

UHP/CHE



Climate change is impacting health in Africa.

Rationale

Climate change creates negative impacts on people's health. Climate change happens mainly due to the emission of greenhouse gases into the atmosphere, resulting in global warming. The process has occurred naturally over thousands of years, but human-made climate change is happening faster. In Africa, where the most vulnerable populations reside, they endure the consequences of climate change despite not being the primary contributors to global carbon emissions. This situation unfairly burdens those already facing challenges for survival. Rising temperatures, precipitation changes, and the increased occurrence of natural disasters such as cyclones, severe storms, and droughts contribute to the spread of diseases, food security problems, limited or no access to clean water and sanitation facilities, a high risk of waterborne disease, heat stroke, and mental health problems are common in Africa. Amid natural disasters, the health system becomes weak due to disruptions of essential health services and impaired health infrastructure. Health system resilience should be built through a multisectoral approach, including a health security plan.

Key messages

- Global warming is alarming; the earth's average surface temperature in 2023 was the highest since the record started in 1880.
- There were 387 natural hazards and disasters worldwide in 2022, which caused the loss of 30,704 lives and affected 185 million individuals, with 79 disasters occurring in Africa.
- Eight disease-burdened areas in the African region are mainly affected by and at risk from climate change (Figure 6).
- Droughts alone affected 88.9 million people in Africa in 2022.
- 59.6%, the highest percentage of total disaster-affected populations in Africa among other continents in 2022, impact human socio-economic lives.
- 32 out of 47 (68%) African countries joined the 28th UN Climate Change Conference (COP 28) Declaration on Climate and Health, committing to advancing climate-resilient development, strengthening health systems, and building resilient and thriving communities.

Definition of climate change

- The United Nations Framework Convention on Climate Change (UNFCCC), adopted in 1992, provides an official definition of climate change. According to Article 1 of the UNFCCC, “Climate change” **means a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere, which is in addition to natural climate variability observed over comparable periods.**
- Climate change, driven primarily by human activities such as burning fossil fuels like coal, oil and gas, leads to long-term temperature shifts and weather patterns.
- Burning fossil fuels in transportation, energy production, agriculture, and land use generates greenhouse gas emissions, particularly carbon dioxide and methane, amplifying the Earth's heat-trapping effect and contributing to rising global temperatures.

Vital signs of the planet Earth

The vital signs of our planet earth, encompassing surface temperature, CO₂ and methane emissions, ocean warming and rising sea levels, are key alarming indicators to address the complex climate change problems urgently.

Global surface temperature

- Earth's temperature rises yearly; the average surface temperature was the highest in history in 2023: 1.17 °C or 2.11 °F warmer compared to the long-term average from 1951 to 1980, which was only -0.07 °C in 1951.
- To prevent severe health impacts and countless climate-related mortality, global temperature rise should be limited to 1.5°C and prevent further temperature rise in future, despite the unavoidable effects of past emissions.

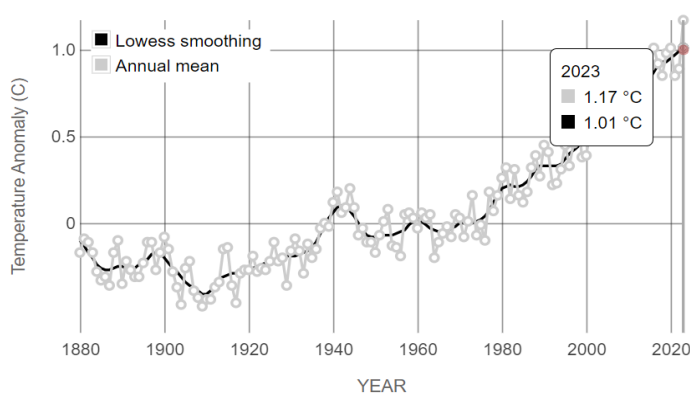


Figure 1: The change in global surface temperature compared to the long-term average from 1951 to 1980 (Source: NASA, [Global Temperature | Vital Signs – Climate Change: Vital Signs of the Planet \(nasa.gov\)](#))

