AFRICA RESEARCH & IMPACT NETWORK

4TH ARIN ANNUAL INTERNATIONAL CONFERENCE

On Climate and Health

REPORT

Bridging Knowledge Gaps: Promoting Trans-disciplinarity for Climate and Health Resilience.

November 6th -8th 2024

Contributors
Joanes Atela, Ann Irungu, Florence Onyango

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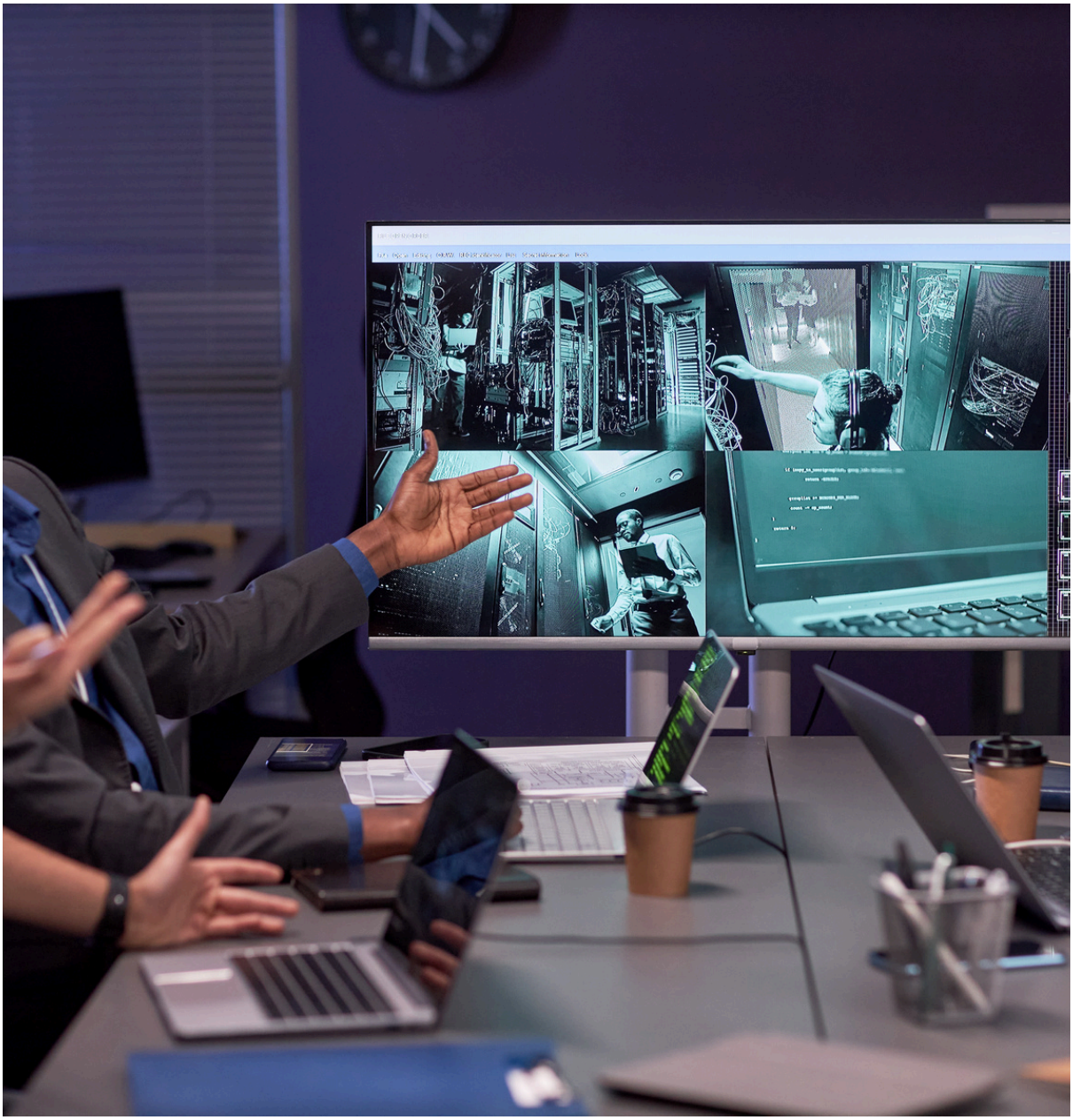
ABOUT ARIN

The Africa Research and Impact Network (ARIN) is a leading research and policy network that brings together scholars, practitioners, and policymakers across Africa to address critical sustainable development challenges. ARIN is committed to enhancing the generation, sharing, and application of knowledge, fostering transdisciplinary research, and facilitating impactful collaborations that drive evidence-based policy interventions. While ARIN's research spans multiple thematic areas—including climate change, health, governance, and sustainable development—its core mission is to ensure that research is academically rigorous, socially relevant, and actionable. The network adopts a participatory approach, ensuring that local perspectives, scientific expertise, and policy considerations are integrated into solutions that address Africa's pressing development needs.

The 4th ARIN International Conference on Climate and Health, held from 6th–8th November 2024, was part of ARIN's broader commitment to facilitating research that informs policy and practice. While this conference specifically focused on the intersection of climate change and health, ARIN remains dedicated to advancing knowledge across diverse fields that contribute to sustainable development. This report aligns with ARIN's vision by capturing and disseminating key insights from the conference, ensuring that discussions translate into impactful policies and interventions that respond to Africa's unique climate and health challenges.



FOREWORD

The 4th Annual ARIN International Conference on Climate and Health, held virtually in November 2024, provided a vital platform for discussing the critical intersection of climate change and public health. The theme, *"Bridging Knowledge Gaps: Promoting Transdisciplinarity for Climate and Health Resilience,"* underscored the urgent need for collaborative, multi-sectoral approaches to tackle the growing challenges posed by climate change. The conference served as a call to action for researchers, policymakers, funders, and practitioners to work together in developing sustainable solutions to health crises exacerbated by climate change.

It reinforced the reality that climate change is not just an environmental issue but a profound public health challenge. The rising prevalence of climate-sensitive diseases, disruptions to food security, and the strain on water and energy systems have intensified the vulnerabilities of already marginalised populations. Addressing these challenges requires urgent and comprehensive responses that integrate health considerations into climate action frameworks and promote cross-sector collaboration.

The global community increasingly recognises the importance of embedding health considerations into climate policy, as reflected in initiatives such as the World Health Organization's Alliance for Transformative Action on Climate and Health (ATACH) and the Health National Adaptation Plans (HNAPs) in Africa. However, despite these advancements, the health sector remains significantly underfunded and underrepresented in climate adaptation policies. Notably, only 0.5% of multilateral climate adaptation funds are allocated to health in Africa. This stark reality highlights the need for stronger collaboration between researchers, policymakers, and implementation partners to develop more effective and inclusive climate-health policies.

ARIN has been at the forefront of these efforts, particularly through initiatives such as the Wellcome-funded study on *"Consultations of Communities of Practice for Transdisciplinary Research and Action on Climate and Health in Africa."* This study, a key feature of this year's conference, explored innovative collaboration models that can be scaled to enhance the integration of health into climate policies. It demonstrated how Communities of Practice (CoPs) can bridge the gap between knowledge generation and policy implementation, fostering transdisciplinary partnerships that strengthen health resilience and drive actionable outcomes.

The conference further highlighted the significance of transdisciplinary approaches, uniting sectors such as agriculture, energy, environment, and health. By bringing together diverse stakeholders, ARIN believes that holistic solutions can be developed to address the interconnected challenges of climate change and health while also considering the complex socio-economic realities of African countries. This approach is essential to ensuring that climate resilience strategies are inclusive, equitable, and sustainable.

At ARIN, we remain committed to advancing research excellence, fostering dialogue between science and policy, and amplifying the knowledge and innovations emerging from Africa. Our network of over 200 researchers and policymakers from 36 African countries continues to champion local knowledge in shaping transformative policies that build resilience against climate change and improve health outcomes across the continent.

As we reflect on the discussions and insights shared during this virtual gathering, we are reminded that the work to bridge knowledge gaps and strengthen collaboration is far from over. The conference has created new opportunities for partnerships and reinforced the need for sustained dialogue and action. Through collective efforts, we can build a future where climate and health resilience are not just aspirations but tangible realities for all. We look forward to ongoing collaborations that will propel the climate-health agenda forward, ensuring that the lessons and recommendations from this conference translate into impactful and sustainable outcomes for Africa and beyond.

ACRONYMS

ACCRCC	The African Coalition of Communities Responsive to Climate Change
ACHA	Africa Climate and Health Alliance
APHRC	Africa Population and Health Research Center
ARIN	Africa Research and Impact Network
ATACH	Alliance for Transformative Action for Climate and Health
C&H	Climate and Health
CAPCHA	Consultative Platform for Climate and Health in Africa
CBPAR	Community-Based Participatory Action Research
CHECs	Climate and Health Excellence Centers
CoPs	Communities of Practice
EbAP	Ecosystem-based Adaptation Planning
EMA App	Ecological Momentary Assessment Application
GIS	Geospatial Information Systems
HNAPs	Health National Adaptation Plans
IDP	Internally Displaced Persons
IMTR	The Institute of Meteorological Research
IPV	Intimate Partner Violence
LAMA	Locally Led Adaptation Metrics for Africa
SDI	Slum Dwellers International
SRH	Sexual and Reproductive Health
TDR	Transdisciplinary Research
WHO	World Health Organization

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EXECUTIVE SUMMARY

The Africa Research and Impact Network (ARIN) hosted its 4th International Conference virtually from 6th to 8th November 2024, under the theme "Bridging Knowledge Gaps: Promoting Transdisciplinarity for Climate and Health Resilience." The conference served as an urgent call for greater collaboration across diverse sectors and levels of governance to address the climate crisis and its profound impact on health outcomes. It provided a dynamic platform for the exchange of groundbreaking research, policy insights, and innovative solutions, bringing together scholars, policymakers, community-based organisations, funders, and practitioners to explore the multifaceted links between climate change and global health.

The discussions underscored the limitations of siloed approaches, highlighting the necessity of transdisciplinary collaboration to tackle the complex challenges posed by climate change. By integrating knowledge across multiple disciplines, the conference aimed to develop more effective and sustainable solutions that contribute to building healthier and more climate-resilient communities. A key takeaway was the recognition that addressing the health impacts of climate change requires a holistic approach, incorporating environmental, public health, social, and policy perspectives to ensure that climate resilience strategies are inclusive, actionable, and rooted in local realities.

Throughout the three-day event, participants engaged in thematic panel discussions, keynote presentations, and collaborative side events, leading to the emergence of new ideas, strategies, and partnerships. The conference reaffirmed that fragmented efforts hinder progress, stressing that sectors such as agriculture, health, energy, and the environment must work together to effectively address the interconnected challenges of climate change and health.

Ten key outcomes emerged from the discussions:

- Increased recognition of the importance of transdisciplinary research in addressing climate and health challenges in Africa.
- Stronger commitment to improving collaboration between climate and health sectors to enhance resilience and adaptation strategies.
- Emphasis on inclusive stakeholder engagement to ensure vulnerable populations are prioritised in climate-health interventions.
- Identification of data gaps in climate and health research, highlighting the need for more integrated data collection and sharing mechanisms.
- Recognition of the role of local knowledge and communities in shaping effective climate-health solutions.
- Growing momentum for policy frameworks that bridge the gap between scientific research and practical, actionable climate-health interventions.
- Call for strengthening capacity building within African institutions to support climate-health research and implementation.
- Emphasis on the role of youth and women in driving innovative solutions at the intersection of climate and health.
- Increased focus on financing mechanisms to support climate and health projects and research across Africa.
- Acknowledgment of the critical role of networks and partnerships in driving sustained action and scaling up climate-health initiatives.

The 4th ARIN International Conference on Climate and Health reinforced the critical role of transdisciplinary collaboration in addressing the climate crisis and its health impacts. It emphasised that sustainable and effective solutions can only be achieved through integrating knowledge across sectors and fostering partnerships that facilitate better policy formulation and implementation. Moving forward, the conference has set the stage for continued dialogue, research, and collaboration, laying the foundation for a future where climate and health resilience are prioritised and realised globally.

