Climate change: the African child

Karen Zwi ,[1,2] Jeffrey Goldhagen ,[3,4] Chalilwe Chungu,[5,6] Thomas Hardson Okinda ,[7] Grace Namunyak,[8] Rosina Kyerematen [9,10]

Humans have radically changed the climate and ecosystems—there has been a fivefold increase in climate-related events over the past 50 years. Drought affects 30% more land area annually. National Aeronautics and Space Administration (NASA) records indicate the years 2014 to 2023 were the hottest on record, and storms, fires, drought and flooding have increased in number and intensity, as has biodiversity loss.[1] This has had a devastating impact on children's health and well-being, particularly African children.[2 3]

By 2050, more than 40% of the world's children will live in Africa, an increase from 10% in 1950. Africa also has the world's youngest population, with a mean age of 18 years.[3] Africa contributes <3% of global carbon emissions, yet climate change disproportionately impacts the continent. The average rate of warming in Africa was 0.3°C per decade from 1991 to 2022, compared with 0.2°C globally.[4] Any discussion on the global impact of climate change must include a focus on African children. And, discussions must be informed by the voices of children. The UN Convention on the Rights of the Child (CRC)[5] and the African Charter on the Rights and Welfare of the Child[6] provide a framework and parlance to facilitate advancing the rights of African children to life, optimal survival and development.

[1]School of Women's and Children's Health, University of New South Wales - Randwick Campus, Randwick, New South Wales, Australia
[2]Sydney Children's Hospitals Network Randwick and Westmead, Westmead, New South Wales, Australia
[3]Paediatrics, University of Florida, Jacksonville, Jacksonville, Florida, USA
[4]Ponte Vedra Beach, Florida, USA
[5]Programming, Catholic Relief Services, Lusaka, Lusaka, Zambia
[6]Executive, Zambia Paediatric Association, Lusaka, Lusaka, Zambia
[7]Youth Greenspace Action and Network Organisation, Nairobi, Kenya
[8]Enamunyak Foundation, Narok, Kenya
[9]Community Paediatrics, Sirona Care and Health Community Interest Company, Bristol, UK
[10]International Society for Social Pediatrics and Child Health

Correspondence to Dr Karen Zwi; karen.zwi@health.nsw.gov.au

VULNERABILITIES OF AFRICAN CHILDREN

The mechanisms whereby child health is affected by climate change include increased vector-borne and infectious diseases, especially malaria; decreased access to clean water and sanitation, leading to water-borne diseases; and nutrition-related disorders resulting from reduced crop yields, decreased diversity and nutritional value of crops and aflatoxin load.[7] There are also secondary consequences for children with pre-existing chronic diseases, such as HIV.

The increase in forced displacement in response to natural disasters and armed conflicts further reduces local agricultural food production and fish catches. In traditional agrarian communities dependent on cattle for livelihoods, drought is forcing boys to leave school to herd cattle and girls into early marriage.[8] Access to healthcare and medicines is reduced due to climate-related infrastructure damage and relocation of healthcare staff from climate-prone regions. Mental health conditions, for example, anxiety and/or depression, increase in response to concerns about survival and financial stress. The loss of income, homes, education, food insecurity, under-nutrition, armed conflicts and widespread human displacement differentially impacts children and those with disabilities—girls are particularly vulnerable.[9]

VOICES OF CHILDREN AND YOUTH: REASONS FOR HOPE

Globally, children and youth are deeply concerned about climate change. At the annual Kenya Paediatric Association conference (2023), young people voiced apprehensions about how climate change will affect their futures. Nonetheless, they see themselves as flag-bearers of reason and hope in efforts to mitigate its impact on them and the planet. They spoke positively of how the climate crisis is bringing them together for activism, yet realistically of the need to capture images of nature for future generations, as they may never see such sights. Youth and paediatricians from across Africa discussed multiple mitigation and adaptation initiatives involving refuse management, recycling and planting trees. They describe their role as central in educating and alerting their peers, working in schools with younger children and organising their communities regarding global warming and local adaptations.