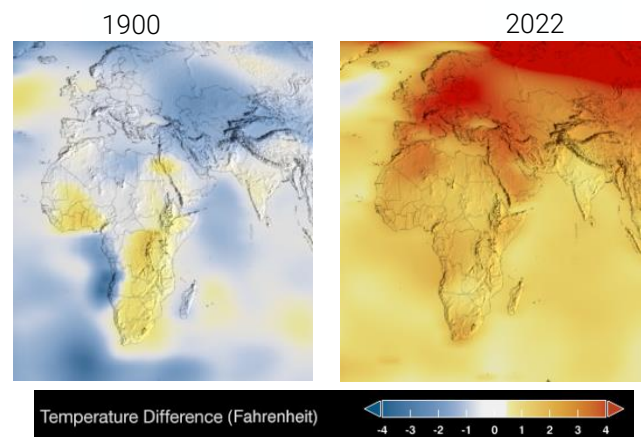


Figure 2: Temperature difference of the African continent between 1990 to 2022. (Source: [NASA, Global Temperature | Vital Signs – Climate Change: Vital Signs of the Planet \(nasa.gov\)](#))

Carbon dioxide production

- The presence of carbon dioxide in the atmosphere contributes to global warming, leading to changes in climate.
- It is a heat-trapping gas released from the extraction and burning of fossil fuels such as coal, oil, natural gas, wildfires, and volcanic eruptions.
- Human activities have increased atmospheric carbon dioxide levels by 50% over less than 200 years. The latest measure showed that 422 ppm in December 2023 was the highest in history.
- The results are consistent with the global energy-related CO₂ emissions grew 0.9% in 2022. Africa was the lowest emission region, contributing only 0.8 gigatonnes of total emissions in 2022, as shown in Figure 3.

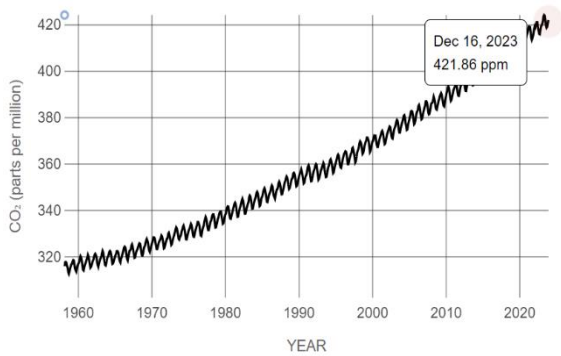


Figure 3: Atmospheric CO₂ levels *measured by NOAA* at Mauna Loa Observatory (Source: [NASA, Carbon Dioxide / Vital Signs – Climate Change: Vital Signs of the Planet \(nasa.gov\)](https://www.nasa.gov/vital-signs/2023-12-16-co2-421-86-ppm))

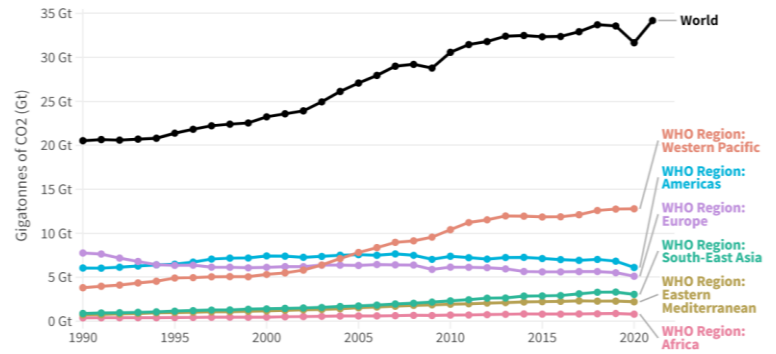


Figure 4: Total CO₂ Emissions from Fossil Fuel Combustion by Region (Source: Romanello, M., et al. (2023). *The 2023 report of the Lancet Countdown on health and climate change: the imperative for a health-centred response in a world facing irreversible harms, key findings, The Lancet, 402(10419), 2346-2394.*)

Ocean warming

- 90% of global warming is happening in the ocean, and the ocean's internal heat has been increasing since 1955.
- Ocean warming was measured as 345 (± 2) zettajoules in 2022.
- Ocean warming leads to various impacts, including sea level rise from thermal expansion, coral bleaching, speed-up melting of Earth's major ice sheets, intense hurricanes, and alterations in ocean health and biochemistry.
- The ocean water expansion due to stored heat accounts for a significant portion of global sea level rise, estimated to be between one-third and one-half.
- This led to heightened vulnerability to storm surges and flooding, particularly in regions with densely populated coastal cities and infrastructure. In Africa, 53 events relating to storms, heavy rain, floods, and landslides happened in 2023.

