



Climate

The Impact of Climate Change on Africa

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Last updated 11 April 2024 using IFs v8.17

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Africa, a region historically contributing little to the climate crisis, now bears a disproportionate burden of severe climate change impacts. The continent grapples with several challenges, including but not limited to rising temperatures, water stress, heat-related mortality, diminished food production, increased occurrences of extreme weather events, climate-induced displacement, biodiversity loss, increasing poor air quality, associated respiratory diseases and the heightened spread of pathogens. These impacts now foster potential conflict and insecurity.

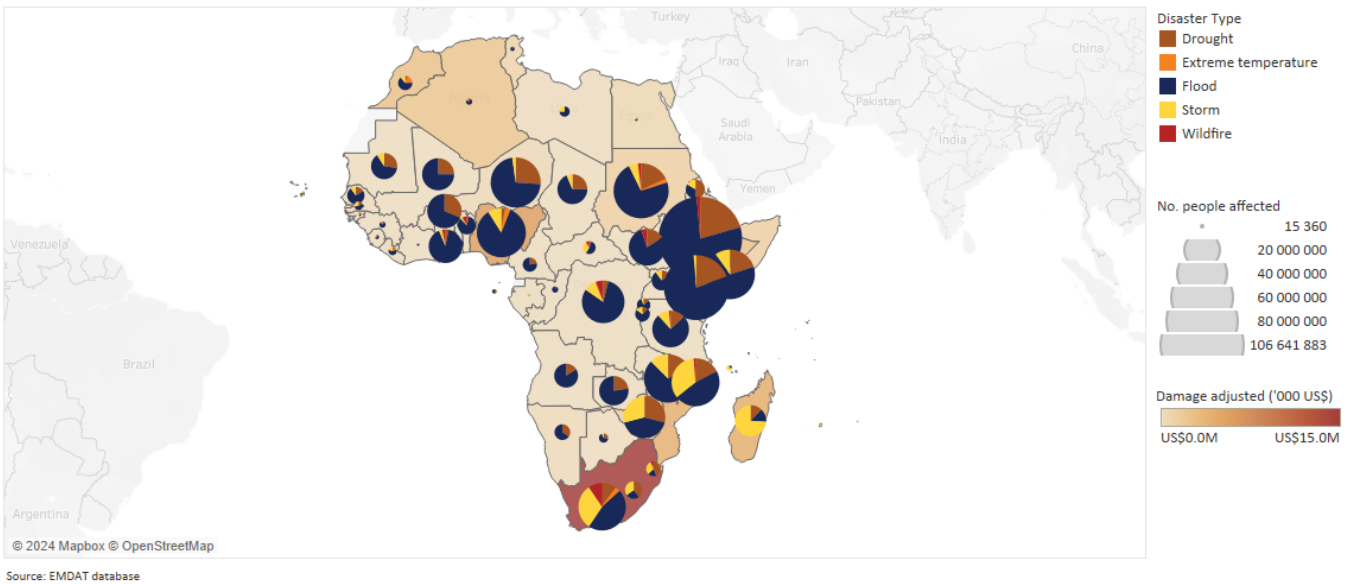
The changing climate has ushered in a grim reality for the continent, marked by frequent climate disasters and severe economic and livelihood losses. According to the EMDAT [database](#), since 1980, Africa has endured 1 858 climate-related disasters, accruing US\$47 billion in direct financial losses and affecting an estimated 710 million people. These events account for 65% of all-natural disasters, manifesting as sudden-onset disasters like the floods in Libya in early 2023 or slow-onset disasters like the food shortages in Djibouti in 2022 resulting from a preceding four-year drought in the Horn of Africa. The toll on human lives and livelihoods is immense.

Compounding the toll is the continent's high vulnerability to climate-related disasters. With more than 30% of the population living in absolute poverty, the continent grapples with systemic challenges that exacerbate the impact of any natural disaster. Vulnerability is further heightened due to the governance, economic, social, cultural and environmental factors. Many governance structures on the continent need more agility and resources to respond effectively to crises. Political instability and logistical hurdles hinder swift action, delaying crucial aid and relief efforts. Corruption and mismanagement also divert resources away from disaster preparedness and recovery measures, weakening the overall resilience of communities.

