



Intersectional Climate Justice in Eastern Africa

EDITED BY
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B L O O M S B U R Y

Praise for *Intersectional Climate Justice in Eastern Africa*

‘This book is boldly unconventional – containing contributions by academics and activists that are interspersed with creative pieces, privileging voices from the Eastern African region, and foregrounding the embodied and real-life experiences of climate change by diverse local communities. Doing so, it exemplifies the new modes of knowledge production, or better: co-production, required in the face of the current climate crisis: African-centred, pluriversal, transdisciplinary, inclusive and transformational. Together, the contributions demonstrate passionately and urgently the need for, and value of, an intersectional approach to climate justice.’

Adriaan van Klinken

Professor of Religion and African Studies, University of Leeds, UK; author of *Kenyan, Christian, Queer*.

‘This is a rare and empirically rich edited collection using intersectionality as an analytical lens and offering innovative responses to the complexities of climate injustice. Based on ethnographic, visual and artistic methodologies, it is unique in raising African voices – foregrounding local experiences, perspectives and justice approaches. A must-read for everyone interested in the emerging field of intersectional climate justice.’

Andrea Schapper

Professor of International Politics, University of Stirling, UK

‘*Intersectional Climate Justice in Eastern Africa* is a terrific and deeply insightful book! A spark of fresh reflection of climate justice concept in the real context of Eastern Africa with flawless specimens from across the Majority World and beyond. A collection of empirical research evidence-based reports that highlights surging inequalities and vulnerability worsened by climate injustice, the book is a bold call to all actors across the spectrum to rethink individual actions, legal and policy frameworks on top of contribution of civil society for most appropriate climate responses. The work greatly benefits from the centring of activist voices from the region.’

Antonio Kalyango

Environment activist and Executive Director of Biodiversity Conservation Foundation, Uganda

‘This book powerfully illustrates two key dimensions of climate justice. First, that local people facing the brunt of the climate crisis hold knowledge, ideas, and solutions rooted in lived experience – wisdom that must inform policy and practice. Second, that equitable access to and governance of healthy ecosystems by marginalized groups offers the most just, feasible, and sustainable path to climate resilience – because it centers basic human rights. *Intersectional Climate Justice in Eastern Africa* is a vital and timely contribution that affirms the power of local leadership and the urgency of justice-driven climate action.’

Barbara Nakangu

Senior Manager of the People Powering Biodiversity Program, World Wide Fund for Nature (WWF), Uganda

‘This is an incredibly exciting and unique compilation of research, commentary and art, exploring intersectional climate justice from a remarkable range of researchers, practitioners and artists, predominantly East African voices. The sheer breadth of the topics explored through different lenses provides one, whether seasoned and experienced or early in their career, with deep insights and understanding of the global crises, the links between climate change and social justice, and issues of ethnicity, colonialism, age, gender, sexuality, citizenship, cultures, poverty and healthcare, among others. This timely, critically important book has something for everyone to explore, learn from and build upon.’

Beth A. Kaplin

Honorary Professor and Senior researcher, Center of Excellence in Biodiversity and Natural Resource Management, University of Rwanda; Research Professor Adjunct Faculty, School for the Environment, University of Massachusetts-Boston, USA

‘*Intersectional Climate Justice in Eastern Africa* is a vital and timely contribution to climate discourse. It powerfully illuminates how gender, class, ethnicity, and governance intersect with environmental vulnerability in one of the world’s most affected regions. Grounded in local realities and rich in analysis, the book challenges one-size-fits-all climate solutions and advocates for inclusive, context-specific approaches. Essential reading for policymakers, activists, and scholars seeking equitable climate action rooted in justice and resilience.’

Beverly Musonda Mushili

Lecturer in Environment, Climate Change and Sustainable Development at University of Zambia and a PhD Candidate in Environment and Society at University of Pretoria, South Africa

‘Often when people think of academic writing, they think impenetrable. This book is not that. *Intersectional Climate Justice in Eastern Africa* is a powerful testament to the region’s resilience and ingenuity. By centering marginalised voices and African perspectives, it reframes global climate discourse with both urgency and hope. It not only amplifies the voices of youth activists but also demonstrates that climate knowledge takes many forms. This is a book that deserves to be read across the region and beyond.’

Juliet Grace Luwedde

Global Focal Point for the UNCCD Youth Caucus and former East Africa Regional Coordinator for the African Youth Initiative on Climate Change (AYICC), Uganda

‘*Intersectional Climate Justice in Eastern Africa* is a landmark contribution to climate literature, urgent, expansive, and deeply grounded. By exploring the climate crisis through the intersecting lenses of gender, displacement, energy access, land rights, and Indigenous knowledge, this volume powerfully illuminates the structural inequalities embedded in global climate discourse. Its regional focus on Eastern Africa reveals the rich diversity of lived experiences and offers transformative insights into climate justice. With voices from scholars, activists, and artists, many rooted in the region, the book not only decolonizes climate narratives but reimagines the methodologies we use to understand them. A must-read for anyone committed to climate justice, equity, and epistemic transformation.’

Kariuki Muigua

Associate Professor, Faculty of Law, University of Nairobi, Kenya

‘*Intersectional Climate Justice in Eastern Africa* is a vital resource for understanding climate vulnerability and justice, both in Eastern Africa and globally. By centering the lived realities of one of the world’s most climate-vulnerable regions, this book exposes the deep structural inequalities that shape how communities experience environmental crises. By bridging theory and practice, the book redefines climate justice through an African lens, essential for scholars, policymakers, and activists

committed to inclusive climate action. A decolonial triumph and a call to listen, especially to those most affected.’

Ngcimezile Mbanu-Mweso

Senior Lecturer and Head of Public Law and Clinical Legal Education, University of Malawi

‘Whether you are female, Indigenous, poor, gay, a migrant, a child, a senior, differently-abled, a rural dweller, a slum-dweller, or any combination, your specific identity and social position matter very much with regard to your ability to survive climate-related disasters. This is clearly a justice issue, and it has huge economic and socio-political implications. In this welcome open-access book, an impressive group of activist African scholars with lived experience of climate injustices share detailed, specific examples of how climate chaos produces mounting and intersectional impacts across Eastern Africa, providing the focus and granularity needed for broad understanding and effective policy.’

Patricia E. (Ellie) Perkins

Professor, Faculty of Environmental and Urban Change, York University, Toronto, Canada

‘The strive of this book, to bring together a community of researchers, activists, and creatives, underscores the efforts to bring to the fore voices of the most impacted and transform the complex politics of knowledge production, and ultimately, its use. This book is a live challenge to all to explore appropriate channels to center outcomes in the policy process as well as new methodological approaches. It will serve as a useful tool for those advocating for climate justice in Eastern Africa and fighting with communities at the frontline of the climate crisis.’

Philip Kilonzo

Head of Policy, Advocacy and Communication, Pan African Climate Justice Alliance (PACJA), Kenya

‘This book arrives at a time when both climate policy and research urgently need to better understand how intersecting identities – gender, ethnicity, age, disability, and sexuality – shape lived experiences of climate change. From colonial legacies to patriarchal norms, the vulnerabilities of marginalised

communities in Eastern Africa have been understudied. The contributors to this book not only amplify voices from this often-overlooked region but also provide a much-needed demonstration of how intersectionality can be practiced as a methodology. This book underscores that intersectionality is a pathway to inclusivity in climate policy and research, and is essential reading for anyone seeking grounded approaches for applying the concept in climate-related work.'

Sennan Mattar

Lecturer in Climate Justice and Environmental Management, Glasgow Caledonian University, UK

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Emmanuel Ole Kileli serves as Executive Director of the Kesho Trust, an organization dedicated to fostering environmental awareness and promoting sustainable livelihoods within local communities. He works with other local NGOs in Tanzania to advocate for the rights of pastoralist and Indigenous peoples, social justice and the empowerment of women and youth. Emmanuel's research interests include Indigenous knowledge for environmental protection, community-based conservation, climate change adaptation, migration and sustainable livelihoods. Through the Kesho Trust and its partners, he employs a gender-responsive approach to designing and implementing development initiatives.

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Lamis Amr Elkhatieb is a sustainable development and climate consultant, policy specialist and environmental urban planner. She is involved in climate policy and advocacy, focusing on loss and damage finance, as one of the research coordinators at the Loss and Damage Youth Coalition (LDYC). She helps lead projects that connect grassroots stories with high-level UNFCCC policy frameworks, ensuring that the voices of youth and vulnerable communities shape

global climate action. In climate governance, she focuses on creating actionable insights and policy recommendations – particularly around enhancing climate resilience, loss and damage finance, and youth empowerment.

Lata Narayanaswamy has worked as a research practitioner, consultant and now an academic working at the nexus between development theory and practice since 2001. Her research critically reflects on gendered/intersectional and post/decolonial dynamics of development knowledge and its perceived contribution to addressing global development challenges. She brings critical decolonial feminist insights into applied, interdisciplinary research on a range of issues, including climate change, water security, anti-gender movements and development practice.

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Maurine Ekun Nyok earned a PhD in Sociology from Masaryk University, Czechia. She specializes in gender studies, migration and the transatlantic slave trade. Her work emphasizes women’s empowerment and integrating marginalized communities. She holds master’s degrees in environmental economics (Kosovar University, Hungary) and business management (International School of Law and Business, Lithuania). An accomplished researcher, Maurine Ekun Nyok has published in leading sociological journals and presented internationally. Dedicated to advancing diversity and inclusion, she seeks opportunities to apply her expertise in research and advocacy.

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Susan Nanduddu is a development practitioner deeply passionate about climate justice, gender equality and social inclusion. From 2015 to 2025, she served as the Executive Director of the African Centre for Trade and Development in Uganda. Her work centres on deepening the understanding of climate risks particularly for vulnerable groups, advocating for accessible climate finance, and generating evidence to better support inclusive development. She holds a master's degree in Development Studies from Uganda Martyrs University in Nkozi, Uganda.

Foreword

Angélique Umutesi Muhavani (Kenya), Bekumba Adolf Metta (Cameroon), Gideon Pirandoni Meriwas (Kenya), Ineza Umuhoza Grace (Rwanda), Jean-Paul Bya'undaombe Longye (Democratic Republic of Congo), Lamis Amr Elkhatieb (Egypt), Never Mujere (Zimbabwe), Nicolas Gaulin (France) and Samuel C. Okorie (Nigeria)

Introduction

In early May 2023, the people of Kalehe in the east of the Democratic Republic of Congo experienced extreme rainfall which caused the rivers of Lwano and Nyamukubi to burst their banks. This led to extensive flooding: 438 people died, with over 5,000 missing and thousands more displaced and their homes, land and livelihoods affected or destroyed. Seasonal flooding is common in places such as Kalehe, which sits on the western banks of Lake Kivu. However, climate change is driving an increase in the severity of extreme rain which people are struggling to deal with, in particular in places such as South Kivu, which is contending with decades of conflict, displacement, instability and socio-economic marginalization. The case of the floods in Kalehe demonstrates why we need to consider the ways in which different factors and social categories intersect to make some people acutely vulnerable to disasters and climate change, and also, why we need recognition and action on loss and damage. Jean-Paul Bya'undaombe, a young environmental activist from South Kivu and one of the authors of this Foreword, spoke with the people of Kalehe, who told him: 'It is essential to ensure that vulnerable communities receive the support needed, that climate and environmental justice is distributive, and that the global community takes meaningful steps to address the most severe and irreversible impacts of climate change. The acknowledgement of this issue is not only about addressing the damage already caused but also about preventing further harm.' Jean-Paul asserts, 'Justice for the people of Kalehe means recognizing their struggles against the devastating impacts of climate change and ensuring they receive the support they deserve to rebuild their livelihoods that sustainably comply with their capacity to adapt and mitigate climate change effects. Their resilience must be met with global action and solidarity.'

To address challenges like this heavy rainfall that destroyed the lives of many, we need climate justice. To us, climate justice means advocating for intergenerational equity, equitable fairness and inclusivity in decision-making. This understanding of climate justice emphasizes the importance of an equitable distribution of existing resources, fairness of support and the inclusion of vulnerable and marginalized communities in climate action at community, local, national and international levels. Moreover, climate attribution terms need to be included with intergenerational equity, recognizing that countries that are the least responsible for the climate crisis are the ones who have been paying the highest cost, and they need more support in addressing climate change crises in an equitable, fair and sustainable manner.

There is no greater injustice facing our generation greater than the negative impacts of the climate crisis. It is a daily threat: we lived it yesterday, we are living it today, and we will be forced to live it tomorrow. This is affecting life as we know it and is an obstacle to economic development for countries around the world, including all the countries of Eastern Africa. It is important to acknowledge that the climate crisis is interlinked with industrial capitalism, modern colonialism, socio-economic development, racial injustice, well-being, conflicts rooted in the exploration of natural resources and the unwillingness to have climate action at the centre of the current global political landscape. The suffocating chokehold of patriarchal, classist and nationalistic agendas in international climate policy-making remains a significant barrier to the emancipation of all peoples, and countries in determining their fate and taking action to address climate change now.

What we need are constructive dialogues between local communities, decision-makers and governments to address climate change. Knowledge and intervention exchange are essential. For these to be successful, we must ensure that women, youth, children and underrepresented communities are actively involved, and their views are adequately captured and integrated into implementation programmes and decision documents that translate to policy. When it comes to urban climate adaptation strategies, for example, we need to have more transparency in the existing intervention, strengthening local data collection, maximizing access and avoiding misinformation to address gender and racial inequalities. Accessibility to resources affects the coping mechanisms of both countries and local communities. Understanding the variations existing within the political systems of every country is essential for drafting effective policies meant to foster gender equity in climate action. For instance, different approaches between autocratic and democratic systems require custom policy

responses to fit the purpose of enhancing climate resilience. The incorporation of green financing, especially for women, is also critical to effective long-term climate solutions. All of this demands an intersectional approach to climate change – understanding the multiple connections that exist between vulnerabilities and solutions.

The Loss and Damage Youth Coalition

The Loss and Damage Youth Coalition (LDYC) was formed in 2020 to enhance youth participation to actively engage, and shape, the global climate process in addressing loss and damage within the UNFCCC system and beyond. Founded by environmentalists Ineza Umuhoza Grace, from Rwanda, and Nicolas Gaulin, from France, the LDYC is an international network of young people from both the Majority and Minority World.¹ United by our experiences of climate change's effects on our communities, we seek to hold leaders accountable for addressing myriad loss and damage issues. More than just a platform, the LDYC provides a place for young people to share their lived experiences, make their voices central to climate discussions, learn from each other and push for locally led solutions and actions for frontline communities.

We draw here on our experiences working on loss and damage governance, involvement in direct climate action and our belief that intersectional climate justice is needed to support marginalized and vulnerable communities. The Research Working Group is a key part of the Coalition, with a diverse membership base who come together to explore the issue of loss and damage, including its structure and governance under the UNFCCC process. We analyse policies, provide recommendations, engage in research, conduct reviews, provide critical feedback, facilitate collaboration among relevant organizations and work collaboratively with other working groups to raise awareness about the urgent need for action in addressing climate change-induced loss and damage impacting youth, children and frontline communities. Lamis Elkhatieb from Egypt and Samuel Okorie from Nigeria co-lead over 300 members from over fifty countries to provide guidance to facilitate the work of the Research Working Group.

¹ The Loss and Damage Youth Coalition uses the terms 'developing' and 'developed' countries in line with the United Nations Framework Convention on Climate Change, but, in line with the rest of the book, has used Majority and Minority World here.

An intersectional approach has been important not just to our work and thinking as members of an organization but also personally. While studying at university, Angelique Umutesi became aware of how her country, Kenya, was disproportionately impacted by floods, droughts and food insecurity, despite contributing much less than others to global greenhouse gas emissions. She joined LDYC to use her legal training to advocate for climate justice. Never Mujere joined LDYC after experiencing environmental disasters in Zimbabwe, resolving to fight for vulnerable communities, with a focus on the interconnection of climate adaptation, food security and disaster risk reduction. With personal knowledge of annual wildfires in western Canada, Nicolas Gaulin understands loss and damage in the context of growing disasters, displacement, ecosystem loss and expansion of oil and gas extraction. Samuel Okorie has focused on the important task of holding polluters to account, as well as the need to consider how the consequences of pollution in Nigeria – including flooding and displacement – should be viewed as matters of loss and damage. Lamis Elkhatieb began her work in loss and damage advocacy after witnessing extreme heat waves and the consequences of rising sea levels on coastal communities in Egypt. Jean-Paul Bya'undaombe, who we heard from at the start, has worked on the loss and damage caused by disasters in the eastern Democratic Republic of Congo, highlighting the human and infrastructural consequences of communities hit by extreme flooding. For all of us engaging in the urgent issue of loss and damage, it is important to draw connections between different issue areas and our advocacy for climate justice to be approached through the lens of intersectionality.

This book brings together different voices from across the region to explore key topics, including environmental politics, urban climate adaptation, compounded vulnerability, gender and social justice, and policy responses. These issues are critical in achieving climate justice and addressing loss and damage, both of which should be approached through an intersectional lens and include the meaningful participation and leadership of young people. It arises out of the 'Intersectionality and Climate Justice in Eastern Africa' workshop, organized by the editors in August 2023, at which Ineza Umuhoza Grace delivered the keynote talk. She spoke about the importance of eco-feminism and equal participation in the decision-making process on climate action, with particular attention to the inclusion of women and girls. Despite the many challenges that exist, Ineza highlighted the hope that stems from home-grown solutions:

Stronger than fear, we live through our hope, little as it might seem. This gives us the strength to take action for a great and approaching future, one in

which women, children and young people access a resilient, equitable and just world. I see the seeds of hope sprouting every day while engaging with young engineers, artists, tradespeople, policy experts, advocates, teachers and children all dedicated to serving and protecting their communities from climate harm. Through our collective efforts, the LDYC's youth-led grant making council to support youth-driven action to address climate change came into existence. The most recent funding round of 275,000 USD resulted in over 900 applications from women and youth groups across the Majority World. Each application was an appeal to hope, an appeal to ambitious climate action, an appeal to belief in climate justice. Though we are many voices, we have a common message: loss and damage finance now, for the righteous future that we deserve.

It is with this passion that Ineza decided to collaborate in writing this Foreword with other members of the LDYC so we could offer a variety of voices and demonstrate the importance of youth coming together to address the climate challenges facing Eastern Africa and beyond. We believe this book makes an important contribution to these goals.

Introduction: Centring Eastern Africa in the climate crisis

Katie McQuaid, Neil J. W. Crawford, Susan Nanduddu and Elvin Nyukuri

In 2023, floods caused by ongoing heavy rains devastated parts of Ethiopia, Kenya and Somalia. Within November of that year, more than 795,000 people were displaced in Somalia alone (Spindler 2023). Many of the impacted people were already internally displaced due to ongoing conflict and drought, making the current crisis a second or third displacement for some. The floods have extensively damaged or destroyed homes, with some survivors forced to shelter under trees on higher ground, while others have drowned. The impacts of these floods did not stop there. Already precarious livelihoods were made worse. In one part of southern Ethiopia, over 65 per cent of the land was submerged under floodwaters, severely harming crops production, while in Somalia thousands of livestock and hectares of crops died or were destroyed (Spindler 2023). The floods sparked new or amplified existing sanitation and health risks with hundreds of communal latrines damaged, heightening the risk of waterborne diseases such as cholera, while damage to roads has cut communities off from healthcare providers, with limited other opportunities. Among those most impacted are already displaced people. In five settlements in Ethiopia, 213,000 refugees have been impacted by the flooding, losing shelters and lacking access to clean drinking water and healthcare. Nearly 1,000 families have lost their homes. Meanwhile in Kenya's Dadaab refugee camps close to 25,000 people were affected, often relying on other refugees to give them shelter, prompting overcrowding (Spindler 2023).

In early 2024 the worst drought in a century hit Southern Africa, severely affecting Eastern countries, including Zimbabwe and Mozambique. This crisis deepened during the harvests in March and April 2025. The World Food Programme spokesperson Tomson Phiri reported this 'historic drought – the

worst food crisis yet', devastating 'more than 27 million lives', while 'some 21 million children are malnourished' (Al Jazeera 2024). The drought has been driven by El Niño, which is a regular and naturally occurring weather event; however, the climate crisis in recent years has intensified its effects and led to more frequent patterns. In Zimbabwe alone, the drought has wiped out 80 per cent of the harvest (Al Jazeera 2024), while depleting water resources and pastures. UNICEF (2024) reports that a combination of droughts and extreme transboundary weather events has caused 'compounding humanitarian consequences on food security, nutrition, health, WASH, education, social protection, shelter, agriculture, energy, infrastructure, and cross cutting issues among others'. The drought is heightening the risk of gender-based violence, sexual exploitation and abuse, driving up rates of child-marriage, domestic and intimate partner violence, and irregular migration leading to human trafficking (UNOCHA 2024). For one community in particular, impacts are exacerbated by stigma and social exclusion. An emerging body of work highlights how LGBTQI+ people experience heightened environmental vulnerabilities (McQuaid and Crawford 2025; Dwyer and Woolf 2018; Balgos, Gaillard and Sanz 2012) and are regularly excluded across response, relief and recovery following disasters (see Gaillard et al. 2017; Dominey-Howes et al. 2014). In the context of the droughts in Zimbabwe, queer activists highlight how stigma and discrimination are compounding climate impacts, preventing LGBTQI+ people from accessing the financial assistance needed to cope with and adapt to droughts and other disasters. Queer people are being targeted by local communities who accuse them of causing droughts and the increasing frequency and severity of climate-related disasters. Led by a Zimbabwean network of queer mothers is a community initiative using livelihoods to create a safe space for lesbian, bisexual and trans parents and their children. They provide them with land and guidance in planting sweet potatoes, sugar, beans and tomatoes. This serves to both empower queer people economically and promote their mental health and wellbeing (Ndhlovu 2024).

Disproportionately exposed to such disasters and the compounding effects of climate change are Indigenous people with disabilities. They face multiple axes of oppression, many of which have roots in the historical context and legacies of slavery and colonial violence, that expose them to greater incidences of impairment and limit the access of people with disabilities to their rights. These include increased exposure to disease (Indigenous Peoples and Climate Change 2009), mental health impacts (Vecchio, Dickson and Zhang 2022), land rights conflicts (Namukasa 2017), poor access to maternal healthcare

(UNFPA 2015), poor sanitation and exposure to disease (Jiménez et al. 2014); and overrepresentation in refugee and internally displaced populations (Minority Rights Group International 2017). In Kenya, for example, people with disabilities among the Indigenous Endorois community face intersecting layers of marginalization and disadvantage, including gender discrimination, ongoing historical land injustices, climate change impacts, human exploitation of natural resources and the risks posed by rising water levels of Lake Bogoria (UN, 2024). In Baringo County, Kenya, unpredictable rain patterns have resulted in alternating drought and flood. International Disability Alliance (2023) reports how discriminatory, short-term and non-inclusive evacuation methods have exacerbated health conditions and sometimes proved fatal to Indigenous people with disabilities. Poor access to healthcare, food insecurity and lack of availability and accessibility to quality water, sanitation and hygiene services, have exacerbated health conditions; while they are unable to find meaningful employment after the loss of ancestral lands. Indigenous women with disabilities, already navigating gender discrimination and a lack of protection of their rights to land ownership, suffer multiple disadvantages when displaced. They are expected to perform gendered roles such as childcare and procuring, preparing and providing food for the family while struggling to obtain basic amenities for their own needs. Loss of lands has also meant the loss of invaluable ancestral wisdom, culture and community bonds, all of which are essential parts of building climate resilience. Current approaches to mitigate climate change in Baringo County are reactive, temporary, and non-inclusive of Indigenous peoples with disabilities. The International Disability Alliance's research highlights how climate action that is not inclusive of people with disabilities is maladaptive in nature. Rather than building climate resilience, it leaves the most vulnerable exposed and at-risk. Climate advocacy and action must ensure the full participation and inclusion of Indigenous people with disabilities in the mainstream climate justice movement (IDA 2023:7).

These recent examples, the floods in the Democratic Republic of Congo recounted in the Foreword, and those recounted throughout the chapters of this book, vividly illustrate the urgent need for intersectional climate justice. In amplifying stories from the Majority World and challenging conventional frameworks of knowledge production, our book demonstrates how multiple, overlapping vulnerabilities exacerbate the impacts of climate change and disasters. Refugees, internally displaced persons (IDPs), queer people, Indigenous people, people with disabilities and all other communities facing marginalization due to intersectional complexities are already experiencing

conflict, poverty, ableism, gender inequalities and other oppressions. This means they are disproportionately impacted by the compounding consequences of climate change, including floods and drought.

Myriad impacts on healthcare, food security and shelter further show how climate-related disasters – along with other slower onset cumulative crises – intersect with pre-existing social and economic inequalities. For instance, women and girls are at heightened risk in these situations, which is why ‘dignity kits’ are part of the relief efforts. To understand these examples fully and what appropriate responses would look like, we need to understand not only climate vulnerabilities, but overlapping issues such as displacement, social exclusion and gender norms and roles, and how these intersect to produce unique experiences for particular individuals. Feminist scholars, and queer, Black, decolonial and Majority World feminisms in particular, have led the way in making visible the power relations and inequities that re/produce both the social hierarchies exacerbating climate impacts and the knowledge hierarchies that exclude entire populations from climate knowledge production (Gay-Antaki, 2022). In re/thinking climate research, feminist scholarship has enabled us to better understand climate change ‘as embodied, situated, and partial’, underscoring the importance of experiential ‘subalternized’ knowledge ‘produced by people who are situated and informed by their sociopolitical position while challenging colonial categories’ (Gay-Antaki, 2022, 117–8; Grosfoguel 2007, 212). Feminist perspectives on climate change have raised important questions about epistemology and marginality, uneven development and the ongoing violences of colonial patriarchal systems (Maria Lugones 2007; Rivera Cusicanqui 2010; cf. Gay-Antaki, 2022). In her feminist intersectional analysis of ‘overlapping but uneven crises of the [COVID-19] pandemic and climate injustices’, Sultana (2021, 448) remarks how ‘similarities exist across both, such as gendered differences in increased unpaid care work, differential risks and exposures, disparate access to information and safety measures, increased gender-based violence, and exacerbations of insecurity of livelihoods and financial precarity; however, these manifest differently spatially, temporally, and intersectionally, exposing systemic fault lines and creating new ones’. As the chapters of this book demonstrate, taking a feminist intersectional approach to (climate) justice allows us to expose the very real, very present experiences of global crises by frontline communities today and their roots in overlapping but uneven injustices.

In their chapter, Pemunta and Nyok vividly illustrate the intricacies of challenges facing women and children in Burundi when climate change compounds the effects of complex histories of re/displacement and conflict,

land inequities, poor governance and gender discrimination. Their empirical work highlights how women's reproductive and mental health, livelihoods, food security, caring labour and land access are all compromised. Focusing on Tanzania, Kileli et al. (this volume) draw attention to how climate-induced migration of men away from rural homesteads shifts traditional patriarchal divisions of labour for young Maasai women, many who have been subjected to early marriage, while forcing young pastoralist men into precarious urban conditions. Young women draw on vibrant and loving social support networks established through years of communal age-set and clan systems and ceremonies, as well as livelihoods diversification, to build their resilience to increased responsibilities, negative impacts on educational outcomes and environmental burdens driven by climate change, water scarcity and land conflict and dispossession rooted in both colonial legacies and contemporary tourism. Feminist collaborative methodologies can, we have argued elsewhere, 'foreground polyvocal and embodied local knowledge and responses, and open up new spaces for imagining and articulating alternative radical and inclusive futures that transcend inequalities and thus nurture a politics of hope that speaks directly to local contexts' (McQuaid and Pirmasari 2023: 577).

The intersectional effects of drought and floods highlight how climate change disproportionately affects those who are least responsible for causing it but most vulnerable to its consequences, as for the women with disabilities in Koshin's chapter on flash floods in Somalia and Watson Stanfield and Ngulube's chapter on energy poverty in Malawi. Drawing this link between climate change and social justice highlights the unequal burdens placed on different groups by climate change and emphasizes the need to work towards fair and equitable solutions. 'Solutions' themselves must be critically assessed. In this volume, Basile et al. illustrate the environmental and social injustices perpetuated by 'fortress conservation' policies deeply rooted in, and perpetuating, colonial ideas of nature, disproportionately impacting Indigenous communities across Eastern Africa by reinforcing existing power imbalances. Looking at governance, mitigation and adaptation policies through an intersectional lens, we are able to identify and avoid climate solutions that exacerbate social inequalities and vulnerabilities or create new forms of disadvantage and maladaptation.

Addressing these issues therefore requires integrating an intersectional approach to climate justice that considers the multiple layers of marginalization faced by different groups in climate adaptation and disaster prevention, preparedness relief efforts. It is ultimately a question of power, and how it is experienced, wielded, refracted and transformed through time and space, to

inequitably position some groups of people within systems of domination that expose them to greater climate vulnerabilities. We must centre and amplify the lived experiences, knowledge and responses of such groups if we are to capture the intersectional complexities that result in their positions of privilege or disadvantage. This necessitates also rethinking the power relations of our climate justice knowledge and action: how, where and on what terms are our conceptions of climate justice (re)produced and enacted?

Why intersectional climate justice?

This book evidences some of the myriad ways in which climate change is worsening existing inequalities, particularly for those who are already marginalized due to factors including conflict, poverty, disability, colonial legacies, sexuality and gender, underscoring the need for climate responses that address these intersecting and evolving vulnerabilities. The emerging field of intersectional climate justice (Mikulewicz et al. 2023; Amorim-Maia 2022; Amorim-Maia et al. 2024; Malin and Ryder 2018; de Jong 2023) highlights that marginalized populations and communities are often more vulnerable to the negative effects of climate change and have fewer resources to adapt or mitigate environmental risks. An intersectional climate justice approach lens allows us to consider the complex and interconnected social, economic and environmental inequalities that exacerbate the impacts of climate change. By considering how different forms of marginalisation intersect, this approach ensures that climate action is focused not only on environmental outcomes but also on promoting fairness and equity, directly addressing the uneven risks faced by certain bodies, communities and populations, which are further exacerbated by the intersectionality of race, ethnicity, age, gender, sexuality, citizenship, cultures, poverty and healthcare inequalities (Pirmasari and McQuaid 2023). Speaking to some of these intersections is the beautiful portrait that adorns the cover of this book – a photograph taken from Fabrice Mbonankira’s project, ‘Sleeping Queens’, awarded first place in the Uganda Press Photo Award’s 2023 East African Photography Award. The image, taken in early 2023 in the largest landfill in Burundi’s largest city and former capital, Bujumbura, speaks to the connections between gender, ageing, urbanism and environmental and economic precarities. While highlighting vulnerability, the image is primarily one of strength and resilience. As Mbonankira (2023) writes, ‘Strong in their tenacity in the face

of adversity, they survive the ups and downs of everyday life on their own and manage, for better or worse, to take care of their children and their families.’