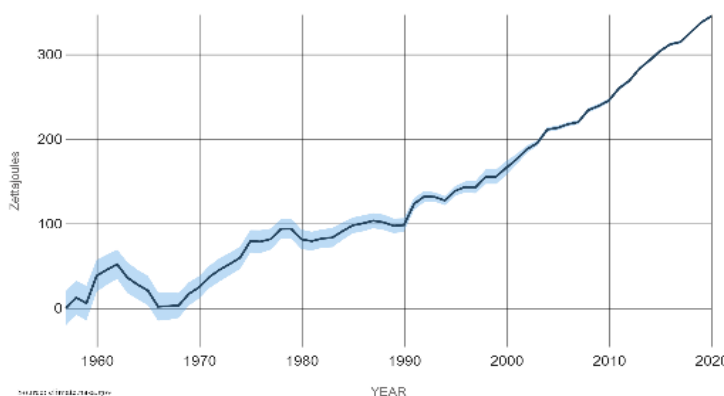


Figure 5: Ocean temperature changes of annual estimates for the first 2,000 meters of ocean depth (Source: NASA, *Ocean Warming / Vital Signs – Climate Change: Vital Signs of the Planet (nasa.gov)*)

Methane gas

- Methane (CH₄) is a strong greenhouse gas, ranking second to carbon dioxide (CO₂) in its impact on climate warming.
- Both natural processes and human actions generate it. Around 60% of current methane emissions are attributed to human activities, with agriculture, fossil fuel use, and landfill waste decomposition being the main sources.
- It was measured at 1912 (± 0.6) parts per billion in 2022. The number is increasing significantly, more than doubled over the past 200 years.

Climate change and Health

- Climate change has been amplifying health risks for years while also exerting adverse effects on health systems, national infrastructures, access to clean water, food availability, electricity, public services, and more (refer to Figure 6).
- Figure 6 highlights climate change-related health hazards, including extreme weather events, high temperatures, rising sea levels, air pollution, changes in vector distribution and ecology, water scarcity, and reduced food production, all of which contribute to increased mortality and morbidity among populations.
- Weather events such as storms, extreme heatwaves, floods, droughts, and wildfires result in adverse health outcomes, including high mortality and morbidity among affected populations due to injuries, heatstroke, drowning, waterborne diseases, zoonoses, vector-borne diseases, malnutrition, non-communicable diseases, and mental health issues.
- Elevated emissions of carbon and methane gases lead to air pollution, primarily in urban areas, directly exacerbating the risk of respiratory diseases. Ocean warming also disrupts marine ecosystems, negatively impacting human food security.

The magnitude of climate-related hazards varies based on vulnerability factors such as population demographics, geographical locations, countries' health system capacity, and socioeconomic status.

For example, during and after disaster incidents, vulnerable and disadvantaged groups such as women, children, undocumented migrants or displaced persons, the elderly, and those with pre-existing health conditions bear a disproportionate burden of climate-related health risks.

Countries with weak health systems struggle to respond to these emergencies. Essential health services, lifesaving first-aid care, and other routine health system functions are disrupted for several months, resulting in more deaths and increased disease occurrence. Eventually, this undermines progress towards Universal Health Coverage (UHC) targets.