Further contributing to the high vulnerability rates is the continent's significant wealth distribution disparities, with sub-Saharan Africa having some of the highest inequality rates globally. Limited investment in infrastructure exacerbates vulnerabilities, leaving critical resources such as healthcare facilities and transportation networks unable to withstand the onslaught of disasters. Many economies struggle to recover from the financial shocks or infrastructure damages induced by climate-related events, further perpetuating cycles of poverty and deprivation. Alarming, only 18% of the climate-related disaster losses incurred over the past 43 years were [insured](#), leaving governments, communities, and families without the necessary means to recover and rebuild in the aftermath of these disasters. This lack of financial protection further pushes the most vulnerable into deeper poverty and heightened vulnerability. Ecosystem degradation and biodiversity loss diminish the capacity to buffer against disasters. Deforestation and soil erosion escalate the risk of floods, amplifying the magnitude of their impact on vulnerable communities.

Chart 9 illustrates the distribution of climate-related disasters across African countries, highlighting the various underlying disaster types and Africa's susceptibility. Water-related disasters emerge as the continent's Achilles' heel, constituting 82% of all climate-related incidents. The precarious balance between too much water in the form of floods and too little in droughts underscores the urgent need for adaptation interventions.

Chart 9: Map of Africa's climate disasters, 1980-2023



South-east Africa faces a disproportionate exposure to severe weather events, including convective storms, tropical lows, cut-off lows, and cyclones. The devastating impact of Cyclone Freddy (the longest-lasting and most intense[1] tropical cyclone ever recorded), which caused widespread devastation in Mozambique, Malawi, Zimbabwe and Madagascar in 2023, and the 2022 devastating Durban Floods in the KwaZulu province of South Africa (caused by an intense cut-off low system) are worrying examples. The warming Indian Ocean is fuelling the intensification of cyclones, and as temperatures rise, these events are predicted to become more frequent and destructive. The escalating exposure to such disasters will exacerbate existing vulnerabilities on the continent, further challenging the resilience of communities and countries alike.

The Horn of Africa is also particularly vulnerable to droughts, floods, and disease outbreaks as years of conflict and instability erode community resilience. The region recently experienced one of the worst droughts in recorded history, and critically high food insecurity and conflict have contributed to large-scale internal displacement across the region. In 2023, the [internally displaced population](#) in the area was estimated at 12.15 million, and almost 60 million people were food insecure, a noticeable increase from the 37 million recorded in 2022. Climate projections differ in their forecasts for rainfall in the region. Still, there is agreement that the area is drying due to increased evapotranspiration and that a noticeable rise in the frequency of extreme events is highly probable. Given the high reliance on subsistence farming and the prominence of the agricultural sector, [food insecurity](#) and shortages will likely rise.

Large areas in the Sahel and West Africa risk transforming into a desert landscape. The susceptibility to [desertification](#) is especially noticeable in the Sahel, a transitional zone between the Sahara Desert to the north and the more fertile and moist regions to the south. Climate change is set to increase erratic rainfall patterns and prolonged droughts in this region, exacerbating existing socio-economic challenges in an area already confronted with high instability. The region's high exposure to climate change and the meagre adaptive capacity (due to high instability, conflict and socio-economic challenges) pose significant risks to human well-being. As with the Horn, increased [population displacement](#) is unfolding as arable land diminishes and pastoral communities face increasing challenges in sustaining their livelihoods.

