



¹ FutureLab Security, Ethnic Conflicts and Migration, Potsdam Institute for Climate Impact Research, Potsdam, Germany

² Centre for Climate Change and Planetary Health, London School of Hygiene and Tropical Medicine, London, UK

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Tackling the complex links between climate change, conflict, and health

Barbora Šedová,¹ Andrew Haines²

Climate and conflict seriously threaten human health.^{1–3} From 1995 to 2015, more than 10 million child deaths were attributed to conflict, while women of reproductive age in high intensity conflict zones experienced mortality rates three times higher than those in peaceful areas.⁴ Additionally, over 60 000 heat related deaths occurred in 32 European countries during both the exceptionally hot summers of 2022 and 2024, with women substantially more affected than men.⁵ Beyond direct loss of life, climate and conflict hazards threaten health indirectly, such as by damaging health infrastructure, disrupting supply chains, threatening the safety of health workers, as well as by reducing access to food and essential services, including water and sanitation—escalating the risk of undernutrition and spread of infectious diseases.^{1 6 7}

Although climate hazards and conflicts each pose serious health risks on their own, their intersection can produce synergistic effects, leading to more severe and complex outcomes. Climate hazards can also amplify conflict risks through indirect pathways, particularly in contexts marked by high societal vulnerability including where health and health systems are already fragile.^{8–10} Notably, the most climate vulnerable countries with the weakest health systems are overwhelmingly fragile and conflict affected states (FCS).^{11–13} At the same time, both types of hazard further exacerbate these vulnerabilities, creating self-reinforcing cycles of worsening health, conflict, and climate impacts.^{1 4 8} As climate change intensifies,⁹ these dynamics risk becoming even more deeply embedded, underscoring the urgency of immediate climate action.

Climate action—both mitigation and adaptation—is critical for tackling climate related risks to health, but conflicts often disrupt these efforts. The effects of conflict on infrastructure and essential energy, food, health, and other systems undermine their resilience and make adaptation more difficult.⁶ Moreover, conflicts divert resources away from climate priorities.^{11–13} For example, in FCS adaptation costs are higher than elsewhere and far exceed domestic capacities, already stretched by urgent peacebuilding and stabilisation demands.^{11 14} International support is therefore essential.¹¹ Although adaptation is more cost effective than repeated humanitarian responses, international financing for climate adaptation continues to fall short of what is urgently needed.^{11 13}

Mitigation efforts—critical for reducing long term climate change risks—face similar challenges. Following Russia's invasion, for instance, Ukraine's mitigation investments were substantially reduced as funds shifted to war and reconstruction.¹²

Simultaneously, the UK redirected unspent climate finance to a £1bn military aid package for Ukraine,¹⁵ and international donors, including the World Bank and the European Commission, face growing pressure to reallocate climate funds to support Ukraine's reconstruction.¹² In 2024, global military spending surged by 7.4% in real terms—the largest rise in recent years—driven by spending increases in Europe and the Middle East and North Africa.¹⁶ Overall, military spending amounted to over \$2.7tn in 2024—similar to the sum needed to decarbonise the energy sector.^{16–18}

Military activities are themselves a major, but under-reported source of greenhouse gas emissions, conservatively estimated at 5.5% of the global total, with the United States as the largest contributor.^{19 20} This likely understates the true impact, as most emissions stem from complex, hard-to-track supply chains. In addition, potentially substantial combat related emissions—from fires, reconstruction, and fuel intensive operations—are typically excluded from these estimates. Yet military emissions are not routinely reported in national submissions to the United Nations Framework Convention on Climate Change under the Paris Agreement commitments, with some countries claiming that disclosure would compromise national security.²¹ For effective climate change mitigation, however, reporting of military emissions should be mandatory.

To promote sustainable development and peace in a changing climate, decision makers—from local to international—must recognise the interplay between climate, health, and conflict and commit to scaling up climate action including in FCS. Strengthening health systems should be a priority to reduce vulnerability and support climate adaptation.²² FCS are often sidelined because of the high risks and operational challenges.²² Yet prioritising these contexts is essential to avoid deepening vulnerability and instability, with consequences that reverberate globally.^{23–25} To prevent unintended harm—such as exacerbating inequalities—climate interventions must be conflict sensitive and align with conflict prevention and peacebuilding efforts, fostering synergies between climate resilience and long term stability.²⁵

Science can play a vital role in supporting decision making. Integrating climate and conflict information into health system planning is essential for maintaining resilient health systems and reducing peace and security risks.²⁶ One promising example is the Climate Conflict Vulnerability Index.²⁷ This open source tool identifies, at high a spatio-temporal resolution, areas where climate and conflict hazards intersect with social vulnerabilities, including health

related vulnerabilities and hunger, and could reinforce each other. However, such risk mapping must be paired with detailed, context specific analysis to design interventions that effectively deal with the impacts of hazards and the underlying drivers of vulnerability.^{23 25 28}

Only by integrating climate action with conflict prevention and peacebuilding can we disrupt the vicious cycles of escalating climate impacts, deteriorating health, and rising instability. Strengthening health systems must be central to these efforts.

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Competing interests

BŠ is a (co-)lead of the FutureLab-Security, Ethnic Conflicts and Migration at the Potsdam Institute for Climate Impact Research (since 2020), (co-)principal investigator of the Climate Conflict Vulnerability Index within the Preview project funded by the GFFO (2022-25), co-investigator of the Weathering Risk project funded by the GFFO (2020-2023), and collaborator on other climate and conflict research projects funded by German Foundation for Peace Research (2022), UK DFID, World Bank and UN Refugee Agency (UNHCR) (2020-21), Heinrich Boell Foundation (2021-2025); BŠ is a member of the Advisory Board to the Federal Government for Civilian Crisis Prevention and Peacebuilding.

AH is a principal investigator Pathfinder Initiative 2020-25, co-investigator Sustainable Healthy Food Systems research programme 2017-23, co-investigator Complex Urban Systems for Sustainability and Health (CUSSH) 2017-23, and collaborator on several other climate and health research projects, all funded by the Wellcome Trust, with additional funding from the Oak Foundation for the Pathfinder initiative; reports royalties from Cambridge University Press; has received travel support from the World Health Organization and Human Frontiers Science Program; 2022-24 member, Cool Roofs trial steering committee Nouna Research Centre, Burkina Faso/University of Heidelberg; 2023-24 co-chair International Advisory Committee, NIHR Clean-Air (Africa) Global Health Research Unit; 2023 member Independent Advisory Group, Collaboration for the Establishment of an African Population Cohort Consortium (CE-APCC); 2019-22 co-chair InterAcademy Partnership, Climate Change and Health Working Group; US National Academy of Medicine Climate Grand Challenge Steering Committee 2023-present; chair, SOSCHI Expert Advisory Group, Office of National Statistics 2022-present; co-director WHO Collaborating Centre on Climate Change, Health and Sustainable Development, LSHTM 2020-2024.

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