The Intergovernmental Panel on Climate Change’s (IPCC) Sixth Assessment Report emphasized the uneven impacts of climate change, including considering specific issues such as migration and urbanization as factors which relate to climate vulnerabilities, as many chapters in this book do. The report states that ‘the most vulnerable people and systems have been disproportionately affected by the impacts of climate change’ (IPCC, 2023). By adopting a climate justice approach, we can address climate change through the lens of inequality and work to reduce these disparities, rather than perpetuating the status quo (Crawford, Michael et al. 2023). As Farhana Sultana (2022: 119) has argued, ‘attention to and engagement with intersectional and transnational feminist insights helps critically advance more nuanced and responsive understandings of climate justice. It can help reframe debates away from reductionist solutions to more accountable assessments and action.’ To put it simply, ‘Climate justice needs intersectionality’ (Mikulewicz et al. 2023: 1281). It also requires an inclusive approach. This is why our book embraces a rich diversity of local perspectives, both on how local actors – particularly marginalized groups – are shaping climate justice but also on how the region’s unique economic, sociopolitical, cultural, environmental and historical dynamics intersect with global climate justice movements.

As many of our authors emphasize, temporality is important. Taking a temporal lens compels us to situate current vulnerabilities and inequities in histories that trace legacies of colonialism, structural adjustment, conflict and re/displacement, globalization, neoliberal capital and so on (Farhana 2024). Climate, environmental and social disadvantages stem from the complex workings of power that operate across time, space and place. As the authors here collectively argue, to seek climate justice we must tackle the systemic forces that render some places disproportionately vulnerable to the impacts of anthropogenic climate change, increase environmental burdens in particular spaces within these countries, and drive the exclusion, marginalization and domination of particular people. It is imperative we understand both the situatedness of these forces and the legacies of imperialism, neoliberalism and global capital while linking local impacts and responses to global systems and networks.

Climate justice cannot be intersectional if it does not seek to grapple with these legacies and how they continue to maintain certain bodies and minds in precarious conditions (Puar 2017), constraining responses and access to adaptation and mitigation. As the climate crisis intensifies, so too does the

reproduction of racial, postcolonial, gender and ableist hierarchies. The diversity of such systems and conditions within just one region makes stark the need for critical, inclusive and localized approaches to climate change. As the authors here strive to demonstrate, across Eastern Africa power is experienced, refracted, wielded and subverted in multiple ways. Climate justice must therefore use intersectional complexity as its starting point.

Why Eastern Africa?

Eastern Africa is a broad geographical term and not easily defined. According to the United Nations geoscheme for Africa, Eastern Africa includes eighteen sovereign states and four overseas territories or departments (UN Statistics Department, n/d). Meanwhile the Kigali-based Subregional Office for Eastern Africa (SRO-EA) covers fourteen countries, including one country not part of the subregion, but not covering three that are (UNECA, n/d). The African Union categorizes fourteen countries as Eastern Africa, but it is not the same fourteen countries. The East African Community, one of the main intergovernmental organizations in the region, by comparison only has eight member states. Some countries, such as Kenya and Uganda, are generally always regarded as East or Eastern Africa in political and geographical terms, as well as in the popular imagination. However, other countries challenge our notions of who or what constitutes Eastern Africa. The Democratic Republic of Congo, for example, is physically largely in Central Africa and has a coastline on the Atlantic Ocean, but is a member of the East African Community and much of the eastern part of the country is historically, politically, socially and economically intertwined with communities in neighbouring Burundi, Rwanda, Tanzania and Uganda, among others. Other countries, such as Zimbabwe or Zambia, may be more commonly regarded as 'Central' or 'Southern' Africa, but both are part of the Eastern African geoscheme. Sudan is categorized as Eastern by the African Union, but not by the United Nations.

When considering chapters for inclusion in this book we have adopted an open interpretation of what constitutes Eastern Africa, sought to avoid rigid political categorization, acknowledging that climate issues frequently transcend borders, and allowed for self-identification by our authors. Reflecting these considerations, the Foreword of our book begins with an example from the eastern Democratic Republic of Congo, while chapters spotlight issues in

Malawi, Somalia and Zimbabwe, as well as countries considered at the 'core' of Eastern Africa – such as Kenya, Tanzania and Uganda.

Why is it important to focus explicitly on Eastern Africa? The increased frequency and intensity of the climate change impacts are reverberating across this region. In 2024 floods were reported in South Sudan, Kenya, Uganda, Rwanda, Burundi, Tanzania and Somalia. In May 2024, UNOCHA reported that 'Heavy rains and flooding affected nearly 205,000 people in Kenya, 179,000 in Burundi, 127,000 in Somalia and over 125,670 in Tanzania.' Floods have caused displacement; resulted in loss of life; damaged infrastructure, including roads, bridges, houses and schools; and destroyed crops and farmlands, in addition to diminishing access to water and sanitation, while increasing the risk of diseases such as cholera. Malawi and Mozambique were severely affected by Cyclone Freddy in 2023. More than 200 people died, and the subregion has since grappled with extended droughts that have impacted food and water security and resultant impacts such as electricity blackouts due to low hydropower generation, disrupting supply chains and income streams. This is crippling economies that are already suffering from debt crises. Worse still, projections suggest that these impacts will only get worse.

Many of the region's countries have drylands and semi-arid lands which face potential threats of climate change, persistent droughts, aridity and desertification. People across the region depend on climate-sensitive sectors such as agriculture as a source of livelihoods and economic sustainability, while cities in the region are at increasing risk of climate impacts, including sea level rise, impacts on water resources, temperature-related morbidity, food security and extreme weather events like those mentioned above. Research shows the greatest burdens in urban Eastern Africa are likely to fall disproportionately on the urban poor, who lack the most basic urban services (Kithiia 2011), whose experiences of poverty intersect with other factors that position individuals within the city and its population, as so evocatively rendered in Arinda's poem '*Entebbe E'Ntebbe*' (Chair in Entebbe) in this volume.

From increasingly erratic weather, extended dry seasons, heatwaves, drought and food insecurity to flooding and mudslides, for countries across the region, climate change is an issue of today not of tomorrow. With the majority of countries in the region characterized as 'low income', they are less financially able to mitigate or adapt to climate shocks and slow-onset changes. Indeed, around a third of the forty-five countries regarded as 'least developed' are located in Eastern Africa (UNCTAD, n/d). Given this positioning, governments should prioritize accessing international climate finance. Rwanda is leading in this

area, attracting both private and public investments. The majority in the region, however, access finance through multilateral agencies whose capacities need to be leveraged to attract a lot more, and there is still a way to go in demonstrating transparency and accountability in the utilization of the finance, and increasing the spaces and clarifying the roles and responsibilities of (marginalized) community groups in its implementation.

High (and growing) rates of poverty, gender inequality, unemployment and health disparities set against a history of colonialism serve to ensure climate change impacts are unevenly experienced. Colonial regimes amplified inequalities between men and women, the rich and the poor, and continue to perpetuate heteronormative patriarchal practices across the region. Patriarchal norms typically afford privileges, including ownership of land, access to education, access to finance and decision-making power to men, in a region where rain-fed agriculture is the predominant source of livelihoods. In contrast, women are routinely relegated to less visible, unpaid, labour-intensive spaces that keep them dependent on their spouses, brothers, fathers or other male figures. They are responsible for care roles such as fetching water and firewood, provided 'free' by the environment; growing food and cooking it; nurturing children and elders; and taking care of the sick. While this scenario is changing, and refracted through local histories, cultures and contexts, the pace of change does not meet the transformative action required.

Our book examines how climate change is intensifying traditional inequalities between men and women, and those identifying as sexual and gender diverse, and especially women and queer people who also have disabilities, are Indigenous or are marginalized in other ways, thus deepening vulnerabilities. The chapters further reveal how loss and damage are urgent, lived issues. Actors need to be intentional not only in developing gender-responsive climate actions, inclusive disaster preparedness and agile response measures but also in implementing them, combining them with interventions such as land reforms, safeguarding and conflict redress mechanisms. This demands recognition of marginalized communities as agents of change in climate resilience, and the acknowledgement and leveraging of this power to drive transformation.

A focus on Eastern Africa thus provides an important and timely opportunity to look at the diversity of lived realities of the climate crisis today. The research in these pages offer a key place to learn from and explore questions and issues relating to the inherent structural inequalities of climate change and claims for a 'right to development', as well as efforts to curb environmental catastrophe and level the global playing field. This includes questions of gendered climate impacts, space-

based hazards and adaptations, health-environmental links, whose knowledge is heard and utilized, social inclusion and equity, and the formation, adoption and implementation of new climate change legislation and policy. Our book therefore offers insights into some of the historical and prevailing sociopolitical systems responsible for creating, intensifying and prolonging climate impacts and injustices in the region; and evidences both impacts and potential solutions and innovations to adopt and scale up. A focus on the multidimensional perspectives and experiences of communities in Eastern Africa, and embrace of authors' complex positionalities and creative methodologies, offers an important means to bridge theory, case studies and creative storytelling, which are critical to undertaking an intersectional approach to climate justice and understanding lived experiences and historical and social inequalities.

Our book therefore centres and prioritizes scholarship on and of Eastern Africa, particularly, as mentioned above, authors from and based in the region. Centring Eastern Africa and its enormous wealth of diverse experiences, interventions, research and governance helps us to decentre climate justice and offer new Majority world-led routes towards understanding what intersectional climate justice could and should look like. In the process it responds to calls for a production of knowledge that is defined by 'Africa-centredness' (Cooper and Morrell 2014, 2). The term 'Majority World' (and corresponding 'Minority World') shifts attention to population differences, wealth inequality and unequal power dynamics, while also highlighting the vast diversity and wealth of knowledge that exist globally. In contrast, terms like 'Global South' and 'Developing Countries' are geographically limiting and misleading. They imply a linear path towards economic prosperity, restrict alternative views of human progress and depoliticize global relationships (Crawford, Michael et al. 2023). As we note in a section further below, this book seeks to critically redress the global economy of climate change knowledge and the epistemic inequalities it perpetuates. In this way, we collectively argue that the field of climate justice itself must be inclusive, diverse and embodied, taking a transdisciplinary approach in order to embrace multiple ways of knowing and being. This book serves, then, not just as a call for intersectional complexity or justice but should itself be a conduit for embracing diversity and a decentring of hegemonic concepts and knowledge production.

As a field of study, climate justice is rapidly growing. However, most of the book-length treatments of experiences and learnings to date are centred on the Minority World, even when they give particular focus to factors important in intersectional work, such as gender (Cassegard et al. 2017; Fletcher and Reed 2023). There are a growing number of books which focus on climate justice in the Majority World

(Tokar and Gilbertson 2020; Crawford, Michael et al. 2023), though given their geographic breadth, Eastern Africa received limited attention. Other locations have received specific regional or county examinations, such as work focused on Africa (Jegade and Adejonwo 2023), Southern Africa (Moyo 2024), North America (Rosier 2024) or India (Kashwan 2022). However, as Patrick Bond (2014: 205) reminds us, Africa is essential in the history of the climate justice movement. It emerged in part from the continent in the early 2000s, with Africa becoming ‘the source of some outstanding examples of social mobilization against climate change, its sources, and its impacts.’ The first example Bond uses to support this claim is the Pan African Climate Justice Alliance, which is headquartered in Nairobi. By comparison, at the time of writing, Eastern Africa has not received similar research attention. Our book therefore addresses key gaps in the climate justice literature by providing a rich range of case studies of the consequences and intersecting impacts of, and responses to, climate change in a part of the world which is among the hardest hit, yet comparatively under-researched.

Rethinking climate knowledge

Intersectional Climate Justice in Eastern Africa foregrounds work that is being done by authors who are from or have a deep engagement with Eastern Africa. The majority of the nearly fifty contributors live and work on the African continent. More still live and work in other parts of the Majority World, or have previously lived in the Majority World, particularly in Africa. This was intentional, aiming to address the ongoing epistemic injustices around those who can write on and about climate change not just in Africa but globally. Michael et al. (2023: 13) note ‘how urgent and necessary it is to open up climate justice scholarship to the perspectives and knowledges from the Majority World’, as well as early-career researchers, who, like many Majority World-based academics, possess ‘valuable contributions to climate change and justice scholarship’, however, ‘lack the authorship experience and the professional connections needed to gain access to, and be published by, “top-tier” journals and press’. Recently Mikulewicz et al. (2023: 1281) compelled us to ask: ‘Whose voices and knowledges has climate justice favoured and omitted since its emergence over three decades ago?’ We hope that our work here offers a partial correction, and action, to this question.

As the chapters demonstrate, there are a wealth of ways in which affected communities are responding to climate impacts, as well as navigating multiple intersecting inequalities and injustices at the roots of vulnerability. Their

knowledges, strategies, needs and perspectives must be amplified and put at the centre of climate action. Climate adaptation in turn must recognize and champion their lived expertise – the work they do and the knowledge(s) they wield. As Oriaso et al. (this volume) highlight, climate information itself is mired in (patriarchal) and geographical inequities. They demonstrate how women in rural Kenya are deeply positioned to adapt to climate change as key change agents; however, their capacities to respond to climate risks are compromised by their multiple exclusions from climate information systems and decision-making. This cannot be resolved by better access to information alone but an intersectional approach that simultaneously addresses material deprivation and time poverty is also needed. It is therefore a case of championing complex approaches that embed a power *with* framework of collaboration that creates meaningful spaces for leadership, knowledge co-production and ecologies, and participation in climate knowledge and action. It must respond to local realities and embrace Indigenous and grounded knowledge. It must also reflect the affective elements of climate research and action. As Unnikrishnan's deeply reflective poem (in this volume) compels us, we must challenge many of the binaries common to climate scholarship (and action) in order to embrace the emotional complexities of living energy transitions and engaging in research on intersectional injustice.

In the spirit of re/interrogating climate knowledge we must address our own positionalities and how this book came about. On 9 August 2023 we convened an online workshop on the theme 'Intersectionality and Climate Justice in Eastern Africa'. Two of the convenors, and now book editors, are from Eastern Africa and live, work and research climate change in the region. Susan Nanduddu lives in Uganda and has a keen interest in climate justice, gender equality and trade empowerment; she advocates for increased, flexible and accessible climate finance mobilized by the Minority World to reach local levels. Elvin Nyukuri lives in Kenya and her research focuses on climate change policy, environmental governance and food security. The other two convenors and editors are Minority World researchers who have spent extensive time living and working in Eastern Africa on climate change issues. Katie McQuaid has conducted ethnographic and applied research in Uganda since 2011, focusing on the gender-age-urban interface of climate change. Neil J. W. Crawford has lived and conducted research in both Kenya and Uganda, with a focus on displacement, urbanism, and gender and sexuality studies.

Reflecting our transdisciplinary backgrounds and experience, we share a passion for better understanding climate impacts, applied research in the pursuit of justice and amplifying communities frequently neglected in climate

scholarship and policy. It was therefore important to us that our workshop included presentations not just from members of the research community but also from activists and practitioners, especially those in their early career, as a key place to learn from. We were overwhelmed by interest in exploring the lived realities of the climate crisis today and exploring questions and issues relating to the inherent structural inequalities of climate change. The full-day workshop had three panels comprising fourteen presentations from seventeen authors, with an invited keynote from renowned activist Ineza Umuhoza Grace, who has warmly extended her contributions to this book's foreword, along with eight other members of the Loss and Damage Youth Coalition. The workshop, and now this book, aimed at an in-depth exploration of an intersectional approach to climate justice from the perspectives of Eastern Africa. Uniting all our presenters was a passion to not only decentre climate knowledge production but explicitly centre and celebrate African knowledges, responses, policy frameworks and epistemologies. Many of the chapters included in this book started as papers during this workshop, and have been expanded and developed in collaboration with the editors in the months that followed. In the process, and as we hope is evident across the chapters of this book, is that an intersectional approach to climate justice demands transdisciplinarity. The chapters showcase and embrace a toolbox of different methodologies that encompass the creative, the ethnographic, the qualitative and the policy-focused.

In addition, therefore, to thinking about who we hear from, we must also think critically about what constitutes climate knowledge and the mediums this can come in. As the cover of this book illustrates, photography can serve as a key means of unending dominant narratives and telling new stories of how people experience and respond to environmental issues. We explored this in-depth with *See Change: Visualising the Urban Climate Crisis* – an open access visual media book and exhibition held in 2023 at the Uganda National Museum in collaboration with the Uganda Press Photo Award (Crawford, Kućma et al. 2023). Another example is African climate fiction, which, as Carl Death (2023) articulates, highlights the unique challenges Africa faces in the context of climate change while drawing from the continent's diverse cultural perspectives. This important medium blends speculative storytelling with real environmental concerns, offering imaginative solutions and amplifying marginalized voices. By envisioning future scenarios, or fictionalizing recent or current events, it raises awareness and encourages discussions about sustainability, resilience and the need for urgent climate action across the African continent. It also emphasizes the potential of local knowledge and creativity in addressing global environmental crises. With this in mind, our book aims to expand the

methodological scope of climate justice research. We include a new short story by Davina Philomena Kawuma, highlighting not only the value of fiction to understanding the different ways vulnerability and resilience to climate change occur but also the importance of disrupting the locations in which we engage with such material. For example, Daphine Arrinda's poem 'Chair in Entebbe' and Hita Unnikrishnan's ethnographic poem 'The powers that be?' act to disrupt not just conventions of climate knowledge but also the binaries exposed by much existing work on gender and climate change. Michael Roberts and Daniel Lumonya's chapter on soundscapes demonstrates the empirical richness that can be gained from walking around a city and actively listening to the sounds that are encountered. These more creative pieces are importantly housed in a collection primarily made up of academic chapters, engaging with and complementing them, not siloed off in an all-creative collection. Our authors seek to present grounded accounts of intersectional complexity that amplify marginalized voices and in so doing decentre and advance our understandings of climate justice. Creative, empirical and policy interventions converge in a collective effort to present the multidimensional ways in which climate justice is an intersectional issue.

Our book

To maximize cross-learning, our book seeks to be pragmatic, polyvocal, transdisciplinary and, above all, a centring of knowledge of or on Eastern Africa. As presented here then, climate justice scholarship is rooted in transformation, demonstrated by the multiple recommendations and calls to action from the authors. Understanding the intersectional complexities of climate change spurs the translation of knowledge into action, directing stakeholders and policymakers towards interventions that embrace equity, diversity, inclusion and multiple interlocking forms of justice: social, environmental, economic, gender and so on. Balancing academic and policy analyses on systemic inequalities with narrative and creative storytelling, our book comprises fifteen empirically rich, research-driven chapters that address a wealth of different regional, national and local settings and methodologies.

In 'Land use, conflict, re/displacement and post-conflict histories in Burundi', Ngambouk Vitalis Pemunta and Maurine Ekun Nyok adopt a temporal lens to examine how the interplay of historical conflict, mass displacement, post-conflict resettlement, land use and subsequent climate-related displacement manifest in intricate webs of vulnerabilities for women and children. They

highlight how gender-based discrimination exacerbates disparities in resource access, reproductive, mental and physical health, and food security, particularly for women reliant on rain-fed agriculture in rural Burundi.

Sahra Ahmed Koshin's 'Badbaado Haween (women saving lives): An intersectional analysis of flash flood impacts on women and girls in Qardho, Somalia' takes a richly empirical approach to explore the intersectional impacts of flash floods on women and girls in Qardho district, Somalia. The chapter highlights the diversity of lived experiences and coping mechanisms of women and girls in the aftermath of this climate-related disaster, with a particular focus on how disability, age and ethnicity intersect with prevailing patriarchal power structures that shape policymaking, humanitarian responses and everyday life before, during and after disasters.

Michael Roberts and Daniel Lumonya's chapter 'Sound and situated knowledge in Entebbe's urban wetland borderlands' considers multispecies justice in Uganda's rapidly urbanizing areas through the lens of sound. Using 'soundwalks' in Entebbe, the chapter explores the ways sound shapes and reflects urban landscapes, social interactions and environmental changes. The authors listened to a range of sounds – such as birds, transportation and human activities – across various urban and natural spaces, analysing how sound reveals complex dynamics between human and nonhuman elements in the face of urban development and climate change.

In 'Breaking barriers: unravelling the climate justice struggles of Maasai women and girls in Tanzania', Emmanuel Ole Kileli, Monica Kurumbe, Sophia Carodenuto, Katelynne Herchak and Crystal Tremblay draw on visual and narrative research to explore how young Maasai women respond to climate-induced environmental degradation, land dispossession, poverty, political marginalization and tourism in Tanzania. They invite us to follow the conversations of Nashipai to better understand the growing sociocultural pressures, poverty, gendered discrimination and coping mechanisms of young pastoralist women, many of whose husbands have migrated to cities.

Hita Unnikrishnan's (auto)ethnographic poem 'The powers that be?' and commentary capture some of the intersectional and emotional complexities of community energy systems and sustainable energy transitions in Ethiopia, Malawi and Mozambique, through the lens of an Ethiopian hydroelectric power plant in the face of the Tigray War, Mozambican nurses assisting births by candlelight, the reproduction of inequitable binaries by energy and utility companies, and work in Mozambique to encourage small energy operators to be accountable for gender equality and social inclusion.

In ‘Beyond fortresses: rethinking conservation and upholding indigenous peoples’ rights’, Julia Basile, Elsa Jarkedian, Silvia Ottinetti and Nicolás Süssman Herrán compel us to rethink the intrinsic exclusion dynamics of climate mitigation strategies in order to uphold Indigenous Peoples’ Rights. They recount the historical and contemporary human rights violations, land dispossession and forced displacement perpetrated against Indigenous people in the name of environmental preservation and biodiversity conservation in Uganda, Tanzania and Kenya. Their chapter champions community-led conservation models and reformulating ‘fortress conservation’ frameworks to centre Indigenous people’s participation and consent and respect and advance their land tenure rights.

In ‘The legacy of colonialism, present-day climate injustice: the experiences and knowledge of San communities in Tsholotsho, Western Zimbabwe’, Douglas Nyathi, Joram Ndlovu and Admire Mare explore the severe impacts of climate change on Indigenous San communities in western Zimbabwe. They highlight how erratic weather, drought and flash flooding due to climate change exacerbate vulnerabilities, especially for communities whose agricultural practices are heavily impacted by unpredictable rainfall. Their reliance on rain-fed agriculture and natural resources, combined with ongoing structural inequalities rooted in colonial history, leaves them especially exposed to food insecurity and poverty. The chapter emphasizes the importance of the San’s Indigenous knowledge in managing environmental changes in arguing for an inclusive approach to climate resilience.

Eilidh Watson Stanfield and Ethel Ngulube’s chapter ‘Rural women and the overlapping climate and energy injustices in Malawi: an intersectional feminist overview’ offers an intersectional feminist case study of the different climate injustices and energy poverty challenges experienced by women in rural villages in Northern Malawi. They explore how women’s experiences of energy poverty and their coping strategies are differentially shaped by gender, age, disability and poverty, and highlight in particular the intersecting injustices and costs for women who have low or limited access to household income.

In ‘There are other roads’ Davina Philomena Kawuma presents a piece of experimental fiction to encourage us to interrogate questions of citizenship, displacement and power amidst a changing climate in Uganda. The chapter creatively weaves together an online chat, radio dialogue and a fictitious policy brief to tell a story from different angles. Reflecting on this approach, the author notes: ‘Experimental formats also help make global issues much less overwhelming. Issues that seemed too big, too complex, too overarching, at first glance suddenly become a bit more manageable when I think “Hmn! What if

I explored this through an email thread or a comments section instead of the standard linear story?”

In their chapter ‘Rural women, climate change and information ecosystems in Kenya’, Silas Odongo Oriaso, Jacinta Mwendu Maweu, Chris Paterson, Lata Narayanaswamy, Jasmin Surm and Dorcas Kalele address rural women, climate change and information ecosystems. They analyse what climate information is available to rural women in East, West and Coastal Kenya, where it comes from, and its utility in building resilience to climate change. They ask how local and Indigenous knowledge interacts with externally sourced climate information in the pursuit of effective adaptation strategies. They highlight weak information ecosystems and a lack of ‘listening infrastructures’ to women’s needs and environmental and experiential knowledge.

Sneha Krishnan, Philomena Wambui and Nitesh Lohan examine the intersecting crises of conflict, climate change and Covid-19 in “‘We let the blood flow’: Flooding, health and overlapping crisis as experienced by south Sudanese women.’ Their chapter highlights the resilience of South Sudanese women as they navigate displacement, food insecurity and inadequate health infrastructure. Drawing on rich data gathered in Jonglei state in 2021 and Juba in 2023, they emphasize the need for gender-sensitive policies and policy responses that attend to the specific needs of vulnerable groups, recognize the essential roles women play and address systemic inequalities that heighten their risks amid ongoing humanitarian crises.

Daphne Arinda’s poem ‘Chair in Entebbe/Entebbe E’Ntebbe’ addresses the multiple and intersecting impacts of the urban climate crisis on lesbian, bisexual and queer (LBQ) women in Kampala, Uganda. It weaves together the lived experiences of LBQ women shared during a two-day creative writing workshop on their lived experiences of climate change and environmental, social and political injustices. It invites us to consider the frequently invisible and neglected climate vulnerabilities of LBQ women while also celebrating their creativity, agency and resilience.

In their chapter ‘Queer diffabilities in Uganda: experiences of intersectional complexity and the urban climate crisis’, Katie McQuaid and Neil J. W. Crawford draw on the lived experiences of queer people with disabilities in Kampala to highlight how queerphobia and ableism re/produce social inequalities, marginalization and exclusion that position some minds and bodies more vulnerable to climate change. They invite new approaches to intersectional climate justice that interrogate normativity, provide space for a greater embodied diversity of lives impacted by climate change and (re)vision just futures that centre inclusion, social and environmental justice.

In ‘The Covid-19, equity and climate change nexus: the case of the East African Region’, Joanes Atela, Leah Aoko Otieno, Elvin Nyukuri and Florence Onyango explore climate change policies and strategies in the region and how they guided responses to the Covid-19 pandemic. They observe how the pandemic widened gender inequalities in part because of an economic approach that paid little attention to social vulnerabilities and existing climate injustices. These dual crises reveal the interconnectedness of social challenges and the need for holistic strategies to safeguard against future global challenges not only preserving natural resources but also protecting public safety, health equity and social resilience.

Abbas Mugisha and Sabiti Makara, in ‘Climate change, migration and displacement: considering psychosocial impacts in Uganda’, consider the increase in displacement due to climate-related disasters, emphasizing how vulnerable populations, are disproportionately affected. The short think-piece highlights the case of floods in Kasese, Uganda, in 2024 as an example of the prevalence of psychosocial impacts.

Together, these diverse contributions – in form, approach, methodology and thematic and country focus – provide a series of insightful examples of how climate change can be seen in Eastern Africa today and how focusing on questions of justice and intersecting considerations is imperative. While one book could never encapsulate the richness of issues and experiences in such a diverse region as Eastern Africa, we hope that it serves as an important extension to what is known already, ensuring a key focus on an area detrimentally impacted, but relatively neglected. We hope that this book is followed by more work that captures and helps expand our knowledge and understanding of Eastern Africa’s climate vulnerabilities and shocks, the rich diversity of local responses and work towards justice, as well as the insights and knowledges that can help worldwide in the fight against climate change.

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Land use, conflict, re/displacement and post-conflict histories in Burundi

Ngambouk Vitalis Pemunta and Maurine Ekun Nyok

As a young woman, I, my parents and others experienced displacement during the civil war. Then we were forced to flee because of conflict. When we eventually returned home our lands had been seized. But today, it is disasters like floods washing away our foodstuffs, domestic animals and turning us into refugees. Our crops and businesses were washed away by the floods.

(Jaqueline)

Introduction

Burundi, classified as the second-poorest country globally, faces heightened vulnerability due to its landlocked nature and susceptibility to climate-related disasters, including heavy rains, floods, landslides and droughts. The situation is exacerbated by the fact that while 90 per cent of its population depend on subsistence farming, 38 per cent of its land is degraded (David 2022). The country ranks 22nd in terms of vulnerability and 173rd in terms of preparedness for climate change impacts globally according to the 2020 ND-GAIN Index (African Development Bank Group 2019). Despite contributing minimally to global greenhouse gas emissions, the country experiences intensified dry and wet seasons, resulting in severe droughts and floods (African Development Bank Group 2019). According to the International Organisation for Migration (IOM 2022), disasters since 2018 have affected over half a million people, leading to displacement and significant damage to homes, infrastructure and crop fields. Bujumbura Rural, Ngozi and Kirundo were the most affected provinces. Additionally, severe droughts (1998–2005) and floods (2006 and 2007) have

caused substantial economic losses, and numerous individuals were forcibly displaced. A significant number fled their residences in the northern and eastern regions of Burundi, seeking refuge in different provinces and neighbouring nations to evade the impacts of severe drought, which resulted in food shortages (Internal Displacement Monitoring Centre 2006). Climate change is therefore having a significant impact on Burundi. We require a temporal lens to better understand its specific impacts on women and children. As this chapter will explore, in post-conflict Burundi, the interplay of historical conflict, mass displacement, resettlement post-war and subsequent displacement due to climate change forms a complex nexus, intertwining war-induced political refugees with environmental refugees.

In Burundi, as in many countries and regions globally, the impacts of climate change vary significantly, with certain population groups, particularly women, experiencing heightened multiple vulnerabilities. Climate change varies for individuals based on their proximity to power, adaptive resources and social histories (Versey 2021). Women, who are primarily responsible for food production in Burundi, face obstacles in decision-making and resource access due to deeply entrenched gender norms and roles that limit their decision-making power and resource access (Pemunta, Ngo, and Cumber 2020), making them more vulnerable to climate change. According to the Intergovernmental Panel on Climate Change (IPCC), vulnerability to climate change refers to how likely a system is to suffer from and cope with the harmful impacts of climate change (Nyairo, Machimura, and Matsui 2020). This approach considers both the risks individuals face and their ability, as well as their society's economic and cultural resources, to deal with the resulting damage. As a result, the IPCC identifies the potential for adaptation as a key factor in determining a system's vulnerability to climate change, including which groups are most at risk.

