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BUILDING EFFECTIVE COMMUNITIES OF PRACTICE FOR TRANSDISCIPLINARY RESEARCH AND ACTION IN CLIMATE CHANGE AND HEALTH IN AFRICA



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ABOUT ARIN

The Africa Research and Impact Network (ARIN) is a pioneering research and policy network that unites leading scholars, practitioners, and policymakers across Africa to tackle critical development challenges (<https://www.arin-africa.org/>). ARIN's mission is to enhance the generation, sharing, and application of knowledge across the continent, fostering transdisciplinary research, facilitating impactful collaborations, and promoting evidence-based policy interventions. ARIN's work covers various thematic areas, including climate change, health, governance, and sustainable development. The network emphasizes a participatory approach, ensuring that research outcomes are academically rigorous, socially relevant, and actionable. This report aligns with ARIN's commitment to advancing climate and health research in Africa. By capturing insights from diverse stakeholders and experts, the findings will inform policies and interventions that are both impactful and responsive to the continent's unique challenges.

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LIST OF ACRONYMS & ABBREVIATIONS

AAS	African Academy of Sciences
AGN	African Group Negotiator
AMREF	African Medical Research Foundation
ARIN	The African Research and Impact Network
ATACH	Alliance on Transformative Action on Climate and Health
AU	African Union
C&H	Climate and Health
CHANCE	Climate-Health Africa Network for Collaboration and Engagement
CoP	Community of Practice
COP	Conference of the Parties
CSOs	Civil Society Organizations
CSPDN	Civil Society Partnership for Development in Nigeria
FGD	Focus Group Discussion
GCF	Green Climate Fund
GCHA	The Global Climate and Health Alliance
HE2AT	Heat and Health African Transdisciplinary Center
HNAPs	Health National Adaptation Plans
IDRC	International Development Research Centre
MoH	Ministry of Health
NDCs	Nationally Determined Contribution
NVA	National Vulnerability Assessment
PA	Paris Agreement
SDG	Sustainable Development Goal
TDR	Transdisciplinary Research
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, Sanitation and Hygiene

EXECUTIVE SUMMARY

The escalating impacts of climate change on health-determining sectors such as agriculture, food security, energy, disaster risk, and broader social structures require urgent, multi-sectoral approaches. The evolving climate and health policy landscape now advocates for placing health at the centre of climate change decisions, informing integrated National Health Resilience and National Adaptation Plans. Despite this shift, collaborations between researchers, policymakers, and implementation partners remain underdeveloped, especially in Africa, where only 0.5% of multilateral climate adaptation funds are allocated to the health sector (Turner et al., 2024). Funded by Wellcome, this study aims to enhance the understanding of how Communities of Practice (CoPs) can facilitate the integration of health considerations into climate change policies.

The study began with a scoping review of policy and academic documents, databases, consultative webinars (n=411), and an online survey (n=198) to understand the landscape of climate and health (C&H) research, policy, capacity building, and stakeholders. Building on this analysis, regional focus group discussions (n=123) and key informant interviews (n=25) were conducted to identify models of collaboration and case studies that could be scaled up to strengthen transdisciplinary (TDR) C&H research and action.

The C&H policy landscape is dynamic, marked by global and regional declarations emphasizing public health resilience. The 2015 Paris Agreement of the UNFCCC renewed focus on integrated approaches, with climate policies across various sectors, such as energy and agriculture, identifying priority adaptation needs in health and other areas. The launch of the Alliance for Transformative Action for Climate and Health (ATACH) by the World Health Organisation and Africa's position on climate and health has reinvigorated efforts to integrate health considerations into climate policies. By early 2024, 17 African countries were pursuing national consultations on Health National Adaptation Plans (HNAPs), fostering transdisciplinary collaboration and research evidence uptake.

Stakeholder engagement in C&H initiatives is increasing, yet unevenly distributed across African regions due to funding patterns and other structural factors. Advocacy groups like ATACH, the Global Climate and Health Alliance (GCHA), and the Africa Climate and Health Alliance (ACHA) are key players in driving action at global and regional levels. However, these groups need stronger links to capacity-building and research initiatives to enhance the uptake of transdisciplinary evidence into advocacy efforts.

Existing C&H research predominantly focuses on climate impacts on diseases, particularly vector-borne and infectious illnesses. While crucial, this disease-centric approach limits the provision of integrated solutions for complex African socio-economic contexts. There is a need for an inclusive approach that incorporates innovations from sectors like energy, agriculture, and biodiversity focusing on the multidimensional impacts of climate change on health. This requires participatory, localized data collection tools and stronger collaboration between climate and health researchers to ensure that research informs policy and action.

Dedicated C&H capacity-building efforts are emerging, but they mainly focus on research and policy, overlooking critical areas like leadership, investment skills, and impact assessment. Capacity-building initiatives must expand to include skills for mobilizing international climate funds, given that 85% of Africa's climate plans under Nationally Determined Contributions (NDCs) rely on securing international financing.

Funding for C&H research is rising globally, yet remains insufficient. Most funding originates from the global North, disadvantaging African researchers as funds are often channelled through institutions in developed countries. Emerging collaborations among funders, such as Wellcome, the National Institute for Health, and the Gates Foundation, are fostering a more coordinated approach, supporting Southern-led initiatives in C&H research, capacity building, and policy.

Regional research and advocacy networks in Africa are promising spaces for developing transdisciplinary research for action. These networks leverage global partnerships to support national governments, offering opportunities for longer-term engagement and collaboration. Building pools of experts across these networks can enhance resource sharing, optimize implementation, and sustain innovative initiatives.

Strengthening evidence-informed C&H policies requires assessing country contexts to identify research needs and opportunities for transdisciplinary research (TDR) and policies with the potential to deliver desired health outcomes. Enhancing C&H transdisciplinary research through the establishment of dedicated centres for advancing C&H research, evidence synthesis, and knowledge translation at regional or national levels is essential. Building C&H capacity involves investing in specialized training to develop skills for research, advocacy, and investment in climate-resilient health projects, including accessing international climate funds. Increasing funding for C&H research entails enhancing coordination among funders to direct resources toward the most pressing issues, ensuring impactful and sustainable outcomes. Lastly, strengthening C&H networks to foster a transdisciplinary Community of Practice involves enhancing collaboration and resource allocation across multi-stakeholder engagements and platforms.



1. INTRODUCTION

1.1. Climate and Health in Africa

Africa faces a significant threat from climate change, with its healthcare systems being particularly vulnerable. Extreme weather events like floods and heatwaves damage infrastructure and disrupt services (Theron et al., 2022; Opoku et al., 2021). However, the effects of climate change vary considerably across subregions. Some notable effects across Africa include droughts, desertification, coastal plains flooding, and declines in food production and food security, with corresponding health implications for diverse populations.

The West African region is highly susceptible to the health impacts of climate change due to the influence of the West Africa Monsoon (WAM), affecting countries in the area. Furthermore, movements related to the Inter-tropical Convergence Zone (ITCZ) and El Niño Southern Oscillation (ENSO) result in sea and air warming, heavy precipitation, and floods (Opoku et al., 2021). Similarly, the East African region, characterised by dry weather, has experienced numerous drought incidents linked to the movements of ITCZ-ENSO. While ENSO originates in the Pacific, its consequences, such as drought and water scarcity, significantly impact Eastern Africa. Conversely, Malawi and Mozambique have recently experienced high-profile floods despite being in a region typically characterised by drought. According to the World Economic Forum (2024), the leading risks of climate-induced deaths will be floods and droughts, directly associated with extreme heat, potentially accounting for 8.5 million and 3.2 million deaths by 2050.

It is noteworthy that both the direct and indirect health impacts of climate change are mediated by health determinants, with heat stress, vector ecology, and air quality serving as primary exposure pathways. While the focus of climate change and health discussions has predominantly centred on communicable diseases, emerging evidence indicates that rising temperatures are exacerbating non-communicable diseases (NCDs), such as cardiovascular disease, particularly among individuals with pre-existing conditions (Siiba et al., 2024). Moreover, rising sea levels and extreme weather events contribute to reduced agricultural productivity, impacting food security and financial stability, factors amplifying NCDs' prevalence. NCDs, including acute and chronic respiratory illnesses, cardiovascular disease, and malnutrition, have been demonstrated to be sensitive to climate variations (Wright et al., 2024).

Deteriorating air quality can exacerbate respiratory and cardiovascular diseases (Owino et al., 2022). Air pollution is intricately linked to climate change, as the chemical compounds contributing to poor air quality are often released alongside greenhouse gases (Pinho-Gomes et al., 2023). Drier and hotter conditions intensify air pollution by increasing photochemical production rates.

Inhalation of tiny particles, such as those from soot and soil dust (PM_{2.5}), can damage the heart, lungs, and brain, leading to various health problems. Improving air quality is crucial for enhancing public health, environmental conditions, and overall development (UNEP, 2023).

Climate change is undermining agricultural productivity, and hindering efforts to eradicate hunger and malnutrition (Muleta, 2022). Destabilizing food systems compromises food security and dietary quality, thereby exposing vulnerable populations to various forms of malnutrition. In Africa, malnutrition claims 1.7 million lives annually, ranking as a leading cause of climate change-related deaths globally (Owen et al., 2011).