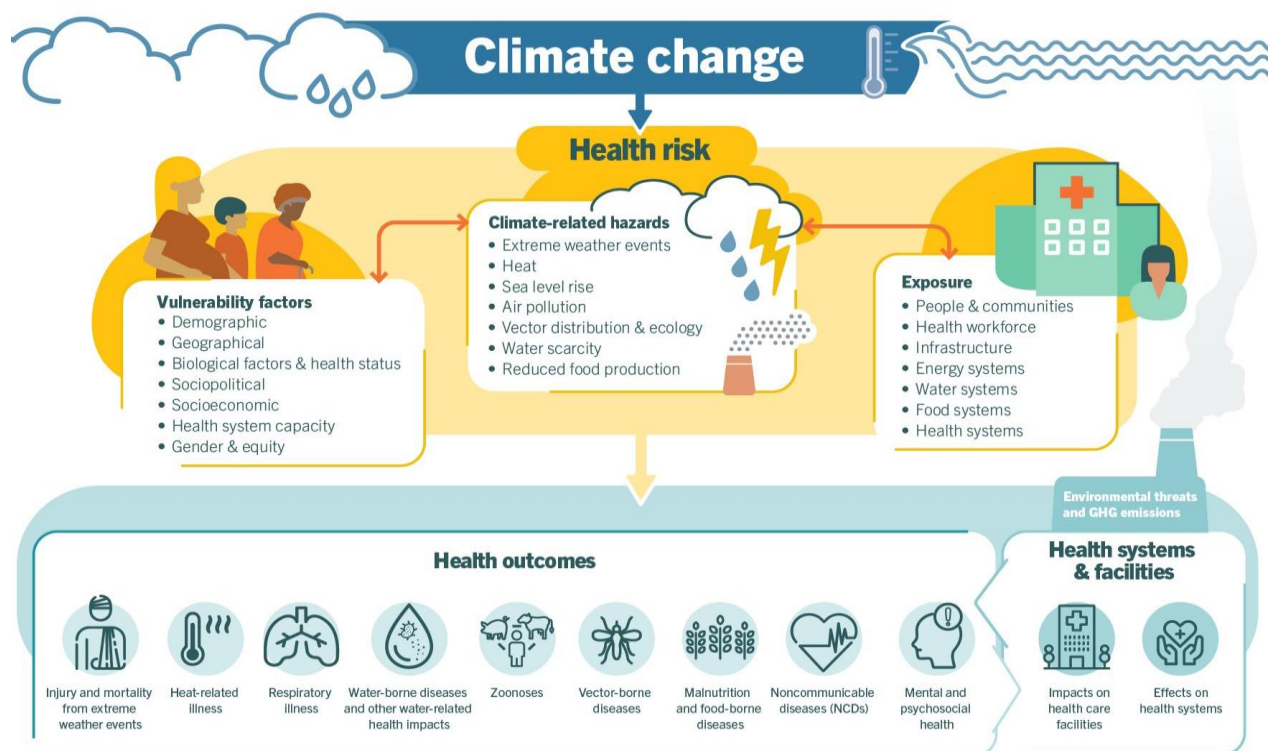


Figure 6: An overview of climate-sensitive health risks, their exposure pathways and vulnerability factors. (source: Climate change (who.int))

In the short to medium term, the extent of adverse effects of climate change on health will also depend on population resilience to withstand the current pace of climate change and the pace of adaptation measures implemented in the country. So, the health system must be prepared and ready to catch up with the pace of climate change, build the system's resilience and save the lives of vulnerable populations.

In the long run, how much climate change affects will depend on how fast action is taken to reduce greenhouse gas emissions and prevent global warming temperatures from rising too high.