In this chapter, we aim to delve into the intricate web of vulnerabilities faced by women and children in Burundi in the context of climate change. Jaqueline's quote above serves as a direct link to this aim, highlighting the lived experiences of those directly impacted by the convergence of climate-related hazards with underlying structural challenges. By examining how the intersecting factors of land use, conflict, (re)displacement and histories of post-conflict intersect with climate change, we seek to understand the unique vulnerabilities faced by women and children in navigating and coping with these multifaceted challenges. Through this exploration, we aim to shed light on the urgent need for gender-responsive and socially inclusive approaches to climate adaptation and resilience-building efforts in Burundi and similar contexts globally. By

examining how gender intersects with other social factors, such as migration and social inequality, broader systems of oppression and privilege become apparent. For instance, gender-based discrimination exacerbates disparities in vulnerability, resource access, health and food security, particularly for women reliant on rain-fed agriculture for their livelihoods.

This chapter advocates for gender-responsive and gender-transformative climate policies and programmes that recognize women as agents of change in building climate resilience. It also emphasizes the need for enhanced data and research to capture the intersectional insecurity of climate change impacts in Burundi. Ultimately, addressing gendered social structures is essential for achieving social justice in climate change mitigation and adaptation, requiring the empowerment of marginalized groups to challenge existing norms and envision a more equitable future. This approach entails prioritizing gender and intersectionality in climate research and policy, understanding power dynamics and valuing diverse skills and perspectives (Turquet et al. 2023).

An intersectional and social justice framework: Method and theoretical approach

This chapter presents a combination of ethnographic data gathered during a study of land disputes in rural Bujumbura Province from January to May 2016 and an analysis of secondary literature from various international organizations involved in providing emergency relief to victims of ('natural')¹ disasters that frequently result in displacement. Specifically, these organizations include the International Organization for Migration, the World Food Programme, the World Bank, the African Development Bank, the Global Fund, the United Nations Children's Emergency Fund and the United Nations High Commissioner for Refugees.

Thirty-five participants were purposefully selected to participate in interviews, comprising ten semi-structured interviews evenly distributed among five men and five women, as well as four focus group discussions involving a total of twenty-eight individuals. These discussions involved two groups each of men and women from both rural and urban areas within Bujumbura Province. The

¹ We argue that there is no such thing as a truly 'natural' disaster. Disasters occur due to a combination of factors, including human-induced climate change, poor land management and structural inequalities. These elements interact with natural events, turning them into disasters.

topics explored in both the interviews and focus groups revolved around land-related conflicts, the impacts of displacement and coping strategies, all examined through a gender perspective. This mixed-methods approach offers a unique opportunity to unravel the complexities of intersectional climate justice in Burundi and beyond. By integrating qualitative and quantitative methodologies, researchers can uncover new insights, challenge assumptions and inform more equitable and sustainable policy responses to climate change that are context-specific. To ensure ethical integrity and protect the privacy of participants, pseudonyms were used throughout the study, safeguarding individuals' identities while maintaining the authenticity of their experiences.

We utilize an intersectional and social justice framework to comprehend the heightened vulnerabilities of women in response to the shifting weather patterns in Burundi. Incorporating vulnerability models alongside intersectional and social justice frameworks in Burundi improves comprehension of climate change impacts through the lens of land use, conflict, (re)displacement and post-conflict histories, thereby promoting more equitable responses. Intersectionality elucidates how multiple and overlapping social identities shape vulnerability. Utilizing community-based research engages affected communities directly and captures their experiences of conflict displacement and (re)displacement by climate change. Translating findings into intersectional policy recommendations promotes inclusive climate adaptation and mitigation strategies that ensure equity (Riley et al. 2021; Israel et al. 2018).

Intersectionality, as introduced by Crenshaw (1991) and expanded by scholars like Cole (2009) and Collins (2019), examines how intersecting systems of oppression and privilege – such as race, gender and class – impact individuals' experiences and exposure to stressors, including climate change (Turquet et al. 2023; Versey 2021). This theoretical framework challenges simplistic views of social categories and highlights how multiple axes of difference shape vulnerability, as evidenced by disparities in flood and disaster risks in Bangladesh (Sultana 2010; Crawford, Rahman et al. 2023) and the impacts of Hurricane Katrina (Luft 2016). By focusing on intersecting structural forces like patriarchy and racism, we can better understand how marginalized groups, particularly women and Indigenous peoples, face disproportionate risks and exclusions in climate decision-making (Mikulewicz et al. 2023; Perkins 2018; Crawford et al. 2023).

In public policy, incorporating intersectional approaches, such as those addressing poverty, place and race, can illuminate how communities with fewer resources face heightened vulnerability to climate-related risks. This framework

has broad and specific implications for research and policy, urging explicit acknowledgement of intersectionality in climate change models, action and policy analysis. It emphasizes recognizing high-risk groups and considering mental health outcomes associated with climate change, promoting cross-disciplinary discussions for more effective strategies in reducing mental health disparities (Perkins 2018; Ingle and Mikulewicz 2020).

Social vulnerability models (Thomas et al. 2019), such as compounded vulnerability (Hayes et al. 2018) and hazards-of-place (Thomas et al. 2019), explore within-group variations in risk (Pellow 2016). Compounded vulnerability emphasizes that while climate change affects all groups, some subgroups face additional burdens. For instance, extreme floods in Burundi disproportionately impact lower-income residents, particularly rural women and the Indigenous Batwa people. The hazards-of-place model focuses on the social costs of living in high-risk areas, highlighting the vulnerabilities of residents in flood-prone regions (Pellow 2016) like most of Burundi. Both vulnerability models emphasize the importance of precise language in understanding cumulative risks for vulnerable groups and advocate for inclusive plans to mitigate climate risks for everyone, considering factors such as race, class and place. They also call for more research on racialized access to land and water. The challenge for future research is to integrate diverse areas of study and create measures that communicate vulnerability for high-risk groups in the context of climate change (Thomas et al. 2019; Hayes et al. 2018; Pellow 2016).

The following sections explore how in Burundi's post-conflict and postcolonial context climate change exacerbates women's burdens uniquely. Historical injustices, power dynamics and socio-economic disparities intersect with climate impacts, magnifying vulnerabilities. Women already bear the brunt of post-conflict and colonial legacies. Addressing climate justice here requires understanding historical inequalities and empowering women through targeted interventions to promote resilience.

Multiple vulnerabilities: From the scars of war to climate change refugees

Burundi was embroiled in a vicious Civil War between 1993 and 2005 that led to the displacement of more than one million people to the neighbouring countries of Tanzania, Rwanda and the Democratic Republic of Congo (DRC) (International Crisis Group 2003). In 2005, there was a mass exodus out of

the country following the violence that greeted Pierre Nkurunziza's illegal bid for a third term in office. The violence turned the country from one of mass resettlement to mass re-displacement linked to electoral hold-up. Burundi has thus experienced recurring large-scale movements of people, occurring during times of both conflict and peace, and intertwined by factors such as people's expectations of worsening conditions and their interpretation of past occurrences. Rather than being solely triggered by current events, previous instances of violence instilled a sense of expectation for further deterioration, prompting fresh waves of displacement (Purdeková and Birantamije 2023) and vulnerabilities worsened by the exacerbating effects of climate change.

Recently there has been a shift. In 2021, the World Food Programme (WFP) aided 192,000 internally displaced individuals in Burundi, primarily due to climate change, and intends to continue such assistance in the coming years (David 2022). Jaqueline's quote at the beginning vividly captures this transformation from a displacement-conflict nexus (war refugees and refugees of political instability) to a displacement climate change nexus (environmental refugees) in Burundi (David 2022). An estimated 99 per cent of Burundians lack the ability to cope with extreme weather events like droughts, floods and landslides, which are worsened by greenhouse gas emissions (Tall & Dampha 2023). These climate impacts affect nearly all sectors of the economy, including agriculture, livestock, fisheries, health, energy and infrastructure (Tall & Dampha 2023). Climate-related disasters account for about 90 per cent of internally displaced people (IDPs) in Burundi, primarily driven by floods since 2020 (Reliefweb 2024; UNHCR 2023). By 2020, over 131,000 people had been displaced, with 83 per cent linked to climate disasters (International Organisation for Migration 2024). Women and children in Burundi's 3,000 hillside regions are particularly vulnerable to floods and landslides, which are the primary causes of internal displacement (Tall & Dampha 2023). By October 2022, 89 per cent of the 75,300 displacements were linked to disasters, with children accounting for 56 per cent of those affected (Seabra 2023). These disasters disproportionately impact women and children in these areas, exacerbating their vulnerability. Due to a lack of access to essential services – water, sanitation and hygiene, shelter, education, and health and job opportunities – most IDPs are vulnerable to exploitation. Environmental upheavals and disasters can disrupt livelihoods, exacerbate poverty and create conditions ripe for exploitation by traffickers preying on the desperation of those impacted. This vulnerability drives a nexus between internal displacement and trafficking, as they may lack protection mechanisms and resources, rendering them susceptible to trafficking networks.

Nearly 55 per cent of IDPs in Burundi are women, and nearly 80 per cent of victims of trafficking are women and girls (Laëtitia 2022). We pose the question: Why and how are women and children most affected by climate change?

Projected climate change scenarios for 2050 in Burundi include a 1.5°C to 2.5°C temperature increase and altered rainfall patterns, with heightened rain intensity. The country's susceptibility to future flood and drought events poses a severe threat to water and food security (African Development Bank Group 2018). Within this context, women, primarily engaged in farming, face heightened vulnerability due to insecure land access (Pemunta, Ngo and Cumber 2020) favouring men. This restricts women's farming activities, impacting food production, economic independence and household dynamics. Additionally, in Burundi, women's responsibility for food production makes them vulnerable to pest-related crop losses due to limited access to resources like pesticides (Nchanji et al. 2023; Batungwanayo et al. 2023). This lowers their agricultural productivity compared to men, worsening gender disparities in food production and security. These environmental stressors and social vulnerability interact in a synergistic manner (Versey 2021). As we shall see next, the combined effects of both render women and children vulnerable to the effects of climate change due to socially institutionalized gender roles and power asymmetry between men and women.

The dual role of land in women's climate responses and vulnerabilities

I am now spending whatever money I get from my labour to secure my parcels of land from those who took them over since my return from the Democratic Republic of Congo. We are in court almost every month. And now climate change is negatively affecting me as food production has fallen making it almost impossible to provide food for my family. My husband has left for Saudi Arabia to make ends meet since he could not find a decent job here. We have been transformed from war to climate change refugees, struggling to provide for ourselves.

(Anita)

Anita's quote here underscores the crucial role of land in women's responses to climate change, functioning as both a vital resource and a vulnerability. However, its importance is entangled with various complex factors, including post-conflict dynamics, increased disaster frequency (climate injustice), ongoing gender disparities and legal complexity (pluralism). These intersecting influences

amplify the challenges women encounter in adapting to and combatting the effects of climate change. This section will examine the compounded vulnerabilities of women and children in patriarchal Burundian society, focusing on how gender-neutral land reforms, customary practices and climate change contribute to their marginalization. It will explore the cultural, legal and demographic obstacles faced by women in securing land rights, the intersection of climate-related displacement with historical patterns of displacement and the gendered impacts of resource scarcity, conflict and migration. Additionally, it highlights the resilience strategies employed by women in addressing these interlocking crises.

Gender-neutral land reforms and dual land tenure systems reinforce male dominance, forcing women to rely on male relatives for land rights that are often insecure. This is justified by the belief that ‘property cannot own property’ (Pemunta 2013; Pemunta, Ngo, and Cumber 2020). Women’s subordination is reflected by a common saying in Kirundi: *Inkolo kazi ntabwo ibika iske ihari* (the hen does not sing when the cock is there). Widows returning post-conflict often face eviction by their deceased husband’s family (Pemunta, Ngo, and Cumber 2020). In rural Burundi, where livelihoods depend on agriculture and forestry, land dispossession is widespread due to undocumented land rights, institutional pluralism and governance shifts (Tchatchoua-Djomo and van Dijk 2022). Women’s subordination, combined with climate change, heightens their vulnerability and contributes to prolonged displacement and loss of livelihood. Over 90 per cent of local court cases involve land disputes, with women filing over half of the claims in Bujumbura Province (CNTB 2010; IOM 2024). Land registration often favours powerful entities, disadvantaging marginalized women.

Women in Burundi face cultural, legal and demographic barriers to inheriting land. Discriminatory customs and rulings frequently deny them land rights, and unclear boundaries, worsened by displacement, make resolving disputes difficult (Pemunta, Ngo, and Cumber 2020). These disputes over land ownership and usage disrupt agriculture, causing income loss, food insecurity and further displacement. Addressing these conflicts is essential for economic stability and community well-being. Resource dependence and climate fragility further exacerbate poverty and conflict, intensifying competition over limited resources and deepening social tensions. Women’s marginalization in decision-making within families further illustrates the complex intersection of policy, custom and social norms.

In response to climate-related challenges, rural Burundian women allocate their limited resources to secure agricultural land amid heightened conflicts

over it. The burden falls on these women to enhance their land's resilience for the sustenance of their families (Tall et al. n.d.). Population pressure exacerbates the issue, leading to over-cultivation, land clearing for housing and deforestation for construction and fuel. Destruction of homes and ongoing conflicts over land persist, particularly with returning refugees reclaiming previously occupied land from 'new owners.' The resulting competition for land and conflicts contribute to degradation, significantly disrupting lives in Burundi (Tall et al. n.d.):

We [women] are often not heard when it comes to land issues. Since it is often men who inherit land, we are exposed to climate change because of heightened competition and depletion of the land, we are desperate. Worse, when we came back from Tanzania our lands had been taken by neighbours. Hunger is killing us while we are in court. Land prices are extremely exorbitant. Like during the war, I take care of household chores like caring for sick children, my old parents, go to the farm, fetch water, which is now very scarce, by covering long distances on risky footpaths.

(Kerida)

Kerida's experiences highlight how women often face marginalization in land-related issues due to inheritance practices that favour men. This gender disparity in land ownership and access intensifies the vulnerability of women to climate change impacts and land competition. Additionally, upon returning from displacement, women like Kerida encounter further challenges, including land disputes, exacerbating food insecurity. As they balance household responsibilities and contend with scarce resources, the gendered effects of climate change become evident in their daily lives.

Women continue to take on primary gendered social roles due to conflict and now climate-related disasters – care-giving, food production and water collection, roles that intensify under climate change, magnifying their exposure to risks and hazards. These women heavily invest in land, with 60 per cent facing high climate risks, while landless women are even more vulnerable, relying on daily labour. Of the 'high-risk climate and fragility' (Tall et al. n.d.) households in specific areas in Burundi, 60 per cent are managed by women. Here, significant household expenditure is invested in land. In four collines² women spend an average of 36 per cent on land-related

² In Burundi, the term 'collines' refers to the small, rural hill communities that are the basic administrative and social units of the country. The word 'colline' is French for 'hill', and in the Burundian context, it describes the hilly terrain that characterizes much of the country. Each colline typically consists of a cluster of villages or hamlets, and they play a crucial role in local governance, social organization and land management (Uvin, 2009).

activities, with landowners allocating over 38 per cent. During climate shocks, expenditures may increase by 150 per cent, rising further with land-related conflicts. This underscores rural women's out-of-pocket contributions to climate resilience, impacting other essential areas like education and health. Landless women, over 90 per cent of the World Bank's commissioned report sample, face heightened vulnerability to climate hazards, with potential economic repercussions leading to labour for subsistence in the absence of land access (Tall et al. n.d.).

Climate challenges reduce food availability, prompting families to adapt with short-term crops, urban work and migration. Crop productivity is both low and decreasing, overall health conditions are subpar, and the existing infrastructure is insufficient. The public exhibits minimal preparedness to address the concurrent social, governance and economic challenges arising from the intersection of climate, development and fragility crises. Land conflicts worsen the situation, increasing expenses for landowners. This is happening against a backdrop where violent conflicts and displacement have facilitated the state's expansion of control over customary land tenure, leading to the gradual exclusion or replacement of local authorities. This process has resulted in a competitive structure of jurisdictions and blurred authority over land. National land restitution commissions, employed by the central government, play a role in shaping land tenure and state-citizen relations and exerting pressure on land tenure institutions (Tchatchoua-Djomo and van Dijk 2022). Conflicts over arable land are increasing among the predominantly rural population reliant on natural resources. The recent return of refugees from the Democratic Republic of Congo has worsened overcrowding on shrinking, degraded land. This influx has intensified inter- and intra-ethnic violence by heightening competition for limited resources, straining local infrastructure and reigniting historical tensions between returnees and host communities (Pemunta and Aristide 2013).

Climate-induced displacement in Burundi: Women's vulnerabilities and resilience amidst rising risks

At a structural level, these events can result in various adverse outcomes, including migration, displacement, homelessness, unemployment, increased conflict, hostility, intergroup aggression, crime and a decline in social cohesion, as highlighted by scholars (Clayton et al. 2017; Hayes et al., 2020). Women and their children thus face multiple risks due to climate change. Climate-related

disasters like floods and wildfires can heighten gender-based violence and compel women and children to migrate, heightening their vulnerability (Seabra 2023). Children and women, especially when displaced, face elevated risks of violence, exploitation, neglect and abuse. Ninziza made this clear when she stated:

When people think of climate change, it is often how homes and farms, crops and water supplies are affected (polluted). But young girls are also affected. My younger sister who went to Saudi Arabia to serve as a maid was abused by her employer. Several women and young girls have been preyed upon by unscrupulous men when they travel long distances to fetch water or firewood.

(Ninziza)

Floods result in property and agricultural land destruction, leading to displacement. Displacement leading to forced migration, such as relocation to Saudi Arabia, often exposes women to exploitation and gender-based violence at the hands of their employers. Early floods in several provinces and a hydric deficit in Kirundo led to extensive crop damage, affecting over 200,000 people and increasing the risk of food insecurity. The affected population has diverse needs, including safe water, hygiene, sanitation, immediate food assistance and nutrition support (Seabra 2023).

Our research indicates that, in the context of climate change, traditional gender roles – such as fetching fuelwood or water – do not just increase women's workload but also heighten their risk of abuse and exposure to gender-based violence. This vulnerability persists when they migrate abroad in search of better livelihoods for their families. Climate threats such as floods have profound psychological implications, causing emotional, behavioural and cognitive effects. These effects include confusion, memory loss, distress, grief, depression, helplessness, fear, survivor guilt, increased substance use, recovery fatigue and the loss of social support structures (Stanke et al. 2012; Perkins 2018). One displaced woman stated:

The flood transformed my life forever. I now live in a camp where I am depending on handouts from humanitarian agencies with my children. It has brought diseases, stripped away the fertility and productivity of our soil. Men have been unable to farm due to poor mental health. They have spiralled into alcoholism and violence towards their wives.

(Igiraneza)

Reproductive health, affected by climate-related pollution, poses risks for pregnant women during extreme weather and impacts mental health. Women's

roles in healthcare amplify their susceptibility to climate-induced health effects, affecting not just them but also those in their care and work (Seabra 2023). For example, in Burundi, women often bear the primary responsibility for caregiving within families. During climate-related disasters or health crises intensified by climate change (e.g. the spread of vector-borne diseases), women may face increased physical and emotional strain as they care for sick family members or manage the health needs of vulnerable community members. This can lead to elevated stress levels, exhaustion and compromised mental health. Additionally, women's access to healthcare services may be further limited during such events due to disruptions in healthcare infrastructure or transportation systems, placing them at greater risk of adverse health outcomes. These impacts might perpetuate intergenerational injustices (Perkins 2018). Magdalene captured her loss and sense of helplessness due to the devastating effects of the floods:

These floods have completely shattered our lives. I rented a plot of land for 400,000 Burundi Francs [around USD 140]. That investment would have returned more than five million [around USD 1760]. The floods came and swept away everything. My livestock project turned into a nightmare: The floods killed my goats, pigs, ducks, and chickens. It's a huge and irreparable loss for me. When a flood strikes, everything is gone and even affects you mentally and psychologically.

(Magdalene)

Children in Burundi are particularly susceptible to the adverse impacts of climate change, facing increased vulnerability due to factors like chronic malnutrition affecting half of those under five. Climate shocks significantly disrupt food availability and quality, particularly affecting a population where 94 per cent rely on rain-fed agriculture. The country's heavy dependence on rain exacerbates vulnerability during extended dry spells or erratic, intense rainfall patterns (UNICEF 2022). Hakizimana captured the effects of climate change on food security and their adaptation strategy thus:

When the dry season goes for too long, or there is too much rain leading to flooding, all our crops (beans, maize and sorghum) are affected. Then we understand that the next season will be one of hunger for us and our children. For me, I had to go to Rwanda and later Tanzania to work to be able to take care of my family.

(Hakizimana)

Malaria, already a significant health concern and a leading cause of death among Burundian children, is worsening as previously cooler areas experience rising

temperatures (UNICEF 2022). In 2021, Burundi accounted for 1.5 per cent of global malaria cases and deaths, placing it among the top twenty countries with the highest numbers of malaria cases and fatalities. Additionally, it represented 0.9 per cent of the total global malaria-related deaths (Severe Malaria Observatory 2021). The government's tardiness in declaring a national crisis, coupled with expanded breeding sites from flooding and the prevalence of multi-drug resistant malaria, has intensified the situation. The coexistence of the Covid-19 pandemic, economic challenges and overlapping symptoms between the two diseases adds complexity, though these challenges are not unprecedented. Furthermore, water-related illnesses like cholera are anticipated to become more prevalent due to contaminated water sources, inadequate hygiene facilities and damaged infrastructure following natural disasters (UNICEF 2022). The spike in the incidence of waterborne diseases, including malaria and cholera, is attributed to contaminated water sources, poor water for hygiene and damaged infrastructure due to floods. Climate change thus exacerbates health and psychological inequalities (Versey 2021). Our research found that damaged education facilities and the loss of important documents significantly increase the risk of school dropouts among children. During the 2019/20 academic year, over 110,000 children had their education disrupted due to the destruction of school infrastructure (UNICEF 2022).

Conclusion

Women, facing marginalization, are disproportionately vulnerable to environmental disasters due to economic disadvantages, caregiving roles, longer lifespans and limited social options. These gender-based injustices impact various aspects of their lives, including housing, health, safety and political participation. Intersecting factors such as ethnicity, race and disability further exacerbate these vulnerabilities. Economic hardship increases susceptibility to gender-based violence, including exploitation and trafficking, particularly in the context of climate-induced migration, while limited resources can trap women in abusive relationships or exploitative labour (Moosa and Tuana 2014). Climate change exacerbates poverty and food insecurity among women by reducing economic opportunities through environmental degradation and natural disasters. Women's caregiving responsibilities and restricted access to healthcare limit their ability to adapt to climate impacts, and their longer lifespans contribute to higher representation in disaster-affected populations, increasing vulnerability due to age-related factors.

Our research underscores the pivotal role of intersectionality in understanding and addressing climate change impacts, with a focus on gender dynamics, particularly in post-conflict Burundi. The chapter highlights how entrenched gender norms and intersecting factors exacerbate the effects of climate change on women and children. It explores the multifaceted vulnerabilities faced by Burundian women due to wartime displacement, resettlement and subsequent climate-induced displacement. Land conflicts, driven by population pressure and land clearing, intensify gender disparities and heighten women's exposure to climate risks. Cultural barriers, such as male inheritance traditions, further restrict women's land ownership and decision-making power (Pemunta, Ngo, and Cumber 2020; Pemunta, 2013). Women encounter complex challenges, including land conflicts and multiple displacements, which intertwine with climate change impacts and amplify their burdens (Tall et al. n.d.).

Despite these vulnerabilities, evidence shows women's resilience and agency in coping with these crises through various strategies like acquiring land, adapting land use practices, pursuing legal avenues and migrating. This chapter advocates for transformative climate adaptation research that integrates intersectional approaches and acknowledges women's contributions. We call for gender-responsive adaptation planning, enhanced data collection and comprehensive climate policies to promote social justice and resilience among vulnerable populations. Addressing gender inequalities, rectifying vulnerabilities, embracing place-based approaches and fostering cross-identity activism are essential for developing just climate adaptation and mitigation strategies (Versey 2021). The chapter contributes to understanding intersectional climate justice by examining land-use patterns and conflicts, emphasizing the interconnectedness of climate and historical displacement and highlighting how changes in gender roles from conflict and displacement continue to shape present-day Burundi.

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Badbaado Haween (Women saving lives): An intersectional analysis of flash flood impacts on women and girls in Qardho, Somalia

Sahra Ahmed Koshin

Introduction

In April 2020, Puntland State of Somalia experienced one of its worst flash flood disasters. Particularly affected was Qardho district, where after several hours of heavy rainfall, flash floods filled the small water catchments, causing extensive destruction of property and infrastructure, significant loss of life and mass displacement of people and livestock. The town is about a three-hour drive by car from the capital Garowe and has around 150,000 inhabitants. This and other subsequent 'natural' disasters have had drastic consequences for the community, where Puntland also faces multiple, compounding threats all at the same time. This chapter draws on firsthand field-based intersectional research with communities in Puntland, offering empirical data to better understand the diverse impacts of flash floods on women and girls. The study offers detailed insights into the gendered aspects of the tragedy by directly engaging with affected communities, highlighting the distinct experiences and coping mechanisms of women and girls in the aftermath of these devastating events.

Globally, climate change has become a threat to community livelihoods and Indigenous disaster management systems. Since 2011, Puntland has been experiencing frequent disasters such as droughts, cyclical patterns of floods, periodic locust invasions and poverty. Then in 2020, the Covid-19 pandemic hit simultaneously in Qardho and elsewhere in Puntland. Yet the climate crisis is worsening the severity of these shocks and wreaking havoc on vulnerable communities (World Bank 2021). The increased frequency of droughts, land degradation, floods and environmental deterioration has not only resulted

in food insecurity but has created a huge humanitarian crisis in Somalia (Weldemichael, Ahmed and Mohamed 2023; Maalim 2023). It remains unclear, however, what the impacts of climate change have been on different groups in society in Somalia, particularly for women and girls. Although flash flood disasters affect all members of a community, some groups in Puntland are more vulnerable and are more impacted than others. Compounding threats have worsened the situation among local vulnerable and marginalized communities, rendering them incapable to meet their daily needs and sustain their livelihoods, and driving economic deprivation, political manipulation and social segregation against minority groups being systematically excluded from mainstream government positions (Perkins 2018).

For decades, humanitarian and development-oriented programmes continued to be implemented for the benefit of women in Puntland. Yet among women there are differences based on factors such as age, ethnicity, ability, literacy, socio-economic status, location of residence, displacement, marital status and more. These differences intersect to cause inequalities and act as obstacles for some women and girls to access service delivery including aid. Different individuals experience disaster vulnerabilities in different ways. This chapter draws on empirical research and adopts an intersectional perspective to better understand these differences and their impacts through seeking to assess the effects of the 2020 Qardho flash floods disaster on women and girls, as well as examine their level of knowledge and adaptation in disaster management and preparedness. The 2020 Qardho flash floods, which occurred in the period of the Covid-19 pandemic, present an important case study for unearthing the social and climate injustices in Somalia, exaggerated by the partisan national leadership and ethnic influence.

Understanding intersectionality to address climate justice: The case of Somalia

Climate change tends to affect people differently and disproportionately, especially women, children and girls, but including other marginalized groups. Amid the ongoing global debate about the need to curb or mitigate climate change, the concept of intersectionality advances our understanding of the numerous forms of social inequities and injustices faced by people from different backgrounds across the world. An intersectional approach to climate justice seeks to mitigate and adapt to the outcomes of climate change equally while promoting the sustainable development goals set for the continent

(Kaijser et al. 2014; Kashwan 2018; Mikulewicz et al. 2023). It calls for a fight for climate justice for marginalized people who have survived and gone through the experiences of climate-related events (Dankelman 2010). Thus, to assess climate justice, it is crucial to explore the ways various regions perceive, respond and interact with climate-related problems. Intersectional climate justice involves studying the impact of climate change on local communities based on social needs and economic status (Jaspars, Adan and Majid 2022; Funk et al. 2019).

Without regard to how climate change affects different people and communities, most environmental justice and climate change campaigns have largely revolved around the need for climate action and climate change mitigation (Mugho 2023). In drafting and implementing climate and disaster response and mitigation measures, governments and agencies including other relevant stakeholders do not take such differences into account and tend to generalize operations in moments of disasters such as the 2020 Qardho flash floods. However, in African social structures, for example, women and girls are often left in households, while men are on the move seeking opportunities to fend for their families. As a result, when disasters strike such as floods, primarily at night, women and girls are among the first people to be affected, also given that most of them are involved in the running of the household, caring for the children and vulnerable family members, and managing small family businesses.

In Somalia, climate-related disasters lead to displacements and migration, exacerbating issues with families, land inheritances and internally displaced persons (IDP). Studies and reports have shown the disproportionate impacts of climate change, especially on women, girls and children and including minority clans as well as IDPs (Ochiltree and Toma 2021; SIDRA 2019; Mohamed 2020; Monshipouri and Ramaswamy 2024; Crawford et al. 2023). They illustrate how people affected by climate change events do not fairly and adequately benefit from the mitigation and response efforts from the government and other related stakeholders such as regional governments and international partners.

Women tend to suffer severe effects, including violence, poverty, inadequate access to resources like water and so on. The dwindling resources and disputes caused by climate migration have resulted in prevalent cases of gender-based violence (GBV) in Qardho and other regions of Puntland. Recognizing the consequences, the Ministry of Women Development and Family Affairs (MOWDAFA) responded by setting up small centres for reporting and handling GBV cases in 2022. In Somalia and across the region, climate events such as drought, floods and famine have worsened already existing social

inequalities. Given that agriculture is one of the major economic sources for local communities, prolonged droughts have led to poor or low crop yields and livestock deaths, especially in the Karkaar region of Puntland which includes Qardho district. The dire effects of climate change in drought-prone areas in the country are exacerbating the social and economic situation of local communities (Tsitati 2023). Women and children are the most affected groups as they are compelled to trek for longer distances in search of firewood and water, thereby exposing them to GBV, abuse and exploitation (Ochiltre et al. 2021).