ACKNOWLEDGEMENT

The organisation and execution of the ARIN Climate and Health Conference 2024 was overseen by the ARIN Secretariat, based in Nairobi, Kenya. The ARIN Climate and Health Committee provided invaluable guidance in designing and delivering the conference in an integrated manner. Additionally, ARIN fellows from over 26 African countries played a pivotal role in linking the conference discussions to their respective countries and organisations.

The ARIN Secretariat extends its sincere gratitude to the keynote speakers, panellists, moderators, and discussants for their inspirational and diverse insights into the intricate relationship between climate, health, and policy. The fourteen case study presenters enriched the conference by sharing empirical and contextual case studies, significantly contributing to the body of knowledge through their theoretical, practical, and experiential insights. Special appreciation is extended to the over 300 participants who actively engaged throughout the three-day conference, offering thought-provoking questions and valuable contributions.

.Knowledge and resources supporting the conference were drawn from ongoing research projects implemented by ARIN fellows across Africa and beyond. Special recognition is given to Slum Dwellers International (SDI), Statsspeak, The African Coalition of Communities Responsive to Climate Change (ACCRCC), The Institute of Meteorological Research (IMTR), and the LAMA and CAPCHA projects led by ARIN team leaders. These organisations were instrumental in facilitating collaborative side events, adding depth and engagement to the conference.

The ARIN Secretariat sincerely appreciates these collective efforts, partnerships, and contributions that made the ARIN Climate and Health Conference 2024 a success. Through this collaboration, the conference fostered impactful dialogue and partnerships, strengthening efforts towards climate and health resilience.

1.0 INTRODUCTION

1.1 Background

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Siloed approaches can have several adverse consequences:

- **Fragmented Understanding:** Researchers and practitioners working in isolation may lack a comprehensive grasp of the interplay between climate change and health. For instance, climate scientists may focus solely on environmental impacts without considering health outcomes, while health professionals might overlook climate influences on disease patterns.
- **Missed Opportunities for Synergy:** Transdisciplinary collaboration can drive innovative solutions that simultaneously address climate change mitigation, adaptation, and health promotion. Without such collaboration, potential synergies remain untapped.
- **Policy and Interventions:** Policies designed in isolation may prove inadequate or even counterproductive. For example, a climate adaptation strategy that overlooks health considerations could inadvertently heighten health risks, such as increased exposure to heatwaves or vector-borne diseases.
- **Limited Capacity Building:** Siloed practices restrict transdisciplinary learning and skill development. Effective climate resilience requires capacity-building initiatives that draw on diverse knowledge sources.

The Africa Research and Impact Network (ARIN), a leading consortium dedicated to advancing research excellence and evidence-based policymaking, hosted its 4th International Conference from 6th to 8th November 2024. Held virtually, the conference focused on the theme “Bridging Knowledge Gaps: Promoting Transdisciplinarity for Climate and Health Resilience.” This theme underscored the urgent need for transdisciplinary and cross-sectoral collaboration to tackle the climate crisis and its profound health impacts. The conference aimed to bring together stakeholders from diverse fields, fostering dialogue and partnerships to develop integrated, sustainable solutions for enhancing resilience and promoting health in the face of climate challenges.

1.2 Rationale

To overcome the limitations of siloed approaches, promoting transdisciplinary collaboration is essential. Transdisciplinary methods foster dialogue and cooperation among diverse fields, enabling a deeper understanding of the complex and interconnected challenges at the nexus of climate change and health. By breaking down disciplinary silos, researchers and practitioners can generate comprehensive, evidence-based solutions that enhance resilience and support sustainable development.

In the African context, the need for transdisciplinary research is particularly pressing due to the continent's unique vulnerabilities to climate change and its far-reaching implications for public health. Encouraging collaborative approaches can inform locally relevant policies, drive innovation, and strengthen capacities to respond effectively to climate-health challenges. Furthermore, Africa's contributions to global efforts in addressing climate-induced public health risks are crucial for shaping international strategies and frameworks.

The Climate and Health Conference aimed to catalyse discussions, foster collaborations, and promote innovative, cross-sectoral solutions. The conference sought to advance scientific understanding and practical actions that respond to the critical intersection of climate change and health, thereby promoting resilience and sustainable development.

1.3 Objectives

The primary objectives of the conference were to:

a) Facilitate transdisciplinary dialogue to bridge knowledge gaps between climate change and health.
b) Highlight innovative research and practices that integrate climate and health perspectives.
c) Identify trends and gaps in current evidence to guide future research and policy development.
d) Strengthen partnerships among researchers, policymakers, and practitioners to enhance collective impact.

1.4 Fit within ARIN activities

The conference aligned seamlessly with ARIN's core mission to foster collaboration, enhance research productivity, and engage stakeholders in addressing complex societal challenges. By bringing together experts from diverse disciplines, the conference reinforced ARIN's commitment to transdisciplinary research and knowledge exchange.

This initiative continues to support ARIN's broader activities, including stakeholder mapping for climate-health resilience, policy brief development, and capacity-building efforts. By strengthening research networks and facilitating evidence-based policymaking, the conference contributes to ARIN's long-term vision of driving impactful solutions at the intersection of climate change and health.

1.5 Organization of the Conference

The three-day conference was structured around three key themes, each designed to facilitate in-depth discussions and cross-sectoral engagement. These themes are summarised in the table below:

Sub-Theme	Side event
Day 1: The Status of Climate Change & Health Research and Impact in Africa. This session explored the intersection of climate change and health This session examined the intersection of climate change and health in Africa, focusing on the region's heightened vulnerability to climate-related health risks. Discussions addressed the increasing burden of infectious diseases, food insecurity, and heat-related illnesses, underscoring the urgent need for integrated, climate-responsive health systems. The session showcased notable progress, including climate and health action plans in Kenya and South Africa, while highlighting the gaps that remain. By bringing together researchers, policymakers, and practitioners, the session fostered transdisciplinary dialogue and emphasized collaborative approaches to building resilient health systems that can effectively respond to climate-induced health challenges.	**1. Consultative Platform for Climate and Health in Africa** This side event explored CAPCHA as a coordinated initiative designed to address the health challenges posed by climate change in Africa. The session convened stakeholders from diverse sectors, fostering dialogue on the unique challenges and opportunities at the climate-health nexus. Discussions emphasized the importance of collaboration, knowledge exchange, and policy alignment to enhance health resilience across the continent **2. Community-led Ecosystem-Based Adaptation Planning in River Restoration Initiatives in Urban Informal Settlements.** This side event explored innovative, community-driven approaches to addressing the health impacts of climate change in Africa's urban informal settlements. With marginalized urban populations facing increasing climate risks, the session highlighted Ecosystem-Based Adaptation Planning (EbAP) and Community-Based Participatory Action Research (CBPAR) as key solutions. Discussions emphasized the critical role of local knowledge and collaborative efforts among communities, researchers, and policymakers in strengthening climate resilience. The event also underscored the importance of transdisciplinary research and partnerships in tackling urban environmental injustices and promoting climate-resilient infrastructure and services, particularly in safeguarding public health.
Day 2: Opportunities for Enhancing Transdisciplinary Climate Change & Health Research and Impact in Africa. This session examined how transdisciplinary climate and health research can effectively address Africa's unique regional challenges. It highlighted the value of collaboration among environmental scientists, public health experts, policymakers, and community stakeholders in developing holistic solutions at the climate-health nexus. By emphasizing integrated approaches, the session fostered dialogue, built inclusive partnerships, and promoted practical strategies to strengthen climate resilience and improve health outcomes across the continent. Discussions underscored the need for cross-sectoral engagement to bridge knowledge gaps and advance locally relevant, evidence-based policies.	**1. Locally-Led Adaptation Metrics for Africa** This side event explored the Locally Led Adaptation Metrics for Africa (LAMA) Platform, an initiative designed to address the challenges of measuring adaptation in Africa through a localized and inclusive approach. Unlike top-down frameworks such as the International Platform for Adaptation Metrics (IPAM), LAMA focused on capturing local vulnerabilities and aspirations to ensure adaptation efforts reflect the realities of African communities. The event highlighted the importance of adaptation metrics that link local experiences with national and international priorities, fostering collaboration among stakeholders involved in locally-led adaptation initiatives. By consolidating data and lessons from interventions across Africa, the LAMA Platform seeks to integrate local efforts into global adaptation processes, including the Global Goal on Adaptation (GGA) and the Global Stocktake (GST). This aligns with ARIN's commitment to ensuring community-driven solutions contribute to global climate resilience objectives.

Sub-Theme	Side event
	2. Promoting Research Excellence and Dialogue on Meteorological Information to Impact Practices in Kenya This side event fostered a transdisciplinary dialogue by bringing together experts, policymakers, community leaders, and practitioners to explore the role of meteorological and climatological data in addressing climate extremes in Africa. It underscored the value of climate information, raising awareness about its critical role in decision-making and resilience-building.Key discussions focused on capacity development for climate scientists, ensuring better interpretation and application of climate data in policy and practice. The event also explored how integrating meteorological insights into socio-economic activities can enhance preparedness and adaptation efforts. By forging collaborations among climate scientists, social scientists, policymakers, and data users, the session catalyzed future research and interventions aimed at strengthening Africa's resilience to climate challenges. It reinforced the need for evidence-based policymaking and the harmonization of climate science with community-driven adaptation strategies.
Day 3: Strengthening Funding Opportunities for Transdisciplinary Climate Change & Health Research and Impact in Africa. This session explored the vital role of securing funding for transdisciplinary climate and health research in Africa. It identified practical strategies and recommendations to enhance funding opportunities, emphasizing collaboration, innovation, and advocacy to address complex environmental and public health challenges in the region.	**1. Innovative Application of Geospatial Information Systems (GIS) in Climate and Health Research** This side event explored the critical role of geospatial technologies in tackling climate-related health challenges across Africa. It highlighted how Geographic Information Systems (GIS), remote sensing, and spatial data have been leveraged to enhance health outcomes, inform policy decisions, and strengthen resilience to climate shocks. Expert presentations, case studies, and discussions showcased innovative approaches that integrate geospatial analysis, public health research, and climate science. The event examined how GIS tools have been used to track disease outbreaks, assess environmental health risks, and map vulnerable populations. It also emphasized the potential of spatial data in guiding targeted interventions, disaster preparedness, and early warning systems. **2. Transdisciplinary Research and Solutions for Impacts of Climate Change and Mental Health** This side event examined the intersection of climate change and mental health in Africa, emphasizing the growing psychological toll of climate-induced stressors. As climate impacts escalate—leading to livelihood losses, food insecurity, conflicts, and environmental degradation—the session underscored the urgent need to integrate mental well-being into climate response strategies. Bringing together experts, policymakers, community leaders, and mental health professionals, the discussions highlighted often-overlooked mental health challenges stemming from climate stressors. Participants explored innovative, culturally sensitive approaches tailored to African populations, fostering dialogue on trauma-informed care, community-based mental health support, and policy interventions.

1.6 Structure of the Report

The first section of the report provides an overview of the 4th Annual ARIN Climate and Health Conference, highlighting its rationale, key objectives, and thematic focus. It introduces the conference's alignment with ARIN's mission to promote transdisciplinary research and action in climate and health. This section also outlines how the conference contributes to bridging knowledge gaps in climate resilience and health outcomes, focusing on Africa's unique challenges. Key outputs and outcomes from the conference will be summarized, including the development of actionable recommendations for policy, research, and collaboration.

The second section delves into the **Status of Climate Change and Health Research and Impact in Africa,** drawing insights from the keynote speeches, panel discussions, and presentations. This section reflects on the importance of strengthening research in climate resilience within African health systems and communities. It highlights strategies for integrating climate change into public health research, policy, and practice, as well as lessons learned from successful climate-health adaptation research efforts. The section also explores the role of networks like CAPCHA in facilitating research, dialogue, and collaboration across sectors to enhance resilience.