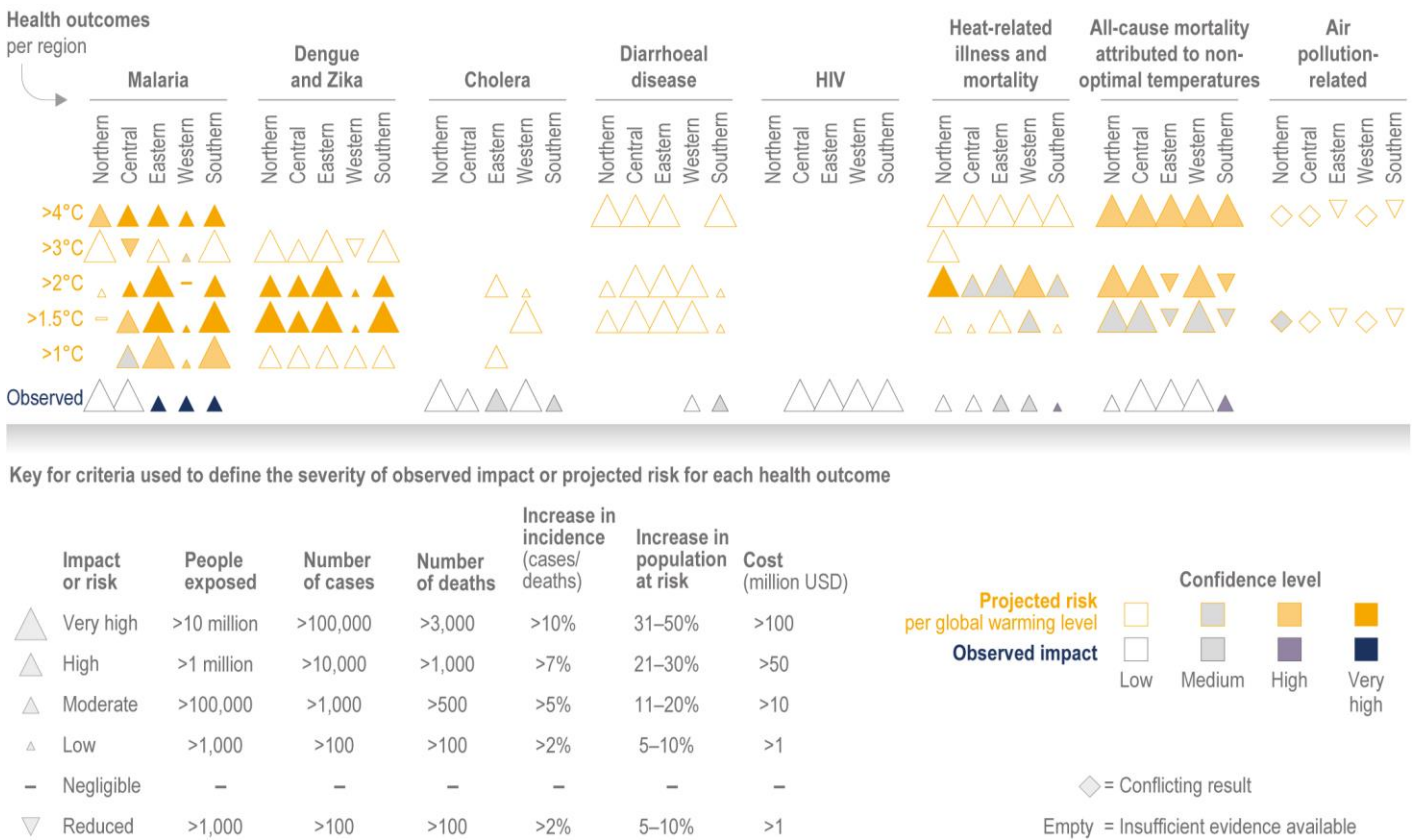


Figure 7: Observed climate change and projected risks across African regions for eight key health outcomes. (source: Trisos, C.H. et al. (2022). Africa. [In Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.](#))

Situation in Africa

Globally, 387 disasters happened in 2022, which was higher than the average number of disasters from 2002 to 2021 by all types (droughts, earthquakes, extreme temperatures, floods, landslides, storms, volcanic activity, and wildfires), with 79 disasters occurring in Africa in 2022; South Africa alone had eight disasters.

In 2022, 110.4 million people were affected by disasters in Africa, accounting for 59.6% of the total affected populations globally. The number is significantly increased compared to data from 2002 to 2021, only accounting for 9.3% on average in those years.

This represents a failure to tackle the developmental challenges of Africa's fast-paced urbanization, such as poor development planning and a large urban population, within the framework of planning for climate resilience. The countries fail to adopt climate-friendly public services planning, infrastructure investment, food production strategies, and health strategies in emergencies.