According to a 2019 report by SIDRA Institute on the gender dimensions of climate change, climate change has posed a massive developmental challenge in Puntland and Somalia in general, and women and youth are the most affected. Although most of the climate change projects in Puntland recognize the importance of gender inclusion in aspects of climate action and mitigation, the projects only reach a small number of affected individuals, especially in rural areas. Women's understanding, involvement and experience in handling and dealing with natural resources in local communities put them in an ideal position to champion successful climate change adaptation and mitigation (SIDRA 2019; Muna Mohamed 2020). Despite a lack of skilled training and mentorship, as well as a structured approach to women's engagement in climate change events, women often volunteer to help each other, especially during emergency responses, and participate in rescuing household goods, children, and other victims of climate change events. However, owing to patriarchal social and cultural norms, feedback from local communities showed a reluctance to champion women's involvement and inclusion in climate change action, mitigation, and development. The lack of sensitivity, knowledge and skills by the community, national leaders and environmental stakeholders in understanding women's unique needs has seemingly worsened the situation in their endeavour to seek effective policies for climate.

The SIDRA study results underscore the importance of integrating women and girls into climate change policymaking, research, and project development, as well as other related initiatives that align with current global practices in intersectional climate justice. The integration of gender into climate change mitigation issues is considered ideal in the quest to realize social and climate change justice for all individuals and groups (UNHCR 2020). Somali organizations such as Diakonia and its partners recommend the need for the adoption of participatory mechanisms with an enhancement of women's contribution to climate change mitigation in all the climate change projects in

Puntland and Somalia. The lack of adequate knowledge and experience among interested groups, men and leaders regarding natural resources and climate change events has led to the failure of some disaster response, mitigation, and management programmes implemented across the region and the entire country (SIDRA 2019; Muna Mohamed 2020). A Swedish research study seeking to better understand how agencies, governments and supporting organizations deal with the impacts of climate change events in socially diverse regions, reaffirmed the lack of awareness of social differences in climate action, leading to a potential inability to achieve robust and sustainable environmental protection (Singleton, Nanna, Gunnhildur and Kronsell 2022).

From the government side, the Puntland State in Somalia Humanitarian and Disaster Management Agency (HADMA) is mandated to provide support to disaster and crisis humanitarian response. However, in a 2020 study by SIDRA Institute on community mapping for district disaster risk management in Somalia, disaster management capacity in Puntland was concluded to be weak, with significant gaps in disaster management plans, knowledge, skills and equipment. Furthermore, early warning systems and disaster information monitoring were either absent or not standardized, with minimal coordination among different institutions and actors. Community structures, community coordination and community awareness were some of the key factors influencing the level of participation in humanitarian response projects within the area in Puntland. The study recommends the involvement of youth and women in decision-making processes relating to disaster and humanitarian response to develop a sustainable and reliable emergency humanitarian framework (SIDRA 2019).

The United Nations Security Council Resolution 1325 acknowledges the importance of active participation and contribution of women in disaster preparedness and humanitarian assistance. Increasing the meaningful participation of women in humanitarian assistance, disaster risk and management in implementation or decision-making roles can help enhance capacity development, which eventually ensures the realization of equitable climate change impacts and disaster preparedness for all (UN Women 2023). The lack of women's involvement and persistent climate change events in Puntland, Somalia, has led to enhanced vulnerabilities and increased cases of violence among men with limited opportunities, support and healthcare services for women and girls (Hassan 2023). Also, there have been increased individual and community needs which surpasses the available humanitarian resources and capacity. The International Rescue Committee reported an underfunding of 39 per cent of

the 2023 humanitarian response plan for over seven million people in Somalia. This has been compounded by the involvement of development partners such as the World Bank in funding other social needs such as tackling poverty and insecurity in the country (IRC 2023). In support of the protection of women and girls, CARE international is calling for the scaling up of humanitarian response plans in Somalia and across the Eastern Africa region.

An intersectional methodology

My field research adopted an intersectional case study approach to determine the implications of the flash floods on women and girls. It is a tool for analysing the complex and overlapping systems of inequality that affect marginalized groups (Choo and Ferree 2010). This approach goes beyond examining single categories of identity, such as gender or race, in isolation. Instead, it focuses on how various identities and social positions intersect, creating unique experiences of disadvantage or privilege (Purdie-Vaughns and Eibach 2008). Data was collected in May 2020, October 2021 and finally in January 2024, and included twenty-five in-depth interviews and direct participant observations with women and girls who live in Qardho or its vicinity and witnessed the disaster, and three focus group discussions (FGD) with survivors of the floods. Focus group discussions were instrumental to understand the community's collective views on the clan support system among the Somali community given they belonged to different clan groups. There are a total of twelve IDP camps located in Qardho and its vicinity, which are said to host some 3,946 households or a total of 19,757 individuals (Somalia Shelter Cluster IDP Camp Coordination Management and Verification study, March 2024). During fieldwork, a total of five visits were made to disaster sites and several observations made at five of the existing twelve IDP camp locations (Muslimo, Nasteex, Horgooble Garashka and Shimbiraale). I traced individuals to their residential areas to gain a firsthand experience of the impacts on accessibility, social infrastructure and vulnerabilities of women and girls.

Twelve key informant interviews were also conducted with local authorities, humanitarian workers, community elders and other relevant interlocutors based in Puntland. These included the Puntland government and policymakers, non-governmental organization (NGO) workers, money remittance agency workers, religious leaders, mosque committee members and members of the civil society. Key informants offered insights in contextualizing the impact of disasters on women and girls and how they coped. Data collection also involved reviews

of various Puntland government websites and social media pages where news and information on the disaster were posted, in some cases under the hashtag #PrayForQardho. All interviews were transcribed verbatim, and a thematic analysis approach was employed to identify patterns and themes within the collected data. Data was analysed along three different themes: impacts of climate change, responses and women's participation in disaster preparedness and access to humanitarian assistance.

In my Qardho case study, the FGDs explicitly addressed intersectionality to explore how the 2020 flash floods affected women differently based on their intersecting identities. Examples were drawn on flipcharts to ignite discussions and identify the cause and effect. Drawing on the rich insights provided by participants, analyses were made on the interaction of these identities with broader systemic issues, like corruption in aid distribution or inadequate disaster preparedness, further disadvantaging these women. By applying an intersectional case study approach in the FGDs, I gained a deeper understanding of the complex and layered experiences of marginalized women in Qardho. The subsequent section of this chapter provides some key findings of this research concerning women and aims to shed light on how differences in women's experiences and how different forms of disadvantage overlap during times of crisis and interact due to intersecting inequalities.

Vulnerabilities and exacerbation of pre-existing inequalities: Impacts of the 2020 flash floods on women and girls

The Qardho floods disaster helps us understand what happens to women and girls when disasters occur amidst other co-prevailing crises. It provides insights into how framing impact and response can affect policy responses. The flash floods occurred in 2020 and were, according to the majority of key informant interviews and FGDs, one of the worst weather tragedies to occur in the area in decades. The flash floods led to death, damage to private and public properties, loss of livelihoods, loss of belongings and limited access to healthcare services. Women lost newly born babies and children. Nasra Ibrahim, one of my participants, lost all her three children, aged two months, two years and four years:

We were all asleep when the water entered our home. I reached out for my children. They were all sleeping. Suddenly, I saw my older child lifted by the water and swept away. I was also lifted off my feet and I lost balance. I dropped my two babies. I never saw them again. I should have gone with them.

The floods impacted various aspects of the community, including healthcare access, procurement of medical supplies and medicines, provision of shelter, maintenance of livelihood activities and availability of social opportunities, such as education and health services. There was total blackout in the entire district and extensive devastation. The floodwaters entered residences, transported debris and disrupted households and children while asleep. The mayor of Qardho claimed that 80 per cent of stores, shops and market stalls in the city were all significantly affected.

The floods had a pervasive influence on the entire community, particularly impacting the most vulnerable individuals who had previously suffered significant losses in prior complex crises such as droughts, locust invasions and high inflation rates and rising costs of living. The flash floods compounded vulnerabilities from previous crises and Covid-19 policies. Among the many Covid-19 measures the Puntland government closed all primary and secondary schools as well as Quranic madrasa schools – a measure implemented throughout Somalia. With children at home, various reports indicated female genital mutilation and cutting (FGM/C) was on the rise (Mubaiwa et al. 2022; UNFPA 2020). Additionally, prevalence of domestic and sexual violence also increased during this time. Very small girls were seen to be caring for elderly relatives and Covid-19 patients.

The flash floods destroyed small businesses, farms and other sources of income that women relied on to support their families. They therefore significantly affected women's economic activities and means of subsistence in Qardho. Several women witnessed the complete destruction of their businesses and farms as a consequence of the floods. Female participants in the food industry experienced supply chain difficulties due to the destruction of infrastructure and the inaccessibility of transportation routes caused by the floods, disrupting food production and trade and leading to increased food insecurity. Furthermore, individuals who depended on small-scale agriculture, meat and milk had damages as their harvests and yields were swept away. Even months after the floods, women experienced amplified economic difficulties, resulting in a decrease in their capacity to contribute to overall household earnings. Some women experienced higher unemployment as they bore the double burden of earning an income and fulfilling domestic duties. Their main goal was to ensure the survival of their families and of themselves. Consequently, those individual women who had survived the disaster were compelled to reside in displaced camps where they experienced an absence of adequate aid or assistance provision.

Lack of means for sustaining themselves and their families, especially women traders who operate in small businesses in Qardho, was a clear indication of their grim economic status. Besides, the elimination of these economic activities not only affected their sources of income but also worsened their susceptibility to poverty and hunger. This supports wider research findings that victims in disasters are affected more due to poor resources and less social support services than their counterparts (Sage and Majid 2002; Mohamed 2018). As one research participant, Najah, explains: ‘The flash floods in 2020 had a vast effect on my livelihood and the economic activities and means of existence for women in Qardho.’ Najah is referring to the large number of local women whom she worked with in the local market who witnessed the complete destruction of their small businesses, farms and homes as a consequence of the floods. Most owned small businesses located within or nearby their homes such as grocery shops, which meant they could look after both their businesses and their families at the same time. Another survivor, Maimuna, a camel milk and milk seller, highlighted the weighty losses experienced by local small business women in Qardho, emphasizing that: ‘the women not only lost their homes but also witnessed the destruction of their income sources, which were often their primary means of subsistence. Some even lost family members, while they themselves were personally affected.’ She further noted: ‘These women, therefore, endured significantly more – perhaps three- or four-times greater losses – compared to the rest of the community.’

Health, disabilities and displacement

The disaster inflicted several instances of harm and devastation upon the community infrastructure and healthcare services providers. The flood waters carried hazardous materials like corrugated iron sheets, garbage, waste deposits, which led to unsanitary conditions and worsened the spread of diseases. The affected water entered drinking water tanks and contaminated food items. Women with disabilities and those from deeply marginalized areas were severely affected since the floods caught up with them in a circumstance where seeking help was quite an uphill task. Most women resided in areas in Qardho with dilapidated infrastructures, which compounded their plight during the floods. For example, Asha, who is physically disabled, explained:

I live with my family in Muslimo camp, and I have a disability. This camp doesn't have good roads or ramps. I am lifted each time I go out. The needs of people with disabilities aren't considered during camp construction nor during aid

distribution. During the floods, my mother and aunts carried me to safety. I could not save myself.

Women from marginalized groups such as IDPs, ethnic minorities and individuals with disabilities were impacted in different ways. This can be attributed to their pre-existing vulnerabilities, including economic dependency, poor living conditions and limited mobility. Asha describes her experience: 'As a person living with disability, I could not easily escape the flash flood water ... I lost my home and my medication and everything inside my home. The water took them away.' Her inability to quickly escape the gushing rainwater, due to her disability, led her to lose her wheelchair, some of her belongings and home. This highlights how disasters exacerbate existing inequalities: 'The floodwaters surged into our IDP camp, making it extremely difficult for me to move and find safety. My mum and younger sisters took turns to carry me on their backs.' As a young woman living with disability, she faced multiple specific risks such as the lack of adequate and proper response and preparedness measures. She was deprived of her temporary shelter and possessions, leaving her without a secure refuge.

The act of displacement further marginalized Asha and other women with disabilities, impeding their ability to obtain assistance. Their location also exacerbated this. Asha lived in Muslumo IDP camp on the outskirts of Qardho, which is quite a distance away from access to any service provider in Qardho. The Puntland government has a policy in place that ensures that IDP camps are built at least several kilometres away from the main town. The long distance and lack of access can lead to increased risk of gender-based violence and limited access to crucial services for women. Eventually, Aisha had to break from family as they could not provide care for her amidst the flood and difficult mud torrents. Against her will, she was taken to upper ground to be with another family. She explains: 'they took me to temporarily live with another family as the situation got worse. Since I was not able to care for myself and my family was not with me, I could not do somethings by myself, and I felt shy to ask them.' The flash floods have led to displacements and migration, leading to issues affecting families who had children with special needs. Asha mentioned that the floods washed away her asthma inhaler medicine and food supplies, exacerbating her already precarious situation.

Many homes, particularly in the IDP camps and poorer areas of Qardho, were either destroyed or severely damaged by the floods. This led to widespread displacement, with families forced to seek refuge elsewhere, often in overcrowded and inadequate shelters. Months after the floods and during my study, it was

reported that some women who lost their husbands and had no sons had their land and properties taken away from them by in-laws. Women from minority clans and female-headed households had limited access to reproductive health and they lost their small businesses. Due to exclusion from accessing humanitarian aid, these groups became displaced and migrated to new risky locations and were unable to meet their basic needs. Fartun explains: ‘the women were unprepared for the disaster. It was devastating and traumatizing. In my IDP camp, there were rape cases. A young girl and an old woman were raped during the night of the floods.’ Even afterwards, women did not visit health centres because they dreaded leaving their children or elderly relatives on their own, alone or they feared the social stigma associated with, among others, Covid-19 (WHO 2020). To this effect, women’s health deteriorated, especially their reproductive and psychological and emotional health and well-being. Families lost their loved ones, the memories of the forced displacement stayed with the affected for many years, given the emotional consequences of the flooding in addition to the physical and economic consequences for survivors, worsening their mental state and their overall social health.

Humanitarian responses

Lack of social organization during the floods, as well as poor humanitarian assistance, made many women feel deserted. Transport difficulties such as blocked roads and internal constraints in agencies caused delays in the delivery of aid. This resulted in an inequitable allocation, with some women especially those in the rural areas or those with restricted access to health facilities receiving limited or no support at all. Moreover, since the allocation of aid was based on tribal relations and local elites, non-host communities and other clans were discriminated against. As Halimo described: ‘the aid given to people and what was supposed to be given are often not the same. They are different because someone is supposed to receive several items of aid but only actually receives 1 or 2 items. It happens all the time here and it benefits those in power.’ This lack of support has more profound consequences because it not only affects recovery but also erodes trust in any form of community and institutional support.

The distribution of aid among survivors was therefore not equitable. Minority female-headed households and disabled women were among the least assisted. Asha and Fartun highlight how food assistance was received with bias in favour of tribes and friendship ties as compared to their counterparts in need of the

supplies. Women survivors residing in geographically isolated or inaccessible regions like internally displaced women frequently received a lesser amount of assistance in comparison to other individuals. Halimo explained: 'I was given only one mattress, but I have seen women given blankets, mats, Covid-19 materials and much more.' Such an imbalance did not even consider meeting the needs of those who could be considered the most marginalized in society, while at the same time it preserved, supported and expanded the gaps in power balances within society. The tribal power structures surrounding the delivery of aid and its distribution is a major problem affecting all of Somalia. While Halimo spoke of how the distribution of aid was quite uneven, other women received some dry food supplies and hygiene kits, but the delivery was inconsistent.

In Qardho, power imbalances are thus evident in the distribution of humanitarian aid, where those with stronger social or tribal connections receive more assistance, while the most vulnerable, such as disabled women in IDP camps, are often neglected. While an intersectional approach highlights the vulnerabilities of marginalized groups, it also acknowledges their agency. It recognizes that even within oppressive systems, individuals and groups find ways to resist, adapt and advocate for their rights. In the context of Qardho, this could involve women forming support networks, advocating for more inclusive disaster response strategies or holding local authorities accountable for corruption and neglect. The next section examines some of the ways in which women are leading key climate and disaster responses in Qardho.

Women as key climate actors in humanitarian and disaster responses

Even though women are critical in their households and communities, they are frequently excluded from disaster risk discussions, planning and management strategies. This exclusion, as noted by interview informants as well as FGD participants, is disadvantageous to them as they were ill prepared for the floods when they occurred. This exclusion can be attributed to cultural and structural factors that hinder women from being included in public spheres. In Somalia, stereotypes and prejudices continue to place women in subservient positions, denying them the opportunities to make informed decisions, access important data or participate in decision-making processes. Lack of accessibility structures in the IDP camps, which were not developed for persons with disabilities, also excluded women with disabilities and denied them opportunities to participate in or receive the benefits

of disaster preparedness. As Halima explained: ‘unfortunately my participation in community disaster preparedness was very limited. The infrastructure in the camp was not designed with accessibility in mind which meant that I and others like me were often excluded from these discussions.’

Yet women assumed leadership positions in rescuing family members and neighbours, providing relief and keeping the family together. During the floods, women and girls played a key role in saving lives. Women like Halima, despite losing her own home and source of livelihood as well as temporarily missing family members, played a key role in recovery and making sure the family stayed intact. Although Halima was not trained in rescue or recovery, she took part in the recovery and even helped an elderly woman floating on the water. She was able to do this without any formal role assigned to her or any training in emergency response management during natural disasters. Another participant Suleeqo explained how she climbed the roof of her home with all her small children and stayed put until dawn. When morning came, mothers were found clinging on to their elderly mothers or bed-ridden relatives whom they were caring for to save them. Maryam managed to save two small children who were clinging on to each other. The boys were from another area of Qardho and were taken by the force of the water. Also, mothers put all their efforts together to save their families, while watching their belongings being swept away. Warsan, who ran a small teashop in the town centre, revealed that tea shops and restaurants lost a lot of money because they stored all the merchandise and money there. Poor construction and town planning played a role.

All participated in helping and alerting people to the incoming flash floods. Prior to the floods, women were active in society in Qardho in terms of voluntarily collecting waste and hazards from the roads and market area. They actively engaged in planting trees and addressing environmental problems. They participated in enhancing community access to land and natural resources. They supported processes for recognizing traditional knowledge systems, an example being discouraging the use of plastic bags and the promotion of traditionally woven baskets. Some of the women sold these baskets and other artefacts in the market area. Mothers engaged in strengthening community actions against harmful extractive cultural practices and infrastructure projects. Women also enhance the collective rights of people and protect the sacred relationships that Indigenous peoples and local communities have with nature. Fartun explains: ‘Prior to the floods I used to see women protecting the environment. However, during the floods the women were traumatized, and no one included them in discussion on aid delivery or in addressing environmental challenges ... If included,

women could strengthen community actions against harmful extractive and infrastructure projects such as markets, roads, light and water.’

Due to cultural and gender norms that prioritize men’s voices in public and communal affairs, women do not say much in the presence of men. This exclusion leads to women working and planning on their own. On the eve of the Qardho floods, being Ramadan, people were preparing for bed after fasting the whole day. The entire town was unprepared for the disaster. Women became reliant on inadequate external support when the floods occurred. Najah further noted that the absence of women’s involvement in planning left many women ill-equipped to handle the catastrophe because some of them lived with dependents who needed care, such as the elderly. Even when efforts were made to include women, structural barriers, such as a lack of accessible infrastructure and communication, prevented effective participation, particularly of those with disabilities.

My research demonstrates the ability of women to endure and even innovate, as active agents in their communities through the mitigation of the impacts of climate-related disasters. These examples underscore the need to foreground the agency of women in disaster risk reduction and climate intervention. Not only the immediate acute phase requires the involvement of women but also the phase of community regeneration. Women should be involved in decision-making processes so that subsequent climate action plans are more representative and efficient. On the one hand, transitioning from the framing of women as victims to framing them as change-makers in their respective societies can help. It suggests that even if women are not trained or are not employed or never assume official leadership roles, they rise to the occasion to lead, particularly in the aftermath of a disaster, and be agents of change, stepping up to help others, showing leadership and agency. A traditional elder reiterated this:

Women play a key role in Qardho, they are often affected by disasters and conflict, they always prioritize their children and family ... I and my colleagues advocate for the inclusion of women in community discussions and plans. This talk about disaster preparedness and climate action planning is new to us all. Women’s perspectives and their participation is crucial for success.

Discussion

The 2020 Qardho flash floods highlighted how social categories like gender, disability, socio-economic status and ethnicity intersect to create compounded disadvantages, leading to unique experiences of discrimination and challenges

for women in the affected areas. The 2020 torrential rains exacerbated existing vulnerabilities, particularly for the marginalized groups – especially women, minorities and the disabled – who faced limited access to resources and aid before and after the disaster. Multiple crises, including climate change and economic shocks, intensify these vulnerabilities, especially for women with fewer resources for humanitarian aid or legal support. An intersectional analysis reveals that current social policies, shaped by patriarchal norms, often clash with the needs of vulnerable women. An intersectional approach is crucial for understanding these layered and compounded disadvantages; these overlapping identities did not simply add to the burden, they interacted in ways that intensified the impact of the disaster on these women. For instance, a woman who was both disabled and from a minority background would face not only the physical challenges of escaping flood waters but also the social and economic exclusion from aid distribution. This compounded disadvantage cannot be fully understood by looking at any one of her identities in isolation; it is the intersection of these identities that creates a unique and more profound vulnerability. It applies to humanitarian actors too, who are inevitably a part of patriarchal dynamics. For this reason, refusing to challenge existing gender relations has the effect of maintaining prevailing (patriarchal) power structures.

Women were seen and treated as victims, so policies were developed to protect them and not include them. Men, on the other hand, are seen as perpetrators and so protectionist policies are developed for men. Gender-responsive humanitarian action can lead to a significant change by recognizing the potential of women and girls as powerful individuals of change. Supporting women's rights groups during humanitarian responses gives women a stronger voice and enables them to lobby for their own. Integrating gender equality into policy design and implementation is therefore essential for transforming power dynamics and fostering equitable responses to climate challenges. Power-holders need to recognize the important roles that women played in Qardho. Women contributed to the mobilization and distribution of humanitarian aid delivery. Women saved lives and alleviated the suffering of those they cared for such as children, the elderly and those living with disabilities. Addressing intersecting inequalities thus requires a more nuanced approach to disaster risk reduction and humanitarian aid. It is not enough to consider gender, disability or socio-economic status separately. Effective interventions must recognize how these factors intersect to create structural barriers in the way of women's full participation in society. Programmes must create tailored strategies that address the specific needs of those at the intersections of these social categories. This

approach will ensure that the most vulnerable of people are not left behind and that the response to disasters like the Qardho floods is both equitable and inclusive.

Recommendations

The quest to realization of intersectional climate justice in Puntland requires the following:

- Give direct attention to marginalized and vulnerable community groups such as women and girls when dealing with climate change issues right from policy development to implementation.
- Enhance living conditions of IDP camps to improve living conditions and provide protection to IDPs in the sites and settlements by protecting household assets and supporting the household economy.
- Ensure equitable access to services and amenities among the people living in the IDP sites and settlements. This should be achieved by implementing interventions that are sustainable and by ensuring proper engagement with the ID
- Increase training, equipment and involvement of women in policy- and decision-making with respect to disaster preparedness and management.
- Recognize the scale of the severe impacts of climate change events in Somalia which calls for an equivalent response and planning in humanitarian action and assistance.
- Recognize the important roles women play as caregivers, nurturers in the care economy.

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Sound and situated knowledge in Entebbe's urban wetland borderlands

Michael Roberts and Daniel Lumonya

Introduction

In this chapter we explore issues of intersectionality, climate justice and multispecies justice through sound to consider new and creative ways of thinking about rapid urbanization and climate change in Uganda. This study centred on a series of soundwalks undertaken amidst the diverse human and non-human landscape and soundscape of the Ugandan city of Entebbe, where urban, peri-urban and rural lifestyles and livelihoods jostle for space between and against the natural wetlands, coastlines and waterways of Lake Victoria. Soundwalks are a qualitative method 'developed in acoustic ecology and experimental music, in which people walk through an environment paying close attention to whatever sounds are occurring along the way' (Gallagher, Prior, Needham and Holmes 2017: 1247). In several distinct neighbourhoods of Entebbe, as well as the city's botanical gardens, we listened for the sounds of birds, insects, domesticated animals, schools, bars, churches, mosques, outdoor markets, road and air transportation, human labour, construction tools and more to think about how sound makes place and place makes sound. Additionally, this study explores how practices of listening and qualitative sound research methods can offer new ways of understanding the effects of urbanization, climate change, human mobility and the 'competing realities' of formal and informal development practices in Uganda (Namwanje, Munoz Sanz and Rocco 2023: 212–3). In doing so, we contribute to a body of literature documenting the complex transformation of wetland spaces (which are biodiversity hotspots) across Uganda, as these areas get transformed for use as agricultural gardens, commercial developments and homes (Gideon and Bernard 2018; Kadoma,

Perry and Renaud 2023; Kakuba and Kanyamurwa 2021; Magumba, Maruyama, Kato, Takagaki and Kikuchi 2014).

While the study was limited to one small but rapidly growing city in Uganda, in this chapter we argue that thinking with and through sound can deepen understandings of intersectionality, climate change and multispecies climate justice. Recent climate justice and public health studies have focused on the ways in which marginalized communities bear the brunt of toxic waste (Malin and Ryder 2018), how histories of systemic racism in urban development impact wildlife and ecological systems in cities (Schell et al. 2020), and how exposure to high levels of sound in urban settings can have negative health implications (Adza, Hursthouse, Miller and Boakye 2023). Our sound-centred approach to understanding Entebbe's past, present and future allowed us to hover at the intersections of community development, public health, human-environment interfaces and climate justice. In this way, the study is positioned alongside a growing body of literature on intersectionality and climate change (Sultana 2022; Mikulewicz, Caretta, Sultana and Crawford 2023) which highlights the ways in which 'responsibility, vulnerability, and decision-making power of individuals and groups in relation to climate change can be attributed to social structures based on characteristics such as gender, socio-economic status, ethnicity, nationality, health, sexual orientation, age, and place' (Kaijser and Kronsell 2013: 420). In using soundwalks as a method for understanding urban development, our intention is to expand the lenses and tools through which we might collectively understand how climate (in)justice is intricately entwined with human and nonhuman vulnerability. Tschakert (2022: 284) writes that visual encounters with more-than-human others and environments are insufficient to the cultivation of solidarities in the quest for climate justice, arguing instead for more corporeal approaches such as 'listening to and feeling with the Other'. By de-centring language and the visual as primary mediums of data collection, our approach provides an example of how climate justice is always already a multispecies affair.

Studies of sound in urban locales have often focused on noise reduction and mitigation, primarily with the intent of reducing residential and public exposure to transportation and road traffic noise (e.g. see Alani, Ogunmoyela, Okolie and Daramola 2020; Alves, Estevez-Mauriz, Aletta, Echevarria-Sanchez and Puyana Romero 2015). Noise-centred approaches to urban planning have yielded important results in a variety of settings around the world, but often take a deficit-based approach towards noise, sound and the environment. Environmental justice approaches to sound (and music) are, however, central

to the growing field of ecomusicology, with a focus on understanding how sound, power, and environmental issues intersect in nature and culture (e.g. see Ogunmekan, Akpevweoghene Efurhievwe and Philo Okpeki 2024; Allen and Dawe 2016). To amplify the agency of animal and plant life as agents in the development of multispecies urban soundscapes, this study considers the ways in which human development projects influence and are influenced by entanglements with flora and fauna in cities. In doing so, we listen for the sounds of multispecies entanglements while trying not to ignore the pressing social justice issues (Fitz-Henry 2022: 348) that many Ugandans in Entebbe are faced with, like housing, food insecurity, poverty and basic employment.

In the next section, we introduce the field of sound studies and mobilize Haraway's (1988) 'situated knowledges' to frame this study's approach to listening, sensing, placemaking and what Haraway (2003) calls 'natureculture' interactions. Following this, we provide a brief history of development in Entebbe and the ways in which colonial and vernacular approaches to urban development have influenced the current landscape and soundscape. In the final two sections, we describe our soundwalk methods, findings from the study and future possibilities for utilizing sound-based approaches to think about intersectionality, development and climate justice.

Sound and situated knowledge

In the last sixty years, starting with the work of Canadian composer R. Murray Schafer and the World Soundscape Project (Schafer 1977/1994), the field of sound studies has emerged as an interdisciplinary meeting place for composers, social scientists, biologists, urban planners and cultural geographers to theorize about the role of sound in our world, and to experiment with emerging sonic methodologies. In part, the field of sound studies has grown due to a desire to subvert the historical dominance of visual methodological approaches in the sciences and social sciences. Donna Haraway (1988: 581) has argued that 'the eyes have been used to signify a perverse capacity – honed to perfection in the history of science tied to militarism, capitalism, colonialism, and male supremacy – to distance the knowing subject from everybody and everything in the interests of unfettered power'. For Haraway, the visual gaze characterizes the isolated objective scientific observer, disconnected from the phenomena of the world, who produces pure universal knowledge. Instead, Haraway argues for a 'feminist objectivity' or what she calls 'situated knowledges', which is

an embodied way of looking at the world, always politically positioned, yet equally aware of the matter that constitutes our world as well as our socially constructed understandings of it (Haraway 1988: 588). Creating situated knowledge requires a careful and interdisciplinary approach to the sciences and social sciences that skilfully blends understandings of the material and the semiotic.

Jonathan Sterne (2003: 15) has argued that there is an equally complicated history of listening, which often plays off dichotomies of hearing and seeing, constituting what he calls an 'audiovisual litany' of the ways we contrast these two interconnected human senses. The audiovisual litany, he writes, 'idealizes hearing (and by extension speech) as manifesting a kind of pure interiority. It alternately denigrates and elevates vision: as a fallen sense, vision takes us out of the world' (Sterne 2003: 15). In recent years, technological advances have given audiophiles an extraordinary array of audio recording, engineering and editing tools capable of the kind of distanced objectivity that Haraway warned us about. On the surface, sonic approaches in the social sciences and sciences would seem to be a relatively new and exciting trend, but listening practices are intrinsically diverse, despite not being fully interrogated, recognized or acknowledged in traditional knowledge-creation settings.