In Zambia, youth climate champions work with schools and churches to create conservation or environmental clubs and youth climate centres, promote fruit tree planting, recycling plastics, income-generating activities (eg, solar products through links with industry) and household adaptation, such as the use of solar cook stoves as alternatives to coal/wood stoves. With training in climate-smart agriculture, forestry management and entrepreneurship/small business generation, this model could be highly effective at scale.

The Kenyan Youth Greenspace Action and Network Organisation, an example of youth-led engagement in climate action, empowers young leaders to advocate for sustainable practices, contribute to policy development and foster innovation in climate resilience strategies. This organisation prioritises active participation in climate discourse and decision-making processes by recognising that youth are not only the future, but also present stewards of the environment.

Youth leaders in Africa are also playing critical roles on the international stage by active involvement in the work of major international climate change organisations and advocating for meaningful participation in intergovernmental and conservation initiatives. Young people expressed passion about contributing to the Intergovernmental Panel on Climate Change, the United Nations body for assessing the science related to climate change, and the 4th Annual Youth Climate Change Summit (Kenya 2023). They also engaged with Kenya's Climate Change Amendment Act 2023 (from 2016), which establishes a framework for regulating carbon markets and trading, and creates oversight and severe penalties for offences like unauthorised trading or fraud. It includes significant Community Development Agreements for requiring land-based carbon projects, ensuring at least 40% of earnings are contributed to the community.

STRATEGIES FOR THE FUTURE—VOICE OF PAEDIATRICIANS

No profession will bear witness to the impact of climate change on children

more than child health professionals. Informed by the UNCRC, African Charter and human rights principles of *accountability*, *universality* and *indivisibility*, child health professionals have a responsibility to alert the global community to the impact of climate change on children. Failing to do so risks compromising their relevance with regard to the existential threat that climate change poses to children and childhood.

Paediatricians at the conference discussed the critical role a multisectoral pan-African organisation could play in the face of climate change, citing the success of pan-African tobacco control measures, a network of civil society organisations in 39 African countries that promotes the WHO Framework Convention on Tobacco Control. These efforts focus on policy, advocacy, strategic partnerships and combating tobacco industry interference in a region with growing tobacco-related harm. They see their role as directly linking the changing paediatric disease profile with climate change, so the impact of global warming on child health becomes better defined and understood. They seek to link with schools on 'going green' campaigns, help leverage the powerful voices of children and young people, and use their professional societies to educate health professionals, policy makers and the public on the perils of and solutions to global warming. They noted their advocacy role for changes in infrastructure, such as waste management, and for establishing systems change, outcome indicators and milestones with governments. Several paediatricians spoke powerfully of the need to strengthen inter-sectoral collaboration to address climate resilience, decarbonisation, supply chains and climate finance. Global funding for climate financing was identified as a priority and challenge.

Strongly articulated was the need for governments to engage with local communities and develop programmes to promote resilience and coping skills while addressing the underlying social and economic factors that enhance inequity. Specific strategies discussed included the creation of green economies and industries, especially in transport and energy production, forest management, including provision of alternate fuel to wood, water and land management and monitoring pollution and water and soil quality. *Ecotourism* was presented as a powerful way to engage local communities with financial incentives to sustain the environment.

The opportunity to harness the potential of Artificial Intelligence to provide early warning systems of climate catastrophes was also discussed. Paediatricians spoke about embracing adaptation and mitigation strategies, such as using new agricultural technologies for food production to adapt to excessive heat and drought and implementing environmentally sustainable energy and transport systems.

Conference participants acknowledged the relevance of the emerging concepts of *Planetary Health*[10] and *One Health*[11] that conceptualise our planet as 'our mother and our home', but also, as a patient, in need of kind treatment and care. *One Health*, a movement being advanced in Africa, integrates human, animal and planetary health efforts to establish harmonious ecosystems with minimal harm to the natural environment.

