United States suffering severe to extreme drought (Palmer Drought Index) in May, 2023 (NOAA, 2023)
- 78: Years since drought conditions were as severe as they were in the La Plata basin of Brazil–Argentina in 2022, reducing crop production and affecting global crop markets (WMO, 2023a)
- 630,000 km^2 (roughly the combined area of Italy and Poland): Extent of Europe impacted by drought in 2022 as it experienced its hottest summer and second warmest year on record, almost four times the average 167,000 km^2 impacted between 2000 and 2022 (EEA, 2023)
- 500: years since Europe last experienced a drought as bad as in 2022 (World Economic Forum, 2022)
- 170 million: people expected to experience extreme drought if average global temperatures rise 3°C above pre-industrial levels, 50 million more than expected if warming is limited to 1.5°C (IPCC, 2022)

Agriculture and forests

- 70%: Cereal crops damaged by drought in the Mediterranean, 2016–2018
- 33%: loss of grazing land in South Africa due to drought (Ruwanza et al., 2022)
- Double or triple: Expected forest losses in the Mediterranean region under 3°C warming compared to current risk (Rossi et al., 2023)
- 5: Consecutive rainfall season failures in the Horn of Africa, causing the region's worst drought in 40 years (with Ethiopia, Kenya and Somalia particularly hard hit), contributing to reduced agricultural productivity, food insecurity and high food prices (WMO, 2023).

- 73,000 km^2: average area of EU cropland (or ~5%) impacted by drought, 2000-2022, contributing to crop failures (EEA, 2023)
- $70 billion: Africa's drought-related economic losses in the past 50 years (WMO, 2022).
- 44%: Expected drop in Argentina's soybean production in 2023 relative to the last five years, the lowest harvest since 1988/89, contributing to an estimated 3% drop in Argentina's GDP for 2023 (EU Science Hub, 2023)

Water conditions

- 75%: Reduction of cargo capacity of some vessels on the Rhine due to low river levels in 2022, leading to severe delays to shipping arrivals and departures (World Economic Forum, 2022)
- 5 million: People in southern China affected by record-low water levels in the Yangtze River due to drought and prolonged heat (WMO, 2023a)
- 2,000: backlog of barges on the Mississippi River in late 2022 due to low water levels, causing $20 billion in supply chain disruptions and other economic damage (World Economic Forum, 2022)
- 2–5 times: Acceleration of long-term rates of groundwater-level decline and water-quality degradation in California's Central Valley basins over the past 30 years due to drought-induced pumpage (Levy et al., 2021)

Social dimensions

- 85%: People affected by droughts who live in low- or middle-income countries (World Bank, 2023)
- 15 times: Greater likelihood of being killed by floods, droughts and storms in highly vulnerable regions relative to regions with

very low vulnerability, 2010 to 2020 (IPCC, 2023)
- 1.2 million: people in the Central American Dry Corridor needing food aid after five years of drought, heat waves and unpredictable rainfall (UNEP, 2022)

Remedies

- Up to 25%: CO_2 emissions that could be offset by nature-based solutions including land restoration (Pan et al., 2023)
- Almost 100%: Reduction in the conversion of global forests and natural land for agriculture if just half of animal products such as pork, chicken, beef and milk consumed today were replaced with sustainable alternatives (Carbon Brief, 2023)
- 20 to 50%: Potential reduction in water waste if conventional sprinkler systems were replaced by micro-irrigation (drip irrigation), which delivers water directly to plant roots (STEM Writer, 2022).
- 20%: EU's land and sea areas to be made subject to restoration measures by 2030, with measures in place for all ecosystems in need of restoration by 2050 (European Council, 2023)
- $2 billion: investment by AFR100 in African organizations, businesses and government-led projects, announced this year with further anticipated investments of $15 billion to foster the restoration of 20 million hectares of land by 2026, generating an estimated $135 billion in benefits to around 40 million people. (Hess, 2021)
- 6: Riparian countries (Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo) participating in the Volta basin Flood and Drought management project, the first large-scale, transboundary implementation of Integrated Flood and Drought Management strategies, including an End-to-End Early Warning System for Flood Forecasting and Drought Prediction (Deltares, 2023)
- ~45%: global disaster-related losses that were insured in 2020, up

from 40% in 1980-2018. However, disaster insurance cover remains very low in many developing countries (UNDRR, 2022)
- 50 km: the resolution of the water distribution maps thanks to a recently-developed method of combining satellite measurements with high-resolution meteorological data, an major improvement from the previous 300 kilometers resolution (Gerdener et al., 2023)

Launched by the leaders of Spain and Senegal at COP27, IDRA is the first global coalition creating political momentum and mobilizing financial and technical resources for a drought-resilient future. Australia, Colombia, Italy and the Union of Comoros, together with the Commonwealth Secretariat and four other major international organizations, are being announced at COP28 as IDRA's latest members, bringing the Alliance's total membership to 34 countries and 28 entities.

Additional highlights from the report

This report underlines land restoration, sustainable land management and nature positive agricultural practices as critical aspects of building global drought resilience. By adopting nature-positive farming techniques, such as drought-resistant crops, efficient irrigation methods, no-till and other soil conservation practices, farmers can reduce the impact of drought on their crops and incomes.

Efficient water management is another key component of global drought resilience. This includes investing in sustainable water supply systems, conservation measures and the promotion of water-efficient technologies.

Disaster preparedness and early warning systems are also essential for global drought resilience. Investing in meteorological monitoring, data collection and risk assessment tools can help respond quickly to drought

emergencies and minimize impacts. Building global drought resilience requires international cooperation, knowledge sharing as well as environmental and social justice.

"Several countries already experience climate-change-induced famine," says the report.

"Forced migration surges globally; violent water conflicts are on the rise; the ecological base that enables all life on earth is eroding more quickly than at any time in known human history."

"We have no alternative to move forward in a way that respects the planet's boundaries and the interdependencies of all forms of life. We need to reach binding global agreements for proactive measures that are to be taken by nations to curtail the spells of drought."

"The less space the developed human world occupies, the more natural hydrological cycles will stay intact. Restoring, rebuilding and revitalizing all those landscapes that we degraded and destroyed is the imperative of our time. Urban intensification, active family planning, and curbing rapid population growth are prerequisites for societal development that respects planetary boundaries."

Provided by UN Convention to Combat Desertification

Citation: 'Silent devastation' of drought set to increase globally under climate change, says UN report (2023, December 1) retrieved 29 April 2024 from https://phys.org/news/2023-12-silent-devastation-drought-globally-climate.html