Six African countries were on the list of countries with the top 10 most affected populations. Democratic Republic of Congo had the highest drought-affected population in 2022 (Table 1).

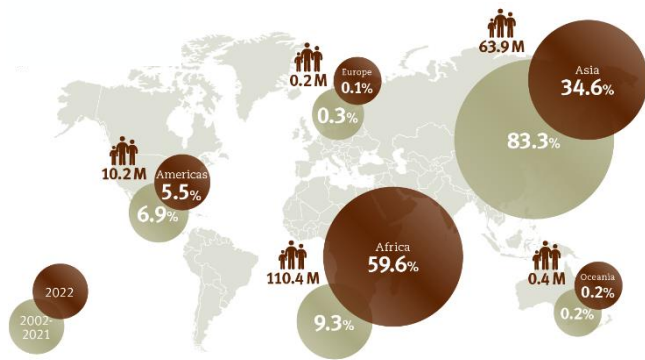


Figure 8: The numbers of populations affected (in millions) by continents and years. (source: [2022 disaster in number, Climate in action, 2024](#))

Pakistan	Flood	33.0 million	Bangladesh	Flood	7.2 million
Congo (Democratic Rep.)	Drought	26.0 million	China	Drought	6.1 million
Ethiopia	Drought	24.1 million	Niger	Drought	4.4 million
Nigeria	Drought	19.1 million	Burkina Faso	Drought	3.5 million
Sudan	Drought	11.8 million	Philippines	Storm 'Nalgae'	3.3 million

Table 1: The top 10 events with high numbers of populations affected (in millions) in 2022. (source: [2022 disaster in number, Climate in action, 2024](#))

In 2022, 5,021 deaths occurred by different types of disasters in Africa, contributing to 16.4% of total global deaths. The most severe event was the drought that occurred in Uganda.

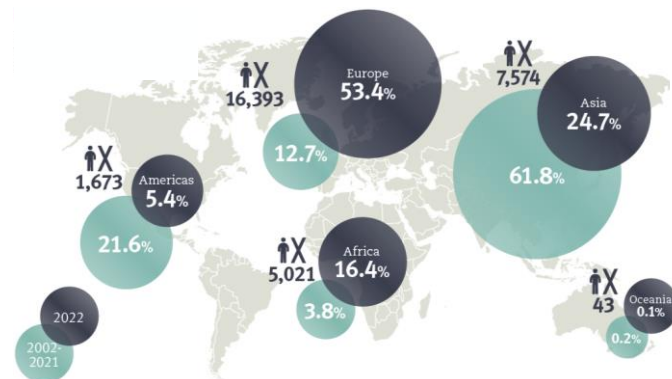


Figure 9: The number of deaths related to disasters by continent in 2022. (source: [2022 disaster in number, Climate in action, 2024](#))

Europe ¹⁰	Heat Wave	16,305	Nigeria	Flood	603
Uganda	Drought	2,465	South Africa	Flood	544
India	Flood	2,035	Philippines	Tropical Storm 'Megi'	346
Pakistan	Flood	1,739	Indonesia	Earthquake	334
Afghanistan	Earthquake	1,036	Brazil	Flood	272

Table 2: The top 10 events with high mortality numbers in 2022. (source: [2022 disaster in number, Climate in action, 2024](#))

The famine triggered by drought in Uganda resulted in 2,465 deaths, marking it as the second deadliest disaster event of 2022, following the European heat waves.

In 2022, droughts affected 88.9 million people across six African countries: the Democratic Republic of the Congo, Ethiopia, Nigeria, Sudan, Niger, and Burkina Faso. In Nigeria, floods led to 603 deaths and incurred an economic loss of US\$ 4.2 billion. Meanwhile, in South Africa, 544 lives were lost due to flooding.

The recent 2023 data showed that 64 natural disasters happened in Africa, of which 96% were from Sub-Saharan Africa. 20,735 deaths were estimated, and 12.7 million population were affected in 2023.

Heat exposure reduces labour productivity, jeopardizing livelihoods. Between 2013 and 2022, this led to an annual loss of 161 potential labour hours per worker in Africa. It experienced the highest relative income loss in 2022, at 4.1% of its GDP.