In thinking with and about sound for purposes of understanding climate justice, we therefore focused on the cultivation of what Haraway might consider an embodied objective listening. The growth of noise-reduction approaches to urban planning and development often serve to reduce human experience of sound to a set of abstract data points and amplify an imagined nature/culture binary. And yet human experience of place through sound is a dynamic process that sometimes exceeds quantifiable knowledge. Gallagher (2016: 43) writes that thinking of 'sound as affect strips back the discursive and socio-cultural layers of sound to begin analysis at a more basic level, with the vibrational movement of bodies'. As humans we experience sound, both through the vibrations of ear drums and skin, and these experiences set a baseline of understanding about what it means to be human (or a bird, or even a plant). Our experiences of sound, past and present, then contribute to the 'assemblage of affects or ways of being that constitute a habitus' (Viveiros de Castro 1998: 478). In an era of climate change, our ways of being are subtly disrupted, and these changes can be felt, if not always fully articulated in discursive ways. Sound as embodied experience and situated knowledges can therefore contribute to an understanding of how intersectional identities are lived and expressed in an area of environmental degradation as they are 'fed by multiple viewpoints emerging from the many crossing axes of oppression'

(Harcourt, Icaza and Vargas 2016: 151). Our soundwalk study worked to be attentive to these particularities of embodied identity and the nuanced feelings that places and sensations evoke. At the same time, this nuanced, non-representational sensing is contingent on the very real design of our cities and societies, as well as the agency of the flora and fauna that co-create these ecosystems.

Gershon (2019: 33) writes that 'the sonic is also a part of all ecologies, regardless of their definition or contours, and doesn't require human presence to be meaningful'. In our study we listened to the ways in which human development and urban design (or the absence or subversion of design intentions) curates and affects the sonic environment in Entebbe, with an ear to noticing how flora and fauna exhibit their own agency in the creation of unique peri-urban 'naturecultures' (Haraway 2003). As Escobar (2001: 143) put it, through sound we seek to emphasize that 'place, body, and environment integrate with each other; that places gather things, thoughts, and memories in particular configurations; and that place, more an event than [*sic*] a thing, is characterized by openness rather than by a unitary self-identity'. While we argue that there is much less that distinguishes or separates the visual from the aural than some would suggest, there is still something unique about listening and sound recording. The act of listening, in real time during the soundwalks and to the field recordings generated during those walks, prohibits the idea of place as something static or fixed in time. Sound is a moving, vibrating, resonating phenomenon, and these qualities are elemental to understandings of climate change and its political causes, effects and interventions. The embodied objective listening that we mobilize in this study is therefore, in Haraway's (1988: 588) words, 'not about fixed location in a reified body, female or otherwise, but about nodes in fields, inflections in orientations, and responsibility for difference in material-semiotic fields of meaning'. To set up these nodes and inflections, in the next section we provide some background and context of the colonial, political and development history of Entebbe to begin to describe the scene for a soundwalk journey through its neighbourhoods.

Entebbe's history and context

Located about thirty-four kilometres (approximately twenty-one miles) south of Uganda's capital and largest city, Kampala, Entebbe sits on a peninsula on the northern shores of Lake Victoria, Africa's largest lake. Entebbe

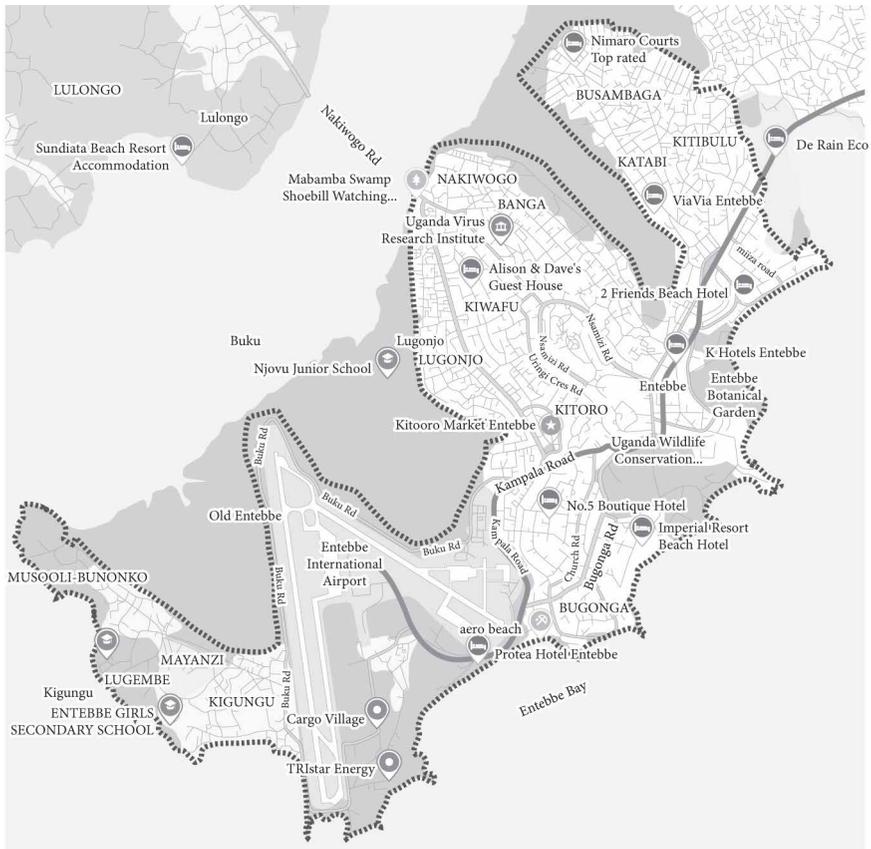
is a relatively laidback town with a much smaller central business district and generally less traffic and congestion compared to Kampala and other Ugandan cities. A major part of Entebbe's ecosystem consists of an expansive green belt comprising the famous Botanical Gardens and the Wildlife Education Centre.

The modern configuration of Entebbe is a double consequence of two forces: one colonial and the other Indigenous. The colonial impetus was driven largely by geography. As in the case of settler communities in the Kenya highlands, Uganda's colonial officers were attracted to the comfort offered by Entebbe's mild climate and extensive Lake Victoria shoreline. Consequently, the headquarters of Imperial British East African Company were moved from Kampala to Entebbe and the area became the official outpost of the colonial government in 1893 (Barugahare 1976). The growth of commerce, emerging from the establishment of Entebbe as a colonial administrative enclave and later as the major administrative centre for the post-colonial government, led to the rapid growth of Entebbe's multi-ethnic population. Today Entebbe is highly cosmopolitan with ethnicities and nationalities from all parts of the country.

Colonial forces largely shaped the residential patterns in Entebbe. As Fuller (1976) notes, negative stereotypes and prejudices shaped colonial policies and practices, seen in the ways in which the colonial government planned separate residential areas for the different racial groups, each with their own schools and other social amenities. Similarly, in Entebbe European colonial administrators created separate areas for different racial groups. Indians who were initially brought to build the East African Railway and later dominated the commercial sectors resided in the central business district. For example, Namate Primary school, located along one of the commercial streets, was designated for Indians. African workers who worked as servants or lower-level clerks in the colonial government lived in Manyago. Nakasamba, Bugonga and Kakeeka were designated as areas exclusive to British colonial officers and were then inherited by Ugandan top civil servants at independence. St Mark Church in Nakasamba, which keeps the same name today, was exclusively a European space, and to this day placards with names of the European clergy are displayed in the church. Kakeeka hosts a golf course that served European colonial officials and their guests but is patronized by Ugandan elites today. While the racial composition of these areas has drastically changed over the last sixty years with the de-Europeanization that followed independence, the expulsion of Indians by Idi Amin in 1972 and the rapid emergence of a

Ugandan middle class, these colonial configurations continue today, and the physical makeup of each area remains largely distinct. Other areas, such as Katabi, Busambaga and Nakiwogo, are now dominated by a new and emerging middle and upper class.

On the other hand, the Indigenous impetus derives from Entebbe's location. Entebbe is a part of the Buganda Kingdom, and the area was a cultural site for the Mamba clan, one of Buganda's fifty-two clans. Entebbe means chair in the local dialect and derives its name from Chief Mugula Bukulu, who sat from a seat carved from rock to preside over various judicial cases and village meetings in Entebbe (Monitor 2012, Entebbe Municipal Council undated). The location of Entebbe in Buganda has led to the area having a larger presence of Baganda people relative to other ethnic groups.



Map 4.1 The city of Entebbe, Uganda, which is seated on a peninsula in Lake Victoria. Source: Google Maps, February 2025.

To this day Nakasamba, Kakeeka and Bugonga are characterized by domestic residences with large compounds, often up to two acres, planted with a wide variety of trees, some up to 100 years old. Consequently, these neighbourhoods have an ecosystem that supports vibrant bird, insect and amphibian life relative to other areas of Entebbe, and they remain almost exclusively upper-class neighbourhoods.

Alternatively, the Manyago area was dedicated to lower cadre African colonial government employees. The lots here are small and therefore not as leafy as Bugonga and Kakeeka. In some cases, two or more lots have been consolidated into one, and large houses built. Generally, however, Manyago maintains the vestiges of the colonial setup, with small lots and houses that have not seen a new coat of paint in years. Within Entebbe's history of development, the areas of Kiwafu and Virus (which draws its nickname from the nearby Uganda Virus Research Institute) are relatively new, with properties there built largely in the 1970s. New residential areas have emerged on the northernly parts of Entebbe, in the larger Katabi area, especially in Victoria Canan Estates. Tree cover is sparse, lots are small, and trees have been removed to pave the way for new residential construction. Today Entebbe boasts a population estimated around 70,000 people.

Entebbe's natural geography is also quite peculiar. Lake Victoria surrounds Entebbe on all sides, with a narrow neck in the north providing the only entry point by land from Kampala. The mild climate, beaches and lake shores provided an excellent environment for the colonial officers to establish outposts and residences, and it continues to draw a large presence of foreign tourists driven by two main factors. The first is the presence of Entebbe International Airport, by far the largest airport in the country, as many tourists will stay for a night or two as they arrive or leave. Second, Entebbe hosts several tourist hotspots: Mabamba for birdwatching, the Entebbe Wildlife and Education Centre, and the Botanical Gardens, which contain an impressive collection of trees that support a large population of migratory and non-migratory birds, as well as groups of colobus and vervet monkeys (Wheatley 1996). Consequently, the tourism industry has driven the construction of many hotels mainly in Nakasamba, Kakeeka, Busambaga, Bugonga and Kiwafu, all up-and-coming areas that are recently being more fully developed.

In short, Entebbe's settlement patterns, shaped by property values, continue to follow clear class lines. Nakasamba, Bugonga and Kakeeka are the most affluent areas, followed by Kiwafu. Manyago was historically a residential area for lower cadre African workers but has now developed into a relatively affluent middle-class neighbourhood. Busambaga-Katabi is also changing fast, with new

construction emerging in many parts, especially in the southern strip of the area, neighbouring Lunyo marshland. In the next section we show how sound is woven into the history, present and future of these diverse neighbourhoods.

Soundwalking in Entebbe

This study is based on a series of soundwalks that the lead author, Michael, a doctoral candidate from the United States, undertook in Entebbe in November and December of 2023 while a visiting scholar at Makerere University's Department of Development Studies. The choice of Entebbe as a site emerged organically through discussions about sound and development between both authors, as we were both living in the Katabi neighbourhood of Entebbe during the time of the study as part of our work with the School for International Training, an international education nonprofit. Using the Voice Memo app on an iPhone, Michael recorded sounds at both the centre and peripheries of Entebbe's neighbourhoods to explore ongoing development trends and challenges, with an ear for how human and nonhuman sounds are interconnected. Each soundwalk lasted around two hours, and focused on residential neighbourhoods and the city centre, including the neighbourhoods of Katabi, Busambaga, Kakeeka, Bugonga, Victoria Canan Estates, Virus, as well as the Entebbe Botanical Garden and areas along the main Kampala-Entebbe highway. To enable comparisons across neighbourhoods, most soundwalks took place during the morning hours. The path of each soundwalk was largely improvised and followed the curiosities instigated by sensual attunements, while also ensuring passage through a variety of different micro soundscapes (residential, commercial, industrial, agricultural and wetland) within each neighbourhood. Michael did not record continuously throughout each walk, but rather made a series of two-minute-long recordings when he arrived in a seemingly new or unique soundscape (such as at a hub of commercial activity, or a row of undeveloped lots with insect and bird sounds).

Based on these soundwalks, we describe here two main findings. First, we explore the idea of sound as a situated, embodied knowledge and tool for exploring multispecies justice through descriptions of how urbanization, food processing and food distribution have shifted bird populations in the centre of Entebbe. Next, we listen at the borders of human settlement and wetlands, linking soundscapes to current trends in intersectional human mobility and employment, as well as implications for wetland settlement and development in Entebbe.

Urban birds

Kampala Road runs just west of the highway in central Entebbe and is the site of Entebbe Central Market, which hosts small shops and an indoor market during the week, as well as a sprawling outdoor market on Saturdays. At the Saturday market, the food sellers exhibit a sort of confident calmness about their products: everyone needs to eat, and buyers seem to know what they want and where they plan to purchase their goods. The clothing and other merchants take a more proactive approach calling out to anyone passing by or drawing attention to their booths with pre-recorded homemade advertisements played through scratchy megaphones and Bluetooth speakers, as well as short repetitive chants or songs about what they are selling. Just south of the market area, the road is split by a grassy median with large trees at equal intervals. This section of the road is home to some of Entebbe's most popular hangouts, like the Stone View Pub and Paddy O'Ganda's Irish Bar, which reawaken with life and music each night. Deep into the morning hours, especially on weekends, music, patrons and boda boda drivers looking for clients spill out onto the sidewalks of Kampala Road. For a lush and sleepy lake city, this is the peak of entertainment.

If you walk along Kampala Road during a weekday, however, the birdlife that congregates in the trees along the median draws the ear through sound and silence. In these trees, dozens of large laconic marabou storks have made their homes, living off leftover market food scraps. Marabou storks are scavengers, and they have thrived as Uganda has urbanized, removing pathogens from urban areas (Ssemanda and Pomeroy 2010: 27) and serving as both 'waste infrastructure and waste themselves' (Doherty 2019: S321). Marabous are primarily a silent bird except for the occasional grunts, squawks and the whoosh of their massive wings as they fly off from their perch. While the marabou storks' silence serves as a sort of ominous harbinger for the replacement of other bird species, it is not the only urban bird here. Small yellow village weavers have built hundreds of neat, round nests in a few trees, which hang from branches in precarious-looking ways. While the storks sit in stony silence, the weavers dart this way and that, chattering noisily and industriously, and their conversations can be heard even above the traffic noise. While it is these two bird species that one encounters most consistently in Entebbe's commercial areas, a few kilometres away there is another bird that has found a new hangout. On the shores of Lake Victoria, fish processors and sellers work to clean and prepare the tilapia and Nile perch that fishermen pull from the lake each day. At one fish stand right on the beach, hundreds of pied kingfishers line the electrical

wires along the road, chittering away as they wait for the humans to abandon their work so they can dive in for a snack. Why go fishing if someone else will do the work for you?

These opportunistic storks, weavers and kingfishers have learnt to adapt to the human settlement here and their presence indicates a shift in urban wildlife in Entebbe. Tsing argues that progress narratives have encouraged the scientific study of landscapes and nature as if they are a 'romantic space of anti-modernity' (Tsing 2015: 5), but our soundwalk shows that a new urban bird soundscape is emerging, signifying a dynamic multispecies process, driven by market forces, that is unfolding between the electrical wires and trees. The rise in population of these urban birds is an example of 'disturbance-based ecologies in which many species sometimes live together without either harmony or conquest' (Tsing 2015: 5; italics in the original text). Symbolic of this urbanization, this twenty-first-century soundscape is embedded in what it means to be an urban citizen in Uganda, whether you are a settled transient like the marabou stork (Doherty 2019) or in search of a home and an easy food source like the kingfisher. This new urban birdscape is an example of a new situated sound knowledge, capable of helping us to 'attach the objective to our theoretical and political scanners in order to name where we are and are not, in dimensions of mental and physical space we hardly know how to name' (Haraway 1988: 582). Additionally, sound is an embodied system of knowledge, one that crosses species more readily than other forms of human communication. In this way, sound is a constructive tool for developing empathetic understanding and responsibility across species as well as a foundation for multispecies justice (Tschakert 2022: 285). Urban human life in Uganda is now set among the songs of these bird species who have managed to thrive amidst massive human developments of the landscape in Entebbe. What else might we learn if we track the development of these urban birds deeper into the future?

Shifting wetland borders

In the Katabi and Bunono neighbourhoods of Entebbe, the borders between human habitation and the wetlands are in a state of flux. Kisalu Road in Katabi is known as a site for urban birdwatching, given its proximity to central Entebbe and its open access to the wetlands. There is a good view of the sunset here, and the wetlands are also framed nicely by Lake Victoria to the west, and the Virus neighbourhood across the wetland expanse to the south. But each day, quietly,

there are indications that this wetland is slowly being transformed. Ambitious, landless farmers have dug small gardens at the edges of the wetlands, trying to eke out a living through agriculture. In addition to their agricultural activities and the fantastic birdsong coming from the wetlands, you can often hear small radios playing the latest news and music coming from unseen sources. The radios are owned by herders passing time as they keep watch over the goats and cows that bleat, low and swish through the tall grass, feasting on the free lunch.

At the furthest tip of Katabi, the Victoria Canan Estates is an up-and-coming neighbourhood that sits on a hillside with expansive views of the wetlands. At the time of this study in late 2023, nearly half of the plots in Victoria Canan Estates were under development, and these high-end apartments sat in between dense gardens of sweet potato, beans and corn. Yet despite the construction projects, the area is quiet and calm even on weekdays. On many days, the only sounds are the odd boda boda dragging rebar or other construction materials and birds from the wetlands flow in and out of the neighbourhood freely, including Uganda's national bird, the grey-crowned crane. While repeated soundwalks in the area indicate that a few of these construction projects have stalled out, most are proceeding slowly and steadily by the diligent work of young, male, low-paid labourers who work by hand. In Victoria Canan Estates, a few half-built homes sit half-flooded and abandoned at the border of the wetlands. Walking up from this wetland border and into the Victoria Canan Estates one early morning yielded a most dramatic soundscape change, from a water-drenched and amphibious wetland to a birdsong-filled neighbourhood, a borderland that can be crossed over in a matter of only a minute. It is easy to see (and hear) why families with means would want to move to this beautiful neighbourhood, another step in a steady, quiet but persistent transition that is taking place in the wetlands.

Human mobility and urbanization in an era of rapid climate change and adaptation is the result of a wide range of 'intersecting social factors' – including age, gender and economic opportunity. In-country migration, in Uganda and elsewhere, has become increasingly important due to the limited opportunities for international mobility (Cundill et al. 2021: 5). In Uganda, both large and small cities, like Entebbe, are growing due to rural-urban migration (Tulibaleka 2021: 75). Our sonic observations of construction sites filled with young, male labourers from a variety of ethnic backgrounds is consistent with other research on in-country migration in Uganda that shows youth leaving in search of jobs, and a more comfortable urban life (Rietveld 2020: 156–7), and these moves are often due to a lack of agricultural opportunities in the home village (Kristensen

and Birch-Thomsen 2013). This lack of farmland is another reason why unmonitored wetlands are a prime, if perhaps temporary, location for a garden, especially in urban areas where gardening might be combined with other forms of informal labour to make a living. This wetland development comes at a cost, however, reducing aquatic biodiversity while increasing the chances of floods and waterborne diseases (Gideon and Bernard 2018: 568). More research is needed to conclusively determine the cause of migration in Entebbe, but we hear echoes of Tsing's (2015: 5) work on the ways in which economies and the environment are connected in 'the history of the human concentration of wealth through making both humans and nonhumans into resources for investment'. While Tsing (2015: 5–6) argues that this has led to alienation of people, of extractive resources, of nonhuman actors from their environments, it also creates new multispecies entanglements that need to be understood if we want to work towards a dynamic framework for multispecies justice.

Conclusion

In this study we have applied the novel and emerging arts-based methodological approach of soundwalks in Entebbe in hopes of considering new ways of thinking about how fauna, flora and human designs intersect in an age of rapid climate change. Haraway (1988: 533–4) cautions that there is 'a serious danger of romanticizing or appropriating the vision of the less powerful while claiming to see from their positions'. This study was limited to our own listening practices and therefore does not represent embodied sensory experiences of sound for the most vulnerable to environmental injustice in Entebbe. However, given the ubiquity of mobile phones across Eastern Africa, we see great possibilities for future continued sound work here, primarily participatory action sound research projects focused on climate justice in both scientific and social scientific disciplines. Specifically, we feel that mixed method research approaches that include qualitative sound methods combined with other qualitative and quantitative methods could yield particularly nuanced findings.

Our exploration here has been primarily descriptive to draw attention to the dynamic shifting nature of sound and listening in one small city. Our hope is that interdisciplinary researchers and artists may be inspired to listen more deeply to their surroundings, and to pay greater attention to how shifts in sound (and other sensory inputs) may give us greater embodied insights into the ways we

understand and make place through entangled interspecies happenings. Given the complexity of the challenges we face, we argue that creative approaches like the one undertaken here can contribute to multi-faceted understandings of intersectionality, climate justice and multispecies justice, as well as inspire new and creative solutions to emerging problems.

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Breaking barriers: Unravelling the climate justice struggles of Maasai women and girls in Tanzania

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Introduction

The Maasai people, an Indigenous community residing throughout Tanzania and Kenya, have long been recognized for their deep bond with nature and harmonious way of life. However, in recent times, they have faced numerous challenges due to climate change, affecting both their traditional livelihoods and the status of Maasai women and girls within their society. Based on findings from a multi-year project in 2021–2, we identify several challenges affecting women and girls to achieve climate justice: societal-related barriers (i.e. cultural norms, division of labour, etc.); government policies and regulations towards pastoralism (i.e. restricted access to natural resources); poverty/economy-related challenges (i.e. inability to afford access to clean energy sources, low purchase power, etc.); and low or limited access to climate information (i.e. inability to access weather information due to an inability to use or afford technologies, literacy, etc.).

In this chapter, we adopt intersectionality as a core conceptual lens to understand how various forms of social inequalities and vulnerability interconnect and overlap with each other (Amorim-Maia et al. 2021). In the context of justice in climate change, intersectionality is increasingly being applied as a tool to examine the overlapping and interdependent systems of disadvantage and oppression that restrict people's adaptive capacity and create new or exacerbate existing social-ecological vulnerabilities (Djoudi et al. 2016; Kaijser and Kronsell 2014; Mikulewicz et al. 2023).

Here we centre lived experiences to shed light on the unique obstacles causing climate injustice to Maasai young women in Tanzania and explore potential solutions to empower them to overcome the challenges. We do so firstly by drawing on conversations between a young Maasai woman named Nashipai and her family and friends in Elerai village in northern Tanzania. We then reflect on what her lived experience teaches us about intersectional climate justice. Secondly, we draw on the story of Namelok Njoe, a local community entrepreneur, as a best example of a local woman using her entrepreneurship skills to address social and economic issues. Throughout, we also use images (Figures 5.1 to 5.4) to demonstrate women's activities related to climate change.

These conversations and stories are products of a larger research project conducted by the authors in 2021/2 known as 'Indigenous Knowledge Bridging Land and Water Governance in Canada and Tanzania.' The project was implemented in collaboration between several partners, including the Kesho Trust (Canada), Carcross/Tagish First Nation (Canada) and two Tanzanian local NGOs: the Enguserosambu Forest Trust (EFT) and the Ereto Maasai Youth (EMAYO). The project was technically and financially supported by the University of Victoria, Canada, with funding from the Social Sciences and Humanities Research Council (SSHRC) of Canada. We used a community-based participatory action research (CBPAR) process that emphasized knowledge co-creation, reciprocity and horizontal decision-making in the project design, research activities and knowledge sharing.

We used storytelling, participatory video and photo voice techniques, and the use of a scenario planning tool for long-term conservation planning for climate resilience and minimising vulnerabilities. Two study sites were the focus of the project, including Enguserosambu ward in Ngorongoro district and Elerai village in Kilindi district. In this chapter, we highlight data from the Elerai study site where several research activities were facilitated, including 16 key informant interviews, 8 focus group discussions and 330 household surveys. Key and unique to this study was the use of trained local community researchers. Four youth from each study site were purposely selected, trained and supported to collect, analyse and interpret data in collaboration with the authors. All interviews and conversations were conducted in Maasai language, Maa, and later transcribed into English. The following section provides insights into the lived experiences and realities of young Maasai women experiencing climate change. The names we use here are not real names of the people we interviewed. However, consent was obtained from community members to appear in the images presented in this chapter. This research project received approval from the University of

Victoria Human Research Ethics Board (application number #21-0345) and a research permit #2021-670-NA-2021/225 from the Tanzania Commission for Science and Technology (COSTECH).

Lived experiences of climate change: A story of Nashipai, a Maasai young woman

As a young woman from a pastoralist community, I feel more affected by climate change compared to young men of my age. I currently bear more responsibilities than those borne by my mother at my age. As young women, we are currently taking both our usual or socially defined responsibilities as women as well as those that are traditionally performed mostly by men (Nashipai).

Climate change poses a threat to all members of society, but with varying degrees depending on other dimensions such as geographical location, social and economic status of individual members of society. Natural resource-dependent communities such as Indigenous populations are highly impacted as climate change has direct impacts on such resources. Based on our study at Elerai village in northern Tanzania, we found climate injustice as young women are the most affected by climate change. To highlight the ways in which women and men are not equally sharing the burden of climate change, and hence why there is climate injustice, we use stories from our study transcripts of community members, especially of a young Maasai woman called Nashipai, her extended family and friends.

Nashipai is a young woman aged between twenty-five and thirty years. She lives in Elerai village in an extended family of five households. Her marriage is polygamous as her husband has another wife called Pabung'ay. Nashipai's husband Leshore is in Zanzibar to look for employment. At home within the extended family, Nashipai lives with her mother-in-law and her husband's elder brother Ndauwo. Ndauwo also lives with his two wives. They live in an enclosure called Engang' (singular), which is a homestead of blood-related individuals living together as a family unit. In her own household, Nashipai lives with her two children: a boy who is a shepherd named Loserian and a schoolgirl named Esupat. In the surrounding area there are other Ingang'itie (plural) that form four sub-villages making the Elerai village. It is within these Ingang'itie where young women support each other using their social networks to find resilience to climate change. A half kilometre away lives Nashipai's long-time friend Nosotwa within another Engang'.

In the Maasai community, roles performed by individuals are socially defined based on the individual's gender and age. Young women such as Nashipai are

responsible for taking care of general household work, including milking, cooking, fetching water and firewood, cleaning the house and doing dishes. They are also responsible for taking care of the children, their husband and other household members. Young women also take care of the livestock such as goats, sheep and cattle, as we can see in Figure 5.1. During the dry season, we found that Nashipai and several other young women in the village were overwhelmed



Figure 5.1 Maasai women treat livestock, a role that was traditionally performed by men. This is due to the absence of husbands as a result of climate change-induced migration. Photo credit: Yohana Kashuma, January 2024.

by family responsibilities as a result of reduced natural resources such as water for domestic needs and livestock use as well as pasture for the livestock. Such scarcity is exacerbated by climate change impacts, including prolonged droughts.

Climate change has changed the division of labour based on gender as women in particular are now performing duties that were previously assigned mainly to men. According to young women who participated in our study, climate change has caused internal migration especially for young men from rural areas to urban areas, leaving most of their family and community responsibilities to be performed by women. Nashipai's husband, for example, has migrated to Zanzibar to look for employment opportunities. She therefore must perform both her own roles as a young woman and most of her husband's in his absence. Traditionally, husband's/men's responsibilities are those related to treating, grazing and watering livestock, as well as those related to making sure that all basic needs are available at home to support his family. In the case of Nashipai, the situation did change as we have discussed above. With her socially defined responsibilities, as a woman, Nashipai must fetch water in sometimes difficult situations as she may lack a donkey to carry the weight and the money to buy water. As can be observed in Figure 5.2, Maasai women, such as Nashipai, can



Figure 5.2 Maasai women at a livestock trough fetching water, which is a scarce resource due to droughts caused by climate change. Photo credit: Emmanuel Ole Kileli, March 2020.

share water sources with livestock due to water scarcity. Further, Nashipai has a responsibility to find money to pay for family needs as her husband cannot support her because he has failed to find a job in Zanzibar. All of these multiple duties that she has to achieve are putting her in a vulnerable situation. Nashipai is not alone in facing climate change-induced challenges in the Elerai village. Selengei, another woman involved in our study, reported:

So, women are also affected because during the dry season like that, the donkeys move away. And when they find that there are no donkeys around, they have to use their backs to get the water. So, they have some back problems. But also, the dry season is the time for the women to collect the firewood before the rain season starts. So, she has to balance all of those activities. So, they find their backs really get hurt because of those types of activities they carry out during the dry season.

In most cases, young women like Nashipai have to rely on their social networks such as friends and neighbours for support. This is very typical in the Maasai culture, where communal lifestyles are still cherished and used as a tool for climate resilience. The conversation between Nashipai and her friend Nosotwa below (see Table 5.1) further reveals the vital role of community social networks in dealing with difficult situations such as those related to climate change.

Nashipai, as for many other young women in the community, also has to deal with land-related conflicts caused by climate change. Ideally, land-

Table 5.1 A conversation between Nashipai and Nosotwa

Nashipai	My love, I am requesting that I borrow your donkey so I take it to fetch water.
Nosotwa	My donkey is absent. Pabung'ay borrowed it this morning
Nashipai	Ooh, my God. What can I do then? The livestock has no water. I don't have even a little water to cook for my children and even the shepherds.
Nosotwa	I am sorry sweetheart. Where is your husband?
Nashipai	He went to Zanzibar and never came back.
Nosotwa	He didn't send you some money to help you and the family?
Nashipai	No, my dear. He has no job. He told me yesterday that he even depends on his friends like Naserian's father to pay him for food there.
Nosotwa	I am very sorry my dear. This is so hard for you my dear.
Nashipai	Thank you.
Nosotwa	I will then offer you one drum of water to help in cooking food for the kids.

related issues and conflicts to a large extent have traditionally been dealt with by men (Kalabamu 2021; Kioko and Bollig 2015). Nashipai's son Loserian, aged thirteen years old, is a family shepherd grazing livestock at Orbukoi grazing area. Due to climate change and other factors such as land-use changes, migration, crop cultivation and tourism activities, pasture resources are reduced. As a result, there is an increasing need to obtain pastures beyond designated grazing areas. The situation adds a burden to young women and men such as Nashipai and her son as we can see in the conversation in Table 5.2 below.