The third section focuses on the **Opportunities for enhancing Transdisciplinary Research and Impact on Climate change and Health,** emphasises the need for cross-sector collaboration between the climate, health, and research sectors. This section outlines the role of innovative research methodologies, stakeholder engagement, and data-sharing in advancing

climate-health research. Insights from panellists and experts on promoting transdisciplinary collaboration are discussed, along with the challenges and opportunities for improving research productivity and impact in the climate-health domain.

The fourth section covers **Strengthening funding opportunities for Climate change and Health Research and Impact in Africa,** with a particular focus on how innovative financial models can support climate-health initiatives. This section examines the role of climate-health finance, public-private partnerships, and local governance in creating sustainable, resilient health systems. It also provides insights into how research findings can inform climate-health funding priorities, particularly in the African context.

The final section wraps up the report with a high-level synthesis, emphasising the key takeaways and recommendations from the conference, including the main deliberations, actionable insights, and concluding remarks. This section reflects on the importance of continued collaboration across sectors and the need for ongoing research to address emerging climate health challenges. It also outlines the next steps for ARIN, including the Fifth annual ARIN conference and upcoming webinars, workshops, and seminars focused on advancing climate and health resilience in Africa.

1.7 Expected Outcomes

The conference is expected to deliver several key outputs, including comprehensive proceedings documenting discussions, presentations, and key messages, alongside a detailed technical report summarising insights and recommendations. Additionally, thematic information and research briefs will highlight specific topics, while policy briefs will provide actionable recommendations for decision-makers.

An edited book volume, featuring peer-reviewed chapters presented during the conference, will be published by Taylor & Francis. Anticipated outcomes include an enhanced CAPCHA platform with an interactive forum to support knowledge sharing among transdisciplinary climate and health stakeholders. The conference will also improve access to synthesised knowledge, fostering its uptake by policymakers, practitioners, and researchers worldwide.

2. Sub-Theme 1: The Status of Climate Change and Health Research and Impact in Africa

2.1 Background

The interconnectedness between climate change and health in Africa requires urgent attention due to the continent's vulnerability and low adaptive capacity. Africa accounts for only 4% of global greenhouse gas emissions, yet it disproportionately bears the brunt of climate change impacts. Climate-sensitive sectors such as agriculture, water resources, and public health are severely affected, with significant implications for food security, economic stability, and population health (Atela et al., 2024a).

The health impacts of climate change in Africa vary geographically and manifest both directly and indirectly. Direct impacts include heat-related illnesses caused by extreme heat stress, as well as injuries and fatalities resulting from extreme weather events such as floods, droughts, and cyclones (Opoku et al., 2021). Indirect impacts arise from disrupted ecosystems and social systems, including changes in vector ecology that increase the transmission of infectious diseases such as malaria, Zika virus, and dengue fever, as well as food insecurity due to crop failures and waterborne diseases following floods (Obame-Nkoghe et al., 2024). For instance, the Horn of Africa has experienced heightened health crises due to climate-driven disease outbreaks, compounded by acute hunger and weak healthcare infrastructure (World Health Organization, 2022).

Emerging evidence suggests that climate change exacerbates non-communicable diseases (NCDs), such as cardiovascular and respiratory conditions, particularly among populations with pre-existing health vulnerabilities. NCDs account for 80% of deaths in sub-Saharan Africa (Rother, 2020). Rising temperatures and deteriorating air quality significantly contribute to these trends. Additionally, mental health impacts, including anxiety and depression, are increasingly recognised as critical consequences of prolonged exposure to climate-related stressors (Cianconi et al., 2020).

The IPCC's Sixth Assessment Report provides an in-depth analysis of the impacts, vulnerabilities, and adaptation strategies related to climate change in Africa (Lee & Romero, 2023). It highlights that Africa is expected to face a growing share of the global population vulnerable to climate change at 2°C and 3°C of warming, exacerbated by multidimensional poverty (Intergovernmental Panel on Climate Change, 2023). Furthermore, the geographical spread of infectious diseases such as malaria is expected to shift, with high-risk transmission zones moving from coastal West Africa to the African Highlands (Ryan et al., 2020). Adaptation remains challenging due to poverty and insufficient financing, particularly in rapidly urbanising areas. Additionally, large-scale afforestation and bioenergy initiatives could further strain food availability and ecosystem health (Ahmed et al., 2021).

Insights from the 29th Conference of the Parties (COP29) held in Baku, Azerbaijan, emphasised the need for increased climate adaptation and mitigation actions to address health impacts. These discussions underscored the necessity of collaborative efforts across sectors and disciplines to develop effective strategies that enhance resilience and protect public health in the face of ongoing climate challenges (United Nations Framework Convention on Climate Change, 2024).

2.2 Overview of the Sessions

The conference opened with welcome remarks from Florence Onyango, the Communications Manager, who then handed over to Dr Joanes Atela for the official welcome.

On the first day, two side events were held. The first, organised collaboratively by SDI and Muungano wa Vijiji, focused on **Community-led Ecosystem-based Adaptation Planning in River Restoration Initiatives in Urban Informal Settlements in Kenya.** The second, hosted by ARIN, centred on the **Consultative Platform for Climate and Health in Africa (CAPCHA).**

The main programme commenced with opening remarks by Dr Joanes Atela, ARIN Convener, setting the stage for the thematic discussions ahead. This was followed by a keynote address delivered by Prof Nishad Jayasundara, Assistant Professor of Global Environmental Health at the Nicholas School of the Environment, Duke University, North Carolina.

The proceedings continued with a guided panel discussion moderated by Dr Humphrey Agevi. The panel featured distinguished experts, including Dr Gloria Maimela, Director of Climate and Health at Wits RHI and a member of the CHANCE Network, and Ms Nancy Marangu, Executive Director of the Chemichemi Foundation in Kenya and a climate policy expert for the United Nations Framework Convention on Climate Change (UNFCCC). Together, they addressed key questions within their respective areas of expertise and engaged with audience inquiries.

To conclude the day's discussions, session rapporteurs, led by Nancy Mutwii, synthesised the key highlights and insights. Victoria Chengo, Research Manager at ARIN, chaired the session, ensuring a smooth and impactful flow of activities.

2.2.1 Event Presentations

A. SDI | Muungano wa Wanavijiji

Community-led Ecosystem-based Adaptation Planning in River Restoration Initiatives in Urban Informal Settlements in Kenya

The side event featured Jane Njeri Njoroge, Nancy Njoki, and Michael Wera from Slum Dwellers International (SDI), alongside John Kimani from Muungano wa Wanavijiji. Together, they led an in-depth discussion on the critical role of community-driven approaches in addressing environmental and health challenges in urban informal settlements.

The event highlighted the transformative potential of community-led initiatives, underscoring the importance of collaborative frameworks in tackling urban environmental issues. Flood management, waste disposal, and green space creation were identified as key interventions with significant impacts on improving living conditions and health outcomes. The speakers emphasized the value of local knowledge in developing sustainable, community-specific solutions, while also recognizing the resilience of small-scale efforts. However, they stressed that continuous support and resourcesare essential to sustaining these interventions.

The discussion also explored the health implications of climate-related challenges in informal settlements, such as flooding, air pollution, and food insecurity. Grassroots interventions—including tree planting, erosion control using sack barriers, and river cleanup efforts—were showcased as effective community responses to these risks. The intrinsic link between environmental conditions and health was a key focus, advocating for ecosystem restoration as a fundamental component of community well-being. Knowledge-sharing within communities was also highlighted as a crucial mechanism for adaptation and strategy refinement.

Challenges in mobilizing communities for environmental and health initiatives were addressed, drawing on experiences in disaster risk management, pollution control, and green space creation. A bottom-up approach was identified as essential to empowering communities, ensuring that local groups lead restoration efforts and develop a long-term commitment to sustainability. The active engagement of youth in restoration and waste management was recognized as a key factor in intergenerational resilience-building.

Speakers stressed the need for structured collaboration among communities, policymakers, and stakeholders to ensure the sustainability of ecosystem-based adaptation strategies. Aligning community initiatives with government policies was seen as crucial for streamlining approvals and securing support. A transdisciplinary approach was strongly advocated to tackle complex challenges like river restoration and pollution control, ensuring that communities remain central to planning and benefit from ongoing capacity-building initiatives.

Key Insights and Takeaways

1. Community Empowerment and Involvement – Empowering residents to lead ecosystem restoration fosters ownership and ensures long-term commitment to sustainability.
2. Collaborative, Bottom-Up Approach – Engaging local groups, youth, and leaders in planning and implementation enhances resilience and ensures initiatives are locally relevant.
3. Health and Environmental Interlinkages – Environmental degradation directly impacts health in informal settlements, making interventions like waste management, pollution control, and green space creation essential for improving well-being.
4. Strengthening Community Capacity – Investing in training and resources for youth and local leaders expands local efforts and enhances sustainability.
5. Formalizing Stakeholder Collaboration – Establishing structured partnerships among community organisations, government agencies, and technical experts aligns goals and helps secure necessary resources.
6. Promoting Knowledge Sharing and Policy Support – Sharing successful strategies between communities and developing policy frameworks tailored to informal settlements enhances Ecosystem-based Adaptation Planning (EbAP) efforts.

B. Africa Research and Impact Network

Consultative Platform for Climate and Health in Africa (CAPCHA)

The ARIN side event on the Consultative Platform for Climate and Health in Africa (CAPCHA) featured Dr. Joanes Atela, Ann Irungu, Dr. Humphrey Agevi, and Ezekiel Gogo, who highlighted the urgent need for transdisciplinary collaboration to address the interconnected challenges of climate change and health across Africa. They emphasized the importance of engaging researchers, policymakers, and communities in co-creating impactful adaptation and mitigation strategies that are responsive to Africa's unique socio-economic and environmental contexts.

Dr. Joanes Atela reaffirmed ARIN's commitment to consolidating evidence from 36 African countries to inform climate and health interventions. He outlined ARIN's role in fostering knowledge exchange and driving collaborative solutions, which are essential for sustainable change. A key initiative advancing this vision is The Consultative Platform on Climate and Health in Africa (CAPCHA), a platform designed to address data-sharing gaps, policy integration challenges, and capacity-building needs in the climate and health sector.
CAPCHA's core components include a stakeholder database dashboard for mapping actors and visualizing climate-health interventions, a knowledge-sharing and engagement platform to facilitate collaboration, and mechanisms for translating research into actionable policies. By centralizing data and promoting joint research and policy advocacy, CAPCHA aims to strengthen adaptive capacities and foster multisectoral partnerships to build health resilience across the continent.

However, systemic challenges persist, including underinvestment in climate and health initiatives, short-term donor-driven projects that hinder long-term planning, and the lack of robust early warning systems and standardized data collection mechanisms. The discussion emphasized the importance of long-term, multisectoral approaches to enhance transdisciplinary capacity and improve intervention effectiveness. Many existing data sources, often derived from the global North, do not fully reflect Africa's realities, underscoring the need for localized data to inform context-specific policymaking.

A transdisciplinary approach was strongly advocated as a way to break down sectoral silos and integrate diverse knowledge systems. The speakers demonstrated CAPCHA's stakeholder database dashboard, showcasing its ability to map stakeholders, track National Health Adaptation Plans (NHAPs) across Africa, and generate insights on surface temperature distributions and land-use patterns. These tools are designed to support the health sector by enabling data-driven research and decision-making.

Key insights from the session highlighted the importance of community-led adaptation solutions in empowering vulnerable populations and the need for real-time, localized data to develop responsive and effective strategies for climate and health resilience. A transdisciplinary approach was emphasized as essential for fostering cross-sector collaboration, integrating diverse knowledge systems, and ensuring solutions are tailored to the unique needs of African communities. CAPCHA was presented as a critical platform for addressing these challenges by integrating real-time climate data with community priorities and fostering cross-border partnerships to create sustainable health strategies for the continent.