Diarrhoeal disease in Ethiopia exemplifies a health issue linked to water quality and quantity (WHO & UNFCCC, 2015). Similarly, malaria and dengue fever are recognised as priority climate-sensitive diseases in Ghana (WHO & UNFCCC, 2015). Over half (56%) of Africa's public health emergencies between 2001 and 2021 were climate-related, disproportionately affecting vulnerable populations such as children, pregnant women, and the elderly (WHO, 2022; Benevolenza & DeRigne, 2019). The World Economic Forum (2024) projects that climate change will cause approximately 14.5 million deaths and \$12.5 trillion in global economic losses by 2050, with a disproportionate impact on healthcare systems in low- and middle-income countries like those in Africa. Moreover, the healthcare sector itself contributes significantly to greenhouse gas emissions, accounting for up to 5% of global emissions, equivalent to the carbon footprint of 514 coal-fired power plants (Smith, 2022).

This situation necessitates a more resilient approach to addressing climate-induced health challenges in Africa. Given the transnational nature of climate-related health issues, such as fluctuating temperatures and vector-borne diseases, a holistic, transdisciplinary approach is essential to ensure an effective response (Wright et al., 2021). Developing transdisciplinary skills and fostering collaborations is crucial to achieving this objective. This study explores opportunities for promoting transdisciplinary climate and health research and action across the continent



1.2 The Challenge of Complex Climate and Health Linkages

While promising advancements in climate and health policy are emerging, the field of research—requiring collaboration among researchers, policymakers, and implementers—remains in its infancy, particularly in Africa where climate action funding is limited (Berrang-Ford et al., 2021). Climate hazards and their health impacts are intricately linked, as illustrated in Figure 1. Numerous studies have demonstrated the impacts of climate change on health outcomes (IPCC, 2022; Benevolenza & DeRigne, 2019). Comprehending these pathways is essential for developing effective and integrated solutions.

Efforts are underway to create tools and indicators that clarify these complex relationships and inform strategies (Kenney et al., 2018; Murray et al., 2020; Hambling, 2011; Liu et al., 2021). However, addressing this complexity in practice demands transdisciplinary evidence—knowledge produced through collaborative efforts spanning multiple disciplines. While existing research provides insights into the overall health effects of climate change (IPCC, 2023; Benevolenza & DeRigne, 2019), pinpointing specific pathways is crucial for developing effective and integrated solutions.

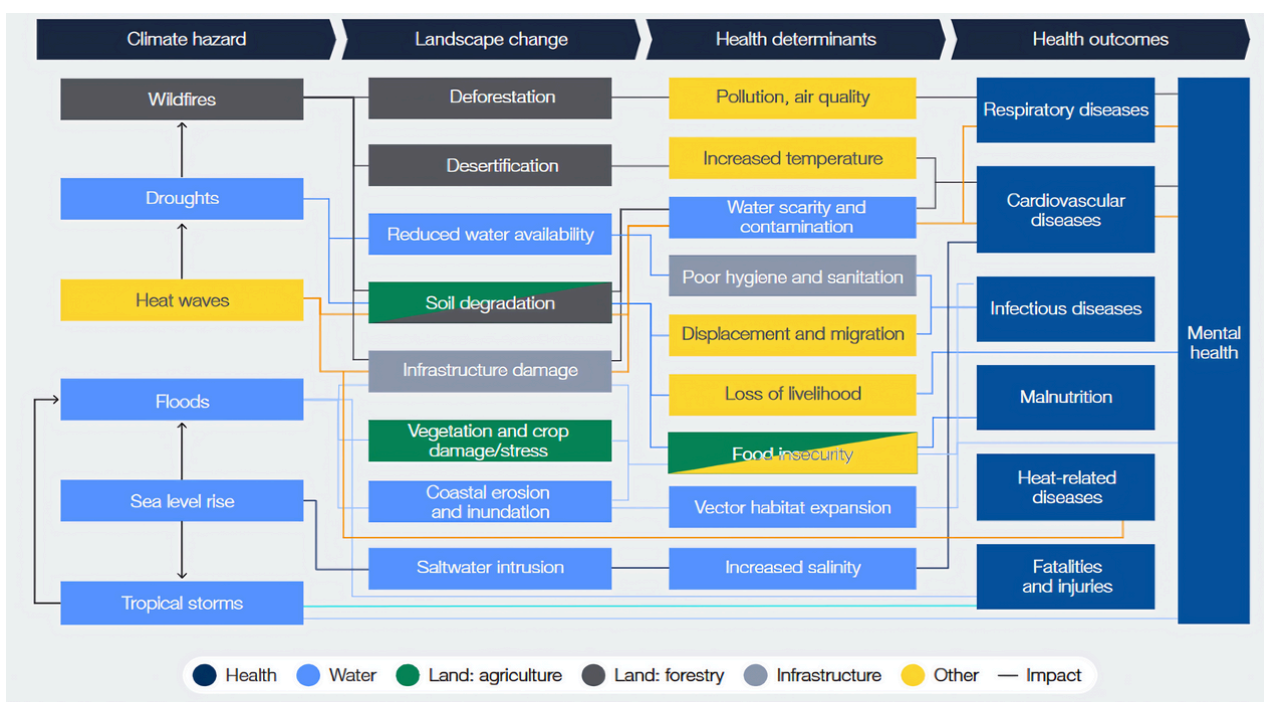


Figure 1: A Schematic of Climate Hazard Impacts on Human Health Outcomes (Source: World Economic Forum, 2024)

1.3 The Need for Enabling Transdisciplinary Research and Action

There is growing recognition of the need for transdisciplinary evidence—informed by collaborations across disciplines—to address these complex challenges. Transdisciplinary research (TDR) offers a framework for tackling such issues (OECD, 2020). A community of practice (CoP), a group sharing common interests and expertise who collaborate regularly, can be a powerful catalyst for facilitating TDR (Wenger, 2000).

Aims and Objectives

1.4. Overall Aim

This study aims to understand how collaborations or Communities of Practice (CoPs) **can facilitate the integration of health considerations into cross-sector climate change policies and systems.**

1.5. Specific Objectives

i. Map the existing landscape of relevant climate and health policies (including actions) and local stakeholders across research, policy, and practice in the region.

ii. Identify barriers and opportunities for enhancing support to relevant stakeholders—researchers, policymakers, implementers, affected communities, and supporting organisations in Africa—to shape, undertake, and utilise transdisciplinary research, and advance climate and health action.

iii. Consult stakeholders to identify mechanisms and activities that can foster climate and health literacy, awareness, and capacity. Describe existing mechanisms and activities employed by these actors to engage in collaborative efforts for improving climate and health literacy, awareness, and capacity.

iv. Identify approaches and activities that can **strengthen connections and coordination** among researchers from different disciplines, policy and practice actors from different sectors, and between researchers and the policy and practice communities.





2. METHODOLOGY

The study was conducted in three phases. Phase One involved a review of policy/academic documents, databases, consultative webinars (n=400), and an online survey (n=198) to map the climate and health (C&H) policy, research, and stakeholder landscape and needs. Phase Two comprised targeted empirical engagements, including four regional focus group discussions (FGDs) (n=123) and key informant interviews (KIIs) (n=25) to identify specific climate and health activities, collaboration models, and case studies to inform recommendations. The final phase involved validating key findings with diverse stakeholders, including policymakers, civil society organisations, and researchers.

The consultation process relied primarily on the knowledge and experience of individual stakeholders or experts representing organisations and initiatives. While these insights provide valuable perspectives, they may not offer a completely comprehensive picture of the climate and health research and policy landscape. Nevertheless, they highlight specific practice areas that stakeholders consider crucial. An advisory group (see Annex 1) provided bi-monthly strategic guidance throughout the study.



A hand is shown placing a white puzzle piece with a yellow lightbulb icon into a larger puzzle. The puzzle is set against a teal background. To the left, another puzzle piece features a black arrow pointing right, and further left, a piece with black gears. The scene is lit from the top, creating soft shadows.

3. RESULTS AND FINDINGS

The Results Section covers the policy landscape, stakeholder landscape, research outlook, capacity-building efforts, networks and funding.

3.1. Climate and Health Policy Landscape

The climate and health (C&H) policy landscape is in constant flux, marked by pivotal moments that reinvigorate collective action at all levels. Building upon previous global and regional declarations aimed at fostering public health resilience and overall environmental health, a renewed emphasis on integrated approaches emerged, anchored by the 2015 Paris Agreement (PA). Established climate change policies already exist under the United Nations Framework Convention on Climate Change (UNFCCC)

Existing climate policies and other health-determining sectoral policies, such as those in energy and agriculture, can enhance health outcomes. These include National Climate Change Action Plans (NCCAPs), Nationally Determined Contributions (NDCs), National Adaptation Plans (NAPs), Renewable Energy Strategies, Agricultural Development Strategies, and Air Quality Strategies. By identifying the most urgent and immediate needs for adapting to climate change across sectors, these policies lay a strong foundation for integrating health considerations into climate action.

The establishment of the Alliance for Transformative Action on Climate and Health (ATACH) by the World Health Organization during the 26th Conference of Parties (COP26) marked a pivotal moment, characterized by intensified advocacy for placing health at the core of climate change discussions. With over 83 countries globally and 30 from Africa committing to ATACH, the development of Health National Adaptation Plans (HNAPs) represents a crucial step in integrating health into climate policies through robust vulnerability assessments. Advocacy efforts are steadily increasing the number of African countries developing HNAPs.