Multiple strategies were identified for paediatricians to pursue in clinical settings. These include reassuring children we are working to safeguard their future, promoting access to mental health services to provide support for those dealing with eco-anxiety and post-climate crisis Post Traumatic Stress Disorder (PTSD, prescribing 'planting a tree' and 'time in nature' as part of medical therapy and documenting data on the impact of climate change on child and youth health. Paediatricians can also mentor young people in their climate activism and careers, engage youth in advocacy, research, systems development and policy generation, include climate change in health professional curricula, form intersectoral consortia (including ministries of health, education, housing, etc), and advocate for a sustainable decrease in the health sector's carbon footprint.

CONCLUSION

Preventing and mitigating the impact of climate change on the health and wellbeing of African children and globally may be the most significant challenge ever confronted by child health professionals. Young people have a fundamental right to have their best interests considered in all decisions impacting them, and to life, optimal survival and development. As child health professionals, we have a global responsibility to lead and support ongoing efforts to advance the rights of children to a future. Physicians have in the past addressed nuclear weapons as an existential threat to human existence. We can use this precedent to do so related to the existential health threats of climate change to humanity. If not now, when?

Acknowledgements The authors pay tribute to the voices of the children and youth throughout Africa. Their passion to mitigate the impact of climate change on their futures, and their positivity in appreciating how the climate crisis is bringing them together as activists and educators, is truly inspiring.

Contributors JG and KZ contributed equally to the conception/design of the work, data collection, analysis and interpretation, drafting the article and critical revision of the article. CC, THO, GN and RK contributed to analysis and interpretation, as well as the critical revision of the article. All authors have provided final approval of the version to be published.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests No, there are no competing interests.

Patient consent for publication Not applicable.

Ethics approval Not applicable.

Provenance and peer review Commissioned; externally peer reviewed.

To cite Zwi K, Goldhagen J, Chungu C, *et al. BMJ Paediatrics Open* 2025;9:1–3.

Published Online First 1 November 2025
BMJ Paediatrics Open 2025;9:1–3.

doi:10.1136/bmjpo-2025-003930

ORCID iDs
Karen Zwi https://orcid.org/0000-0002-5561-5200
Jeffrey Goldhagen https://orcid.org/0000-0001-7661-1551
Thomas Hardson Okinda https://orcid.org/0009-0008-7289-9074
Rosina Kyerematen https://orcid.org/0000-0002-1821-6913

REFERENCES

1 Nasa Earth Observatory. World of change: global temperatures. Available: https://earthobservatory.nasa.gov/world-of-change/global-temperatures [Accessed 15 Sep 2025].
2 Leffers JM. Climate Change and Health of Children: Our Borrowed Future. *J Pediatr Health Care* 2022;36:12–9.
3 Visual Capitalist. Mapped: the median age of the population on every continent. 2019. Available: https://www.visualcapitalist.com/mapped-the-median-age-of-every-continent [Accessed 3 Dec 2024].
4 Moyo E, Nhari LG, Moyo P, *et al*. Health effects of climate change in Africa: A call for an improved implementation of prevention measures. *Eco Environ Health* 2023;2:74–8.
5 United Nations. Convention on the rights of the child. 1989. Available: https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-rights-child [Accessed 3 Dec 2024].
6 African Union. African charter on the rights and welfare of the child. 1999. Available: https://au.int/sites/default/files/treaties/36804-treaty-african_charter_on_rights_welfare_of_the_child.pdf
7 Sheffield PE, Landrigan PJ. Global climate change and children's health: threats and strategies for prevention. *Environ Health Perspect* 2011;119:291–8.
8 ACPS. Thematic report. HORN OF AFRICA Impact of drought on children. 2023. Available: https://www.acaps.org/fileadmin/Data_Product/Main_media/20230424_acaps_thematic_report_horn_of_africa_impact_of_drought_on_children.pdf
9 Oberg C, Hodges HR, Masten A. Cascading consequences of armed conflict and famine on child health: a time for peace. *BMJ Paediatr Open* 2022;6:e001608.
10 Planetary Health Alliance. What is planetary health? 2024. Available: https://www.planetaryhealthalliance.org/planetary-health [Accessed 27 Dec 2024].
11 Fasina FO, Fasanmi OG, Makonnen YJ, *et al*. The one health landscape in Sub-Saharan African countries. *One Health* 2021;13:100325.