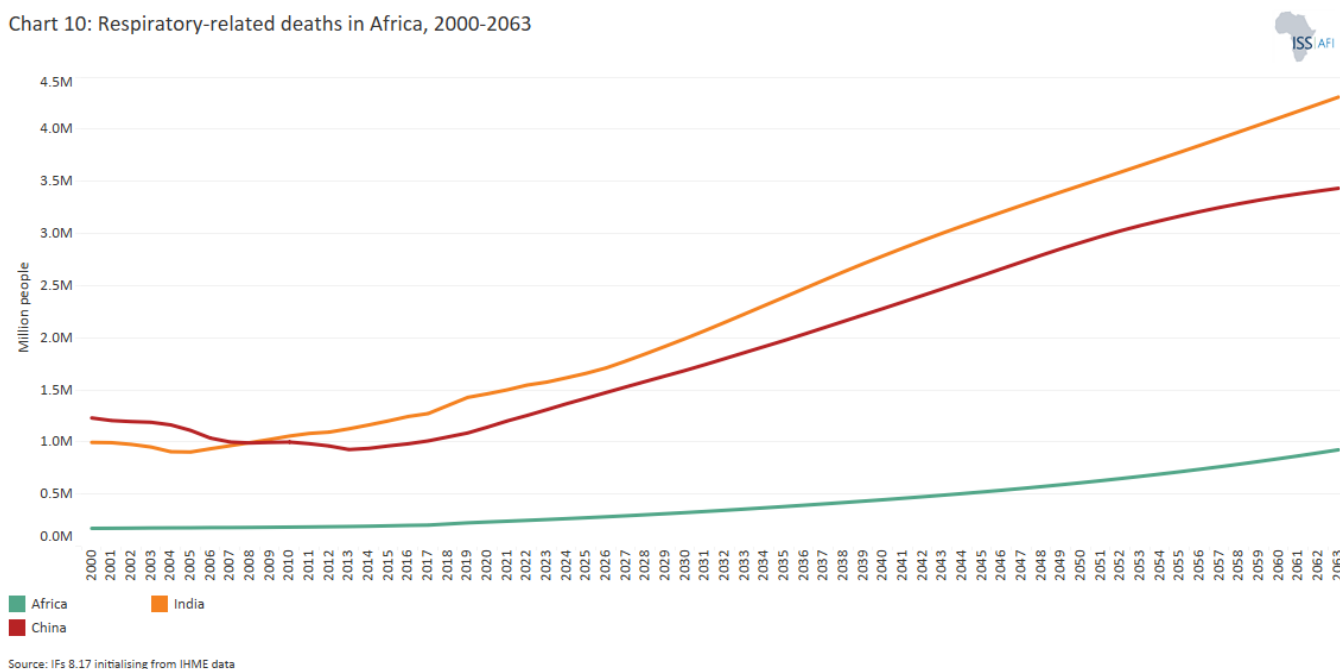
Climate change in Africa is also significantly reshaping the landscape of diseases, affecting both infectious and non-communicable diseases. Rising temperatures and alterations in rainfall patterns are projected to shift the prevalence of diseases like malaria, dengue, measles, etc. Despite breakthroughs in vaccine development offering promise, the heightened risk in countries grappling with underlying socio-economic challenges and strained healthcare systems is

apparent, as exemplified by the recorded disease outbreaks in the Horn of Africa in 2023. In the region, disease outbreaks, including polio, meningitis, malaria, measles, dengue, cholera, and anthrax, underscore the vulnerability of areas facing climate-induced health challenges.

Outbreaks of water-borne diseases, including cholera and diarrheal illnesses, are also likely to become more prominent in certain regions due to prolonged droughts and intense flooding impacting water quality and sanitation systems. A case in point is **Malawi**, where such conditions have escalated the risk of **water-borne diseases**, necessitating enhanced public health interventions in early 2023. **South Africa** also saw the outbreak of a severe Cholera epidemic in early 2023, as rising temperatures and failing sanitation and water management contributed to the disaster.

Climate change also affects respiratory health, particularly in urban areas marked by industrialisation and increased transportation activity. Elevated temperatures and shifting precipitation patterns contribute to ground-level ozone and particulate matter formation, exacerbating **respiratory conditions**. In the IFs Current Path forecast, deaths attributable to respiratory diseases in Africa (Chart 10) will likely rise from 174 000 in 2023 to over 296 000 by 2063.

Chart 10: Respiratory-related deaths in Africa, 2000-2063



Vulnerable population groups, such as the elderly, those with pre-existing health conditions and children, face an elevated risk of **heat-related illnesses** like heatstroke. In 2003, a heatwave cost the lives of 72 000 people in Europe, showing just how deadly the urban heat island effect can be and underscoring the need for targeted healthcare interventions and public health initiatives to safeguard the well-being of these populations. Heat-related illness and death are severely underreported in Africa and difficult to monitor, but a **WHO** study showed that **heat-related deaths** among the elderly in South Africa can climb from a baseline of two deaths per 100 000 to as many as 20 to 50 deaths per 100 000 by 2050. Rising temperatures also threaten African cities as urbanisation continues amidst a backdrop of poor planning, a lack of housing regulations and insufficient use of building materials.

Endnotes

1. Highest recorded Accumulated Cyclone Energy (ACE), a metric used to compare overall tropical cyclone activity.

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Cite this research

Alize le Roux and Jakkie Cilliers (2024) Climate. Published online at futures.issafrica.org. Retrieved from <https://futures.issafrica.org/thematic/14-climate-change/> [Online Resource] Updated 11 April 2024.

About the authors

Ms Alize le Roux joined the AFI in May 2021 as a senior researcher. Before joining the ISS, she worked as a principal geo-informatics researcher at the CSIR, supporting various local and national policy- and decision-makers with long-term planning support. Alize has 14 years of experience in spatial data analysis, disaster risk reduction and urban and regional modelling. She has a master's degree in geographical sciences from the University of Utrecht, specialising in multi-hazard risk assessments and spatial decision support systems.

Dr Jakkie Cilliers is the ISS's founder and former executive director of the ISS. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the ISS. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

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