2.2.2 Main Plenary Session

The main plenary session featured insights from Dr. Joanes Atela, Prof. Nishad Jayasundara, Dr. Gloria Maimela, and Ms. Nancy Marangu, who all emphasized the critical need for transdisciplinary approaches to tackle the complex and interconnected challenges of climate change and health. Traditional, discipline-specific approaches were deemed inadequate for addressing these multifaceted issues, reinforcing the essential role of ARIN in consolidating evidence from diverse African contexts to drive integrated solutions. Strengthening collaboration across disciplines and engaging stakeholders more deeply were highlighted as key strategies to enhance systems thinking in transdisciplinary research (TDR).

The session underscored the importance of engaging non-academic partners and training the next generation to embrace transdisciplinary thinking. Successful models such as the Planetary Health Framework and the Duke Climate and Health Alliance were cited as examples of integrating diverse sectors into research and action, offering valuable lessons and potential opportunities for funding in capacity building, data system development, and training. Africa's potential to lead in climate and health innovation was also highlighted, particularly through leveraging Indigenous knowledge, a growing workforce, and technological advancements, including ARIN's CAPCHA platform.

Challenges in implementing TDR were also discussed, including differences in scientific approaches, communication barriers, and project durations. Proposed solutions included breaking down silos, promoting cross-departmental initiatives, and building capacity. The integration of community-based participatory research, accessible digital tools, Indigenous knowledge, and community-led climate health indicators was emphasized as essential for enhancing locally led research and ensuring meaningful co-creation with vulnerable communities. Public-private partnerships and continuous stakeholder engagement were also identified as key enablers for strengthening TDR.

The session highlighted several priorities for advancing climate-health resilience, including expanding research into innovative tools such as drones and artificial intelligence to address critical challenges in the field. Attendees were encouraged to prepare for ARIN's upcoming fellowship mini-grants program, which will focus on leveraging AI and machine learning for enhanced climate resilience. Other priorities included strengthening communities of practice to foster collaboration and drive meaningful policy impact, establishing accessible and robust data systems as centralised resources for climate and health information, and fostering public-private partnerships to unlock opportunities for impactful research. Continuous stakeholder engagement, particularly with policymakers, was emphasised as crucial for enhancing study buy-in and ensuring effective policy integration.

2.3 Case Study Presentations

Five research papers highlighting transdisciplinary approaches in climate and health were presented. The details are outlined in the table below.

Titles of Research Paper	Presenting author	Affiliation
Climate Change and Health: Navigating the Interconnected Challenges for a Resilient Future	Ndirangu Ngunjiri	University of Nairobi
The Status of Climate Change & Health Research and Impact in Africa	Pamela Nekesa	Daystar University
Impact of Climate Change on Air Quality and Respiratory Health: A Spatial Analysis of Asthma incidence in Nairobi County	Antoinette Wangari	Statsspeak Group Limited
Investigating Flood-Induced Groundwater Contamination and Cholera Risk in Tharaka Nithi County	Anne Omollo	Statsspeak Group Limited
Impacts of Climate Change on Health and Access to Healthcare; Findings from Uganda's Vulnerability and Adaptation Assessment, 2023	John Bosco Isunju	Makerere University School of Public Health

The session showcased diverse studies examining the intricate linkages between climate change and health across Africa, highlighting the need for transdisciplinary approaches, robust health systems, and targeted policies to mitigate climate-induced health challenges.

Ndirangu Ngunjiri presented his research on the health impacts of climate-related hazards such as extreme weather events, air pollution, and water scarcity. He identified key factors—including geographic location, socioeconomic status, and infrastructure exposure—that contribute to health risks, which manifest as injuries, respiratory illnesses, waterborne diseases, malnutrition, and mental health challenges. He emphasised the disproportionate burden on vulnerable populations and recommended strengthening healthcare facilities, integrating climate and health policies, implementing community-based adaptation programmes, prioritising primary healthcare for at-risk populations, and promoting sustainable practices in the health sector.

Dr Pamela Nekesa provided a comprehensive overview of climate change and health research in Africa. She highlighted how climate change exacerbates disease outbreaks, food insecurity, limited access to clean water and sanitation, heat-related illnesses, and healthcare system disruptions. Using methodologies such as climate data analysis, predictive modelling, and surveillance, she outlined the multifaceted impacts of climate change on malnutrition, infectious diseases, mental health, and economic stability. Her presentation underscored the urgency of building resilient health systems and strengthening national capacities to mitigate these effects.

Antoinette Wangari presented a geospatial analysis of asthma incidence in Nairobi, examining the relationship between climate variables—such as rainfall and temperature—air quality, and respiratory health. Her study revealed that increased rainfall and temperatures elevate humidity levels, leading to higher concentrations of ground-level pollutants and a rise in respiratory disease cases. She identified high-risk areas and populations exposed to air pollutants and recommended developing models to analyse climatic variables' interactions with pollutants, studying indoor-outdoor pollutant infiltration, and leveraging vegetation to improve air quality.

Anne Omollo's research focused on the correlation between climate change-induced flooding and cholera outbreaks in Tharaka Nithi County. She analysed how flooding exacerbates cholera risks and evaluated the effectiveness of sanitation facilities in the region. Her findings pinpointed high-risk areas and contributing factors, emphasising the need for targeted interventions to mitigate disease outbreaks.

Dr John Isunju from Makerere University presented research on the health and healthcare access impacts of climate change in Uganda. His findings contributed to the development of Uganda's Health National Adaptation Plan, reinforcing the importance of policy frameworks in addressing climate-induced health challenges.
These studies collectively underscored the urgent need for integrated, data-driven interventions to enhance climate and health resilience across the continent.

2.4 Recommendations

Day 1 of the Climate and Health Conference highlighted the urgent need to address the interconnected challenges of climate change and health through innovative, collaborative, and community-centred approaches. The following recommendations emerged:

- Strengthen Transdisciplinary Collaboration – A recurring theme throughout the day was the importance of fostering cross-sectoral collaboration to tackle the multifaceted challenges of climate and health. Researchers, policymakers, and community leaders must break down silos and co-develop strategies that integrate diverse expertise and perspectives. Initiatives like CAPCHA demonstrate the value of consolidating knowledge and fostering partnerships across disciplines and regions.
- Enhance Data Systems and Infrastructure – Significant gaps in data collection, sharing, and standardisation were identified as barriers to effective climate and health adaptation. Participants emphasised the need to develop robust, Africa-specific data systems that prioritise localised and real-time information to inform targeted interventions. CAPCHA's tools, such as the stakeholder database and real-time mapping capabilities, were highlighted as critical innovations to bridge this gap.
- Invest in Long-Term Capacity Building – To sustain impactful climate and health adaptation efforts, long-term investment in capacity building is essential. Training programmes targeting youth, local leaders, and researchers should be prioritised to empower communities and institutions to take ownership of solutions. Transdisciplinary skills and infrastructure must also be strengthened to enhance the effectiveness of adaptation strategies.
- Promote Community-Led Solutions – The need to empower communities to lead adaptation efforts was underscored throughout the day. Local knowledge and participation were identified as key to designing sustainable and context-specific interventions, particularly in vulnerable areas like informal urban settlements. Policies must incorporate community priorities to ensure solutions are inclusive and equitable.
- Increase Financial Support for Climate and Health Initiatives – The underfunding of climate and health projects in Africa remains a significant challenge, with many initiatives relying on short-term, donor-driven funding. Governments, development partners, and private sector actors are encouraged to invest in long-term, sustainable financing mechanisms to support comprehensive and scalable solutions.
- Integrate Climate and Health into Policy Frameworks – Policymakers should prioritise the integration of climate and health into national and regional strategies, ensuring that health systems are climate-resilient and adaptive. National Health Adaptation Plans should be aligned with local contexts and adequately resourced to facilitate effective implementation.

2.5 Conclusion

Day 1 of the conference laid a strong foundation for addressing the urgent and interconnected challenges of climate change and health in Africa. Discussions emphasised the importance of leveraging transdisciplinary approaches to bridge knowledge gaps, strengthen data systems, and foster collaboration across sectors and regions. Community-led initiatives were showcased as powerful models for empowering vulnerable populations and driving locally relevant solutions. CAPCHA emerged as a flagship platform, demonstrating the potential of centralised data systems and cross-border partnerships to advance climate and health resilience. However, significant challenges persist, including data gaps, underfunding, and limited integration of climate and health into policy.

3.Theme 2: Opportunities for Enhancing Transdisciplinary Research and Impact in Africa

3.1 Background

Climate change and health research have often operated in silos, hindering knowledge synthesis and the identification of evidence gaps (Atela et al., 2024b). Africa, in particular, faces intricate issues that cannot be effectively addressed through a single disciplinary lens. Transdisciplinary research (TDR), an integrative approach that transcends traditional disciplinary boundaries to address complex societal issues, provides a framework for integrating knowledge from various disciplines and stakeholders, including scientists, policymakers, and local communities, to develop holistic solutions. For instance, in addressing climate change and health, TDR can help create integrated strategies that consider environmental, social, and economic dimensions (Irungu et al., 2024; Wright et al., 2021). A renewed emphasis on transdisciplinary linkages, particularly in understanding how climate change affects socioeconomic health determinants, is essential. Opportunities for enhancing TDR in Africa are substantial, especially in tackling multifaceted challenges such as climate change, health, food security, and sustainable development.

Key moments, such as the 2015 Paris Agreement, have emphasised integrated approaches, leading to the evolution of Africa's climate and health policy landscape. The launch of the Alliance for Transformative Action for Climate and Health (ATACH) framework by WHO renewed global and regional ambitions for integrated climate and health policies, creating a solid foundation for transdisciplinary research and action. Despite these advancements, the distribution of stakeholders in the climate and health field across Africa remains uneven due to disparities in funding and structural challenges (Atela et al., 2024b). Establishing collaborative platforms that bring together diverse stakeholders is critical for co-creating knowledge and ensuring research outcomes are relevant and actionable. Initiatives like the Consultative Platform on Climate and Health in Africa (CAPCHA) by the Africa Research and Impact Network (ARIN) demonstrate the potential of such platforms to foster dialogue and innovative solutions between researchers, policymakers, and local communities. This initiative has fostered a deeper understanding of the complex interplay between climate change and health outcomes, leading to more comprehensive and context-specific interventions.

Establishing collaborative platforms that bring together diverse stakeholders is critical for co-creating knowledge and ensuring research outcomes are relevant and actionable. Initiatives like the Consultative Platform on Climate and Health in Africa (CAPCHA) by the Africa Research and Impact Network (ARIN) demonstrate the potential of such platforms to foster dialogue and innovative solutions between researchers, policymakers, and local communities. This initiative has fostered a deeper understanding of the complex interplay between climate change and health outcomes, leading to more comprehensive and context-specific interventions.

Furthermore, the establishment of collaborative networks such as the Africa Climate and Health Alliance (ACHA), the Global Climate and Health Alliance (GCHA), and the CHANCE Network has created opportunities for expert convenings, knowledge sharing, and capacity building. These networks facilitate transdisciplinary collaboration and the co-production of knowledge, which is critical for addressing transnational issues like climate change. In Africa, project-based collaborations, where researchers or organisations form consortia to secure and implement climate and health (C&H) projects, are prevalent. 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 (Atela et al., 2024b)

Additionally, Africa's rich indigenous knowledge systems offer valuable insights into sustainable practices and resilience. TDR encourages the integration of this knowledge with scientific research, fostering innovation and culturally appropriate solutions. For example, traditional farming practices combined with modern agricultural techniques have led to improved food security in regions like West Africa (Dixon et al., 2019). International funding agencies increasingly recognise the value of TDR, providing financial support for projects that adopt this approach. Initiatives like the Wellcome Trust's Climate and Health calls demonstrate a growing interest in funding research that integrates various disciplinary perspectives to address global health challenges. TDR's inclusive approach also ensures that research outputs are relevant to policy and practice. By involving policymakers and practitioners in the research process, TDR enhances the uptake of research findings in decision-making.