Furthermore, by early 2024, 17 countries were engaged in national consultations for HNAPs. These processes foster collaboration among health-determining sectors, stimulating demand for and uptake of transdisciplinary research and evidence. The inclusion of health as a key focus area in the Global Goal on Adaptation Framework provides a foundation for setting targets and monitoring policy progress. Notably, Paragraph 9 of the Global Goal on Adaptation Framework, established at COP 28, identified health as a target sector for developing adaptation targets and reporting.

Pan-African declarations and strategies, such as the African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032), also promote these objectives through the One Health Agenda (African Union, 2022). At the national level, a multi-sectoral approach to developing health adaptation plans is gaining momentum, although a dearth of transdisciplinary evidence remains a challenge.

These renewed efforts build upon existing policies that have not fully addressed the increasingly complex interplay between climate and health. While the reasons for limited success in previous endeavours are unclear, the renewed emphasis on health signals a paradigm shift in addressing climate impacts on health outcomes.

Key Insights

a. The climate and health (C&H) policy landscape is undergoing a significant transformation, shifting from multilateral agreements towards frameworks that prioritize integrated approaches and place health at the forefront of climate policy. A renewed emphasis on climate and health action is driving a paradigm shift, fostering collaboration between climate and health experts. This collaborative approach contrasts with previous siloed efforts. The unprecedented participation of over 60 Health Ministers at COP 28 underscores the growing political commitment to this integration. The Global Goal on Adaptation, established at COP 28, specifically targets health outcomes, *emphasizing resilience building, climate-resilient health services, and reduced climate-related morbidity and mortality, especially in vulnerable communities*. While global momentum is building, translating these efforts into concrete actions at national and local levels remains crucial.

At the national level, global and continental policies are domesticated through Nationally Determined Contributions (NDCs), which underpin countries' commitments to the Paris Agreement. Several African nations have integrated health sector actions into their NDCs, earning recognition as "Healthy NDCs" from the World Health Organization. Burundi and Côte d'Ivoire exemplify leadership in this area (GCHA, 2023). Moreover, countries like Egypt, Rwanda, and Zambia have developed specific health sector response plans to address heat-related illnesses.

The latest National Communications submitted by African countries to the UNFCCC^[1] indicate that most are already implementing health adaptation measures (Table 1). These measures primarily focus on policy development and controlling climate-linked infectious diseases. While progress in early warning systems has been made, many stakeholders identify this area as a critical priority for further investment. Notably, action on public health infrastructure and technology remains limited. This could be attributed to a lack of robust evidence on the systemic connections between climate and health, which could inform comprehensive interventions across the entire healthcare system.

¹ <https://unfccc.int/non-annex-I-NCs>

Table 1: Health Adaptation Measures Identified in the NDCs of Various African Countries(Source: latest National Communication to the UNFCCC)

Note: √√ denotes being implemented, √ denotes in consideration.

Country	Early Warning Systems	Public Education and Awareness	Surveillance, Research, and Monitoring	Infectious Disease Control	Policies Development	Public Health Infrastructure and Technology
Botswana		√	√√	√√	√	
Egypt	√√		√√	√√	√√	√√
Eritrea	√	√	√√	√√	√	√
Gambia	√√	√√	√	√√	√√	
Ghana		√	√√		√√	
Guinea-Bissau				√		
Lesotho	√√	√√	√		√√	
Malawi				√		
Mauritius		√	√		√	
Namibia				√√		
Nigeria	√√	√√	√		√	
Rwanda	√√	√√		√√		
Seychelles		√			+	
Sierra Leone	√	√	√	√√	√	√
South Africa	√√		√√	√√	√√	√√
Uganda	√			√√	√√	
Zambia	√		+			
Zimbabwe				√		

Note: √√ denotes being implemented, √ denotes in consideration.



b. Beyond HNAPs, several African countries possess climate policies with the potential to enhance health outcomes. For instance, CSO FGDs highlighted that:

Uganda has a National Climate Change Policy, which prioritizes health initiatives. One of the policy's objectives is to bolster adaptive mechanisms, improve early warning systems, and ensure adequate preparedness for climate change-related diseases.

Tanzania's National Climate Change Strategy aims to enhance stakeholder capacity for implementing climate and health action plans. The policy outlines opportunities for mitigating climate impacts through sustainable programs. However, limitations in capacity building, resource mobilization, and stakeholder awareness of climate and health policies hinder progress. Investing in alternative, non-policy-centric approaches to resilience is necessary.

South Africa's 2007 Air Quality Act aims to reduce greenhouse gas and air pollutant emissions. The Act mandates the development of air quality control plans across different government levels (Nhamo & Muchuru, 2019).

Ghana, Lesotho, and Namibia have developed National Adaptation Programmes of Action (NAPAs) to address climate change's health impacts (Nhamo & Muchuru, 2019). These programs focus on WASH, vector, and disease control. NAPAs also outline disaster preparedness and response strategies informed by the WHO's Integrated Disease Surveillance Response Strategy, championed by Ministries of Health.

c. Civil society organizations (CSOs) play a pivotal role in supporting the adoption and implementation of climate adaptation policies. They act as intermediaries, fostering connections across sectors and governance levels. For instance, YADNET Uganda convened national multi-stakeholder dialogues, contributing to the development of the Health Vulnerability Assessment and National Adaptation Plan. This resulted in the inclusion of health initiatives and broader stakeholder representation within the National Climate Change Policy. Similar efforts by CSOs in Tanzania and other African countries focus on implementing Water, Sanitation, and Hygiene (WASH) initiatives to address climate and health challenges at the community level while linking with government efforts.

d. Operationalizing global climate and health frameworks at national and regional levels presents significant challenges. Policymakers struggle to adapt global data platforms to inform national vulnerability assessments and HNAPs. Regional focus groups and consultations with policymakers identified key obstacles, including sectoral tensions between climate and health domains, a dearth of domestic expertise to interpret climate-health linkages, and a lack of contextual data. While countries like Uganda and Tanzania have integrated health into climate plans, concrete implementation steps, such as defined tasks, timelines, and accountability, remain elusive.

An African Group Negotiator underscored the broader challenge: *"We have barely scratched the surface in effectively addressing climate change and health at the national level. There is a clear disconnect between global and national discourse. The absence of dedicated health negotiators in climate negotiations highlights the institutional barriers to integration. A fundamental lack of understanding of the complex linkages between climate and health has limited discussions to a superficial level."*

Recommendations

- I. A comprehensive assessment of country-specific contexts is essential to identify optimal opportunities for developing integrated climate and health policies that deliver desired health outcomes.
- II. Strengthening the capacity of civil society organizations (CSOs) to understand climate and health linkages at the local level is crucial. Equipping CSOs to mediate between local communities and national HNAP processes can significantly enhance policy implementation

3.2. The Climate and Health Stakeholders in Africa

The climate and health landscape is increasingly complex, comprising stakeholders from research, policy, advocacy, capacity building, and funding. Africa is witnessing rapid growth in this field, driven by renewed global advocacy for addressing climate change's health impacts. Policy-based stakeholders, particularly, are expanding, with global alliances like ATACH pressuring governments for policy action. Regional alliances and advocacy groups are emerging as intermediaries, supporting the translation of global policies into national contexts. However, operationalising these global aspirations faces challenges due to insufficient contextual evidence, expertise, and data, as dedicated transdisciplinary research teams are still under development.

While emerging pan-African networks offer promising platforms for transdisciplinary research and action (TDR), they require enhanced coordination, partnerships, and funding to realize their full potential. The evolving donor landscape indicates a growing interest in transdisciplinary investments that transcend traditional cause-effect analyses. Although the climate and health (C&H) advocacy landscape in Africa is well-developed, with numerous alliances and networks, there is a critical need for robust TDR evidence to transform advocacy into actionable plans.

Stakeholders in this study comprise organisations, institutions, and agencies engaged in climate change and health initiatives encompassing research, policy, advocacy, or practice. We categorised stakeholders based on geographical scope (global, regional, and national) and thematic focus (policy, research, capacity building, or funding). Global stakeholders operate in both African and non-African countries.

Regional stakeholders function within multiple African nations, potentially sharing information or undertaking research, policy, capacity building, or advocacy activities at the local level. National stakeholders operate exclusively within a single African country, at either a national or local level.

Key Insights

a. A notable imbalance exists in the geographical distribution of stakeholders engaged in climate change and health work across Africa, influenced by factors such as funding, vulnerability, and geopolitics. Of the 188 stakeholders mapped, 52 focused solely on climate change, 57 on health, and 79 on the climate-health nexus. Stakeholder concentration is highest in East, West, and Southern Africa, with underrepresentation in Central and Northern Africa. This regional disparity is partly attributed to funding allocations primarily targeting sub-Saharan Africa, perceived as a region grappling with severe climate and health challenges (Opoku et al., 2021). Methodological biases, such as the study team's use of English and French, may have unintentionally limited the reach to non-English-speaking regions. While some stakeholders interpret the geographical imbalances as indicating greater capacity in East, West, and Southern Africa to address climate and health challenges, others view these regions as incubators for innovative approaches with the potential for broader application. Some experts caution that persistent imbalances could exacerbate vulnerabilities in under-resourced regions, potentially undermining health systems and resilience gains.