Africa experienced the highest impact from droughts, with 64% of its land area affected by at least one month of severe drought annually from 2013 to 2022, a significant increase from 9% in 1951–60.

In the Horn of Africa, specific regions endured a full 12 months of drought in 2022, placing millions on the brink of famine.

COP28 UAE declaration on climate and health

The first dedicated health day sessions were conducted at the 28th UN Climate Change Conference (COP28), where 31 African countries agreed to take urgent climate change and health actions. Countries commit to climate-resilient development, strengthened health systems, and resilient communities.

Common objectives for better health outcomes and climate resilience include:

- Strengthening policies for mitigation and adaptation with partnerships across different vulnerable population groups.
- Facilitating collaboration on human, animal, and environmental health challenges, such as the One Health approach.
- Prioritizing adaptation actions across sectors, including food and agriculture, water and sanitation, housing, urban planning, health care, transport, and energy, for positive health outcomes.
- Improving health systems to anticipate and respond to climate-sensitive health risks.
- Combating inequalities and pursuing a policy to achieve Sustainable Development Goals (SDG) and UHC.
- Promoting emissions reduction and waste reduction in the health sector.
- Strengthening research, collaboration, and progress monitoring at the climate-health nexus.

Climate-related health financing in COP28

Low and middle-income countries primarily require financing health and climate activities while leveraging climate-health synergies for efficient funding, encouraging increased investments and collaboration among international donors.

With external funding, the health system can plan and implement climate-integrated strategies. After the climate shock, affected populations can access essential health services at the individual and household levels.

Four action points are mentioned in COP28:

- Increase investments in climate and health from domestic budgets, development banks, climate funds, health financing institutions, philanthropies, bilateral agencies, and private sector entities.
- Advocate for international finance providers, particularly development banks, to align their climate and health portfolios and to support country-led projects.
- Share financing and implementing climate-health interventions, best practices, and lessons learned
- Improve monitoring, transparency, and evaluation of climate finance, including climate-health initiatives, to ensure efficiency and effectiveness in delivering positive health outcomes.

2021 WHO Health and Climate Change Global Survey Report, key findings

WHO conducted a 2021 WHO health and climate change global survey, in which 23 African countries participated, representing 49% of the WHO AFRO region.

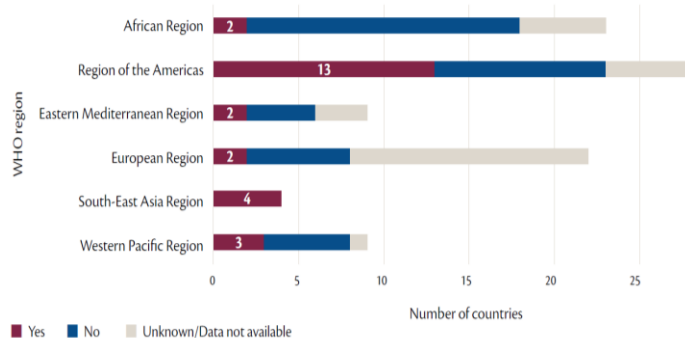
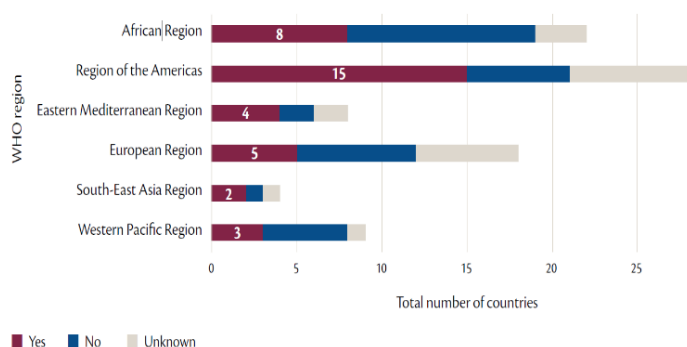


Figure 10: Number of countries by WHO region that reported Ministry of Health personnel had received training on climate change and health in the past two years.

Figure 11: Number of countries that reported at least one healthcare facility had been assessed for climate resilience.