A significant development at COP29 was the release of the WHO's special report on climate change and health, which identifies critical policies across three integrated dimensions: people, place, and planet, aiming to protect the estimated 3.6 billion individuals residing in areas most susceptible to climate change. The report advocates for inclusive, transdisciplinary research that bridges the climate and health sectors, proposing collaborative strategies to mitigate adverse health outcomes associated with climate change (World Health Organization, 2024). Furthermore, the Declaration on Multisectoral Action Pathways (MAP) to Resilient and Healthy Cities was introduced at COP29, recognising the rapid urbanisation and the need for integrated approaches to enhance urban resilience. This declaration also emphasises the importance of multisectoral collaboration in building resilient and healthy urban environments (United Nations Climate Change, 2024).

In conclusion, COP29 reinforced the imperative for transdisciplinary research and the need to foster collaboration across disciplines and sectors to develop holistic solutions that enhance resilience and protect vulnerable populations from the escalating impacts of climate change.

3.2 Overview of the Sessions

On the second day of the conference, two side events took place. The first, organised by ARIN, focused on Locally Led Adaptation Metrics for Africa (LAMA), while the second, hosted by IMTR, highlighted Promoting Research Excellence and Dialogue on Meteorological Information to Impact Practices in Kenya. The main program began with opening remarks and reflections from the previous day's sessions, delivered by ARIN Research Manager, Ms. Victoria Chengo. Her address set the stage for the thematic discussions that followed. This was succeeded by a keynote presentation by Prof. Caradee Wright, Chief Specialist Scientist at the South African Medical Research Council, who leads the Climate and Health Research Programme. The day's proceedings continued with a panel discussion moderated by Dr. Humphrey Agevi. The panel brought together distinguished experts, including Mr. Samuel Wanjohi, Country Manager for the Africa One Health University Network; Dr. Catherine Machalaba, Planetary Health Scientist at The Nature Conservancy; Mr. Raymond Ruyoka, Director of YADNet Africa and founding member of the Africa Climate and Health Alliance (ACHA); and Mr. Evatt Mugarura, Secretary General of the Uganda Public Health Specialists Association. The panellists explored questions relating to their areas of expertise and engaged with audience inquiries in an interactive session. To conclude the day, key highlights and insights were synthesized by session rapporteurs led by Mr. Jerry Ariel. The session, chaired by Ms. Leah Aoko, Policy Research Associate at ARIN, ensured a smooth and impactful conclusion to the day's activities.

3.2.1 Side Event Presentations

A. Africa Research and Impact Network

Locally Led Adaptation Metrics for Africa (LAMA)

The ARIN side event on *Locally Led Adaptation Metrics for Africa (LAMA)* brought together speakers Ms. Leah Aoko, Mr. Ezekiel Gogo, and Mr. Charles Tonui, who shared insights into community-driven adaptation strategies and their significance in addressing climate impacts on health and resilience.

The LAMA project was introduced as a community-driven initiative focused on ensuring that adaptation efforts align with the real needs of local populations. By bridging the gap between local, county, and national adaptation priorities, the project aims to create a cohesive framework that reflects the realities of those most affected by climate change. The initiative underscores the vital connection between climate change and health outcomes, going beyond traditional adaptation strategies by integrating health indicators. This approach focuses on mitigating climate-induced health risks, ensuring solutions are both effective and culturally relevant, tailored to the unique challenges of local communities. A significant challenge addressed was the difficulty in measuring the effectiveness of locally-led adaptation, particularly due to the lack of clear indicators, which limits the ability to track progress, especially in the health sector. The call for greater prioritisation of local adaptation needs, which are often overlooked in broader policy frameworks, was emphasised.

The technological dimension of the initiative was also highlighted, with Geographic Information Systems (GIS) and remote sensing tools playing a key role in mapping climate vulnerabilities, monitoring environmental changes, and assessing risks. These technologies provide communities with precise, actionable data, empowering them to make informed decisions and enhancing their resilience to climate impacts. A critical disconnect between policy frameworks and on-the-ground realities was pointed out, with advocacy for policies that reflect the lived experiences and needs of local communities. Regular consultations with community representatives were emphasised as a way to make policies more actionable and impactful.

The importance of fostering local leadership in adaptation initiatives was also underscored, with local leaders being empowered to spearhead efforts, cultivating a sense of ownership and ensuring greater participation in adaptation strategies.

The session emphasised the importance of grassroots-driven climate solutions, asserting that local communities should lead adaptation efforts due to their intimate understanding of the challenges they face. Building their capacity through training, resources, and knowledge-sharing transforms them into proactive agents of change. It was stressed that inclusive strategies, involving marginalised populations, ensure no one is left behind, and the integration of health considerations into adaptation planning addresses immediate climate-driven health risks while fostering long-term resilience.

The role of data and technology was highlighted as crucial, with GIS and remote sensing enabling communities to make evidence-based decisions and scale effective interventions. In conclusion, the session identified three key areas for follow-up: advocating for alignment of national and regional policies with locally-led adaptation priorities, enhancing data capacity within local communities through training and accessible technologies, and sustaining community engagement through feedback loops to ensure the relevance and effectiveness of adaptation strategies. This approach builds trust and ownership among communities, ensuring their active involvement in creating resilient, adaptive systems. The event showcased the transformative potential of locally-led adaptation metrics in bridging the gap between policy and practice, empowering communities to address the dual challenges of climate change and health vulnerabilities.

B. Institute of Meteorological Training and Research (IMTR)

Promoting Research Excellence and Dialogue on Meteorological Information to Impact Practices in Kenya,

The IMTR side event, *Promoting Research Excellence and Dialogue on Meteorological Information to Impact Practices in Kenya,* brought together a distinguished panel of experts including James Gathura, Mr. Lucas Okach, Mr. Josphat Kang'ethe, Dr. Margaret Kimani, and Dr. Augustine Kiptum. The event explored the intricate connections between climate and health, focusing on actionable strategies for translating research into impactful policies and practices. The discussions highlighted the importance of fostering collaboration across sectors, integrating indigenous knowledge, and developing innovative approaches to bridge the gap between research and real-world applications.

The session opened with a detailed articulation of the profound impacts of climate change on public health, emphasising its role in exacerbating diseases, triggering extreme weather events, and heightening issues of malnutrition and mental health challenges. The urgent need for innovative strategies was underscored, highlighting the translation of research findings into actionable policies, fostering data sharing, and enhancing collaboration across sectors. The integration of local and indigenous knowledge into research was emphasised as essential to ensuring solutions are relevant and resonant with community needs. Building partnerships among scientists, policymakers, and community stakeholders was advocated as crucial for addressing the complex challenges at the climate-health nexus, with a call to break down disciplinary silos to enable holistic approaches.

Further expanding on these themes, the discussion emphasised the necessity of collaboration across researchers, policymakers, and communities to make research more impactful. The importance of mobilising resources through partnerships and involving local communities to co-create relevant research indicators was highlighted. Innovative tools, such as artificial intelligence, were recommended to be used alongside indigenous knowledge to foster new approaches to climate-health issues. Joint actions by governments, NGOs, and academic institutions were recommended to align climate and health policies effectively. Enhanced dialogue between scientists and policymakers was advocated to ensure research outputs align with national objectives, facilitating the translation of evidence into actionable policy briefs.

The need to redesign training programmes to address the specific challenges faced by local communities was highlighted. Mentoring was emphasised as a key component in fostering transdisciplinary collaboration, along with the incorporation of traditional knowledge into research designs. Engaging local stakeholders from the beginning of projects was stressed as essential to ensuring research and interventions are grounded in real-world contexts. Demand-driven courses were proposed to build a skilled workforce capable of addressing emerging climate-health challenges, with a strong emphasis on education tailored to community needs. Attention was drawn to the necessity of forming partnerships between the climate and health sectors. Proposals included the formation of joint task forces and funding opportunities to enhance collaboration.

The value of co-producing seasonal advisories with the agriculture and health sectors to improve preparedness and response to climate impacts was emphasised. Empowering medical practitioners through targeted training on the intersections of climate and health was advocated, along with the development of innovative financing mechanisms involving the private sector to support climate-health initiatives. Integrated data systems were highlighted as crucial for bridging the gap between research and policy implementation, ensuring research findings translate into actionable outcomes.

The session concluded with a shared understanding that collaboration, capacity building, and community engagement are vital to effectively addressing climate and health challenges. The integration of indigenous knowledge with scientific research was identified as a key theme, focusing on creating solutions that are culturally sensitive and contextually relevant. Strengthening dialogue between researchers and policymakers was consistently emphasised as crucial for aligning research efforts with national goals. Resource mobilisation, including innovative financing mechanisms and multi-sectoral action plans, was highlighted as critical for sustaining climate-health initiatives. The discussions ended with a call to establish transdisciplinary networks to co-create impactful solutions, develop actionable policy briefs aligned with national and regional goals, and engage the private sector in designing funding mechanisms that ensure the sustainability and scalability of interventions. The event reinforced the necessity of a transdisciplinary, inclusive, and innovative approach to bridging research and practice in addressing climate and health challenges.

3.2.2 Main Plenary Session

The main plenary session brought together distinguished speakers, including Prof. Caradee Wright, Dr. Catherine Machalaba, Mr. Raymond Ruyoka, Mr. Samuel Wanjohi, and Rev. Evatt Mugarura, who provided diverse perspectives on the intersection of climate and health, emphasising the importance of collaboration, integration, and community-driven approaches.

The discussion underscored the necessity of fostering transdisciplinary collaboration among climate scientists, public health experts, policymakers, and local communities to bridge the gap between research and actionable outcomes. The value of leveraging existing networks and developing standardised metrics was highlighted as essential for aligning research with real-world needs. Furthermore, the transformative role of open data sharing and technology, such as low-cost air quality sensors, was recognised as critical in addressing climate-health challenges. South Africa's Heat Health Action Guidelines were presented as a prime example of how standardised practices can inform effective policy interventions.

The One Health framework, which integrates human, animal, and ecosystem health, was discussed as a vital approach to tackling climate-sensitive diseases and enhancing environmental resilience. Examples from Kenya and Liberia demonstrated the growing adoption of One Health coordination platforms, focusing on joint initiatives like vaccination campaigns and disease response. However, the discussion emphasised the need for these platforms to expand their scope to include broader climate adaptation efforts, such as nutrition and water safety. Robust data systems and routine transdisciplinary coordination were also highlighted as essential for driving success, with the Rift Valley Fever project cited as an example of how flexibility and stakeholder engagement can contribute to positive outcomes.

The critical role of needs assessments and baseline surveys in designing capacity-building initiatives was stressed, particularly with regard to cultural sensitivity and respect for indigenous knowledge. These elements were seen as crucial for ensuring programme sustainability and fostering local ownership. The session also addressed barriers to research translation, noting disconnects between researchers and local communities, communication gaps, and conflicting stakeholder interests. Innovative strategies such as policy briefs, technology-driven solutions, and multi-stakeholder partnerships were proposed to overcome these challenges. Engaging policymakers early in the research process and tailoring communication tools for non-technical audiences were identified as essential to ensure that research findings lead to impactful policies and interventions.

The importance of making indigenous communities co-owners of research data and findings was emphasised throughout the session. Equitable participation, capacity building, and promoting indigenous innovations were seen as key factors in strengthening local resilience to climate impacts. Seven key elements for integrating indigenous knowledge into climate-health research were outlined, including co-producing knowledge, documenting successful practices, and fostering partnerships for sustainable outcomes.

The session also highlighted the themes of co-creation and participatory approaches, the need for flexible and holistic research networks, and the alignment of local and global priorities. Examples such as the solar-powered water project in Senegal illustrated the impact of co-designed adaptation interventions. The integration of transdisciplinary skills—spanning health and climate research, as well as faith-based and civil society initiatives—was recognised as essential for tackling the complex challenges at the climate-health nexus.

The session concluded with three critical takeaways:

1. The establishment of standardised metrics and data-sharing practices to align research with actionable outcomes.
2. The prioritisation of local voices in global solutions to prevent top-down approaches from overshadowing community needs.
3. The necessity of flexible, transdisciplinary collaboration that bridges diverse sectors and reconciles differing values to address complex challenges.

In conclusion, the discussion highlighted that building resilient systems requires a multi-stakeholder approach that integrates traditional knowledge with scientific methods, empowering communities as equal partners in shaping climate and health policies. By fostering co-creation, promoting cultural sensitivity, and leveraging innovative tools and networks, significant progress can be made toward climate resilience and health equity.