Farmer-herder conflicts, for example, occur frequently at Elerai and many other parts of the country (Walwa 2019; Mwamfume 2015; Mtumva 2023), as a result of reduced pasture land caused by expansion of cultivation activities. Such conflicts can impact women physically and psychologically as they can cause panic, fear and stress. For example, there are cases of deaths and spontaneous abortion from young women in the Elerai community following a land-related conflict between the Maasai and non-Maasai (Swahili) people in 2021/3 (Athumani and Ndilwa 2022; Tanga Correspondence 2022).

Climate-related and intersecting challenges also affect young girls attending school, as such challenges can impact their school attendance and hence cause long-term impacts to women. Education can be a key to success as it opens

Table 5.2 A conversation between Loserian and Nashipai

Loserian	I am tired of these time-to-time conflicts
Loserian	Mother, mother (calling ...)
Nashipai	Yes, my dear shepherd
Loserian	Our livestock are caught by farmers
Nashipai	My God. Where did they get caught?
Loserian	At the grazing area where they cultivate maize fields: Orbukoi
Nashipai	Did they hurt you?
Loserian	They chased me with a machete but I was not caught.
Nashipai	Go to the other side of the kraal and tell your young father (Ndauwo), while I tell your father by phone.
Loserian	Okay
Nashipai	[...] Finally, I am finished. Where shall we be as women in this land? We are fulfilling our duties as women but at the same time fulfilling men's responsibilities.

Table 5.3 A conversation between Nashipai and Esupat

Nashipai	My daughter. Today you will not go to school because it is getting difficult for me.
Esupat	Mother! I am not staying because our school exams are very close. Today there are important instructions from the teachers about such exams.
Nashipai	Our goats have no water, we don't have firewood, and there is a social gathering in our neighbourhood. Please stay so you can at least help me with one of the activities.
Esupat	OK, my mother. But I will miss the very important information about our upcoming exams.
Nashipai	Just don't worry about that because God is there.

various opportunities to individuals, and hence can be a strategy to respond to climate change. However, climate change itself hinders the right to education as demonstrated in the conversation in Table 5.3 below between Nashipai and her daughter Esupat. Nevertheless, it is worth noting that Maasai girls' violation of the right to education is not just climate related. Although the violation of the right to education can be exacerbated by climate change, it is also a product of gendered social norms and expectations. A girl's educational opportunity is circumscribed by both increasing environmental pressures, and gendered and generational social norms that require girls to take on domestic burdens at home, thereby exacerbating the environmental burdens she must bear now and in the future.

In addition to Nashipai's conversation with her daughter, Naramatisho, another young woman respondent also emphasized the social challenges faced by young girls and women in patriarchal Maasai communities saying:

Women, especially young girls, are not free, and we are not given a chance to go to work, no matter how hard the situation is in your families. But as girls, we are not allowed to go out and find for our basic needs. So, we are not given a chance. We are not free. Parents, they don't allow it. And we are married when we are young, so our husbands, they don't allow us. Even as students, they cut off your school. They say no more school; you have to be married. And when you're [with] your husband, you're no longer allowed to go to school, and you are not allowed to do anything. You're staying at home, taking care of your husband, taking care of your kids, taking care of goats, and cows.

Although we have been emphasizing the disproportionate impacts of climate change on young women due to increased family responsibilities, the impact on other members of the community, especially young men, is not to be downplayed. Nashipai's husband, Leshore, is a man in his early thirties. He migrated to Zanzibar to look for a job because keeping livestock alone was not sufficient to support his family's needs. He was convinced by friends to move to Zanzibar. These friends moved to Zanzibar first and they were successful in finding jobs alternative to keeping livestock alone. He sold a bull to obtain a bus ticket to Dar es Salaam and a ferry ticket to Zanzibar. In Zanzibar friends welcomed and hosted him while he was on his job search. The Maasai are traditionally understood by their bravery and ability to live in the 'jungle' with wild animals, and therefore they are believed to be good security guards for homes and properties in many towns of Tanzania and Kenya. Although this is an opportunity for the Maasai as they can be trusted to undertake such jobs without training, it is associated with stereotyping to the extent that Maasai are overlooked from other professions in favour of security jobs. For Leshore, the main job he was anticipating finding was a property security role. Unfortunately, since arriving in Zanzibar four months ago (at the time of our interviews with his wife), he had not found a job. The main reason could be attributed to increasing changes in the security sector. Property owners are increasingly entering into contracts with security companies rather than employing individuals. To be employed by a security company, one needs to have some level of education, training and certificates. Most of the young Maasai men, like Leshore, from rural areas cannot meet such requirements and therefore face a lot of challenges away from home. As they are perceived as different from the mainstream community, Maasai young men who have migrated to urban areas have to rely on themselves as a distinct group. They need support in times of difficulties and such support must mostly come from themselves. In 'town' they still maintain their social and cultural practices that used to put them together at home. The use of age-set systems, clans and family relationships are still effective even away from home. In Zanzibar, for example, Leshore was relying on his friends and family for a living. For him it was very difficult, especially regarding his family responsibilities. However, throughout the entire period that Leshore was without a job, family and friends continued to support him and his family. The conversation between Nashipai and her husband below (see Table 5.4) shows the importance of community social networks for building resilience in times of shocks and threats:

Table 5.4 A phone conversation between Nashipai and Leshore

Nashipai	Hello
Leshore	Hello. Is it OK up there?
Nashipai	Yes, it is fine. But our cattle have been caught by farmers
Leshore	Oh, my clan cattle!! [<i>swearing</i>] What?
Nashipai	Our cattle have been caught by farmers
Leshore	But the enemies didn't harm the shepherds?
Nashipai	They chased them with machetes but they didn't hurt them.
Leshore	Did you tell my brother Ndaowo?
Nashipai	Yes, we told him
Leshore	My People!! My People!! My God, please let it rain.
Nashipai	Even the clouds are not seen. The sky is so clear, and our goat has got no water to drink.
Leshore	It's becoming more difficult and I don't even possess a penny here.
Nashipai	Please look for money to buy water and others for paying fines for the caught cattle by farmers.
Leshore	Okay, my wife. I will check with my in-law if he has some money that I can borrow. If I fail, I will call my brother Ndaowo to see if he can find some money to borrow from the village.
Nashipai	Okay, my husband.

Social and cultural life experiences: A tool for climate change resilience

While climate change negatively impacts all humanity, pastoralist women and girls such as Nashipai and Esupat living in remote rural areas with limited access to improved social services are disproportionately impacted. As we have observed in the above section, climate change affects community members in various ways, with gender and inter/generational relations between members exacerbating the level of impacts for some. Despite the impacts, communities themselves find ways to mitigate and respond to climate challenges. This is mainly through community social networks, such as the use of friends, relatives and community social economic groups (i.e. Village Savings and Loans Associations, clan social economic groups, etc.). Nashipai's stories demonstrate this strongly and there is a need to strengthen such networks to enhance communities' resilience to climate change. However, building strong and effective community social networks is a long process that may require people to live longer together,

understand each other better and build trust. In the case of Nashipai and Nosotwa, for example, they grew up together, they belonged to the same age group, and they experienced social and communal life from their parents, the community and peer groups.

Nashipai and Nosotwa call themselves *nanyorai*, meaning 'my love'. The feeling, the connection and tenderness of the word *nanyorai*, among young women in Maasai pastoral communities, depict moments of shared happiness and sadness. Pastoral young women living in close proximity tend to build strong connections among each other and are embedded in ongoing social interactions over time. These young women in most cases shared youthhood and hence they are peers to each other. They had played with Morans (the warriors) at Oloip – a warriors and girls gathering place – mainly in the afternoon for socialization. These young women also went to Embaran together. Embaran is a choreography of either warriors themselves or with girls in a community ceremony. They both also practised 'youth invisible' ceremonies called Ingipot. Ingipot is a warrior and girls' ceremony where girls choose unofficial loved ones for the period of girlhood. After stepping to adulthood such relationships become null and void. Furthermore, these young women sing and dance together during community ceremonies such as Endomono, Elatim and Lolbaak. Endomono is a traditional ceremony necessary for Maasai boys and girls before the Elatim ceremony. Elatim is a ceremony performed to both boys and girls to mark the end of their childhood and their entering warrior/adulthood. Lolbaak is a traditional ceremony necessary for junior elders to undergo before they perform important ceremonies for their own children (i.e. Elatim for their sons and daughters). These shared experiences and the strong connections and networks developed over time are among the factors why traditional communities such as the Maasai show some resilience to emerging climate change impacts.

Specific to the Maasai young women, emotional moments start when their parents decide that it is time for them to undergo the rite of passage through Elatim. Such rites of passage demonstrate girls' transition from childhood to adulthood. It is a moment of retirement for girls from the joyous times they used to socialize among themselves as a peer group and among the Morans (the warriors). It is time for them to retire from attending socialization ceremonies such as Elatim, Lolbaak and Endomono as described above. It is a sad moment for them as they are about to go to the Unknown, to their husbands. It is to the unknown because they will be going to the homes of their husbands as arranged and agreed by their parents sometimes without girls' will. They are going to places that they might not have imagined to go. There, they will assume

new roles as a wife to someone she may never have known, talked to or socially interacted with. These new roles in another family may be with totally different arrangements and protocols, and a new family with a lot of expectations from the young woman. The husband, in-laws and neighbours will have a lot of expectations on her performance, especially when climate-related crises have brought more responsibilities at the family level.

Nashipai's stories, reflected in a series of conversations here, reflect the experiences of many young Maasai women who have been through several stages in life, from being a young girl who enjoyed her youthhood interacting with others during social and traditional ceremonies, made friends and learnt how to become a responsible woman to the young woman who can care for the family, the husband, the livestock, the neighbours and the land. With all these experiences, Nashipai has learnt to live a resilient life through the use of available community social networks and indigenous knowledge. Her story and those of many others from the Elerai Maasai community tell us about the importance of applying an intersectional lens to achieve climate justice. Multiple and intersecting sociocultural, economic and environmental forces surround young Maasai women and other Indigenous groups and pose a challenge to achieving climate justice.

To achieve climate justice for young Maasai women like Nashipai and her daughter and friends, they have to first achieve the social, cultural and environmental conditions necessary to ensure they and their community have an equal and fair share of climate burdens. In this context, and as we have seen in her conversations above, climate justice for Nashipai must address the gendered inequities that disproportionately lay more burdens on women and girls, rather than on men, in their community. We must therefore address the social, economic and cultural factors hindering equity among community members. The lived experiences of Nashipai and other young Maasai girls in Elerai demonstrate the importance of an intersectional approach to climate justice that better understands the complex forces and challenges confronting young women. For the case of Elerai, such challenges include the following.

Societal-related challenges (cultural norms, division of labour, etc.)

While the Maasai community embraces powerful cultural traditions, some customs can impede progress towards climate justice. Harmful practices such as early marriages and the preference for male heirs perpetuate gender inequality, limiting the agency of Maasai women and girls. The roles of women and girls

that are socially defined further undermine women as they are expected to perform more duties than men. Naramatisho, a young woman respondent in Elerai, said: 'We in the community build and repair houses, take care of the children, the sick, the elderly, and the livestock, cook for our families, as well cook during community social function.' This quote depicts the multiple roles and responsibilities expected of women at the family and community level. The community anticipates women fulfilling such roles, even as climate change makes it more difficult for these roles to be fully achieved and hence increases climate injustice for young women. Nashipai's life experiences demonstrate the real challenges in fulfilling these roles. In her conversations, we have seen her telling her daughter to stay home instead of going to school so she can help her with household chores: 'Our goats have no water; we don't have firewood and there is a social gathering in our neighbourhood. Please stay so you at least help me with one of the activities.' The quote shows that Nashipai as a young woman was overwhelmed and the only support she can get is from her daughter, which in return violates her daughter's rights to education. Thus, challenging deep-rooted cultural norms and fostering gender equity can play a pivotal role in empowering young women and girls to tackle present and future climate change challenges.

Land dispossession and resource inequality (i.e. restricted use and access to natural resources)

Although colonial legacies, political marginalization and tourism activities led to land dispossession in the Maasai ancestral lands, climate change also increased land conflict and dispossession in pastoralist areas. In particular, changes in land use, climate change-induced internal migration, reduced soil productivity and land degradation in various parts of the country have exacerbated pastoralist land dispossession and increased inequalities in access to water and pasture resources (Blocher and Kileli 2020). Land dispossession and conflicts often leave women and girls marginalized, jeopardizing their roles as caretakers of natural resources and exacerbating poverty and food insecurity. This is illustrated by the conversation between Nashipai and her son, the shepherd, who entered into conflict with farmers. Such conflicts result in the family paying trespassing and crop damage fines, causing stress, chaos and discomfort among family members. Further, the loss of access to grazing lands and water sources diminishes their ability to adapt to climate change and compromises their livelihoods and well-being. Reduced water resources, in particular, mean young women must travel

longer distances and spend more time fetching water. Naibor, one of our study respondents, was quoted saying: ‘Water scarcity is a major threat to young women’s wellbeing. This is because water is a fundamental resource at home and therefore, we are forced to travel long distances and stay in long queues to get water from the sources.’ Our research demonstrates how water scarcity increases burdens on young women and increases gender injustice because relatively women perform extra duties.

Poverty/economic-related challenges (i.e. inability to afford access to clean energy sources, low purchase power, etc.)

Increased incomes can lead to increased economic growth, resulting in reduced poverty and hence improved livelihoods among community members. To achieve this, one needs to get exposed to a range of opportunities, including employment that leads to increased income and social security. This was a challenge for the majority of Maasai women and young girls in our study area, impacting their ability to escape ‘the viscous circle of poverty’ (Mosley and Verschoor 2005). Such inability is underpinned by limited access to clean energy sources, quality health and education services. This was demonstrated in the conversation between Nashipai and Nosotwa, when she noted the inability to purchase water for family use and lacked money to instantly pay the fine imposed to their livestock by farmers, and that her husband migrated to Zanzibar to unsuccessfully search for employment opportunities. The majority of Maasai women and girls are less able than men to access employment opportunities that can improve their living standard. Hence, women are more vulnerable to climate impacts.

Men’s mobility to look for employment is easier compared to women. This is because in the Maasai community men are the main decision-makers at the family level. They are therefore in a position to decide who has to stay or leave home as well as how family resources have to be used. Consequently, young women like Nashipai are left at home to bear the compounding burdens of taking care of the family in the absence of husbands. They are therefore susceptible to climate and environmental challenges and are unequally sharing these burdens with men at their localities. Men who are more capable of migrating are presumably facing other environmental burdens in their places of migration. Such burdens can include being trapped in poor quality neighbourhoods and housing with poor sanitation, food and water insecurity.

Low or limited access to climate information (i.e. inability to access weather information due to inability to use or afford technologies, literacy, etc.)

Maasai women and girls often face limited access to education and information, which restricts their broader understanding of climate-related issues and proposed solutions. Some local non-governmental organizations (NGOs) working with pastoral communities, such as PAICODEO, have been carrying out climate change adaptation and resilience training among women. Some of the barriers reported by PAICODEO as an obstacle to young women's access to information includes domestic burdens, gender inequality, permission from husbands and illiteracy. Without access to information, women are unable to actively engage in climate adaptation activities that could help them effectively mitigate climate change catastrophes. This is the case for Nashipai, who lives in a remote area where access to mainstream media and the internet is limited. It is also worth noting that the literacy rate among Maasai young girls is high compared with young men (Rarsitau 2017; Archambault 2016; Ryamond 2021). Such high literacy rates among young women further highlight the injustice in their inequitable access to essential climate information needed for climate change mitigation. By accessing climate information through radio broadcasts, weather apps and SMS, women can effectively plan their daily and weekly social and economic activities, thereby saving time and resources needed to address climate change. Despite ongoing issues on the accuracy of weather information provided by meteorological agencies, such as the Tanzania Meteorological Agency, community members are increasingly interested in accessing and using this information. Therefore, it is essential to improve the accuracy of the weather information to effectively benefit the local communities.

Nomebok Njoe: Maasai women responding to climate change

Nomebok Njoe is a pastoralist woman living in Elerai village who is between thirty-five and forty years old. She is one of the very few Maasai women who has a small business within the village. According to her, livestock farming alone is insufficient to provide for her family's needs, especially with current trends of livestock losses due to diseases and droughts. Furthermore, livestock farming, and the management of its profit in the Maasai community, is traditionally and socially defined as the role of men and hence its benefits

do not go directly to women. To help Namelok become more resilient and earn a stable income, a local NGO encouraged her to engage in various economic activities. This approach aims to combat climate change and lessen women's reliance on men for essential needs. Namelok's husband is a leader in the village and he was frequently invited to attend several trainings by local NGOs. It also happened that Namelok was also appointed by the village leadership to attend some of the training about women's entrepreneurship. From the training Namelok learnt that one of the mitigation strategies for climate change is to have multiple sources of income through diversification of livelihood activities. Namelok was quoted saying: 'In 2016 there was a drought incident that had reduced the number of our family's livestock to the extent that as a family we were unable to buy basic needs.' Namelok's family's inability to meet basic needs in 2016 was a consequence of the lack of diversification of livelihood activities in their family. If the family had more than one livelihood activity, then they may have been able to meet their basic needs during the drought season.

After the training, Namelok started small businesses that earned her an additional income and reduced her dependency on her husband for very basic needs. She started to sell drinks and other basic needs at home and at nearby local markets, selling art/ beadwork, engaging in crop cultivation and buying and selling milk. In her own words, Namelok reported:

In the beginning people started to laugh at me and see me differently. It was unusual for a Maasai woman to be doing such business and their husbands wouldn't allow them to do so because they feel ashamed for their wives to be working so hard and to be talking to so many people – strangers – who are the customers. However, at the moment, the situation has changed. I am now perceived positively and more women in my community are allowed to do small businesses by their husbands.

Namelok faced a lot of stigma as a Maasai woman doing things differently in the community. These activities were viewed as not for women but for non-Maasai or for a few Maasai men. As she demonstrates, in the beginning she was perceived negatively but after being successful, she started to be perceived positively and currently she is a role model for many young women and girls in the community. Through her courage, many women in the Elerai village are now allowed to engage in small businesses and have been able to better support their families, especially in situations where pastoralism alone is insufficient to support families due to reduced pastureland and climate change.

According to Namelok, the businesses enabled her to pay for school fees and supplies for her children, ensure constant availability of food on her table, build a house and support her extended family, especially her daughters; more importantly she is now getting invited in decision-making meetings at the family and at the community level. As Namelok told us:

This business is very important to me as it has uplifted me from where I was. From low status to middle status. It has brought comfort to me, as I can now plan on what I want to do and I can do, because I have the resources. I have ability to choose different food varieties, pay school fees for my children, and even help other community member who need support.

Figure 5.3, below, shows Namelok and her fellow women at Elerai sorting out their art products to be transported to a tourist market found in Zanzibar.

Namelok's story demonstrates yet another example of the potential power of women when they are exposed to different opportunities and when they are given a chance to exercise their agency. Namelok gained access to training through her husband, who was a leader – a training that transformed her life.



Figure 5.3 Namelok (sitting in the front) with her fellow women from Elerai, sorting out their beadwork products ready to be sent to a tourist market at Zanzibar Island. Photo credit: Monica Kurumbe, July 2022.

Women's empowerment and participation is key to bring social and climate justice, especially at the moment where climate change brings multiple challenges that also need multiple solutions to address. The marginalized women in this community, such as Nashipai and others discussed in the first section, need such opportunities. This includes training and access to information and opportunities as described by Namelok. In the final section below, we propose ways to address climate change challenges and promote climate change justice for young Maasai women and girls.

Addressing climate challenges and promoting climate justice

Based on our conversations with young Maasai women and girls in Elerai village, and on our observations of their daily lives, we are convinced that young women are more vulnerable to climate change-induced challenges due to increased environmental and social burdens in their community. In the Maasai community gender roles are socially defined; however, such definition of roles tends to be changing as women are now required to increasingly perform men's roles in addition to their own. Due to climate change, many young men leave the community to find job opportunities away from home. Their departure leaves a set of their responsibilities to be assumed by women. We thus propose the following ways in which young Maasai women and girls can address climate change challenges and promote climate change justice.

Promoting gender equality and challenging harmful cultural norms: Tackling gender inequality within the Maasai community requires comprehensive awareness campaigns, engaging community leaders and fostering dialogue between generations. By addressing harmful practices (i.e. female genital mutilation, early and/or arranged marriages, male preference) and promoting equal opportunities (i.e. access to quality education, participation in decision making), Maasai women and girls can realize their potential as agents of change and reduce their vulnerabilities to climate change.

Strengthening women's participation in decision-making processes: Efforts should focus on empowering Maasai women and girls such as Nashipai through education, skill-building and awareness campaigns on climate change and sustainable practices. Encouraging their meaningful participation in decision-making processes, such as involving them in community meetings, conferences and negotiations, will amplify their voices in demanding fair treatment in their communities. The case of Namelok, the entrepreneur woman in the story above, is a testament to this.

Enhancing education and information dissemination: Investing in accessible education and robust information dissemination channels will equip Maasai women and girls with crucial knowledge about climate change and available adaptation strategies. This will enable them to make informed choices, advocate for their rights and actively participate in climate change mitigation and adaptation initiatives.

Ensuring land rights and employment Opportunities: Efforts should be made to secure land rights for Maasai women and girls, ensuring their active participation in land management and decision-making processes. This includes exploring alternative livelihood options, such as eco-tourism initiatives, to provide sustainable income streams and counterbalance the loss of traditional farming and livestock practices. Creating local employment opportunities can encourage men to stay at home and take on responsibilities that women are increasingly handling. This shared effort can help both men and women address environmental and social challenges together. Where possible, local and/or Indigenous women experts found within the community should be supported and enabled to strengthen the capacities of their fellow women. Figure 5.4, below, shows pastoralist community champions training their fellow community women on land rights and climate change issues. Such a strategy of using locally available women experts proved to be effective as not only do the local experts



Figure 5.4 Miriam Matinda and Monica Kurumbe (both clearly seen standing) training Maasai women on land rights and climate change issues on the eve of International Women’s Day (IWD) at Morogoro. Later, they encouraged the pastoralist women to participate in the IWD as part of voice raising and networking. Photo credit: PAICODEO Morogoro, March 2020.

understand the local language of their fellow women but they also understand social and cultural issues directly affecting their fellow women. Hence, they are well positioned to affect positive change to women empowerment.

Conclusion

The challenges faced by Maasai women and girls in Tanzania in achieving climate justice are multifaceted and deeply rooted in social, economic and cultural factors as demonstrated by the lived experiences of Nashipai and her fellow young women above. The intersectionality of gender and climate change and environment-related issues exacerbates their vulnerabilities as well as hindering their ability to fully participate in climate change mitigation and adaptation efforts. Limited access to educational opportunities, traditional gender roles and discriminatory practices contribute to the perpetuation of inequality and reduce their capacities to respond to climate change.

To address these challenges and promote climate justice, it is crucial to adopt a comprehensive intersectional approach that recognizes and addresses the unique circumstances of Maasai women and girls. This involves fostering an inclusive approach that ensures equal access to social and economic opportunities to all. Furthermore, cultural norms and practices that perpetuate gender disparities must be challenged and transformed through community engagement and awareness programmes, especially using local champions such as Dr Matinda and Miss Monica, as described in Figure 5.4. Empowering Maasai women and girls to actively participate in decision-making processes related to climate change adaptation and mitigation strategies is paramount. Strengthening their resilience and providing them with the tools and resources needed to cope with the impacts of climate change will not only enhance their well-being but also contribute to building more sustainable and resilient communities. The case of Namelok Njoe is a good example in this context.

Achieving climate justice for Maasai women and girls in Tanzania therefore requires a concerted effort to address the interconnected challenges they face. We can create a more equitable and sustainable future that benefits the entire community by fostering inclusivity, challenging gender norms and empowering women and girls. It is imperative that local, national and international stakeholders collaborate to ensure that climate justice is realized for all and a 'leaving no one behind' philosophy is cherished.

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The powers that be?

Hita Unnikrishnan

Commentary

Through the five sections of this experiment with found poetry, I attempt to bring to life the intersectional narratives and experiences of the team researching ‘Community Energy and Sustainable Energy Transitions in Ethiopia, Malawi, and Mozambique’ (CESET):¹ a collaborative multi-institutional project funded by the Global Challenges Research Fund (GCRF) and led by Professor Vanesa Castán Broto at the University of Sheffield. CESET explores the potential of community energy systems to accelerate inclusive, just and clean energy transitions in Ethiopia, Malawi and Mozambique – three countries which face enormous challenges relating to energy but in diverse contexts.

CESET is multi-scalar in that it operates on three pillars. Firstly, it focuses on the neighbourhood to investigate how community energy systems operate in practice through the design and construction of a decentralized kiosk-based community energy set up in an informal settlement of Maputo. Secondly, at national levels, CESET explores the significance of community energy within the contexts of national energy service provision within each of the three countries through examining its political economies, and the energy landscapes in each. Finally, on a global scale, CESET looks at understanding how community energy can bring together wider learning communities that support sustainable energy transitions in Eastern Africa using what we call the Regional Energy Learning Alliance.

I am a South Indian by origin, affiliated with a prominent Western institution and have collaborated with the diverse team members of the CESET project

¹ More information about the project may be obtained in the project’s website: <https://cesetproject.com/about>.

which further operates in diverse geographies. These interactions helped me understand both the complexities of community energy systems and the intersectional nature of the challenges they face. In addition, working within the project during a time of intense geopolitical chaos that affected one of the study areas (Ethiopia) in the form of the Tigray War and hearing first-hand accounts of genocide and its relationship with energy infrastructure further honed my senses to the complex nature of the problem.

In drafting my contribution to this edited volume, I felt that meaningfully engaging with the issues at hand would only be possible by me stepping a little away from the rigour of academic writing and freely engaging with the emotions and imagination that these stories invoked. Having previously dabbled in poetic expression, and feeling more confident in expressing my thoughts in that manner, I chose to express myself in this chapter by means of verse, each of which recount multiple things: (a) the stories that were told to myself and other members of the project team at various occasions and events about energy-related challenges and experiences, (b) the actual experience of working around change-making processes by directly influencing energy policy and (c) my own emotions and imagination as I processed these diverse strands of information and lived experiences coming my way. The verses that follow are thus intersectional and reject binaries such as ‘us’ versus ‘them’ and ‘insider’ versus ‘outsider’, instead making the case that each of us experiences intersectional energy challenges in different ways – some in more tangible ways than the others – but at the same time collectively evoking strong emotions and imaginations that can aid in the crafting of sustainable and just energy transitions if acknowledged and critically engaged with.

Through the five verses of this poem, I first describe the struggles of people working to sustain an Ethiopian hydroelectric power plant in the face of the Tigray War. I then recall stories narrated to us during a visit to a community energy plant and its beneficiaries in Mozambique as part of the annual CESET meeting, where Mozambican nurses recounted their stories of how they had to bring newborns into this world under candlelight before the advent of community energy systems into their neighbourhoods. I next describe how, despite the deep and intersectional inequalities within urban energy landscapes (Castán Broto 2019), some of the interviews we conducted with energy companies and utilities as part of CESET show the reproduction and perpetuation of various binaries of our times; most notably that of gender. Following this, I craft a narrative demonstrating the importance of intersectional thinking, particularly in terms of unpacking power imbalances inherent to operationalizing the prevalent and hegemonic discourses that draw on various binaries. Finally, in the last verse of the poem, I capture the thinking behind an initiative called the ‘Gender Equality

and Social Inclusion Seal' (GESIS), a collective endeavour between Mozambican civil society, energy utilities, academics and members of the CESET team. GESIS is structured as a regulatory reform that encourages small energy operators to be accountable for gender equality and social inclusion both within their own organizations and the communities they serve, thereby reaping structured and systematic benefits. Following each of the five verses that make up this composition I recount the stories and lived experiences that provided their inspiration.

The poem

I. Darkness

The roar of the mighty river
was not enough to distract.
Every so often, the man behind the wheels
chanced a glance at the skies above,
wondering if it might yet be his last –
if the bursts of fire in the skies above
at day or night, dawn, or dusk
If the bursts of fire that rained down
near him, above him, and on the very earth that he stood upon
might not yet find their mark?

Yet soldier on he did,
while the armies kept the bombs at bay
(or tried to).
He worked silently, thanklessly –
keeping the wheels going,
turning the cogs
churning water into life-giving power.
Power that would give yet another dawn some hope
hope for recovery, hope to communicate,
hope that shouted out to the world beyond
that we are not broken still –
dark though our present may be
there is still enough light for the days to come ...

The inspiration for this verse came from a dinner table talk given by one of the Co-Investigators on CESET, Professor Muluaem Gebreslassie, who described

his experiences in trying to keep the region's only hydroelectric plant going while war raged around him in the Tigray region of Ethiopia. He shared images that to my mind evoked some of the deepest visceral nightmares of the genocide. At the same time, given how little attention the genocide in Tigray received across the globe, it evoked in me a certain reflection as to what do we mean when we say, 'Never again'? Where does 'Never again' apply? In what contexts? Is it only applicable to white European neighbourhoods or cities or the globe in general? At the same time, the experience he described while evoking the horrors of war and its interconnections with energy infrastructure was also a story of hope and positivity and survival. It is these emotions that I have tried to capture through these lines.

II. Life

The candlelight flickered –
 a babe's cry split the night.
 A woman's screams echoed right behind
 screams of pain, screams of despair,
 for she knew
 she would not live to see this night through –
 would not live to see her baby grow and thrive ...

screams of despair, screams of worry
 for in her last moments, she wondered
 whether her new-born daughter too
 would stand at the same crossroads
 that she now stood at.
 Forced to give birth under flickering candlelight
 while the world beyond
 pitied her misery, yet took for granted
 the light, the energy, the electricity,
 that lit up their own homes and lives ...

A few months later
 The candlelight flickered one last time,
 in memoriam
 of lives lost and battles fought
 before the little hospital was lit up once more
 not with the flickering of a candlelight
 but a real electric lamp.

The midwives smiled gently.
No more flickering candle lights
or the struggle to see
to get things right
in one of the most important moments of life
no more lost lives
lost trust
or lost dreams.

They could bring little ones into this world
just the way they were taught to
and without worry.
There was light in their world.