In the WHO AFRO region, only 8 out of 23 countries (30%) had received training on climate change in the past two years.

In the WHO AFRO region, only two countries out of the 23 had done the health facility assessment for climate resilience.

Questions	Findings, number of African countries (n=23)			
	Yes	No	Unknown	Under development
Designation of a focal point responsible for health and climate change within the Ministry of Health	20	2	1	-
A national health and climate change plan or strategy developed	18	1	2	2
Climate change and health vulnerability and adaptation assessment conducted	16	3	2	2
Existence of a multi-stakeholder mechanism on health and climate change	11	11	1	-

Table 3: Key questions and findings from the 2021 WHO Health and Climate Change Global Survey.

The survey findings showed positive progress towards better health outcomes.

- The represented countries (with 49% representation from the WHO AFRO region) are required to
 - establish functioning climate change focal points,
 - review existing national strategies or develop new strategies in line with COP28 recommendations and
 - Conduct more frequent rounds of vulnerability and adaptation assessments.
- It is evident that establishing and strengthening multi-stakeholder health and climate change mechanisms is necessary in almost all African countries.

WHO response

Three main objectives

- Promote actions that reduce carbon emissions and improve health by mitigation policy and actions; mobilize the community to policy change.
- Build better, more climate-resilient, environmentally sustainable health systems as central UHC and primary health care (PHC) components.
- Protect health from the wide range of impacts of climate change through implementing climate-informed surveillance and response systems.

Leadership and Raising Awareness

- WHO focuses on the health impacts of climate change, advocating health in climate policies within UNFCCC. Collaborating with health agencies, professionals, and civil society, WHO integrates climate change into health agendas like UHC, aiming for carbon neutrality by 2030.

Evidence and Monitoring

- WHO, leveraging its global network of experts, offers evidence of summaries, helps countries in assessments, and monitors progress, focusing on implementing effective policies and improving access to knowledge and data.

Capacity Building and Country Support

- WHO supports health ministries with cross-sectoral collaboration, guidance, training, and funding. It leads the **Alliance for Transformative Action on Climate and Health (ATTACH), uniting partners to enhance countries' climate-resilient and low-carbon** health systems.

WHO in COP28

- WHO is dedicated to working alongside partners and donors to ensure the effective implementation of priorities outlined in the Declaration. The WHO-led ATACH brings together over 75 countries committed to climate-resilient and low-carbon health systems, supported by bilateral donors and researchers.
- WHO will ensure ATACH aligns with Declaration priorities and supports effective implementation.
- WHO commits to strengthening its climate change and health portfolio by integrating climate change as a priority across all WHO programmes, emphasizing leadership, evidence, and country implementation, affirming its commitment to global health and climate action by pledging support to ministries of health globally.

Moving forward...

- The World Meteorological Organization (WMO) has called for “tailored climate information” to support the health sector. It highlights that integrating climate information into key health system functions “is more crucial than ever.”
- Health protection is a priority for climate policies in almost all countries and requires high-quality climate information to inform decision-making better. Demand from policymakers for evidence and information about how the climate is changing and how it will impact society is rapidly rising.
- Climate information enhances public health prevention strategies and preparedness to save lives, reduce health risks and impacts, and support countries’ adaptation and mitigation efforts.
- Climate information and services are a foundational element for understanding and monitoring the influence of a changing climate on population health and health systems. They allow decision-makers to have foresight and plan to inform policy and practice that can be protective months, seasons and years ahead.
- To effectively use and benefit from climate services, health sector partners need **appropriate data, computing and analytical capabilities, methods, tools and models, training, institutional architectures and appropriate governance, and funding for health research.**

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Sources

The Integrated African Health Observatory supported the production of the factsheets. The graphics are used from the different published reports from the references listed above.

Photography: Tropical Cyclone Freddy struck Malawi on March 12, 2023, bringing heavy rains, winds, and flooding. It led to damage to health facilities, including destruction of drugs, equipment, and backup generators, as well as inundated maternity wings and toilets, and rendered some health facilities inaccessible due to infrastructure damage.

Location: Phalombe, Malawi. © WHO / Moving Minds

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