3.3 Case Study Presentations

Five research papers highlighting transdisciplinary approaches in climate and health were presented[h1] . The details are outlined in the table below.

Titles of Research Paper	Presenting author	Affiliation
Insights on assessments of children with developmental disorders in Zambia: A parent's perspective	Bained Nyirongo	University of Zambia
Development of an ecological momentary assessment smartphone app to conduct climate-related stress and intimate partner violence assessments in Kenya.	Dr. Christine Musyimi	Africa Institute of Mental and Brain Health (AFRIMEB)
Geospatial Assessment of the Impact of Climate-Induced Food Insecurity on the Health of Children and Pregnant Women in Kajiado County-Kenya	Ednah Ndindi	Statsspeak Group Limited
Chrolopyrifos Pesticide Effect on Microbial Dynamics and activities in maize cropping systems	Jamlick Mwangi	Meru University of Science and Technology
Building climate resilient systems in Uganda: lessons from districts that experience extreme weather events	Dr. Rawlance Ndejjo	Makerere University School of Public Health

The research paper presentations highlighted innovative and vital approaches to tackling the multifaceted challenges posed by climate change in public health and agriculture across Africa.

Dr. Christine Musyimi introduced the Ecological Momentary Assessment (EMA) App, a pioneering mobile application designed to collect real-time data on climate-related stress and Intimate Partner Violence (IPV) in informal settlements in Nairobi, Kenya. Funded by the National Institutes of Mental Health, the app addresses the compounded challenges faced by women in areas like Kibera and Mathare. With a user-friendly interface designed for privacy, the app captures data on IPV, emotional distress, safety concerns, and extreme weather events. Developed through a participatory process involving community members and mobile health experts, the app is currently being tested among 320 women. Its potential to scale across Sub-Saharan Africa could provide essential support to vulnerable populations affected by climate stressors and IPV.

Ednah Dindi's study focused on the effects of climate change-induced drought on maternal health in Kajiado County, Kenya, with particular emphasis on food insecurity and malnutrition indicators such as anaemia, stunting, and malnutrition. Using Geographic Information Systems (GIS) and satellite data, her research found that severe droughts from 2020 to 2022 led to significant peaks in malnutrition, highlighting the delayed impact of drought on nutritional deficits. Dindi called for the adoption of AI and machine learning in real-time drought monitoring and stressed the need for disaggregated data collection at the ward level to enable targeted interventions. Her work underscores the urgent need for decision-making tools and policies to address food insecurity and maternal health in drought-prone regions.

Jamlick Mwangi presented his research on the effects of chlorpyrifos pesticide on microbial dynamics in maize cropping systems. His findings revealed that chlorpyrifos disrupts soil microbial communities and essential processes such as nutrient cycling and nitrogen fixation, leading to reduced soil fertility and contributing to environmental degradation. Mwangi advocated for sustainable agricultural practices, including agroecology, mixed cropping, and bio-based solutions, alongside the development of effective pesticide policies. His research highlighted the interconnectedness of farming practices, soil health, and climate change, calling for collaborative research and farmer capacity-building to build resilient food systems while mitigating climate risks and improving human health.

Dr. Rawlence Ndejjo's research focused on building climate-resilient health systems in Uganda, particularly in districts vulnerable to extreme weather events such as floods, droughts, and landslides. His study applied the WHO framework for climate-resilient health systems and identified significant disruptions to health infrastructure, service delivery, and workforce well-being in areas such as Moroto, Bududa, and Kasese. Ndejjo emphasised the importance of decentralised disaster management, early warning systems, and anticipatory budgeting. He also advocated for evidence-based policies tailored to each district's specific needs, ensuring that health systems are better prepared to recover from climate shocks and continue delivering essential services.

Bained Nyirongo's study explored the impact of climate change on assessing children with developmental disorders in Lusaka, Zambia. The research revealed that extreme weather events, such as floods and heatwaves, hinder caregivers' access to disability assessment services. This is further compounded by health risks such as malaria, making it more difficult for caregivers in low-resource communities to access essential services. Nyirongo proposed several strategies to address these barriers, including the establishment of one-stop assessment centres, community-based disability identification teams for early referrals, and the development of climate-resilient infrastructure. The study also highlighted the need for capacity-building for teachers to support school-based disability identification and services. Nyirongo's work underlined the importance of collaborative efforts to improve resilience and ensure continuity in disability assessments amidst the challenges posed by climate change. In summary, these case studies emphasised the importance of innovative, transdisciplinary solutions to address the complex challenges posed by climate change, public health, and agriculture. By integrating technology, data systems, community engagement, and local knowledge, these studies offer practical insights into building resilience and improving health outcomes across Africa.

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3.4 Recommendations

Day 2 of the Climate and Health Conference provided critical insights into addressing the intersection of climate change and its wide-ranging impacts on health, agriculture, and community resilience. The following recommendations emerged:

- Strengthening Multisectoral Collaboration: The importance of fostering partnerships among scientists, policymakers, communities, and the private sector was emphasized as a critical step towards developing integrated and actionable solutions. Speakers advocated for institutionalising transdisciplinary networks that enable the co-creation of impactful research, particularly on climate-health intersections. Furthermore, joint actions involving governments, NGOs, and academia were encouraged to ensure that climate and health initiatives align with both national and regional objectives.
- Integrating Local Knowledge and Context: The value of leveraging indigenous knowledge systems and incorporating community-driven insights to design interventions that are both culturally relevant and practical was underscored. It was recommended that local stakeholders be involved from the outset of projects to co-create research indicators and solutions tailored to their specific needs, ensuring that interventions are both inclusive and sustainable.
- Enhancing Research Translation and Policy Alignment: To bridge the gap between research and practice, the development of accessible tools such as policy briefs and real-time data platforms was identified as essential. Aligning research outputs with national climate and health objectives was seen as a priority to enhance their relevance and impact. Additionally, fostering robust dialogue between scientists, policymakers, and practitioners was recommended to ensure the seamless translation of evidence into actionable policies.
- Innovative Approaches to Climate Challenges: Presentations showcased the potential of advanced technologies, including AI and GIS, in monitoring and predicting climate-related risks such as droughts and extreme weather events. Scaling up innovations like the EMA App, which addresses climate-related stressors and intimate partner violence, and promoting bio-based agricultural solutions were highlighted as ways to tackle the compounded challenges faced by vulnerable populations.
- Building Resilience in Health and Agricultural Systems: The adoption of climate-resilient infrastructure designs, the implementation of early warning systems, and anticipatory budgeting were identified as key strategies to safeguard health systems from climate shocks. Sustainable agricultural practices, such as agroecology and mixed cropping, were also recommended to mitigate the negative impacts of pesticides and ensure long-term food security. Additionally, strengthening disability assessment services through the establishment of one-stop centres and climate-resilient infrastructure was highlighted as a critical measure to support vulnerable populations.
- Resource Mobilisation and Capacity Building: To ensure the scalability and sustainability of interventions, innovative financing mechanisms, including public-private partnerships, were recommended. Redesigning training programmes to address emerging challenges, incorporating transdisciplinary approaches, and fostering mentorship were seen as essential steps to build a skilled workforce. Furthermore, investing in capacity-building for health workers, educators, and farmers was advocated to enhance their preparedness and adaptive capacity in the face of climate challenges.

3.5 Conclusion

The discussions and case studies on Day 2 underscored the interconnected nature of climate change and its far-reaching effects on health, agriculture, and societal resilience. Key themes included the need for collaboration across disciplines and sectors, integration of local and indigenous knowledge, and the application of innovative tools and strategies to mitigate and adapt to climate impacts. Case presentations such as the EMA App and GIS-based drought analysis highlighted the importance of technology in addressing these challenges, while studies on health system resilience and sustainable agriculture reinforced the necessity of tailoring interventions to community needs. The conference also emphasised the critical role of inclusive, participatory approaches in ensuring the sustainability and effectiveness of proposed solutions. Looking forward, a collective commitment to advancing research excellence, enhancing policy dialogues, and fostering partnerships will be essential for bridging the gaps between science, practice, and policy. By prioritising community engagement, resource mobilisation, and innovation, stakeholders can pave the way for a more resilient and equitable response to the growing climate-health crisis.

4. Sub-Theme 3: Strengthening Funding Opportunities for Transdisciplinary Research and Impact in Africa

4.1 Background

In Africa, where socio-economic and environmental issues are intertwined, Transdisciplinary Research (TDR) has become increasingly essential. However, the growth and effectiveness of TDR are often hindered by limited funding opportunities (Sonny & Echono, 2023). While global funding for climate and health initiatives is increasing, it remains insufficient, fragmented, and characterised by limited coordination between donors, governments, and academic institutions (Atela1 et al., 2024b; Dodsworth, 2019). According to a report by the African Academy of Sciences (Mukhwana et al., 2020), most research funding in Africa is discipline-specific, with little allocation for collaborative or integrated approaches. This funding structure reflects a traditional understanding of research, which often undermines the potential of TDR to provide comprehensive solutions to multifaceted problems such as climate change, health disparities, and food insecurity.

Several barriers contribute to the limited funding for TDR in Africa. Firstly, there is a lack of awareness among funders about the benefits of TDR. Funders often prefer to invest in projects with clear, short-term outcomes, whereas TDR typically involves long-term, complex processes with impacts that are harder to measure (Lang et al., 2012; Mills et al., 2024). Secondly, administrative and structural issues within African research institutions can impede the smooth execution of TDR projects. These include insufficient capacity for managing interdisciplinary projects and inadequate mechanisms for engaging non-academic stakeholders (Djinlev et al., 2023). Additionally, the majority of funding originates from the Global North, disadvantaging African researchers due to the channelling of funds through institutions in high-income countries.

Moreover, despite a growing emphasis on transdisciplinary research and policy development, international climate finance often overlooks essential local-level health initiatives, resulting in critically low funding for these crucial interventions (Atela1 et al., 2024b). Atela also highlights that while many African governments allocate budgets for climate change initiatives, these funds have yet to be strategically aligned with integrated climate and health approaches. The early developmental stage of National Health Adaptation Plans (NHAPs) has hindered the allocation of budgets for the integration of climate and health efforts. Furthermore, institutional barriers within government ministries obstruct the incorporation of research into government programmes, limiting funding opportunities for researchers (Atela1 et al., 2024c).

The 29th United Nations Climate Change Conference (COP29), held in Baku, Azerbaijan, brought significant attention to the need for enhanced funding mechanisms to support transdisciplinary research and its impact in Africa. A notable development was the high-level dialogue organised by the African Development Bank (AfDB) and its partners, focusing on innovative climate finance solutions for Africa. During the event, it was highlighted that Africa faces a substantial financing gap, with an estimated need of approximately $2.7 trillion by 2030 to effectively address climate change. To tackle this challenge, the AfDB presented several ambitious initiatives, including the establishment of Green Banks to mobilise and manage climate finance more effectively, the expansion of support through the Climate Action Window to enhance climate resilience, and the creation of new revenue streams for adaptation actions through the Adaptation Benefits Mechanism. This underscored the urgent requirement for increased climate finance contributions and the formation of robust partnerships (African Development Bank, 2024).

Discussions at COP29 also centred on reforming the international financial system to make it more equitable and accessible to African countries. Proposals included increasing the ability of these nations to restructure current debts and establishing a global resilience fund. COP29 concluded with an agreement to triple finance to developing countries, aiming to protect lives and economies against climate disasters, as well as secure efforts of all actors to work together to scale up finance to developing countries, from public and private sources to the amount of USD 1.3 trillion per year by 2035 (United Nations Climate Change, 2024). Such reforms will prove essential in the mobilisation of resources for transdisciplinary research that addresses the multifaceted impacts of climate change on the continent (Akana, 2024).