"The integration of climate and health into global negotiations is a recent development. Even for key players in the health sector, COP28 marked a pivotal moment, with the endorsement of a climate change and health declaration underscoring the urgent need to address this intersection within the UNFCCC and PA frameworks. While there is growing momentum, a comprehensive understanding of ongoing initiatives and stakeholder roles is essential to inform future negotiations, particularly in the lead-up to COP 29," stated an AGN Adaptation Coordinator.

b. Many stakeholders engage in multiple thematic areas across research, policy, and capacity building, creating potential synergies for transdisciplinary research and action (TDR). As illustrated in Figure 2, most research organizations prioritize research while incorporating policy elements. However, capacity-building initiatives within these organizations are limited, suggesting potential gaps in translating research into practical solutions. Conversely, civil society organizations predominantly focus on policy advocacy with less emphasis on research, highlighting the need to bridge the gap between advocacy and evidence-based action. Government organizations primarily address policy issues with limited research and capacity building, hindering the development of actionable programs based on existing policies.

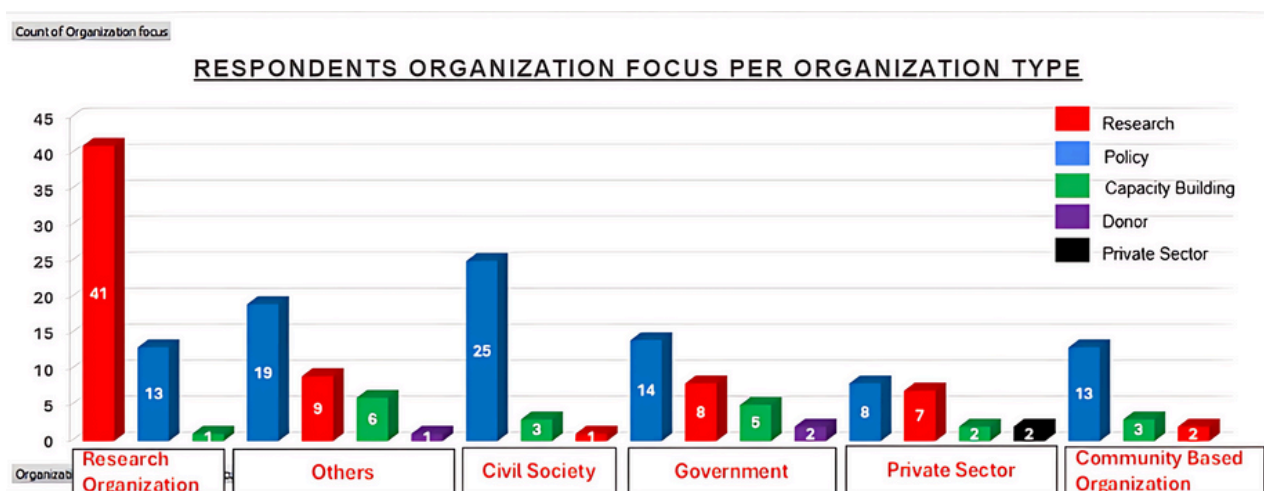


Figure 2: Thematic Focus of Different Types of Organizations (n=198) Mapped in the Online Survey

c. Government ministries of health and environment play a pivotal role in leading national vulnerability assessments and health adaptation planning.

To bridge the gap between national policy and local action, locally led resilience health plans, developed by civil society organisations and local authorities, are essential. Guided by global (e.g., ATACH) and regional frameworks (e.g., AU Declaration on Environmental Health; EMBRACE by Africa-CDC), as well as national development strategies, ministries of health and environment are spearheading the development of Health National Adaptation Plans. Simultaneously, civil society organisations and local authorities are collaborating with communities to address multifaceted livelihood challenges, including health and environmental issues. For example, the Southern African Faith Communities Environment Institute in South Africa empowers residents to adapt to climate change and protect their health. These contextually tailored initiatives offer practical solutions for translating climate and health policies into action. As momentum for national climate and health policies and plans grows, it is imperative to empower existing networks to develop locally-led resilience health action plans grounded in transdisciplinary evidence.

d. Regional organizations and networks serve as crucial knowledge brokers, translating global policy goals into national actions.

These entities engage in advocacy and policy brokerage, mobilizing evidence across diverse contexts to inform planning and interventions. While maintaining strong ties to global policy processes, regional agencies and networks also drive national-level initiatives. For instance, WHO-Afro has been instrumental in mobilizing African Member States to join the ATACH Alliance and guiding them in developing health vulnerability assessment plans. Advocacy groups like the CHANCE network and Africa Climate and Health Alliance have amplified the call for climate and health action. However, pan-African research organizations primarily focused on the health impacts of climate change have yet to fully integrate their findings into broader climate change policies, despite generating valuable knowledge.

Recommendation

A comprehensive review of regional network functionalities is essential to enhance knowledge brokerage capabilities. Aligning existing research with the emerging integrated climate and health (C&H) agenda is crucial for informing new transdisciplinary research and empowering regional networks to mobilize research evidence for actionable outcomes.

3.3. Climate and Health Research Landscape

Climate change and health research often operate in silos, hindering knowledge synthesis and the identification of evidence gaps (Berrang-Ford et al., 2021). A renewed emphasis on transdisciplinary linkages, particularly in understanding how climate change affects socioeconomic health determinants, is essential. While platforms like the Lancet Countdown and ClimaHealth have made strides, their connection to national Health National Adaptation Plans (HNAPs) remains unclear. Policymakers struggle to contextualize complex research findings presented in technical reports and academic publications. Short-term projects often fail to translate research into actionable policies, leading to generic and difficult-to-implement climate and health policies. To address these challenges, dedicated structures are needed to bridge the gap between policy and research, including investments in knowledge translation, evidence synthesis, and co-creation centres to enhance data systems and decision-making.

Key Insights

a. While existing research has strengthened the evidence base for climate change's impact on health, a greater emphasis on solution-oriented research is required. A rapid mapping of African C&H literature revealed that over 80% of initiatives explore the impact of climate events on disease prevalence, particularly vector-borne diseases (see Annex 1). This disease-centric approach offers limited guidance for developing integrated solutions within Africa's complex socio-economic context. Moreover, key informant interviews and literature mapping highlighted the predominance of health experts in C&H research, with limited involvement from climate specialists, despite their influence on climate change decision-making.

b. New climate and health research should prioritize transdisciplinary collaborations to explore the complex linkages between climate change and health. Focus Group Discussions with civil society groups underscored the need to expand research beyond vector-borne diseases to incorporate the broader socio-economic determinants of health. Climate change's impact on diverse areas, such as biodiversity, energy, and the environment, necessitates a holistic research approach. However, limited transdisciplinary collaboration perpetuates research silos. As AMREF highlights, *“a dearth of transdisciplinary data on climate and health hinders our understanding of micro-impacts on different populations and health systems, limiting the development of comprehensive solutions.”*

This sentiment was echoed by the Africa Youth Leadership Development and Health Initiative, which emphasized the need for *timely climate and health research tailored to specific African contexts*. Understanding the sectoral and socio-economic connections is crucial for developing effective interventions. By involving sectors such as agriculture (through nutrition) and energy (through air pollution control), a more comprehensive approach to C&H solutions can be achieved.

c. Participatory, localized data collection tools are crucial for generating context-specific evidence to inform solutions. While global data systems and platforms, such as the Lancet Countdown, emerging regional platforms like ClimaHealth, and the HEat and HHealth African Transdisciplinary Center (HE2AT) (see Annex 1), have made progress in providing data for global reports and policy advocacy (e.g., annual Lancet publications), their connection to national-level planning, such as Health National Adaptation Plans (HNAPs), remains unclear within the region.

Most research predominantly employs epidemiological methods, such as laboratory testing and modeling, with limited social interaction or co-creation. To capture the complexities of climate and health interactions at the community level, participatory data collection tools are essential. These tools empower communities, profile vulnerable populations, and inform inclusive policy decisions. For instance, short videos documenting the health impacts of climate change at the household level can provide invaluable insights. This contextual evidence is crucial for developing practical solutions and guiding climate and health interventions.

Local data collection systems can partner with national data systems, such as the National Bureau of Statistics, which collates demographic and livelihood data. Existing initiatives like the National Agency for Civil Aviation and Meteorology (ANACIM) and the Laboratoire de physique de l'atmosphère et de l'océan Siméon Fongang at the Université Cheikh Anta Diop de Dakar (LPAOSF/ESP/UCAD) offer valuable models for such partnerships. Established in 1986, LPAOSF conducts research in water balance, climate change and health, malaria, the emergence of Rift Valley Fever, mesoscale convective system dynamics, numerical forecasting, and climate change scenarios. The generated evidence informs community-based early warning systems and adaptation strategies in Senegal, feeding into national malaria prevention, response, and care strategies tailored to local needs.

d. From our rapid project mapping, most existing climate and health projects and collaborations are relatively short-term, often delivering research findings without effectively translating evidence into policy and action. This has resulted in generic climate and health policies informed by largely external research and data. Stakeholder consultations further emphasized the challenges posed by inaccessible research communication, hindering policymaker utilization. Experiences from projects like Re-addressing equity through evidence-driven COVID-19 recovery planning and Science Engagement to support Evidence Informed Policy Responses to COVID-19 in Africa demonstrate the need for sustained investment in strengthening research-policy linkages to effectively address intersectional health issues.

