

## ARTICLE

# Tackling the twin threats of pandemics and climate change: An agenda for action

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Ending fossil fuel dependence is a prerequisite for a healthier world and future generations. The direct health impact of climate change driven by fossil fuel emissions is already devastating. The triple planetary pollution crisis, biodiversity loss, and climate change exacerbate the impact. The World Health Organization (WHO) predicts that between 2030 and 2050, climate change is expected to cause approximately 250,000 additional deaths per year (1). World leaders are taking actions to address climate change. Given the interconnectedness nature of climate change on health, and growing pandemics effecting the most vulnerable communities, there is no better time than now, to recognize 'health as the human face of climate change', and, crucially to set out clear targets to tackle these issues systematically and underscoring the imperative for collective action. Governments must also adapt to a warming world by investing in climate- and pandemic-resilient health systems and supply chains-not only at the domestic level but also regionally and globally (2,3).

There are many ways in which health and climate interweave. There is no doubt that Africa is the continent most vulnerable to climate change. Climate change is increasing the vulnerability of our ecosystems, accelerating the spread of diseases, and reshaping the trajectory of Africa's future.

First, climate change is making future pandemics more likely due to the increasing frequency, geographic spread, and severity of infectious diseases. Zoonotic diseases comprise more than 60% of new infectious diseases - and three-quarters of emerging pandemic threats to humans. There has been a

63% increase in the number of zoonotic outbreaks in Africa in the decade from 2012-2022 compared to the previous decade; a significant proportion (32%) have been zoonotic diseases. A modelling study predicts that by 2070, there will be increased cross-species viral transmission risk with geographical range shifts for 3,139 mammal species (4).

Shifts in the thermal performance curves of pathogens, vectors, and hosts, and changing patterns in rainfall, land use, agriculture and livestock practices, and migration are causing the emergence and adaptation of novel pathogens through new transmission pathways. Similarly, a growing rise in vectors such as mosquitoes, birds, bats and rodents as changing rainfall patterns and rising temperatures offer the ideal environment for these vectors to thrive. Malaria, for instance, remains a significant health burden across Africa, affecting millions of lives every year. Climate change influences the range of malaria-transmitting mosquitoes, extending their habitats to higher altitudes and previously unaffected regions (4).

Secondly, climate change can also affect the availability and quality of water, leading to increased risk of waterborne and foodborne diseases. The spread of cholera and the multi-country cholera outbreak presents another troubling example, in Africa. As temperatures rise, water sources warm up, creating an ideal home for bacterium *Vibrio*, the cholera bacteria (5). Meanwhile, changing rain-fall patterns - from droughts to heavy rains-means that more people are forced to use unsafe drinking water and lack proper sanitation facilities. Families displaced by natural disasters or conflict find themselves in overcrowded conditions, lacking access to safe water, sanitation and hygiene.

Beyond infectious diseases, cyclones, floods, and droughts, which are becoming more frequent and severe due to climate change, can also lead to various health challenges, such as mental health and non-communicable diseases.

Amid these circumstances, our health systems are struggling to keep up. Many countries have reported disrupted vaccination, medical care and disease control interventions. Moreso, the destruction of health infrastructure and disruption to basic services after extreme weather events often affect

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the most vulnerable communities and groups, particularly women (6).

The impact of climate change on health, do not exist in silos. They affect all countries, sectors and disciplines. In the face of these multifaceted challenges, we must adopt a comprehensive, multi-sectoral and transdisciplinary approach. To effectively address these evolving challenges in the preparedness and response to climate-sensitive infectious diseases, Africa CDC calls for a 'One Health Approach.' This holistic strategy, which recognizes the interconnectedness of human, animal, and environmental health, offers a robust framework for addressing the multidimensional challenges posed by climate-related health threats (7).

The resilience of health systems to withstand and effectively manage the threats at the climate change-health nexus requires climate-smart preparedness plans by enhancing national efforts in disease surveillance and control by investing in early warning systems: innovative technologies, sustainable financing, and community engagement to mitigate climate-related health challenges (8).

The New Public Health Order of Africa calls for action-oriented partnerships and workforce development. Africa CDC is at the forefront of efforts to build resilient health systems that can withstand the impact of climate change. We are actively engaged in working with countries to strengthen disease surveillance, early warning systems, and response mechanisms to mitigate the spread of infectious diseases that may emerge or be exacerbated due to climate shifts (9).

This coming week at COP28 in Dubai will feature a dedicated Health Day - and it can and must deliver an ambitious shared agenda for action that can deliver long-term structural change. This must be an end-to-end investment, from supply chains to delivery capability for community groups. A deeper understanding of how to invest in resilient health systems must be undertaken. We are calling on world leaders at COP28 to launch a global expert Commission that will be tasked to provide a costing for the building of pandemic-resilient, climate-resilient, gender responsive health systems, with a focus on low- and middle-income countries, and regional perspectives. The Commission will identify the types and levels of investments needed to save the most lives from increasing climate and pandemic threat and improve people's well-being. The Commission will help determine the policy interventions needed to help people, ecosystems, and society support the most pandemic-resilient, climate-resilient, gender responsive health systems possible and the financing needed at scale. Community-led, country-led, and regionally-led policy and delivery vehicles must be used.

An overhaul of the global financial system is needed to connect climate action and development finance; fund the creation of resilient health systems, jobs, and economies; design more secure instruments to unlock funding to mitigate health crises; encourage post-disaster reconstruction and

establish better risk-sharing practices (8). We are adding our strong voice to the urgent calls for the reform of international financial institutions and multilateral development banks, in which Africa is ready to play its part. These reforms must proceed all the way to the radical overhaul of international financial infrastructure and institutional architectures to make sure that funds are accessible, affordable, adequate, mobilize relevant technology, and most importantly, provided in a timely manner (8).

By working hand in hand with partners, we can harness the power of science, innovation, and policy advocacy to safeguard the health of our people and our planet.

The agenda for a health-focused response to climate change in Africa emphasizes the need for better data. The intergovernmental panel on climate change highlights that many Africans are already experiencing health issues due to climate change, including heat stress and disease transmission. Investing in data generation is crucial to understanding these impacts better and developing effective health strategies, including integrating African research into global studies on short-lived climate pollutants.

Finally, climate change influences human migration and urbanization, necessitating the development of forward-looking emergency response strategies. Learning from successful management of pandemics like COVID-19 in urban areas, it's crucial to design and implement response measures that consider the effects of climate change, enabling countries to respond effectively.

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