4.2 Overview of the Sessions

On the third day of the conference, the programme featured two engaging side events and a dynamic main session. The first side event, organised by ACCRCC, explored *Transdisciplinary Research and Solutions for Climate and Mental Health, while the second, hosted by Statsspeak, showcased the Innovative Application of Geospatial Information Systems (GIS) in Climate and Health Research.*

The main programme commenced with opening remarks and reflections on the previous day's sessions, delivered by ARIN Convener, Dr Joanes Atela. His address set a thoughtful tone for the day's thematic discussions. Following this, Dr Engelbert Bain, Director of the International Programmes Unit at APHRC, delivered an insightful keynote presentation, complemented by a keynote discussion led by Dr Victoria McGovern from the Wellcome Burroughs Fund.

The momentum continued with a lively panel discussion moderated by Ms Lavender Ochieng. The panel featured distinguished experts, including Dr Yewande Alimi, One Health Unit Lead at Africa CDC, and Dr George Mwaniki, Country Director at the World Resources Institute. Together, they tackled critical questions related to their fields of expertise, fostering an interactive dialogue with the audience.

To conclude the day's proceedings, session rapporteurs, led by Mr Jerry Ariel, synthesised key highlights and insights. The closing session, chaired by Ms Leah Aoko, Policy Research Associate at ARIN, ensured a seamless and impactful conclusion to the day's activities

4.2.1 Side Event Presentations

A. Statsspeak Group Limited

Innovative Application of Geospatial Information Systems (GIS) in Climate and Health Research

The Statsspeak side event on the *Innovative Application of Geospatial Information Systems (GIS) in Climate and Health Research* brought together a distinguished panel comprising Ms Joanita Kisembo, Dr Kirigo Wachira, Engineer Naomi Muhiu, and Mr Derrick Ongeri. The session underscored the critical role of collaboration and innovation in addressing the interconnected challenges of climate change and health. It emphasised the need to invest in advanced technologies such as GIS and AI to develop adaptive and sustainable healthcare systems. Additionally, the importance of conducting vulnerability and adaptation assessments was highlighted to guide the development of robust National Adaptation Plans (NAPs) for health, which should, in turn, inform access to and acquisition of necessary funds for climate and health initiatives.

The discussion underscored the necessity of evidence-based approaches at the intersection of climate and health, showcasing how machine learning and predictive algorithms can provide actionable insights. These technologies are crucial for analysing complex datasets, forecasting outcomes, assessing risks, and optimising crisis response strategies during emergencies such as floods. The session also stressed the need to synthesise data into simplified formats to enhance clarity and accessibility for local communities. The role of geospatial technologies in addressing community health needs was explored, with a focus on the importance of accurate data sources, such as satellite imagery, in informing effective analysis and model preparation

Across all contributions, the discussion highlighted three key priorities: the necessity of transdisciplinary collaboration to drive impactful change, the value of simplifying technical information for local stakeholders, and the significance of utilising accurate, reliable data sources.

The session concluded with three actionable takeaways: researchers should ensure community engagement and integrate local perspectives in the design of climate and health projects; continued investment in GIS and AI technologies is crucial for advancing adaptive solutions; and simplifying technical findings for broader accessibility can foster better understanding and engagement among local communities.

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1. Researchers should ensure community engagement and integrate local perspectives in the design of climate and health projects.
2. Continued investment in GIS and AI technologies is critical to advancing adaptive solutions.
3. Simplifying technical findings for broader accessibility can foster better understanding and engagement among local communities.

B. African Coalition of Communities Responsive to Climate Change (ACCRCC)

Innovative Application of Geospatial Information Systems (GIS) in Climate and Health Research Transdisciplinary Research and Solutions for Climate and Mental Health

The ACCRCC side event on Transdisciplinary Research and Solutions for Climate and Mental Health featured insights from Dr Pamela Nkirote, Dr Lydia Gachahi, Dr David Luganda, Dr Hannah Ndungu, and Dr Decide Mabumbo. The session underscored the urgent need for integrated approaches to addressing the intersection of climate change and mental health in Africa.

Speakers highlighted that the impact of climate change on mental health is a global concern, affecting not only vulnerable regions but also diverse populations worldwide. Addressing these challenges requires diverse research methodologies that consider Africa's varied climatic conditions. Public education is essential for fostering mental wellness and diminishing the stigma surrounding mental health issues. A significant challenge in this field is securing funding for transdisciplinary research that spans both mental health and climate change. To address this, the session proposed establishing a centralised funding platform and mentorship programmes for early-career researchers. Additionally, forming communities of practice and knowledge-sharing platforms was identified as crucial for advancing research and collaboration.

The role of funder consortia is becoming increasingly important in tackling complex mental health issues exacerbated by climate change. Cross-border interventions are necessary to support displaced populations, with consortium funding models enhancing regional research and community-based interventions. Collecting comprehensive data on the mental health impacts of climate change is vital to building a robust evidence base.

Integrating mental health into broader climate and health initiatives is essential for holistic solutions. Researchers play a pivotal role in providing evidence for policymakers, reducing stigma, and raising awareness about mental health concerns. Capacity-building and collaborative efforts among researchers and communities are critical to effectively addressing these challenges. The session highlighted the profound mental health impacts of climate change, such as increased anxiety, stress, and trauma, particularly in vulnerable communities. While challenges remain in securing funding and demonstrating immediate impacts, opportunities exist in creating a centralised funding portal, developing mentorship programmes, and fostering regional training to support and advance this vital research area.

Three key takeaways from the session were:

1. Funding Needs and Solutions: Dedicated funding for climate change and mental health research in Africa is essential. A centralised portal for funding opportunities and membership programmes was proposed to streamline access to resources.
2. Importance of Transdisciplinary Research: Collaboration across fields such as climate science, public health, and social sciences is critical for understanding and addressing the mental health impacts of climate change. Capacity-building initiatives were suggested to equip researchers with the necessary skills.
3. Consortium Funding Approach: Pooling resources through consortium funding was highlighted as a practical solution to address complex research challenges. This approach supports transdisciplinary research and interventions that meet the diverse needs of affected communities.

4.2.2 Main Plenary Session

The main plenary session provided an in-depth exploration of transdisciplinary approaches, funding strategies, equity considerations, and innovative solutions at the intersection of climate change and health. Speakers, including Dr Engelbert Luchuo Bain, Dr George Mwaniki, Dr Victoria McGovern, Dr Yewande Alimi, and Dr Joanes Atela, emphasised the critical need to integrate diverse expertise and community voices in addressing the complexities of climate-health challenges. The discussion underscored the importance of bridging academic and non-academic knowledge to develop effective, sustainable solutions.

A key theme was the One Health approach, which recognises the interconnections between human, animal, and environmental health. This approach was presented as fundamental to achieving equity, fostering innovation, and incorporating lived experiences. The session also explored the role of unconventional disciplines, such as history and anthropology, in shaping holistic climate-health solutions.

To ensure sustainability beyond typical grant cycles, initiatives like the Climate and Health Excellence Centres (CHECs) were highlighted as crucial for strengthening long-term transdisciplinary capacity. The involvement of communities in research and intervention design was identified as essential for achieving sustainable and relevant outcomes. Case studies from Mai Mahiu and Burundi illustrated the consequences of neglecting community input, while partnerships with faith-based organisations and local groups were cited as effective means of bridging gaps between research and practical implementation.

Securing funding for climate-health research remains challenging due to misaligned climate finance mechanisms and insufficient support for vulnerable regions. Particular attention was drawn to the underfunding of East and Southern Africa, despite their high climate vulnerability. The session emphasised the need for greater transparency and accountability in fund allocation, with mechanisms to track how resources are utilised.
Strategies for securing funding included crafting compelling grant proposals that align with funder priorities, integrate gender equity, and strengthen institutional frameworks. Networking, visibility, and effective communication were identified as critical tools for accessing funding opportunities. The proposal of a centralised portal for climate-health grants and partnerships was welcomed as a means of improving access and reducing transaction costs.

Climate finance mechanisms must prioritise vulnerable populations, ensuring resources reach marginalised communities effectively. Equity in resource allocation was framed as both a moral and practical necessity, particularly in regions most affected by climate change.

The session acknowledged growing political momentum, with health ministers increasingly involved in climate negotiations. However, a significant gap remains in transdisciplinary research to inform integrated climate-health policies. Participants called for a robust evidence base to translate global climate and health policy agendas into actionable, context-specific interventions, such as the Health National Adaptation Plans (HNAPs).
Youth engagement was highlighted as pivotal, with initiatives like ARIN's Small Grant Scheme supporting youth-led innovations. Given that young people constitute the majority demographic in Africa, their contributions must be positioned as tangible and actionable solutions in climate-health dialogues. However, to maximise impact, youth-led initiatives must articulate clear value propositions to attract funding and policy support.

Key Takeaways were:

1. Transdisciplinary Research for Impact – Research must integrate diverse perspectives, prioritise lived experiences, and focus on long-term, policy-relevant outcomes.
2. Equity and Inclusion – Climate finance must address the needs of the most vulnerable populations, ensuring resources are effectively deployed to enhance resilience.
3. Community Ownership – Projects must engage local populations from inception to ensure relevance, sustainability, and long-term impact.
4. Youth as Innovators – Youth-led solutions must be strategically positioned within climate-health dialogues as practical, scalable, and impactful contributions.
5. Capacity Building – Investing in institutional frameworks and the next generation of African leaders is essential for enduring climate-health resilience.
6. Global-Local Synergy – Researchers should ground their work in local realities while fostering global knowledge exchange and partnerships.

The session concluded with a call to rethink and innovate research approaches, foster sustainability through inclusive practices, and integrate climate-health considerations into policies and systems for a resilient future.

4.3 Case Study Presentations

Four research papers highlighting transdisciplinary approaches in climate and health were presented. The details are outlined in the table below.

Titles of Research Paper	Presenting author	Affiliation
Preparedness of Health Facilities to Respond to Effects of Flooding on Community Health in Kaasese District, Uganda	Juma Said Tusabila	Makerere University School of Public Health
Implications of Floods on Women's Access to Sexual and Reproductive Health Services in Kasese District, Uganda	Dancan Muhereza	Reproductive Health Uganda
Raising Student Awareness on Flood and Landslide Resilience in Mbale, Uganda.	Filmin Niyongabo	Makerere University School of Public Health
Leveraging Disease Dynamics to Support Healthcare in the Face of Climate Change in Kigorobya Sub County, Hoima District	Edward Takiwereza	Makerere University School of Public Health

The research papers presented highlighted diverse approaches and insights into the intersection of climate change and health, showcasing innovative strategies, pressing challenges, and potential solutions to enhance resilience in vulnerable communities.

Filimin Niyongabo shared a case study on building resilience to floods and landslides in the Mount Elgon region, specifically in Mbale District, Uganda. His project targeted an often-overlooked demographic—student communities—by incorporating tailored disaster preparedness education. Activities such as competitions, tree planting, and mentorship programmes engaged over 2,000 students across primary and secondary schools, significantly improving knowledge and proactive involvement. The project emphasised sustainability by integrating educators and transdisciplinary learning, advocating for the inclusion of climate change and health principles in educational curricula to prepare future decision-makers with resilience and mitigation strategies.

Juma Said Tusubila focused on the vulnerability of health facilities in Uganda's Kasese District to climate-induced floods. He illustrated this challenge through the destruction of Kilembe Mines Hospital and findings from a study involving 43 flood-prone health facilities. The research revealed widespread unpreparedness, with facilities lacking adequate infrastructure, training, and logistical coordination. However, community engagement emerged as a key enabler of resilience. Juma called for urgent action, including increased funding, capacity-building, and the integration of climate change awareness into health worker training, to bolster disaster preparedness in vulnerable health systems.

Dancan Muhereza examined the impact of floods on women's access to sexual and reproductive health (SRH) services in Kasese District, Uganda. He highlighted the disruptions to health facilities, medical supplies, and outreach programmes, with particularly severe effects on pregnant women and those in their menstrual cycles. Challenges included financial constraints, low education levels, and the lack of privacy and security in health facilities, particularly in internally displaced persons (IDP) camps. His study emphasised that urban and rural areas require tailored adaptation strategies, as a one-size-fits-all approach is ineffective. Dancan advocated for community-based interventions, government-led initiatives, and the development of a reproductive health contingency manual to address SRH needs during disasters. He also urged further research on flood-related maternal and child health outcomes.