Recommendations

- I. Prioritize Research Alignment:** Conduct a comprehensive review of existing climate and health research to assess its alignment with integrated solutions. Invest in new transdisciplinary research teams capable of capturing the multifaceted impacts of climate change on socio-economic health determinants
- II. Align Research with Policy:** Align research with policy needs by focusing on applied research topics and collaborations that generate evidence on the socio-economic determinants of health and their intersection with climate change.
- III. Empower Communities through Data:** Developing and implementing participatory, localized data collection tools that capture the health impacts of climate change at the community level is essential. These tools should empower communities and inform inclusive policy decisions.
- IV. Strengthen Research-Policy Linkages:** Invest in specialized knowledge translation, evidence synthesis, and co-creation centres to bridge the gap between research and policy. Enhance data systems through interactive tools and stakeholder engagement to improve decision-making.



3.4. Climate and Health Capacity Building Landscape

This section outlines existing mechanisms and activities aimed at enhancing climate and health literacy, awareness, and capacity within the region through stakeholder engagement. It also identifies specific capacity and training requirements across various stakeholder groups. Capacity building encompasses both formal, certified training offered by institutions and tailored programs addressing institutional gaps. For instance, governments often deploy staff for short-term training to acquire specific skills. Unstructured capacity building, such as peer-to-peer learning and community awareness initiatives, are also included within this scope.

Key Insights

a. The growing momentum behind integrated climate and health action has spurred the development of numerous stakeholder engagement and awareness platforms. Capacity building in this field, while still nascent, has benefited from these platforms. The Climatexhealth platform, for instance, enables diverse stakeholders to showcase and advertise engagement events, including webinars, workshops, and online forums focused on climate and health. While dedicated climate and health capacity-building institutes are yet to fully materialize, these platforms have significantly raised awareness among stakeholders about climate-health linkages, ongoing initiatives, research, policy advancements, and priorities.

b. Existing environmental health curricula within universities offer a foundation for long-term climate and health capacity building. These programs can integrate specific climate and health topics. For example, Strathmore, Makerere, and the [University of Cape Town](#), along with the [Africa Research Universities Alliance](#), are developing climate and health curricula within their environmental health programs. While short-term training programs and flagship fellowships address immediate skills needs, they often lack in-depth technical focus. These programs can complement university curricula, allowing participants to build upon foundational knowledge. Initiatives like the [Johns Hopkins Climate and Health Certificate](#), [CHANCE Network climate and health knowledge portal](#), [Amref University Climate and Health Course](#), [WHO Training Course](#), and [the Africa Climate and Environment Foundation](#) offer valuable short courses for practitioners and policymakers. Although current efforts fall short of meeting full demand, they provide essential building blocks for future specialized training.

c. Climate and health capacity building in Africa is heavily reliant on external expertise due to a shortage of local researchers. The low volume of African-originated research publications, with only 1.6% of the global total and half originating from South Africa, underscores this challenge (UNESCO, 2021). The absence of African universities within the top 200 global rankings further highlights the issue. Reliance on external expertise is costly, and formal training is often inaccessible due to limited training budgets. Even short-term courses, such as Amref International University's five-day training for healthcare practitioners at a cost of over USD500, are beyond the reach of many.

d. Capacity-building initiatives for policymakers and climate practitioners are underway, although gaps persist in leadership, investment, climate-health integration, advocacy, monitoring, evaluation, and impact assessment. Ghanaian parliamentary committees, for instance, receive training on sustainability and engage in institutional knowledge sharing. Sierra Leone's city learning platforms facilitate collective engagement among city authorities, while peer learning opportunities exist across countries through initiatives like Connective Cities. Ethiopia offers another example, with policymakers trained to use tools linking climate information to epidemic trends associated with El Niño.

A significant gap exists in building the investment skills necessary to secure funding for climate action, particularly health projects. Africa's NDCs heavily rely on international financing, accounting for 85% of climate plans. However, a lack of specialized capacities hinders resource mobilization. The challenge is even more pronounced in the health sector, with limited skills in health systems modelling, resilience planning, and health system carbon accounting. Building these capacities is crucial to unlocking investments for health resilience and low-carbon health systems from existing climate finance portfolios.

Key informant interviews revealed that capacity building extends to the community level, empowering members to advocate for environmental rights, as demonstrated in South Africa. In Nigeria, women are receiving training on climate financing, while Sierra Leone fosters co-creation between communities and technical teams. Community involvement in monitoring and evaluation (citizen science) is gaining traction, as exemplified by Kenya's initiatives in participatory climate risk assessments and vulnerability assessments. Furthermore, training on sustainable livelihoods for farmers impacted by climate change, as seen in Northern Ghana, is emerging as a critical component of community-level capacity building.

Recommendations

- I. Create Dynamic Knowledge-Sharing Platforms:** Develop dedicated, interactive platforms to disseminate climate and health knowledge, foster mass awareness, provide basic training, and build a cohesive community of practice across Africa.
- II. Enhance Capacity Building:** Leverage short-term courses to refine climate and health skills needs while integrating climate and health capacity building into leading university curricula.
- III. Cultivate Local Expertise:** Invest in scholarships and fellowships to develop a robust pool of well-trained local researchers in both climate and health fields.
- IV. Build Investment Capacity:** Provide specialized training to develop competencies in creating bankable health projects and accessing blended finance from international climate funds like the Green Climate Fund and Adaptation Fund.

3.5. Climate and Health Funding Landscape

Funding emerged as a primary challenge for transdisciplinary climate and health research and action (Figure 3). While global funding for climate and health initiatives is increasing, it remains insufficient (Beyeler & Schaferhoff, 2023; Ijjasz-Vasquez et al., 2024). The majority of funding originates from the Global North, disadvantaging African researchers due to the channelling of funds through institutions in high-income countries. Despite growing emphasis on transdisciplinary research and policy development, international climate finance often overlooks essential local-level health initiatives. Consequently, funding for these crucial interventions remains critically low.

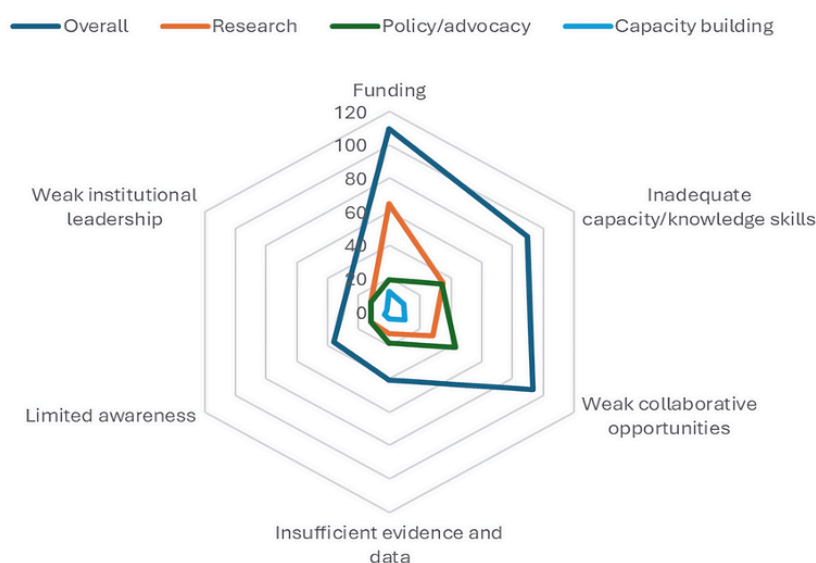


Figure 3: Priority Needs/Barriers to Transdisciplinary Climate and Health Research and Action (n=198).

Key stakeholder needs were identified through an online survey of 198 respondents. Funding emerged as the most pressing need for the majority of participants.

Key Insights

a. While current funding levels for climate and health research and action remain inadequate, a positive trend towards increased investment is evident. Key funders such as Wellcome, the National Institute for Health, Novo Nordisk Foundation, Gates Foundation, International Development Research Centre (IDRC), Medical Research Foundation (MRF), and Rockefeller Foundation are establishing dedicated programs for integrated climate and health research, capacity building, and policy support.

b. Overlapping funding from international donors has led to fragmentation and inefficiencies in the climate and health landscape. Stakeholders expressed concerns about redundant funding for similar activities, hindering collaborative efforts. To address these challenges, international funders are increasingly collaborating to pool resources for climate and health research initiatives. A notable example is the joint commitment of the Novo Nordisk Foundation, Wellcome, and the Gates Foundation, pledging US\$300 million over three years to address the health impacts of climate change and promote global health equity.

c. Domestic funding for climate and health remains limited and underdeveloped. While most African governments allocate budgets for climate change initiatives, these funds are yet to be strategically aligned with integrated climate and health approaches. The nascent stage of National Health Adaptation Plans (NHAPs) has hindered budgetary allocation for climate and health integration. Furthermore, institutional barriers within government ministries impede the integration of research into government programs, limiting access to funding opportunities for researchers. Stakeholders expressed concern that these challenges could significantly hinder progress on climate and health agendas in the absence of substantial external funding. Streamlining research processes within government bodies is essential to enhance access to resources and create a conducive research environment.