A story which deeply moved me came from the accounts of nurses at a small village hospital in a remote rural location off Maputo, Mozambique. We visited this small hospital during an annual project meeting of CESET as part of a field visit to a microgrid and its beneficiaries in the region. Accessible only by four-by-four vehicles, miles away from any other form of medical amenity, the nurses told the story of how a decentralized solar mini grid set up by the local authorities in their neighbourhood provided relief to countless expectant mothers in the delivery room. Prior to the arrival of community energy in the neighbourhood, these nurses would perform deliveries under candlelight – needless to say, with extremely high mortality rates. It made me think of my own aspirations as a woman and, from there, led me to imagine what it would have been like for the women who not only were physically undergoing massive trauma at the time but who also had no guarantee (unlike many of us in more privileged settings) that they would be able to hold their children's hands or see them grow up, simply by walking out of those hospitals alive. It also made me think of my own late mother who often reflected on the difference between her own life's trajectory and mine and the opportunities I was lucky to receive in my life. Perhaps those mothers also did the same? And what about the nurses and the amount of relief they would have felt when the first bulb lit the medical facilities that they were the custodians of?

III. Choice

We know, we know
say the powers that be ...
in our line of business that

power is neither yours nor mine.
 That women need it
 as much as men
 that women do not have much of a say
 as the men, in who gets power
 to light their home, their hearth and their lives.
 That women need to go out more,
 be unshackled from the binds
 that tie them to home, to family, to the hearth
 to run free and carve their future
 in a man's world.
 By studying, by working,
 by earning
 to run free and still come back
 to the responsibilities that make her.
 Come back
 to home, to family, to the hearth.
 For one cannot go without the other.
 For there is no other world
 but him or her
 and it is not a choice they have.
 Or will.
 Consider.

In many of the interviews we did as part of CESET with communities and energy companies, one thing that stood out was how narratives framed by key energy players such as energy companies or the state always recognized the need for gender-based equality in energy infrastructure. It was always there, always recognized, and almost always a part of policy. Yet this awareness was always still firmly entrenched within established dichotomies of gender, health, occupation or income among other categorizations used to divide people. It was this reflection that I tried to bring to life in this verse.

IV. Identity

The future is bleak they say.
 The world is warming up they say.
 No more burning up coal
 or logs of wood,

or the slick oil that powers vehicles.
Use the sun they say.
To heat up water, to power up a vehicle,
to bring light into your house –
no matter if it is big or small,
a solar set-up will give you a lot.
They say. And then they tell you to pay –
to pay for the healing light of the sun.

Pay through your blood and tears they say,
for the world is dying and it needs to heal.
Pay through your blood and tears they say,
for without the money, the world cannot heal.
Pay through your blood and tears they say
for without the money, the business of power
cannot be sustained, cannot be held responsible
to heal this dying world.

That is what policies are for they say.
To protect those like me who pay with their blood and tears
and to protect those who bring the healing light of the sun to me –
To me, and my own. To my world.

But what is my world?
Does my world mean me – a man
or does my world mean me – a woman?
Does it mean me – a poor, elderly man?
or does it mean me – a poor, elderly woman?
Or is it me – on crutches, straining to support my weight?
Or me – with disease in my veins?
Or me – the one without a job?
Or me – the one without an education?
Or me – who is self-sufficient?
Or me – who lives far away from reach?
Or me – who lives next door?
Or me – in a war-torn world?
Or me – who rejects the binaries the world forces me to abide by? Identity?
a parent, victim, worker, sick, healthy, rich, poor ... or more?
one of me – or all the very many of me?

For if 'my world' means one of me,
then what about the rest of me?

For if 'my world' means one of me,
 how can it be that one of me can rule the rest of me?

For if 'my world' means one of me,
 will all of me have to pay with our bodies, blood and tears –
 or only the me for whom it needn't be our bodies, blood and tears?
 And will the healing light of the sun then reach me
 Or will it reach all of me?

This verse was triggered by the inherent paradigm of community energy projects which are deeply embedded within existing market economies and need to function within the limits imposed by them. This means that there is immense potential for supposedly egalitarian community energy projects to foster exclusion, especially of those individuals who cannot afford to contribute either financially or in kind to these set ups. On the other hand, there are deep questions posed by the very nature of the term 'community' as employed in these projects (Unnikrishnan, 2024); who do they include and who do they exclude and why? What this means is that for sustainable and just energy transitions to be truly a reality, one needs to move beyond the illusion that all imaginaries associated with communities are positive and/or foster inclusion. Critical inquiry therefore is imperative as regards who exactly is being served by community energy projects that are projected as being key players in driving energy access for all.

V. Decolonize

But what if it did?
 What if it could reach all of you?
 Without bleeding dry the vulnerable?
 Without depriving all of you
 From the healing light of the sun?

What if we can collectively ignite a spark
 that can help create radical changes
 in the way we think of the light from the sun
 and how we bring it to all of us?
 And in doing so,
 can we help all of you –
 the powers that be to make the monies,
 the man who challenges despair,

with a shout of hope to the skies,
the woman who dreams for her child
and the midwife who brings the child
and other children into this world?
And their children, and her children –
all their many selves all at once?
Beyond the binaries
beyond him and her, rich and poor
healthy and sick, employed, or unemployed?
What if changing policy can bring
the healing light of the sun
brought by all of you
to all of you?

Can we imagine a new future?
One where the powers that be
help the powers that supply
power to you
to care for all of you
to nurture all of you
to help all of you to grow
to bring the light of the sun
to all of you
to earn the profits
reap the benefits
and help save the planet?

The future is hopeful
and it needs all of us.

This last verse was inspired by an offshoot of the CESET project – the Gender Equality and Social Inclusion Seal (GESIS) – an incentive-based energy regulatory reform in Mozambique for energy operators to improve their performance in relation to gender equality and social inclusion indicators. GESIS is based on the premise that energy infrastructure cannot be separated from its relevance to society and that small energy operators can play a massive role in catalysing social transformations, while at the same time embedding themselves within the market economy essential for community energy projects to survive. It is these sentiments that have driven the sentiment of hope that is expressed behind these lines.

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Beyond fortresses: Rethinking conservation and upholding Indigenous peoples' rights

Julia Basile, Elsa Jarkhedian, Silvia Ottinetti and
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Introduction

Fortress conservation measures are formidable threats to Indigenous Peoples and other rural rights holders' human rights, including their nature governance practices and traditional livelihoods, food security, educational opportunities, health, and access to traditional medicines, safe drinking water, and culturally and spiritually significant sites.

(UN Special Rapporteur on Human Rights and the Environment et al. 2021)

In today's world, pollution, the significant decline in wildlife populations and biodiversity loss demand urgent action to protect our planet and call for global environmental conservation efforts. Yet, it is crucial to ensure that we do not further marginalize historically disadvantaged communities, especially Indigenous peoples (IPs) in the Majority World when addressing these issues. In this context, establishing and managing protected areas (PAs) has emerged as a central strategy, garnering widespread support and commitment. However, we need to critically examine the effectiveness and ethical underpinnings of PA establishment through the conservation model known as 'fortress conservation'. Through this approach, the creation of PAs often results in the forcible removal of human inhabitants, namely IPs and local communities, through legal mechanisms and, at times, through violence. PAs set through 'fortress conservation' exacerbate the impacts of climate change on marginalized populations from the Majority World, who are affected not only by environmental changes but also by solutions designed in the Minority World without adequate consideration of their circumstances.

The effects of fortress conservation policies on IPs in Eastern Africa are remarkably consistent across countries like Kenya, Uganda and Tanzania. Each of these nations has faced a recurring pattern of human rights violations, characterized by widespread land dispossession and forced displacement. These infringements not only undermine economic, social and cultural rights but also disrupt the IPs' traditional ways of life. Crucially, the displacement from ancestral lands often occurs without their free, prior and informed consent (FPIC), compounded by an alarming lack of accountability for those responsible.

'Fortress conservation' practices demonstrate the need for a deeper analysis and rethinking of conservation strategies through an intersectional lens, revealing how climate change mitigation efforts often overlook IPs' participation in both their development and impact. This analysis becomes more urgent in view of the ambitious 30 × 30 framework that the United Nations Convention on Biological Diversity (UNCBD) Secretariat is promoting. This Framework envisions the preservation of 30 per cent of the Earth's surface as PAs by 2030, in a bold commitment to safeguard our planet's natural resources. Nevertheless, a deeper conflict within the framework becomes apparent upon closer examination, notably concerning its reliance on 'fortress conservation' and the lack of overt measures recognizing IPs, particularly their voices, land rights and their crucial role in biodiversity preservation. Therefore, as the Post-2020 Global Biodiversity Framework moves forward, the possibility of human rights violations and displacement of IPs increases. It is worth mentioning that the Intergovernmental Panel on Climate Change (IPCC) does not specifically recommend a 'fortress conservation' approach. Instead, it calls for science-backed integrated approaches that consider ecological and social factors, which invite community participation (Intergovernmental Panel on Climate Change 2019). Nonetheless, approaches like 'fortress conservation' are favoured due to the intrinsic exclusion dynamics existing in climate change. This exclusion comes from valuing Minority World approaches supported by science in disregard of Indigenous voices and experiences that are equally effective but often ignored. These approaches furthermore invisibilize the historical colonialist upbringing of these apparently neutral and scientific solutions (Mikulewicz et al. 2023).

For this reason, this chapter calls for a full re-evaluation of the 'fortress conservation' model's effectiveness and its human rights implications. We raise the need to shift towards an integrated approach that addresses environmental and climatic challenges while recognizing and ensuring all stakeholders' rights and needs, especially those most at risk. This analysis must be conducted through an intersectional lens that reveals the inherent

inequality dynamics associated with ‘fortress conservation.’ This lens critiques the implementation of scientific solutions originating from the Minority World, revealing its associated human rights costs and disregarding Indigenous rights, voices and knowledge (Mikulewicz et al. 2023).

To do so, this chapter begins with a historical overview of the origin of PAs, revealing a complex relationship with colonialism which led to their establishment through the frequent exclusion of IPs from their ancestral lands. The subsequent section seeks to assess the effectiveness of PAs in biodiversity conservation and scrutinize the challenges embedded in their design and implementation. The analysis underscores the limitations associated with an exclusive reliance on PAs and introduces Indigenous governance as an alternative model. We emphasize its effectiveness in preventing deforestation and contributing to sustainable environmental management. Lastly, the chapter explores human rights violations resulting from ‘fortress conservation’ policies in Eastern Africa, with a focus on the Benet, Maasai and Ogiek peoples. In so doing, this chapter aims to contribute to a more intersectional understanding of climate justice by focusing on the impacts of ‘fortress conservation’ strategies on IPs and other historically marginalized communities and highlighting the enduring legacies of colonialism. We emphasize the need for a more balanced and ethical approach to environmental preservation, one that addresses the often-disastrous impacts of administrative and technical solutions to climate change on vulnerable populations. This approach would also acknowledge the value of Indigenous knowledge as an equally viable, effective and less harmful strategy to achieve climate justice.

Fundamental concepts: Protected areas and the history of fortress conservation

We need to establish clear definitions for key terms to comprehend the problematic issues arising from conservation efforts carried out in PAs. This includes their regulation, underlying philosophy and projected use to tackle current environmental concerns. According to the International Union for Conservation of Nature (IUCN), a PA is ‘a clearly defined geographical space, recognised, dedicated, and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values’ (Dudley 2008). The UNCBD and other significant conservation actors share this definition. Many conservation actors consider

PAs to be the foundation and central tool of biodiversity conservation (IUCN Definition 2008). Thus, expanding the coverage of Earth's PAs has been a key objective in global conservation efforts, and significant progress has been consistently achieved in pursuing this goal (UNEP 2021).

The IUCN has defined six PA categories based on the level of restriction of human presence and activity in each one of them (Dudley 2008). Nonetheless, by general rule in all categories, the focus is on preserving nature. Human presence is only allowed as long as it is neither incompatible with this nor harmful to the protected ecosystem. This includes several activities, from scientific research or tourism to cultural and spiritual practices. PAs are also classified by who manages them: governments, private actors, shared management, and IPs and local communities (Dudley 2008). Despite the existence of several categories, most PAs are governmentally managed (82% in 2018) in comparison to IPs and local communities managed (0.6% in 2018) (Luoma 2022).

Notwithstanding the apparent consensus on their effectiveness, the origin of PAs did not necessarily follow science-based criteria but, instead, a particular vision of nature and conservation deeply rooted in colonialism. It is necessary to unpack this history to understand that the intuitive logic behind setting apart territories for their protection is not as effective as it seems. Also, understanding this history and the philosophical foundation of PAs will explain why they lead to undesired environmental and human rights results.

The nineteenth century saw the development of PAs, primarily in the United States, as a result of cultural obsessions with wilderness or the wild in its 'pure' natural state (Luoma and Dominguez 2020; Büscher and Fletcher 2020). This originated from a colonial practice that was later introduced to the United States, asserting that specific lands were reserved for the exclusive enjoyment of the elite through authorized activities. Simultaneously, other uses, typically those of the original and Indigenous inhabitants, were considered threatening and disruptive to the integrity of the natural ecosystem (Luoma and Dominguez 2020; Büscher and Fletcher 2020). There were few concerns about environmental degradation stemming from global warming at this point in history. Instead, these decisions came from particular views about nature, many rooted in colonialism, that determined whose practices were acceptable and which ones harmful. Subsequently, environmental concerns arose as colonizers observed the ecological damage caused by colonial exploitation. However, responsibility for the degradation was wrongly attributed to IPs and their traditional practices (Luoma and Dominguez 2020). The consequence of this was the creation of PAs devoid of human presence, particularly IPs who had inhabited the land since

time immemorial, to create the fiction of untouched and pure nature. This came with the displacement of IPs from their lands, frequently through violence and enforced by militarized personnel (Luoma and Dominguez 2020).

The establishment of PAs within this framework is often referred to as ‘fortress conservation’. This characterization stems from the notion that PAs function as fortresses, excluding unintended visitors or inhabitants by employing legal mechanisms¹ and violent methods. ‘Fortress conservation’ includes three key elements: (1) the establishment of the area, often leading to the displacement of local inhabitants who depended on the land for their sustenance; (2) the reinforcement of this exclusion through park rangers, often equipped with weapons and resorting to the use of force; and (3) the delineation of approved land uses, which commonly include research, tourism and occasionally even hunting (Luoma and Dominguez 2020). These are usually elite uses for foreign actors and not local communities.

This historical perspective on ‘fortress conservation’ and PAs challenges the seemingly intuitive effectiveness of PAs and shows the logical and factual shortcomings of the model. First, it shows that the idea behind creating PAs comes from a preconceived notion of nature and IPs. This suggests that IP land use is harmful and is connected to larger discriminatory attitudes and biases against IPs that go back in time. This not only reflects historical injustices but also persists in contemporary conservation discourse. From this perspective, eviction and protection measures were justified. Secondly, fortress conservation adopts a broad approach, treating all human presence as equally damaging in ecosystems or areas deemed in need of protection. This means that practices like low-impact Indigenous sustenance hunting are viewed in the same light as industrial exploitation or poaching by well-equipped hunters, despite their differences in impact, nature and origin. Finally, this model ignores that IPs and local communities have sustainably inhabited these areas for countless generations while maintaining biodiversity and ecosystems. This proves that IPs’ and local communities’ livelihoods are not a threat to the ecosystem, and even more, they are integrated into it in a way that facilitates and ensures its preservation.

In the context of intersectional climate justice, the injustices embedded within ‘fortress conservation’ and PAs take on a heightened significance. These initiatives not only perpetuate environmental injustices but also intersect with broader

¹ The term ‘legal’ here means the use of law and regulation to forbid the use of land and enforce these conservation policies.

social and economic inequalities, disproportionately impacting marginalized communities, particularly IPs and local communities. By prioritizing a fortress mentality in conservation efforts, these initiatives reinforce existing power imbalances and further marginalize those who are most vulnerable to the impacts of climate change. The exclusion of IPs and local communities from decision-making processes not only undermines their rights but also perpetuates a cycle of environmental colonialism, where Minority World ideals of conservation are imposed without regard for local knowledge or sovereignty.

Furthermore, the displacement of IPs and local communities from their ancestral lands disrupts not only their livelihoods but also their resilience to climate-related disasters. Traditional practices and knowledge systems, honed over centuries of coexistence with the land, are disregarded in favour of conservation approaches. Additionally, IPs are placed in precarious situations where they are improperly relocated on the margins of other communities. Therefore, it becomes imperative to re-examine the 'fortress conservation' policy and the associated PAs to assess their effectiveness as tools for environmental preservation. This evaluation should also take into account the cost-benefit relationship and, importantly, consider the human rights implications arising from the displacement of IPs and local communities. Before moving on with this analysis, it is important to mention why we are at a crucial moment for re-evaluating the management of PAs set under fortress conservation as a biodiversity preservation tool.

The 30 × 30: A critical juncture for conservation

In 2017, scientists called for protecting 30 per cent of the world's surface by 2030 to prevent the 1.5°C increase that would make climate change irreversible. Several countries and actors supported this initiative, commonly called the 30 × 30 initiative (Dinerstein 2019). The 30 × 30 garnered significant support and was approved as part of the CBD's Post-2020 Global Biodiversity Framework (the Framework) in the Conference of Parties in December 2022. The 30 × 30 seeks to elevate the percentage of protected areas from 17.24 per cent to 30 per cent by 2030. While this initiative is crucial for biodiversity conservation, its implementation can exacerbate climate justice issues. The intensified focus on rapidly expanding PAs may lead to fortress conservation dynamics, including land dispossession and human rights violations, particularly affecting IPs and local communities. The urgency to achieve these targets might prompt expedited

and potentially detrimental cost-benefit decisions, further marginalizing vulnerable populations.

The Framework incorporates explicit mentions of Indigenous participation, yet it does not establish a direct connection to the 30 × 30 initiative or address land tenure rights. While envisioning joint and equal participation with other actors like youth, minorities and gender considerations, the Framework lacks specific references to IPs' unique situation and needs. Importantly, the Framework falls short of explicitly prohibiting land dispossession, a consequence often brought about by the implementation of the fortress conservation model to achieve the 30 × 30 objectives.

Furthermore, the wording of the Framework shares similarities with other international instruments that acknowledge Indigenous participation or protection in conservation endeavours. However, it is noteworthy that the language in these instruments has been largely ineffective in preventing Indigenous land dispossession and subsequent human rights violations (Minority Rights Group & Survival International, 2020; Luoma and Dominguez 2020). As global initiatives like the 30 × 30 push for expanded PAs, it becomes crucial to question the philosophical basis and effectiveness of this approach and to ensure balanced and ethical environmental preservation. Failure to reassess the effectiveness of this approach by 2030 risks irreversible harm to these communities, highlighting the interconnectedness between conservation efforts and climate justice.

Navigating conservation challenges: Assessing the effectiveness of protected areas and Indigenous governance

Despite the global proliferation of PAs, relying exclusively on their creation for conservation is inadequate, due to major funding shortfalls and the urgent need for more effective management strategies for biodiversity preservation. This section explores the contrast between the 'fortress conservation' paradigm and IP- and community-led governance, emphasizing the latter's effectiveness in preventing deforestation and contributing to sustainable environmental management.

When examining the intricacies of PAs, it is essential to acknowledge their crucial role in safeguarding biodiversity while also recognizing their inherent limitations. Particularly, one must direct their attention towards the management of PAs and the challenges embedded in their design and

implementation to comprehensively assess the effectiveness of fortress conservation. Notably, these challenges often arise from a framework that excludes IPs. As underscored in the previous section, under the ‘fortress conservation’ paradigm, IPs are often seen as a threat to the environment. Several governments worldwide extensively support fortress conservation, emerging as a substantial generator of income and reputation, especially for African states (Brockington 2015). The application of this paradigm tends to lead governments towards a more militarized approach, fostering hostilities towards IPs (Luoma and Dominguez 2020).

In comparison to unprotected areas, a systematic review by Geldmann et al. (2013) has shown that PAs can reduce the rates of biodiversity loss. However, effectiveness varies considerably due to the socio-economic context and management conditions (Barnes et al. 2016; Geldmann et al. 2019). In particular, wildlife population trends are more favourable in PAs situated in nations with higher development indicators (Barnes et al. 2016), underscoring the pivotal role of management and socio-economic conditions in nature conservation. This was also confirmed by Wauchope et al. (2022), who demonstrated that only about 30 per cent of monitored water bird populations in more than 1,500 PAs globally experience a positive impact from protection, with effective management emerging as a strong predictor of success.

The complexity of PAs’ management assumes heightened significance when considering the overarching objective articulated in the 30 × 30 policy. The exclusive reliance on PA creation is insufficient due to major funding shortfalls estimated at least at \$44 billion per year, with predictions of a potential increase to \$80–150 billion per year under the 30 × 30 scenario (Waldron et al. 2020). In a situation where numerous PAs suffer from inadequate funding that hinders their ability to effectively address climate and biodiversity concerns, advocating for additional and larger parks and conservation areas without addressing key factors like management and community involvement could worsen the current funding shortfall and the likelihood of injustice (Tauli-Corpuz et al. 2018). This financial gap emphasizes the urgent need to shift the focus towards more effective management strategies for existing PAs (Geldmann 2023).

As efforts are made to address threats and ensure the health of ecosystems supporting biodiversity to increase the effectiveness of PAs, recognition of the interplay between socio-economic and ecological outcomes becomes important. PAs must target critical biodiversity areas, manage threats and ensure the health of ecosystems that support biodiversity, without jeopardizing the livelihood of people to achieve success (Ghoddousi et al. 2022; Geldmann 2023). Synergies

between conservation priorities, as observed in IPs and local communities-managed areas, highlight the potential for success (Geldmann 2023).

IPs' community-led governance demonstrates a comparable, if not higher, degree of effectiveness in preventing deforestation compared to government-managed PAs (Baragwanath and Bayi 2020; RFUK 2022). For centuries, IPs have been the guardians of the forest in Eastern Africa and in other regions of the world. Despite encompassing a small portion of the global population, IPs possess a substantial amount of intact forest landscape within their territories. This allows them to effectively meet material and cultural needs, therefore reinforcing their lasting responsibilities and connections to their environment (Fa et al. 2020). The majority of IPs demonstrate a profound comprehension of the intricacies of the natural environment, adjusting their customs, institutions and social ties to uphold a delicate ecological equilibrium (Tauli-Corpuz et al. 2018). Thus, IPs play an important role in the implementation of ecosystem solutions by applying their traditional knowledge to sustainable environmental management. Highlighting the value of this knowledge is key in an intersectional approach to conservation and climate justice (Mikulewicz et al. 2023).

Research conducted by Rainforest Foundation UK (2016) on thirty-four PAs in the Congo Basin, encompassing Cameroon, the Democratic Republic of Congo and the Republic of the Congo, revealed that the absence of IPs' participation resulted in a decrease in animal populations and a rise in land exploitation. This happened despite directing substantial funding to these areas (Pyhälä et al. 2016). Recognizing the rights of IPs to their forests has the capacity to significantly reduce deforestation, as their governance models continuously encourage sustainable partnerships between humans and the environment (ILO 2019). UNEP actively advocates for the practice of traditional crop cultivation and the preservation of pastoralism (UNEP 2020).

Indeed, IPs in East Africa are able to manage climate change effectively by utilizing their traditional knowledge systems. For instance, the Turkana people of Kenya establish their calendar in accordance with apparent environmental shifts as opposed to a strict chronology. By deliberately adjusting to climate fluctuations, they are able to increase their capacity for adaptation (ILO 2019). Similarly, the Afar pastoralists of Ethiopia implement a conventional methodology, gathering indicators via scouting (ILO 2019). This information, which is distributed through a traditional knowledge network, influences communal decision-making through the experience of elders.

Furthermore, IPs and local communities exhibit greater efficiency in conservation compared to the fortress model as they incur lower costs per

hectare while still likely achieving conservation outcomes that are at least equivalent (Tauli-Corpuz et al. 2018; Gray et al. 2015). According to a study by the Rights and Resources Initiative (2018), IPs and local communities invest approximately 16–23 per cent (or US\$3.16–4.57 billion) of all conservation expenditures in comparison to governments, donors, foundations and non-governmental organizations in regions of low- and middle-income countries where they have designated or owned land (Tauli-Corpuz et al. 2018).

These findings highlight the complementary nature of contemporary and traditional knowledge systems in the context of adapting to climate change. IPs can provide significant contributions to the formulation of conservation policies at both the local and global levels. While PAs are important for conserving biodiversity, their limitations, such as inconsistent effectiveness and budgetary limitations, highlight the need for a more advanced and comprehensive approach that includes IPs. ‘Fortress conservation’ has long-lasting negative effects on Indigenous livelihoods and customs while failing to effectively address complex ecological concerns.

Fortress conservation’s toll: Human rights violations in Eastern Africa

The effects of ‘fortress conservation’ policies on IPs in Eastern Africa are remarkably consistent across Kenya, Uganda and Tanzania. Every country faces a recurring pattern of human rights violations, characterized by widespread land confiscation and forced displacement. There have been significant violations of economic, social and cultural rights as a result of displacement from ancestral lands. The lack of IPs’ free, prior and informed consent (FPIC), as well as the lack of adequate mechanisms for holding those responsible accountable, led to the disruption of the IPs’ traditional ways of life.

IPs impacted by ‘fortress conservation’ policies encounter specific challenges, particularly for women, children, people with disabilities, elderly individuals and youth. Displacement and gender-based violence disproportionately affect women, while children face challenges in education and well-being. Individuals with disabilities often face significant challenges when it comes to travelling around and accessing necessary services during instances of forced evictions. Elderly people confront medical risks when relocating and struggle to preserve cultural heritage. Young people face challenges when it comes to opportunities being disrupted and having limited involvement in decision-making processes.

Understanding and tackling these complex challenges is essential for protecting the rights and welfare of all individuals in IP communities impacted by ‘fortress conservation’ policies.

The Benet People in Mount Elgon National Park (Uganda)

A compelling case emerges within the Benet People in Mount Elgon National Park, Uganda, who have faced the consequences of ‘fortress conservation’ policies since 1936, resulting in denied land requests and agricultural limitations (Forest People Program et al. 2015). In 1983, after a lengthy ten-year disagreement with the Ministry of Forestry (MoF), the Benet community was compelled to move to a 75 km² region below the ‘red line’ – one of the original park delimitations – which was originally intended to be 60 km² (Forest People Program et al. 2015; Dirkse 2017). The government denied the Benet People FPIC through the 1983 resettlement and land allocation process. This was marked by misinformation and deception from which the Yatui Benet were entirely excluded (Forest People Program et al. 2015). This process aimed at establishing Mount Elgon National Park in 1993, involving strict conservation measures, led to forced relocations, disputed territories and ongoing conflicts, representing a broader issue that emerged over the following years (Dirkse 2017). In 1996, the Uganda Wildlife Authority (UWA) replaced the MoF, reinstating the Benet territory to 60 km², again without free, prior and informed consent (African Commission’s Working Group on Indigenous populations/communities 2006; UN 2022; Wilmot 2018).

In 2002, the parliament officially de-gazetted the region, thereby reaffirming this decision. Despite the promises made by UWA regarding permanent land, the Benet community experienced numerous instances of eviction and loss of property. In 2005, the High Court recognized them as historical Mount Elgon inhabitants, acknowledging the disparity in their rights. However, the implementation was lacking, as authorities, including UWA, evicted hundreds of people without FPIC in 2008 (Wilmot 2018; Dirkse 2017; Forest People Program et al. 2015). Ongoing cases challenge the 2019 Land and Wildlife Acts, which emphasize community involvement but lack FPIC (IWGIA 2023). A 2019 High Court case (*Muhindo & Others vs. the Attorney General*) found inadequate eviction procedures and violations of constitutional rights and ordered comprehensive, participatory guidelines (UN 2022).

Following the High Court case, the Benet obtained access to park areas in 2021 through a memorandum of understanding (MoU) with the government (Wilmot 2018). Nevertheless, UWA’s efforts to challenge the validity of the

MoU in April 2021 exposed a lack of adherence to the agreement (Wilmot 2018; Dirkse 2017; Forest People Program et al. 2015). The allegations against UWA eco-guards during the Benet evictions encompass grave violations, such as physical harm, extortion, confiscation of property, torture, unjustified imprisonment, unlawful killings, enforced disappearances and destruction of Benet resources. In addition, Benet women are significantly impacted by these violations perpetrated by the eco-guards, as they often become victims of sexual violence (UN 2022; Cultural Survival 2021; Forest People Program et al. 2015). In 2022, the Working Group on Indigenous Populations/Communities in Africa's (WGIPM) Chair and UN Special Rapporteurs have urged the government to cease the ongoing human rights violations immediately (African Commission on Human and Peoples' Rights 2022; UN 2022).

From 2023 to 2025, serious violations persisted in Mount Elgon. In February 2023, a Benet man was shot dead by UWA rangers while collecting firewood (Land is Life 2023). Throughout 2023, raids continued with over 1,200 livestock confiscated and nearly 100 homes burned, including three in Kokwotorokwo village during a morning attack in May 2023 (Segawa 2023; Land is Life 2023). Despite these incidents, no restitution has occurred, and the Benet remain in temporary camps as of late 2024 (Daily Monitor 2024).

The Maasai in Ngorongoro Conservation Area (Tanzania)

In Tanzania, the government's conservation policies have resulted in the dispossession and displacement of the Maasai people in the Ngorongoro Conservation Area.² These policies have involved granting land to investors, carrying out forceful evictions and causing famine as a means to compel their departure from their ancestral lands (Project Expedite Justice 2022). The government and the Ngorongoro Conservation Area Authority (NCAA) have long asserted that the presence of people and livestock pose a potential threat to wildlife, which they believe justifies the displacement of IPs (Pingo's Forum 2021). Additionally, the designation of Ngorongoro as a UNESCO World Heritage Site in 1979 occurred regardless of their consent (Oleshangay 2022). The government granted land leases to Tanzania Conservation Limited and hunting licences to Ortello Business Corporation³ without obtaining FPIC from the Maasai (Lang

² Ngorongoro Conservation Area (NCA) is a UNESCO Mixed World Heritage Site (1979) and a protected area in Northern Tanzania established in 1959. The Ngorongoro Conservation Area Authority (NCAA) administers the area.

³ OBC is one of the forty hunting companies operating in Tanzania.

2018; Muhumuza 2018). Furthermore, the 2018 proposal of the ‘Multiple Land Use Model and Resettlement’ raised concerns about the mass Maasai relocation caused by the suggested rezoning of the Ngorongoro Conservation Area (PEJ 2022; The Oakland Institute 2021; The Oakland Institute 2022). Only a few representatives were included in the process at the final stage, while the task force continued to ignore their input (IWGIA 2021). Following the thirty-day notice eviction and demolition orders in April 2021, a resettlement programme has been implemented since 2022, when the Maasai were forcibly relocated to other villages, yet again, without consulting with the affected IPs (IWGIA 2023).