Edward Takiwereza presented an ongoing study analysing the impact of climate change on public health in Kigorobya Sub-County, Hoima District, Uganda. Focusing on diseases such as malaria, cholera, and diarrhoea, the research integrates climate data, health trends, and socio-economic factors to assess correlations and propose adaptive strategies. Edward highlighted the importance of early warning systems, participatory community engagement, and comprehensive data collection to inform healthcare resilience. His study aims to improve resource allocation, planning, and preparedness for climate-induced health challenges, ultimately strengthening the district's resilience to environmental and health crises.

4.4 Recommendations

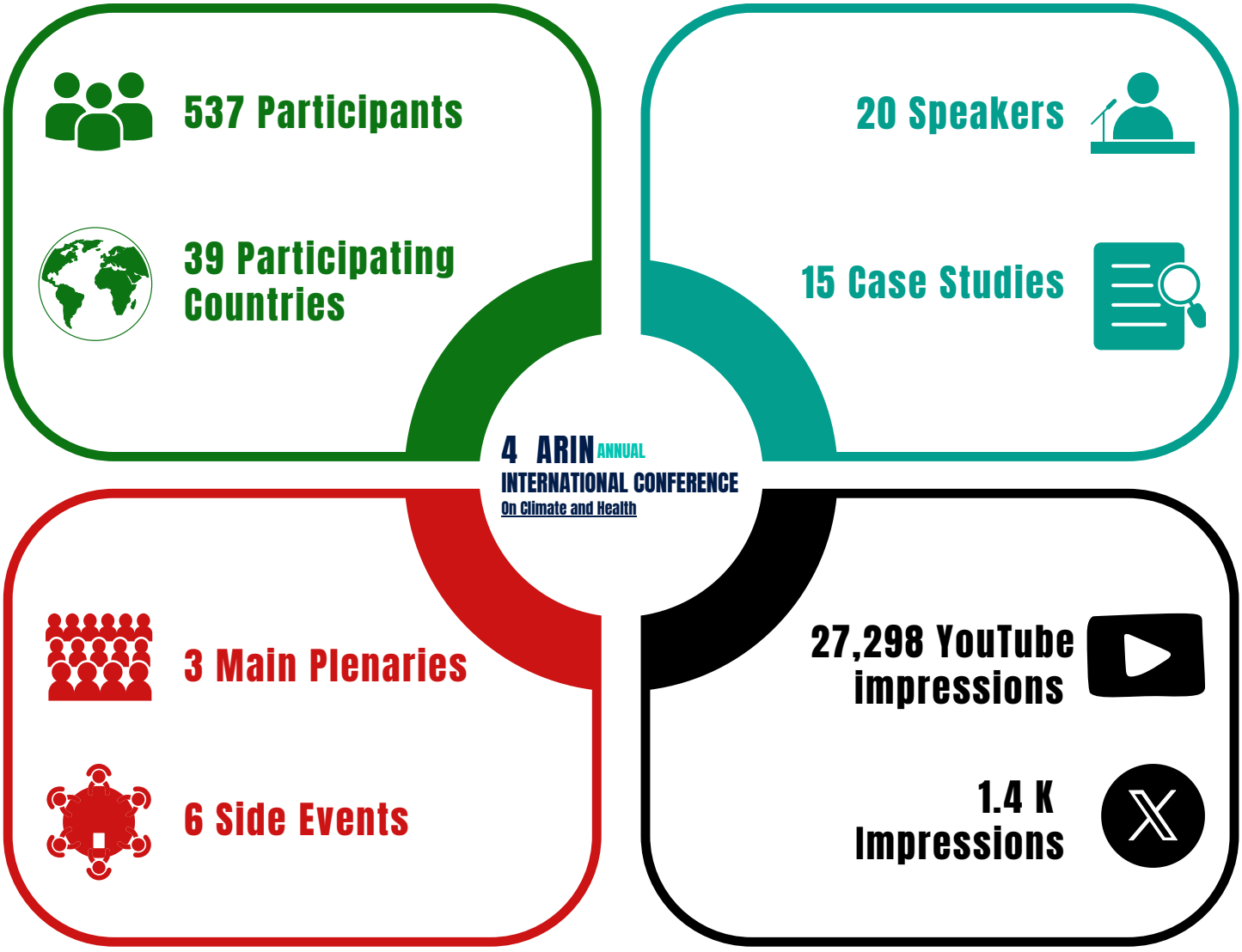
On Day 3 of the conference, several key recommendations were highlighted:

- Integrating Transdisciplinary Approaches – A central recommendation was the adoption of transdisciplinary approaches, which combine diverse academic fields and local expertise. Engaging communities, governments, and the private sector in research and decision-making ensure that climate-health solutions are more relevant and effective. Future research should extend beyond academic perspectives to incorporate the lived experiences and practical knowledge of local communities. This approach will enhance the impact and long-term sustainability of climate-health interventions.
- Strengthening Funding Mechanisms for Climate-Health Research – The need to strengthen funding mechanisms for climate-health research was emphasised. Funding bodies should develop transparent and inclusive frameworks that prioritise equity and align with both research objectives and community needs. Researchers were encouraged to establish strong institutional structures and foster strategic collaborations to enhance access to funding and ensure the long-term viability of climate-health initiatives.
- Fostering Community-Centred Solutions – Interventions should be tailored to the specific needs and contexts of local communities. A bottom-up approach, where communities—especially marginalised groups—play an active role in developing and implementing solutions, is essential. Collaborative efforts with faith-based organisations, local leaders, and other stakeholders can help bridge gaps, improve accessibility, and maximise the impact of climate-health initiatives.
- Empowering Youth in Climate-Health Solutions – Youth were recognised as key drivers of innovation and change. Involving young people in the development of climate-health solutions is crucial, and initiatives such as ARIN's Small Grant Scheme demonstrate the importance of providing platforms for youth to showcase their ideas and research. Governments and organisations should support youth leadership, ensuring their voices are heard and enabling them to become agents of change within their communities.
- Investing in Capacity Building and Early Warning Systems – Investing in the capacity building of health workers and strengthening early warning systems was identified as a priority. Training health professionals to understand climate-related health risks and enhancing early warning systems to monitor climate-induced health threats, such as infectious diseases, will improve health system preparedness and enable timely responses to climate-driven health challenges.
- Advocating for Policy Alignment and Evidence-Based Action – Research should continue to generate evidence that informs policy development at both national and local levels. Policymakers were urged to integrate climate change into health policies, prioritising resilient health systems and infrastructure improvements. Aligning climate-health strategies with global frameworks such as Health National Adaptation Plans (HNAPs) while adapting them to the needs of vulnerable populations will be crucial in ensuring successful implementation.
- Ensuring Long-Term Sustainability of Projects – Sustainability emerged as a key theme, with a strong recommendation to design climate-health initiatives that remain viable beyond the project phase. This includes embedding climate and health principles into educational curricula and fostering ongoing collaboration among stakeholders. A focus on sustainability will ensure that these projects continue to benefit communities for years to come.
- Expanding Research on Gendered Impacts of Climate Change – There was a call for more research on the gendered impacts of climate change, particularly on how climate disasters, such as floods, disrupt access to essential services like sexual and reproductive health for women. Context-specific, tailored interventions are needed to address the unique needs of women, especially pregnant women and those facing menstruation-related challenges. Governments, researchers, and NGOs should collaborate to develop reproductive health contingency plans that protect vulnerable populations during climate-related disasters.

4.5 Conclusion

The discussions on Day 3 of the Climate and Health Conference underscored the urgent need for a more integrated, transdisciplinary approach to addressing the intersection of climate change and health. A recurring theme across the presentations was the critical role of local engagement, equity, and sustainability in shaping effective climate-health strategies. Key takeaways included the recognition that climate change is not merely an environmental issue but a public health crisis requiring immediate action. Vulnerable populations, particularly in East and Southern Africa, must be prioritised in both research and funding mechanisms. The growing involvement of political leaders—especially health ministers—in climate negotiations presents an opportunity to leverage political momentum in crafting more robust and integrated climate-health policies. The conference reinforced the importance of empowering youth, strengthening community resilience, and ensuring the inclusion of marginalised groups in climate-health interventions. Additionally, the integration of climate change into health systems, alongside investments in capacity building and early warning systems, will be essential in enhancing health system resilience to climate-induced challenges. In conclusion, the conference called for a shift towards practical, community-centred research that not only generates evidence but also translates it into real-world solutions tailored to the specific needs of vulnerable populations. This shift will be crucial in ensuring long-term resilience and health equity in the face of an evolving climate crisis.

Event Statistics



5. Overall Synthesis and Recommendations

The 4th Annual ARIN Climate and Health Conference served as a pivotal event in fostering transdisciplinary collaboration to address the pressing challenges at the intersection of climate change and public health in Africa. The conference underscored the need for an integrated approach, bringing together expertise from health, climate science, policy, and local communities to develop practical, sustainable solutions. A central theme was ensuring that interventions are grounded in both scientific research and the lived experiences of affected populations, ensuring greater relevance and impact.

A key highlight of the event was the re-introduction of the Consultative Platform for Climate and Health in Africa (CAPCHA), aimed at strengthening stakeholder collaboration, knowledge-sharing, and addressing critical data gaps in the climate-health landscape. The platform's potential to drive evidence-based decision-making and enhance partnerships was emphasised, with a strong focus on improving data systems to monitor climate-related health impacts more effectively. The discussions highlighted the importance of accurate, timely data for predicting future risks and informing region-specific interventions.

Another major takeaway was the need to bridge the gap between scientific research and local knowledge. By integrating indigenous knowledge systems alongside technical expertise, climate-health strategies can become scientifically robust, culturally relevant, and context-specific. This approach ensures that climate adaptation and mitigation efforts are not only effective but also widely accepted by the communities they aim to serve.

Furthermore, the conference emphasised the importance of cross-sectoral collaboration, with speakers advocating for stronger partnerships between climate, health, agriculture, water, and urban planning sectors. Addressing the complex and interconnected challenges of climate change requires a coordinated, multi-sectoral approach. The conference reinforced that governments, NGOs, the private sector, and civil society must work together to ensure climate-health strategies are comprehensive, sustainable, and regionally tailored.

Capacity building was also highlighted as a critical area for action. To effectively tackle climate-related health risks, researchers, policymakers, and practitioners must be equipped with the necessary skills and knowledge. The conference called for ongoing professional development and training in climate-health science, policy, and communication to enhance stakeholder engagement in climate adaptation and resilience-building efforts. Strengthening human capacity will be crucial to enabling those on the frontlines of climate-health challenges to drive meaningful change

Finally, the integration of climate and health considerations into national policies and development plans emerged as a key priority. Governments must ensure that climate change is explicitly embedded in health policy frameworks and that adequate resources are allocated to support climate-health strategies. Aligning climate action with public health initiatives at the policy level is essential for a cohesive, large-scale response to the climate crisis.

The conference concluded with a clear call to action: tackling the health impacts of climate change in Africa will require coordinated, data-driven actions, built on a foundation of collaboration, local knowledge, and capacity strengthening. By adopting transdisciplinary, community-driven, and policy-integrated approaches, Africa can mitigate climate-related health risks and enhance resilience in the face of an evolving climate crisis.

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7. Annexes

1. Book of Abstracts: *https://drive.google.com/file/d/15QJhFrhqQb0OQkD8uPzSlod34oPdzJe6/view?usp=drive_link*
2. Conference Program: https://drive.google.com/file/d/1SFKCjpXZ385xnye4TBrFb70JmirllaVC/view?usp=drive_link
3. Conference Recordings: https://www.youtube.com/@theafricaresearchandimpact5060

AFRICA RESEARCH & IMPACT NETWORK

Contact Us

www.arin-africa.org

+254746130873

info@arin-africa.org

arin_africa

Africa Research and Impact Network

The Africa Research and Impact Network

ACK Gardens House, 1st Floor,
Bishop Road, 1St Ngong Ave, Upperhill, Nairobi.