"I am considering establishing a dedicated centre at my institute to focus on climate change and health. This centre would bring together researchers from diverse fields, including climate modelling, air pollution, communicable and non-communicable diseases, to collaboratively conduct research, disseminate findings, and influence policy changes in the health sector," stated an Ethiopian policymaker.



d. Funding from the Global North often channelled through institutions in those regions, disadvantages African researchers. Despite growing global commitments to climate change research and skill development, a concerning disparity persists in resource allocation. Overland et al. (2021) reported that approximately 78% of funding for African climate research is directed to European and American institutions, leaving only 14.5% for African counterparts. This imbalance grants non-African researchers significant control over projects.

Furthermore, available climate and health (C&H) funding primarily targets vector-borne diseases like malaria (Thomson et al., 2018). Experts overwhelmingly agree that this funding bias favours the Global North, marginalizing African research teams and overlooking region-specific challenges.

e. While there is growing interest in funding transdisciplinary research and policy development, international climate finance for health activities remains limited. A recent study by Alcayna et al. (2023) found that only 0.5% of multilateral climate adaptation funds are allocated to the health sector, highlighting a significant gap. Despite efforts to integrate health into climate decision-making, health expert involvement in program development remains low. To address this, leveraging existing international climate finance mechanisms, such as the Green Climate Fund (GCF), private sector funding, and multilateral development banks, is crucial. The GCF, for instance, offers opportunities to support climate-resilient health systems and climate-informed advisory services (GCF, 2022)

Recommendations

- I.** Increase Funding and Build Capacity: Significantly increase funding for climate and health (C&H) research in Africa, equipping researchers and users to define priorities and establish locally driven frameworks. This will ensure funding is directed towards pressing issues and foster a more equitable research landscape.
- II.** Enhance Funding Coordination: Create effective coordination mechanisms, such as funders' consortia, to optimize resource allocation and achieve sustainable, impactful outcomes beyond individual projects.
- III.** Prioritize Equity and Ethics: Reinforce affirmative action and equity in the disbursement and management of climate and health funds. Allocate dedicated funding to African researchers to build capacity and strengthen South-South collaborations.
- IV.** Explore Innovative Funding Mechanisms: Explore innovative funding instruments, such as Public-Private Partnerships, to enable action-oriented organizations to access government funding and implement impactful projects.

3.6. Climate and Health Networks in Africa

Networks, comprising diverse organizations, initiatives, or individuals, are essential for fostering transdisciplinary climate and health (C&H) research and action. Our mapping of existing C&H networks(annex2) in Africa reveals a landscape dominated by project-based consortia. While these consortia contribute to research and action within defined project timelines, their impact often remains limited beyond project completion, hindering the sharing of lessons learned.

Key Insights

The climate and health (C&H) field covers diverse network typologies, each with distinct operational modalities and strengths. Project-based collaborations, where researchers or organizations form consortia to secure and implement C&H projects, are prevalent in Africa. These partnerships leverage diverse expertise to advance integrated research and action. However, the temporary nature of project-based collaborations often hinders knowledge transfer and the continuation of valuable partnerships beyond project completion.

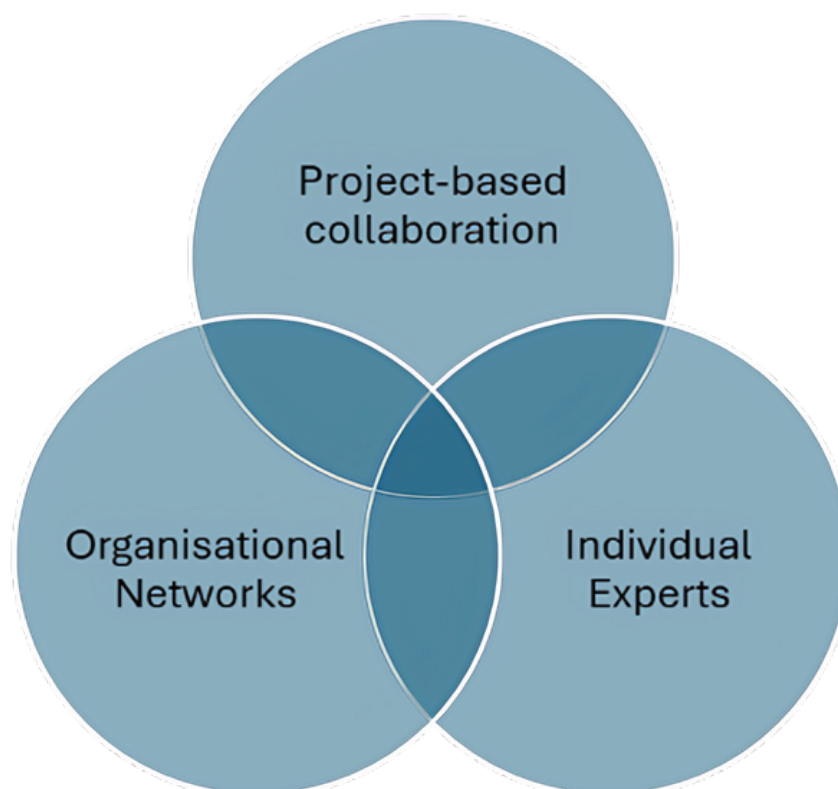


Figure 4: Collaborative Models for Research, Policy/Advocacy, and Action in Climate and Health. (Source: Authors)

Organizational networks involve two or more organizations coming together to be part of a network or consortium dedicated to a particular longer-term agenda. They operate with a relatively loose structure enabling members to collectively pursue a wide range of issues. This might involve joint events, regular discussions, signing petitions, presenting positions, or pursuing fundraising. They are often supported by the resources of an anchor institution. Examples of such networks include global alliances, such as the ATACH hosted at the WHO - bringing together countries to develop HNAPs; the regional ones, such as the Africa Climate and Health Alliance bringing together civil society and research organizations

Organizational networks, comprising multiple entities united by a shared agenda, offer a flexible structure for pursuing a wide range of climate and health objectives. These networks, often anchored by a lead institution, facilitate joint initiatives, discussions, advocacy, and fundraising. Global alliances like ATACH, hosted by the WHO, and regional networks such as the Africa Climate and Health Alliance exemplify this model, bringing together diverse stakeholders to advance climate and health priorities.

Organizational networks offer the potential for long-term collaboration due to their integration into institutional mandates, unlike time-bound projects. However, key informant interviews revealed that these networks often lack a clear focus and face funding challenges. Funders typically prioritize short-term projects over long-term institutional strengthening. *By investing in specific niches and building on organizational strengths, these networks can achieve more significant and enduring impacts.*

Finally, individual experts from diverse fields often collaborate within professional bodies or networks. At the regional level, numerous research networks have emerged across various disciplines, such as the Pan-African Climate Justice Alliance and the Africa Research and Impact Network. These networks facilitate transdisciplinary research by breaking down institutional silos and fostering innovation among researchers and policymakers. Knowledge sharing, learning, and institutionalization of outcomes are key benefits. However, network members often grapple with balancing their network commitments with their organizational roles.

b. Some networks operate within specific climate or health disciplines, while others adopt a broader climate and health focus. As outlined in Section 3.5 and Annex 2, these networks offer opportunities to foster transdisciplinary research and action in Africa. Although existing networks contribute to advancing climate and health research and action, they encounter challenges such as funding constraints, disciplinary silos, unclear objectives, capacity gaps, and weak connections. To effectively address these issues, careful selection and optimization of collaborative models are essential.

Factors such as network focus (research, policy, or action), member expertise, governance structure, communication, and long-term sustainability should guide the choice of model. **By considering these factors, stakeholders can create collaborative frameworks that maximize the effectiveness of transdisciplinary climate and health research and action.**

A C&H Network Coordinator, one of our interviewees, highlights key approaches to strengthen connections and coordination:



"To effectively address climate and health challenges, we must strengthen connections and collaboration among researchers, policymakers, and practitioners. This requires establishing collaborative platforms, fostering interdisciplinary research, and enhancing knowledge exchange. By engaging stakeholders at every stage, translating research into actionable policies, and building capacity, we can create a more robust response to these complex issues," emphasized a C&H Network Coordinator.







A young Black woman with short hair, smiling broadly, pointing her right index finger upwards. She is wearing a blue and white geometric patterned top and blue jeans. The background is a dark, textured grey. A dark blue horizontal bar is overlaid across the middle of the image, containing white text.

**4. OVERALL
RECOMMENDATIONS
FROM THE STUDY**





Focus Investments on Existing Networks:

-  Focus on existing networks operating at the intersection of climate and health, fostering collaboration between climate-specific and health-specific organizations. Establish robust communication channels and strategic knowledge pathways to bridge the gap between research and action.
-  Ensure equitable and inclusive participation within the community of practice to enhance co-creation and ownership of research, policy, and practice outcomes.





Strengthening evidence-informed C&H policy landscape:

-  Assess country-specific contexts to identify optimal strategies for developing integrated climate and health policies that deliver desired health outcomes.
-  Strengthen civil society organizations' understanding of climate and health linkages, enabling them to mediate between local communities and national health adaptation plans (HNAPs).
-  Review existing research, commission new transdisciplinary studies, and support regional networks in mobilizing research evidence for action. (see suggested topics in the research landscape section below)
-  Reinforce national-level multi-sectoral working groups, expanding their scope to include key health-determining sectors and transdisciplinary expertise.

Strengthening C&H Transdisciplinary Research and Impact:

-  Train researchers to comprehensively assess the socio-economic determinants of health in relation to climate change.
-  Invest in applied research that explores the interplay between climate change and socio-economic determinants of health, identifying vulnerabilities within specific community groups. This research should focus on developing integrated solutions that address the root causes of health disparities exacerbated by climate change.
-  Support access to participatory and localized data collection tools for researchers and communities. Promote co-creation approaches like citizen science and storytelling to capture nuanced climate and health interactions at the local level. This will inform locally-led health resilience interventions and contribute to the development of devolved data systems.
-  Create dedicated centers to advance climate and health evidence uptake through evidence synthesis, knowledge translation, co-creation, and utilization. These centres should strengthen existing data systems by deploying interactive tools and fostering engagement to enhance data-driven decision-making at national and regional levels.

Strengthening C&H Skills Among Diverse Actors

-  Support interactive platforms that facilitate wider dissemination of climate and health needs, research, and actions across Africa to create mass awareness and strengthen basic capacity for a wider cadre of stakeholders. Empower them with learning opportunities to enable a functional community of practice with a shared vision.
-  Leverage short-term courses to assess skills needs and develop effective delivery approaches. Integrate climate and health capacity building into the curricula of leading universities and research networks.
-  Support a pool of well-trained local scholars through dedicated scholarships and fellowships for early-career researchers in both climate and health fields.
-  Invest in specialized training to develop skills for creating bankable health projects and accessing blended finance from international climate funds like the Green Climate Fund and Adaptation Fund.

Enhancing Coordinated, Adequate, and Sustainable Funding for C&H Research and Action

-  Significantly increase funding for climate and health research, empowering researchers and users to define priorities and establish locally driven frameworks. This will ensure funding is directed towards pressing issues and foster a more equitable and impactful research landscape.
-  Promote effective coordination among funders to optimize resource allocation and achieve long-term, impactful outcomes.
-  Reinforce affirmative action, ensuring equity and ethics in the disbursement and management of climate and health funds. More dedicated resources should be allocated to African researchers to build capacity and strengthen South-South collaborations, with a shared transdisciplinary research agenda.
-  Promote the adoption of innovative funding instruments, such as Public-Private Partnerships, which enable action-oriented organisations to utilise government channels to access funding for their initiatives.

Strengthening Climate and Health (C&H) Networks as Opportunities for a Transdisciplinary C&H Community of Practice

- 🤝 Enhance collaboration by supporting multi-stakeholder platforms to avoid gaps or overlaps in efforts. These collaborative platforms can improve communication and coordination, ensuring a comprehensive approach and efficient resource allocation, thereby preventing critical initiatives from stalling due to funding limitations.
- 🤝 Strengthen networks already operating at the intersection of climate and health, while fostering collaboration between climate-specific and health-specific organisations. This involves reinforcing coordination mechanisms, enhancing communication channels within networks to facilitate the exchange of knowledge and skills among members, and encouraging learning engagements through meetings, conferences, and webinars.
- 🤝 The development of communities of practice at various levels, such as among population cohorts and at national and regional levels, and facilitate their coordination. This will promote ownership and functionality of the communities across different levels and contexts.
- 🤝 Ensure equitable and inclusive participation within networks to enhance the co-creation and ownership of research, policy, and practice outcomes.





5. CONCLUSION

This study has provided a comprehensive overview of the intricate relationship between climate and health in Africa. By examining this landscape, we have identified a growing momentum towards transdisciplinary research and action as stakeholders unite to address this complex challenge.

However, despite increased collaboration, translating ambitious goals into tangible outcomes remains a significant hurdle. The socio-economic and policy complexities of the African context underscore the urgent need for strategic investments. By fostering robust connections between evidence, policy, capacity building, and practice, we can effectively bridge the gap and drive meaningful change.





6. BIBLIOGRAPHY

AFDB (2019). Climate change impacts on Africa's economic growth. https://www.afdb.org/sites/default/files/documents/publications/afdb-economics_of_climate_change_in_africa.pdf

AFDB (2022), East Africa regional economic outlook report: Chapter 3: Financing climate resilience and just energy transition: Innovative strategies and instruments; *Atela J., and Makomere R. and Atieno E.,*(Eds). AFDB.

AFDB (2022), East Africa regional economic outlook report: Chapter 2, Climate resilience- energy transition nexus in East Africa; *Atela J., and Makomere R.,* (Eds). AFDB.

African Union. (2022). African Union Climate Change and Resilient Development Strategy and Action Plan (2022-2032). <https://au.int/en/documents/20220628/african-union-climate-change-and-resilient-development-strategy-and-action-plan>

Alcayna, T. & O'Donnell, D. (2022) How much global climate adaptation finance is targeting the health sector? *European Journal of Public Health.* 32(3).

Alcayna, T., Munthali, T., Njogu, V., Michael, M. & Stewart, L. (2021). Climate Change Impacts on Health: Kenya Assessment. RCRC_IFRC-Country-assessments.

Alcayna, T., O'Donnell, D., & Chandaria, S. (2023). How much bilateral and multilateral climate adaptation finance is targeting the health sector? A scoping review of official development assistance data between 2009–2019. *PLOS Global Public Health*, 3(6), e0001493.

Atela J.,Nwamaka, O., Nantongo, M. (2022). Locally led adaptation metrics: a review of key gaps and opportunities: Discussion paper (forthcoming).

Atela, J., Ndege, N. & Pelling, M. (2021). *Science-policy interface in the pro-poor response to COVID-19 in Africa: Lessons for post-COVID planning.* UJ-TRCTI Working Paper Series (WP 2021-09). University of Johannesburg: South Africa.

Benevolenza, M. & DeRigne, L. (2019). The impact of climate change and natural disasters on vulnerable populations: A systematic review of literature. *Journal of Human Behavior in the Social Environment.* 29(2): 1-11.

Berrang-Ford, L., Sietsma, A., Callaghan, M., Minx, J., Scheelbeek, P. & Haddaway, N. (2021). Systematic mapping of global research on climate and health: a machine learning review. *The Lancet.* 5(8): 514-525.

Beyeler, N. & Schaferhoff, M. (2023). Improving investments in climate change and global health: Barriers to and opportunities for synergistic funding. UCSF Institute for Global Campbell-Lendrum, D., Neville, T., Schweizer, C. & Neira, M. (2023). Climate change and health: three grand challenges. *Nat Med.* 29(7): 1631-1638.

Dagnet, Y. & Northrop, E. (2015). 3 Reasons why capacity building is critical for implementing the Paris Agreement. World Resources Institute.

Fears, R., Abdullah, K., Canales-Holzeis, C., Caussy, D., Haines, A, Harper, S., McNeil, J., Mogwitz, J. & Meulen, V. (2021). Evidence-informed policy for tackling adverse climate change effects on health: Linking regional and global assessments of science to catalyse action. *PLoS Med* 18(7): e1003719.

Gebre, G. (2021). Prevalence of household food insecurity in East Africa: Linking food access with climate vulnerability. *Climate Risk Management*, 33, 100333.

Gibba, P., Sylla, M., Okogbue, E. Gaye, A. Nikiema, M. & Kebe I (2019) State-of-the-art climate modeling of extreme precipitation over Africa: analysis of CORDEX added-value over CMIP5. *Theo ret Appl Climatol* 137(1–2):1041–1057. <https://doi.org/10.1007/s00704-018-2650-y>

Global Climate and Health Alliance (GCHA). (2023). 2023 Healthy NDC scorecard. <https://climateandhealthalliance.org/initiatives/healthy-ndcs/ndc-scorecards>

Green Climate Fund (GCF) (2022): Sectoral guide consultations version 1, Health and Wellbeing. GCF Business District 175 Art Center-daeroYeonsu-gu, Incheon 22004 Republic of Korea

Hambling, T. Weinstein, P. & Slaney, D. (2011). A review of frameworks for developing environmental health indicators for climate change and health. *Int J Environ Res Public Health*. 8(7):2854–75.

Hartwell, C. Lovell. S. Hess, J. Dolan, K. Vickery, J. & Errett NA. Barriers and facilitators to state public health agency climate and health action: a qualitative assessment. *BMC Public Health*. 2023 Jan 21;23(1):145. doi: 10.1186/s12889-023-14996-2. PMID: 36670368; PMCID: PMC9859738.

Ijjasz-Vasquez, E., Saghir, J. & Richmond, M. (2024). Finance for climate adaptation in Africa still insufficient and losing ground. Brookings

Imen, R. & Abdelkarim, E. (2023). Climate change's effects on food Security in Sub-Saharan Africa (SSA). MPRA.

IPCC. (2022). Climate change impacts and risks.

Kenney MA, Janetos AC, Gerst MD. A framework for national climate indicators. *Clim Chang*. 2018;163(4):1705–18.

Kotcher, J., Maibach, E., Miller, J., Campbell, E., Alqodmani, L. & Maiero, M. (2021). Views of health professionals on climate change and health: a multinational survey study.

Lan, C. (2018). The Challenges and Opportunities for the Green Climate Fund. *Chinese Journal of Urban and Environmental Studies*. 6(1): 1-5.

Liu, A., Trtanj, J., Lipp, E., & Balbus, J. (2021). Toward an integrated system of climate change and human health indicators: a conceptual framework. *Clim Change*. 166(49).

Lokotola, C., Mash, R., Naidoo, K., Mubangizi, V., Mofolo, N. & Schwerdtle, P. (2023). Climate change and primary health care in Africa: A scoping review. *The Journal of Climate Change and Health*. 11:1-11.

Lugten, E. & Hariharan, N. (2022). Strengthening health systems for climate adaptation and health security: Key considerations for policy and programming. *Health Secur.* 20(5):435-439

Mahmood, R., Jia, S., & Zhu, W. (2019). Analysis of climate variability, trends, and prediction in the most active parts of the Lake Chad basin, Africa. *Sci Rep* 9: 6317.

Marinucci, G., Luber, G., Uejio, C., Saha, S. and Jeremy, J. Hess. (2014). Building resilience against climate effects—A novel framework to facilitate climate readiness in public health agencies. *Int. J. Environ. Res. Public Health*, 11, 6433-6458; doi:10.3390/ijerph110606433

Mbeva, K., Makomere, R., Atela, J., Chengo, V., and Tonui, C (Eds). (2023). Africa's right to development in a climate-constrained world. *Contemporary African Political Economy*. Palgrave Macmillan Cham. <https://link.springer.com/book/10.1007/978-3-031-22887-2?sap-outbound-id=B20D012DD76B921EBB128C16B1D03F36A6A0A457>

Muleta, B. W. (2022). Climate change and food security in Sub-Saharan Africa. *Research Square*. <https://doi.org/10.21203/rs.3.rs-2231747/v1>

Murray, K., Escobar, L., Lowe, R., Rocklov, J., Semenza, J. & Watts N. (2020). Tracking infectious diseases in a warming world. *BMJ*. 371:m3086.

Nhamo, G. & Muchuru, S. (2019). Climate adaptation in the public health sector in Africa: Evidence from United Nations Framework Convention on Climate Change National Communications. *Jamba*. 9;11(1):644.

OECD (2020), "Addressing societal challenges using transdisciplinary research", OECD Science, Technology and Industry Policy Papers, No. 88, OECD Publishing, Paris, <https://doi.org/10.1787/0ca0ca45-en>.

Opoku, S., Filho, W., Hubert, F. & Adejumo, O. (2021). Climate change and health preparedness in Africa: analysing trends in six African countries. *International Journal of Environmental Research and Public Health*.

Overland, I., FossumSagbakken, H., Isataeva, A., Kolodzinskaia, G., Simpson, N. P., Trisos, C., & Vakulchuk, R. (2022). Funding flows for climate change research on Africa: where do they come from and where do they go? *Climate and Development*, 14(8), 705-724.

Owen, O., Okereke, C., Webb, J. & Musa, M. (2011). *Climate change and Health Across Africa: Issues and Options*. United Nations Economic Commission for Africa African Climate Policy Centre. Working Paper 20.

Owino, V., Kumwenda, C., Ekesa, B., Parker, M., Ewoldt, L., Roos, N., Lee, W. & Tome, D. (2022). The impact of climate change on food systems, diet quality, nutrition, and health outcomes: A narrative review. *Frontiers in Climate*. 4: 1-10

Pandey, K. (2022). Impact of environment on health: Africa adopts strategy for better synergy between sectors. *Young Environmentalist*.

Parker, M. (2023, October 12). Africa now leads climate finance conversation. *African Business*. <https://african.business/2023/10/african-banker/africa-now-leads-climate-finance-conversation>

Romanello, M., Di Napoli, C., Drummond, P., Freen, C., Kennard, H. & Lampard, P. (2022). The 2022 report of the Lancet Countdown on health and climate change: health at the mercy of fossil fuels. *The Lancet*. 400(10363): 1619-1654.

Smith, L. (2022). The nexus between climate change and healthcare. *The Health Policy Partnership*.

Soumahoro, M., Kinkoh, H., Aikins, E. R., & Louw-Vaudran, L. (2023). Tracking Africa's implementation of Agenda 2063 milestones. *ISS Peace and Security Council Report*, 2023(155), 11-14.

Streck, C., Keenlyside, P. & Unger, M. (2016). The Paris Agreement: A new beginning. *Journal for European Environmental & Planning Law*. 13: 3-29.

Siiba, A., Kangmennaang, J., Baatiema, L., Luginaah, I. (2024). The relationship between climate change, globalization and non-communicable diseases in Africa: A systematic review. *PLoS One*. 2024 Feb 23;19(2):e0297393. doi: 10.1371/journal.pone.0297393. PMID: 38394170; PMCID: PMC10889617.

Theron, E., Bills, C., Hynes, E., Stassen, W. & Rublee, C. (2022). Climate change and emergency care in Africa: A scoping review. *African Journal of Emergency Medicine*. 12(2): 121-128.

The Global Center on Adaptation & Climate Policy Initiative. (2023). State and trends in climate adaptation finance 2023 CONFERENCE VERSION About the Global Center on Adaptation. moz-extension://b7847b82-374d-43f0-b677-71889aadaaf33/enhanced-reader.html?openApp&pdf=https%3A%2F%2Fgca.org%2Fwp-content%2Fuploads%2F2023%2F12%2FState-and-Trends-in-Climate-Adaptation-Finance-2023_WEB.pdf

Thomson, M., Muñoz, Á., Cousin, R., & Shumake-Guillemot, J. (2018). Climate drivers of vector-borne diseases in Africa and their relevance to control programmes. *Infectious diseases of poverty*, 7(04), 15-36.

Turner, G. A., De'donato, F., Hoeben, A. D., Nordeng, Z., Coleman, S., Otto, I. M., Hajat, S., & Kovats, S. (2024). Implementation of climate adaptation in the public health sector in Europe: qualitative thematic analysis. *European Journal of Public Health*, 34(3), 544–549. <https://doi.org/10.1093/EURPUB/CKAD218>

UNEP. (2023). Pollution action note – data you need to know. <https://www.unep.org/interactives/air-pollution-note/>

UNESCO. (2021). The race against time for smart development. UNESCO Science Report.

United Nations Environment Programme (2022). Integrated assessment of air pollution.

Vezzulli, L., Pezzati, E., Brettar, I., Höfle, M. & Pruzzo, C. (2015). Effects of Global Warming on Vibrio Ecology. *MicrobiolSpectr.* 3(3). doi: 10.1128/microbiolspec.VE-0004-2014. PMID: 2618

Watts, N., Adger, W., Ayeb-Karlsson, S., Bai, Y., Byass, P. & Campbell-Lendrum D. (2017). The Lancet Countdown: tracking progress on health and climate change. *Lancet.* 389(10074):1151–64.

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Beagley, J. & Belesova, K. (2020). The 2020 report of the Lancet Countdown on health.

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K. & Berry, H. (2018). The 2018 report of the Lancet Countdown on health and climate change: shaping the health of nations for centuries to come. *Lancet.* 392(10163):2479–514.

Watts, N., Amann, M., Arnell, N., Ayeb-Karlsson, S., Belesova, K. & Boykoff, M. (2019). The 2019 report of the Lancet Countdown on health and climate change: ensuring that the health of a child born today is not defined by a changing climate. *Lancet.* 394(10211):1836–78.

Wenger, E. (2000). Communities of practice and social learning systems. *Organization*, 7(2), 225-246. <https://doi.org/10.1177/135050840072002>

WHO. (2014). Quantitative risk assessment of the effects of climate change on selected causes of death, 2030s and 2050s. [<http://www.who.int/iris/handle/10665/134014>]

WHO. (2024). Alliance for Transformative Action on Climate and Health (ATACH). <https://www.who.int/initiatives/alliance-for-transformative-action-on-climate-and-health>

World Health Organization & United Nations Framework Convention on Climate Change. (2015). Climate and Health Country Profile 2015: Ethiopia. <https://iris.who.int/handle/10665/208861>

World Health Organization & United Nations Framework Convention on Climate Change. (2015). Climate and Health Country Profile 2015: Ghana. <https://iris.who.int/handle/10665/208862>

World Economic Forum. (2024). Quantifying the impact of climate change on human health. Insight Report.

Wright, C., Kapwata, T., naidoo, N., Asante, K., Arku, R., Cisse, G., Simane, B., Atuyambe, L. & Berhane, K. (2024). Climate change and human health in Africa in relation to opportunities to strengthen mitigating potential and adaptive capacity: strategies to inform an African “Brains Trust.” *Annals of Global Health*. 90(1): 7, 1–21.

Wright, C., Moore, C., Chersich, M., Hester, R., NaynaSchwerdtle, P., Mbayo, G., Akong, C. & Butler, C. (2021). A transdisciplinary approach to address climate change adaptation for humans. Health and Well-Being in Africa. *Int. J. Environ. Res. Public Health*. 18(8): 4258

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