The Maasai face numerous challenges, including land dispossession, which leads to bans on farming and grazing, resulting in food insecurity. These conditions lead to hunger, malnutrition, deaths, diseases and forced migration (IWGIA 2009; The Oakland Institute 2018; Ndaskoi 2021). During evictions, park rangers and enforcement units like the Field Force Unit (FFU) engage in severe physical assaults on pastoralists (The Oakland Institute 2018). In 2017, Serengeti National Park and NCAA rangers, aided by local police, burnt down more Maasai bomas (Maasai village of houses made of hay and mud), causing physical injuries, rapes and miscarriages (IWGIA 2017). There have been reports of violence against the opposition, including extortion against non-governmental organizations and harassment, detention and torture of human rights activists (U.S. Department of State 2023).

To put an end to these evictions, four Maasai villages filed a case with the East African Court of Justice (EACJ) against the Tanzanian government for violent evictions and home burnings in Loliondo in 2017 (Kenya Human Rights Commission 2022). In 2018, the EACJ issued an injunction that effectively halted the Tanzanian government’s eviction of Maasai communities from the disputed lands. However, villagers claim that evictions persisted until July 2022 (Sutherland 2022). Despite this legal victory, the EACJ dismissed an additional case (Reference No. 10 of 2017) that four Maasai villages had brought against the Tanzanian government in September 2022, considering that there was not enough evidence to establish that the evictions occurred on village land rather than Serengeti National Park (Kenya Human Rights Commission 2022).

Since 2023, the situation of the Maasai in the Ngorongoro Conservation Area has worsened markedly. By late 2024, over 82,000 individuals had been displaced to Msomera village under coercive conditions, including denial of public services and exclusion from voter registration rolls (Human Rights Watch 2024; UN CERD 2023). In response, more than 40,000 Maasai staged protests in August 2024, which prompted the High Court of Arusha to issue a temporary

injunction (Human Rights Watch 2024). Subsequently, the UN Committee on the Elimination of Racial Discrimination (CERD) issued an urgent appeal denouncing ongoing evictions and systemic service denial in the area (UN CERD 2025). Despite mounting international criticism, including civil society reports documenting land grabs tied to tourism and carbon credit schemes, relocations continued. In 2025, growing advocacy pushed the Tanzanian government to establish oversight bodies to defuse the pressure, though without reversing the displacements (Cultural Survival 2025; IPS 2025).

The Ogiek Community in Kenya

Finally, in Kenya, the Ogiek, a hunter-gatherer community, have faced prolonged evictions from the Mau Forest since colonial times, which intensified in the 1990s, and today continue experiencing irregular land allocation. The Kenyan government has repeatedly carried out forced evictions without any consultation or compensation. The government allocated Ogiek lands to various third parties, including political allies, and has allowed extensive commercial logging without FPIC. The African Court on Human and Peoples' Rights recognized the Ogiek's entitlement to the forest in Kenya in 2017. In disregard of the ruling by the African Court of Human and Peoples' Rights, the government failed to seek participation from the community or designate Ogiek representatives to the Task Force in charge of executing the Court's decision (Claridge 2018). In 2022, the Court issued an order for the payment of 1.3 million dollars as compensation for both tangible and intangible harm, as well as directives to establish, define and confer collective ownership of Ogiek's ancestral land (The Indigenous World 2023). Despite the efforts made to legally prevent evictions, a significant number of Ogiek individuals were forcefully removed in March 2016, and that unfortunate trend continued in 2023 (MRG 2023; IWGIA 2023). In light of the ongoing evictions, the African Commission has issued an urgent appeal to Kenya, emphasizing the need to immediately cease these actions in order to safeguard the lives, livelihoods and well-being of vulnerable individuals and families (ACHPR 2023). Today, the Ogiek face a grave threat to their traditional ways of life and very existence as they are being denied access to their ancestral lands and sacred sites. The government is violating the fundamental rights of the Ogiek community by restricting access to food, housing, education, life, land, physical and mental well-being, liberty and security (Claridge 2018).

'Fortress conservation' policies in Eastern Africa have resulted in severe human rights violations against Indigenous peoples (IPs). The mentioned cases

reveal a recurring pattern of land dispossession and forced evictions, leading to economic, social and cultural rights violations. The Benet People in Uganda, the Maasai in Tanzania and the Ogiek in Kenya face challenges ranging from denied land requests to severe physical assaults during evictions. Despite legal victories and international interventions in some cases, ongoing human rights abuses persist, underscoring the urgent need for effective measures to safeguard the well-being and rights of these vulnerable communities. This highlights a critical intersectional issue. The pervasive pattern of land dispossession and forced evictions exacerbate vulnerability and marginalization of specific groups such as women, children, those with disabilities, older people and youth. There is an ongoing need for further research and IP interventions on the differential impact of fortress conservation on these groups within IP communities. The Benet People in Uganda, the Maasai in Tanzania and the Ogiek in Kenya are disproportionately affected, with women and children often bearing the brunt of these injustices. Despite legal victories and international interventions in some cases, ongoing human rights abuses persist, perpetuating the multiply marginalized status of these communities. This underscores the urgent need for comprehensive measures that not only address the urgent climate and social justice issues but also acknowledge and mitigate the intersectional impacts that further compound the marginalization of certain IP groups.

Conclusion

In the face of escalating ecological challenges like pollution, wildlife decline and biodiversity degradation, the urgent need for comprehensive mitigation strategies has never been more critical. This contemporary imperative demands a collective commitment to environmental conservation that also upholds the rights and well-being of historically disadvantaged communities, particularly IPs in the Majority World. While the 30 × 30 framework represents a bold step towards global environmental conservation, a deeper conflict emerges upon closer examination. The reliance on the ‘fortress conservation’ idea reveals a paradigm that fails to adequately consider the crucial role IPs play in environmental sustainability and overlooks the intersecting injustices they face due to their marginalized status.

The establishment of PAs under the ‘fortress conservation’ strategy has often encroached upon ancestral lands belonging to IPs, resulting in severe violations of their rights. This includes forced displacement, killings, sexual assault and property destruction, perpetrated by law enforcement officers

and park rangers. Notably, international conservation organizations, albeit unintentionally, contribute to these atrocities by funding eco-guards involved in abuses, sometimes justified as necessary measures to combat poaching. The glaring inadequacy of national and international authorities in addressing injustices faced by IPs highlights the critical need to recognize and rectify this recurring pattern of marginalization. This is not only for the well-being of IPs but also to uphold the overarching objectives of the 30 × 30 framework, ensuring that conservation efforts do not exacerbate existing inequalities or perpetuate environmental injustices. As the 30 × 30 initiative gains momentum, the risk of further violations against IPs' rights intensifies. The absence of clear safeguards against land confiscation within the framework amplifies the vulnerability of these communities, jeopardizing their sources of livelihood and escalating the risk of human rights violations. Recognizing and addressing this issue is not just a moral imperative and is fundamental to advancing climate justice.

Studies assessing the effectiveness of PAs highlight their crucial but limited role in biodiversity conservation, revealing funding shortfalls and the shortcomings of an exclusive reliance on their creation. The contrast between the 'fortress conservation' paradigm and IPs' community-led governance underscores the latter's success in preventing deforestation and achieving sustainable environmental outcomes. These findings stress the importance of recognizing the complementary role of IPs' knowledge systems and the need for a more advanced and comprehensive approach to conservation that centres on climate justice and intersectionality. Without adopting an intersectional approach to challenge the dominant paradigm, IPs, particularly children, women, people with disability and older people, will not only continue to bear the brunt of climate change but also suffer from the adverse effects of mitigation strategies. Furthermore, the examination of the 'fortress conservation' model in Eastern Africa, particularly in Kenya, Uganda and Tanzania, reveals a disconcerting trend of abuse within PAs. Local authorities, at times using disproportionate force, implement conservation regulations, leading to atrocities against IPs. International conservation organizations inadvertently support these abuses by funding eco-guards involved in such actions, perpetuating a cycle of injustice.

In conclusion, while ostensibly designed to serve environmental preservation, the 'fortress conservation' paradigm has inadvertently become a threat to IPs' rights, particularly in Eastern Africa. It underscores the urgent need to reevaluate the 'fortress conservation' policy and the associated PAs, taking into account their environmental and human rights implications through a lens of climate justice and intersectionality.

Recommendations

- **Community-led conservation models:** Acknowledging the effectiveness of IPs' community-led governance in environmental conservation, there should be a shift towards embracing and supporting such models. IPs possess traditional knowledge that contributes to sustainable environmental management, and their leadership should be actively encouraged.
- **Reformulating the 30 × 30 framework:** It is imperative to revisit and reformulate the 30 × 30 framework centring IPs voices to explicitly incorporate safeguards against land confiscation and human rights violations. The framework should acknowledge and respect and advance IP land tenure rights, ensuring their meaningful participation and consent.
- **Enhanced oversight and regulation:** National and international authorities must establish enhanced oversight and regulation mechanisms to prevent human rights abuses within PAs, giving power to IPs over their land and acknowledging them as such instead of invaders. This includes strict monitoring of the actions of law enforcement officials and park rangers and the allocation of funds to ensure they do not contribute to violations, rather to prevent abuses and presence of other actors in IP and conservation land.
- **Capacity building and education:** Invest in capacity-building and education initiatives for local authorities, law enforcement officials and conservation organizations. This includes raising awareness about the rights of IPs, cultural sensitivity training and the importance of inclusive conservation efforts.
- **International collaboration:** Foster international collaboration to address the broader implications of fortress conservation. This involves conducting and leading dialogues conducted by IP representatives with governments and conservation organizations to create a more inclusive and ethical approach to environmental preservation.

In summary, the recommendations aim to achieve synergy between environmental conservation and the protection of human and Indigenous rights. Through an Indigenous and community-led model useful to reevaluate existing frameworks, enhance oversight, invest in education and foster international collaboration, it is possible to navigate the path toward environmental preservation without compromising the well-being of historically marginalized communities.

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The legacy of colonialism, present-day climate injustice: The experiences and knowledge of San communities in Tsholotsho, Western Zimbabwe

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Introduction

Zimbabwe, like other countries in eastern and southern Africa, is experiencing more intense and unpredictable weather patterns due to global climate change. Agro-ecological zones 4 and 5 in Zimbabwe represent regions with distinct climatic and ecological characteristics that influence agricultural practices. These include the western area of Zimbabwe, which is the driest part of the country and is susceptible to disasters including flash flooding and drought (Tanyanyiwa 2019). The increasing unpredictability of seasonal weather patterns, which results in erratic rainfall and a declining livelihood base, coupled with insufficient strategies for building climate resilience and a lack of resources, livelihood assets and alternatives to current food security are persistent issues for tribal groups, especially the San communities in western Zimbabwe (Tanyanyiwa 2019; Dube et al. 2016). When viewed from this angle, the primary problem that Indigenous communities, including the San, are currently facing is climate change (Hitchcock et al. 2015 and 2016). In addition to its effects on economies, especially those reliant on agroecosystems, the climate crisis upends and destroys social, political and cultural structures (Nyathi et al. 2023; Gukurume 2013).

The Majority World as a whole is disproportionately vulnerable to the severe effects of climate change (Crawford et al. 2023), while Zimbabwe is experiencing frequent droughts and erratic rainfall patterns, particularly affecting its agriculture, which is a key economic sector (Brown, Chanakira, Chatiza et al.

2012). Economic challenges exacerbate vulnerability. A large portion of the population relies on rain-fed agriculture, making them particularly susceptible to climate variability. Climate change vulnerability is particularly acute in the context of Indigenous minority communities such as the San. The farming communities, especially smallholder farmers, face increased risks as they lack the resources to adapt to changing conditions. The heightened vulnerability to climate change draws attention to the San's lack of resources, jobs, cattle and non-subsistence farming (Hitchcock et al. 2015). Zimbabwe's rich biodiversity is under threat from climate change, which affects ecosystems and livelihoods dependent on natural resources. The San possess valuable Indigenous knowledge that has sustained them for generations, guiding their interactions with the environment. Climate change can lead to health issues, including increased prevalence of diseases like malaria and cholera, particularly in regions affected by flooding. Persistent poverty exacerbates vulnerabilities, while policy impacts have historically marginalized the San and disrupted their livelihoods. Colonial legacies continue to influence power dynamics, shaping land rights and resource access. Recognizing and addressing these intersecting issues is essential for fostering resilience and promoting sustainable development among the San (Dube et al. 2021). However, the San, whose household livelihood strategies depend on land, forests and rain, have received little attention in studies on climate change. This chapter critically investigates the effects of climate change on San communities in the Tsholotsho District, in Zimbabwe's westernmost province, Matabeleland North. Specifically, the study focuses on the villages of Mshina and Sifulasengwe. The chapter argues that San communities are succumbing to a systemic vulnerability that is largely driven by underlying structural factors, including a history of inappropriate economic policies, gender disparities and colonization injustices, which have led to chronic poverty and inequality. The chapter argues that the San are at a higher risk from the effects of climate change and environmental variability compared to other tribal groups in Matabeleland.

Brief historical background of the San communities

The Kalahari Desert, which crosses Botswana, Namibia, Angola, South Africa, Zimbabwe and Zambia, is home to the Bushmen, also called the San, who are native to Southern Africa. Archaeological evidence suggests that Southern Africa may have been the ancestral home of the San people for at least 20,000 years (Phiri et al. 2020). As a minority group in Zimbabwe, both nationally

and locally, they have social and economic marginality from their neighbours and government policy (Madzudzo 2001: 78). From an economic standpoint, they lack the means to guarantee food security. The San community in Zimbabwe makes up a relatively small percentage of the estimated 113,000 San people living in Southern and Eastern Africa. It is estimated that 2,500 San people live in the Tsholotsho District and some parts of Bililima District in Matabeleland South (Madzudzo 2001; Suzman 2001). The San people are believed to have depended mainly on hunting and gathering edible wild fruits for a long time (Huebschle 2017). This ancient, nomadic way of life has experienced tremendous disruption as a result of forced relocations, land tenure policies that promote permanent settlements and either forbid or criminalize wildlife hunting, or both (Kangira et al. 2019).

The two main problems facing the San people in Zimbabwe and other places are poverty and displacement. The expulsion of the San from Wankie Game Reserve, now known as Hwange National Park in western Zimbabwe, during the colonial relocation process, is among the worst things that have ever happened to them. The displacement disrupted traditional social networks and kinship ties, which are vital for the San's communal way of life. Their societal organization, based on shared resources and collective decision-making, was strained, leading to the loss of cultural identity and social cohesion. This had a profound effect on their social structures, economies and overall well-being. The removal had detrimental impacts on their physical and mental health. Loss of their land led to increased poverty, diminished access to traditional foods and a rise in lifestyle-related health issues. Since then, the San have been impacted, or endangered, by many relocation schemes, including in contemporary post-colonial Zimbabwe (Bhebhe and Chirume 2014). Additionally, the sense of displacement and loss of cultural heritage contributed to psychological challenges and a decline in overall life satisfaction. Most of them now have mixed production systems with some small-scale entrepreneurial and income-generating activities, agriculture, gathering and minor animal dependence. Others engage in pursuits such as nature tourism that could be developed further to achieve revenue-generating goals (Hitchcock et al. 2015). Therefore, the livelihoods and income of the households of the San depend heavily on natural resources. However, access to major tree and shrub species is restricted and illegal, regardless of whether they are situated in forest areas governed by Zimbabwe's Forest Act or in protected places like Hwange National Park (Kangira et al. 2019; Bhebhe and Chirume 2014). There are many detrimental outcomes of resettlement procedures, including loss of access to shared property assets, social disarticulation,

marginalization, food poverty, unemployment, homelessness and elevated rates of sickness and mortality (Cernea 1997). The San in contemporary Zimbabwe has to contend with these challenges (Phiri et al. 2023). Together, the emerging climate change and legislative developments that criminalized hunting, which is a vital San livelihood pathway, and expropriated traditional San lands and turned them into national parks have prevented San communities from accessing resources necessary for their livelihood, particularly the natural and financial capital (Dube et al. 2021).

Customary institutions, Indigenous knowledge and climate justice

People are now able to understand changes and happenings in their surroundings thanks to local institutions, values and expertise (Acharya et al. 2016). Local viewpoints and expertise are crucial to community-based climate change adaptation plans and the preservation of natural resources. For example, Ethiopia continues to rely on traditional knowledge to anticipate weather, manage agriculture and conserve natural resources, preserving the landscape's ability to withstand climatic change and fluctuation while maintaining the means of subsistence for local inhabitants (Acharya et al. 2016; Mekonnen et al. 2021). The San People face multifaceted challenges due to their unique cultural identity and historical marginalization. Climate change impacts, such as droughts and deforestation, disproportionately affect their traditional way of life, including access to water and resources. Initiatives promoting climate justice among the San People in Tsholotsho must be inclusive, empowering and culturally sensitive, recognizing the interconnectedness of environmental and social justice issues within this community (Acharya et al. 2016). People use their local knowledge to manage natural resources and agriculture to preserve their way of life and the environments around them.

Most traditional knowledge and practices are carried out by traditional institutions, which enable people to use the knowledge and practices in real life regularly. Indigenous knowledge and traditional institutions have a close relationship that is beneficial for climate change adaptation (MoSTE 2015). Appropriation of natural resources is feasible through strong, historically significant organizations (Sherpa et al. 2013; IPCC 2022; IPCC 2007). Indigenous knowledge is increasingly being used in research and practice for climate adaptation (MoSTE 2015). This demonstrates once again that it is folly

to overlook the values of indigenous knowledge and practices when thinking about sustainable climate change adaptation and natural resource management strategies (Nakashima et al. 2012; Agrawal et al. 2008). The integration of traditional knowledge with scientific information is crucial for achieving sustainable adaptation to the consequences of climate change, particularly in sub-Saharan Africa, given the role played by traditional knowledge and institutions (Mercer et al. 2010). This implies that the importance of fusing scientific and indigenous knowledge to mitigate environmental risks and disasters is becoming more widely acknowledged.

The San people, livelihoods and vulnerability to climate change

The main source of income for the San is agriculture. Using hand tools like hoes to cultivate the land and using ploughs, rented oxen or donkeys are examples of agricultural methods that they use (Kangira et al. 2019). Through partnerships, the San's fields are tilled by their industrious neighbours, who then have to take care of their partner's cattle for the duration of the ploughing season. The San do not harvest much even during a fortunate wet season (Dube et al. 2021: 1036). Plant-based foods, such as fruits and vegetables, as well as mopane worms make up the majority of their diet (Kangira et al. 2019; Dube et al. 2016; Gukurume 2013). The San usually do not participate in, or benefit from, government projects aimed at improving climate resilience because they are marginalized and lack documentation (Hitchcock et al. 2016). In Tsholotsho, they often find themselves restricted to less fertile areas, impacting their traditional hunting and gathering lifestyles. The San struggle with access to basic services such as healthcare, education and clean water. For instance, schools in the area may not accommodate their languages or cultural practices, leading to high dropout rates. Without official identification documents, San individuals face difficulties in asserting their legal rights. This can affect their ability to own land, register for government services or contest injustices, leading to further marginalization. Most of the San are not documented, making it a challenge for them to be considered in Government Public Works Programmes such as the Cash Transfer initiative. Many San individuals are excluded from economic opportunities, resulting in high unemployment rates. For example, they might be overlooked for job positions in agriculture or tourism, which are significant in the region. Lack of documentation has also created challenges

for their children to access education (Phiri et al. 2020). Thus, the absence of documentation perpetuates a cycle of poverty, exclusion and marginalization for the San people in Tsholotsho. There is a social stigma associated with being San, which can lead to discrimination in both social and economic settings (Dube et al. 2021). This affects their ability to integrate or seek assistance from broader community structures. The lack of adequate climate adaptation exacerbates the issue, as evidenced by the scarcity of resources and alternatives to the current means of ensuring food security and sustaining livelihood (Kangira et al. 2019). Hitchcock et al. (2016) note that temperature variations have affected reliable water sources, like rivers and seasonal pans due to excessive evaporation rates. Seasonal pans and artificial dams, like the Tsholotsho Dam, are also threatened by evaporation. As these bodies of water shrink, they can lead to increased competition for water resources among communities and wildlife (Phiri et al. 2020). Increased temperatures and evaporation have led to water scarcity for communities who live along the Nswazi River, which is used for drinking and agriculture. This has caused shortages in areas that depend on the water. The early warning systems should include local ecological data on climate, weather and environmental change. Local meteorological data, such as temperature, rainfall and humidity, can help predict droughts or floods. For instance, using historical weather patterns to forecast extreme events can aid in preparedness.

Materials and methods

The research design utilized in the study was interpretive ethnography, with influences from symbolic interactionism, hermeneutic philosophy and phenomenology (Pradhan et al. 2012). Balehegn et al. (2013) suggest that interpretive ethnography develops a framework for comprehending reality. Tsholotsho is a district located in the Matabeleland North province, which borders Botswana and Zambia, which is the largest, but among the least populated, province in Zimbabwe. It is situated in the western part of the country, bordering Hwange and Binga districts. Tsholotsho is geographically and politically distant from Zimbabwe's centre of power in the capital, Harare. Tsholotsho is known for its diverse population, including the San, who have inhabited the region for centuries. Its administrative centre is at Tsholotsho Business Centre, which is located about 98 km northwest of Bulawayo. Most of the San people are concentrated in this part of the district and they are a higher percentage here than elsewhere.

The study was conducted in Mtshina village, which is located in Ward 10, and Sifulasengwe village, which is located in Ward 7 since these were the two largest villages. These two villages were selected based on the statistical significance of their San households to other wards. Five research assistants who were conversant in the local language of the San people collected them using the IsiNdebele and Kalanga languages and then transcribed them into English. The use of the two local languages was meant to increase easy comprehension of research questions. Data was collected from April to July 2023. Direct observations, two focus group discussions, ten in-depth interviews and document analysis were used for data collection. The results were organized, categorized and described using thematic analysis. The data was manually organized to achieve more abstract research themes. The following steps were included in the analytical process: (a) an overview was obtained by re-reading the interview transcripts; (b) ideas for preliminary themes were noted throughout the data analysis; (c) meaning-bearing text segments were underlined to produce coding that reflected emerging themes in the data; (d) group members discussed and revised the themes to find connections; and (e) links between the codes and themes were discovered to find connections and relations between the themes and the subthemes in the context until data saturation was reached.

Results and discussion

The results are presented and discussed in this chapter based on four themes derived from the research questions. The first section focuses on the factors that make San people vulnerable to climate change. The second section looks at the impact of the phenomenon on their livelihoods, the use of customary institutions to improve adaptation and the application of local knowledge to explain the occurrence of climate change and variability. The third section looks at the implications of climate change on the lives and livelihoods of the San communities, and the fourth section discusses the intersectionality of customary institutions and climate justice.

Drivers of vulnerability to climate change

One of the goals of the study was to investigate the factors that make the San more vulnerable to climate change. Two focus group discussions and ten in-depth interviews revealed that a mix of socio-economic, environmental and

historical circumstances contributed to the San community's susceptibility to climate change in the two research sites. The San face multiple drivers of vulnerability to climate change, stemming from a combination of social, economic and environmental factors. One key driver is their heavy reliance on traditional livelihoods like hunting and gathering, which are sensitive to shifts in ecosystem dynamics caused by climate change. Limited access to resources and land rights exacerbates their vulnerability, as competing land uses and encroachment threaten their ability to adapt to changing conditions. Additionally, inadequate infrastructure for water access and sanitation further compounds their susceptibility to extreme weather events and water scarcity. Lack of representation in decision-making processes and marginalization from mainstream society also contribute to their vulnerability, hindering their capacity to address climate-related challenges effectively. Addressing these multifaceted drivers of vulnerability requires holistic approaches that prioritize the rights, knowledge and resilience of the San community in the face of a changing climate. Poverty and resettlement are the two biggest issues facing the San in Tsholotsho, as they do for the majority of the San in Namibia, South Africa and Botswana. Research participants indicated that because their community had been forcibly relocated to make room for the creation of Hwange National Park in the 1920s, they had been left impoverished and vulnerable to environmental hazards. One participant, an 84-year-old man, explained:

Due to colonial and post-colonial government practices, we are vulnerable to climate change. As of right now, some of our people lack land. Before the Hwange National Park was established, we used to live. The development of the park has a significant impact on social structures, cultural sustainability, and household well-being. We were compelled to transition from hunter-gatherers to farm households when these protected areas were established under the Parks and Forestry Commission. This was a problem because the newly acquired Khalanga and Ndebele manner of life required us to locate land.

It resulted from the fact that the customary usage of culturally and economically significant animals and resources by the San peoples was impacted by the colonial and post-colonial ecosystem management systems, which also had an impact on the protection and management of wildlife and fisheries. Additionally, research participants implied that things got worse under the post-colonial government. A 67-year-old woman told us:

We have been a part of Zimbabwe's forgotten. We were ignored and continued to lag behind the curve of progress. It is important to recognize our fragility

in light of the marginalization we have been subjected to. You won't believe that for several decades following independence, this community lived without roads, schools, clinics or boreholes. The present administration and many non-governmental groups have implemented various development projects, such as schools, water sources and mobile clinics.

Based on the accounts, the introduction of a market-based economy, disenfranchisement, poverty, past ecological policies and lack of acknowledgement by policy officials have all contributed to the San's susceptibility to climate change. The study's findings are supported by several academics (Hitchcock et al. 2016; Dube et al. 2021) who concluded that the San people are perceived by other tribes as being 'backward' and unwilling to embrace modernity, which is typified by advancements in agriculture, easier access to education and prosperity in the marketplace. Community-Based Natural Resources Management (CBNRM) programmes were introduced in Zimbabwe in the early 1990s. Specifically, the concept gained traction with the inception of the Communal Areas Management Programme for Indigenous Resources (CAMPFIRE) in 1989. This programme aimed to empower local communities to manage and benefit from their natural resources, particularly wildlife, by allowing them to retain a portion of the revenue generated from tourism and hunting. However, the CBNRM programmes have not helped the San communities due to a lack of property rights and access to natural resources, unethical practices or bureaucratic paralysis. CBNRM in Zimbabwe refers to a participatory approach where local communities are involved in the sustainable management and conservation of natural resources within their area. This approach empowers communities to make decisions regarding the use of resources such as land, water, forests and wildlife, while also promoting environmental conservation and socio-economic development (Ndlovu 2014). The focus on CBNRM has since expanded to include various natural resources, promoting sustainable practices and community engagement in conservation efforts. CBNRM in Zimbabwe is a widespread programme which typically involves collaboration between local communities, government agencies, non-governmental organizations and other stakeholders to ensure the sustainable utilization of natural resources for the benefit of both present and future generations. It resulted from the interactions in which colonial authorities destroyed the customary leadership frameworks that were essential to maintaining harmony and peace within the San communities. These hierarchical structures were also the protectors of the San's culture. A local government official in Tsholotsho who is a Rural District Administrator postulated:

In this country, the San communities are not politically represented in the decision-making processes. We were regretfully denied the chance to participate in the government's efforts to revive traditional leadership structures that had crumbled during the colonial era upon independence. The problem with not having enough political representation is that current policies will not be impacted by your opinions, and you'll continue to be left out of the national cake. Our people are therefore at risk from climate change because no one represents them in decision-making forums. The situation is terrible for women who are not expected to assume leadership positions in this patriarchal community. Women are expected to remain at home and focus on caring for their families.

Further investigations revealed, however, that the current government has enabled the restoration of conventional leadership structures in the areas inhabited by the San people. However, all the recently installed traditional leaders are men because of the rooted division of labour that excludes women from taking up public roles. The gender-based division of labour becomes more rigid, patterns of sharing break down, the accumulation of possessions is adopted as a social value and internal politics become more male-oriented (Madzudzo 1997). Mundy and Compton (1995) contend that the San communities lack the emancipative political voices against these injustices, hence the tendency to adopt the attitude of silence or conscious non-participation that aggravates poverty, exclusion and deprivation. The study's conclusions are further supported by Suzman (2001), who discovered that the underrepresentation of the San communities in governmental organizations contributed to their sense of being alienated in post-colonial Namibia.

Indigenous knowledge and how it accounts for changes in the climate among the San

Informed by a critical environmental perspective we reviewed the literature on traditional ecological knowledge (TEK), explored the contested nature of this concept and identified the numerous epistemological obstacles to the appropriate and respectful inclusion of traditional ecological knowledge (Smith and Sharp 2012). To find out how the San utilize their Indigenous knowledge epistemologies to explain climate change, we asked participants a series of questions. The San possess valuable Indigenous knowledge on climate change adaptation and sustainable resource management. Some participants believed that the socio-economic and political changes that significantly altered the lives and livelihoods of the San people were the cause of droughts, floods

and other extreme weather phenomena. Today it is not unusual for some Indigenous peoples to incorporate methods from biology, ecology and climate science, among other fields, into their knowledge systems (Whyte, Brewer and Johnson 2016). It became apparent to them that colonization and the arrival of Christianity, which replaced their Indigenous religious systems, were also responsible for the current climate trends. A significant number of the San in Tsholotsho have adopted Christianity. For example, in communities like Lukili, many San individuals have embraced Christianity through missionary activities and local church outreach programmes. While specific percentage data is not readily available, there is a noticeable Christian influence among the San in Tsholotsho. However, the qualities of relationships connecting Indigenous peoples with other societies' governments, non-governmental organizations and corporations are not conducive to coordinated action that would avoid further injustice against Indigenous peoples in the process of responding to climate change (Whyte 2020). Discussions with participants insinuated that the majority of households were now Christian, with a few retaining their traditional beliefs. An 82-year-old woman told us:

The enraged Gods are punishing us. The customs our people once followed to please the gods are no longer followed. Regrettably, some people have even gone so far as to adopt White people's religion. The same folks who left us with little and moved us to construct game parks. As you may recall, we weren't farmers, and our main sources of nutrition were animals and wild veggies. We no longer do rainmaking ceremonies as a result of modernity. Even some of our important rites are no longer done as they have been seen as demonic by those who are now into Christianity.

Our interactions revealed that the San employ a variety of biophysical and social factors to characterize the recurrence of drought rather than conceptualizing it in terms of meteorology. In particular, weather forecasting and the application of such knowledge were governed by long-standing customary institutions and practices. It is important to remember that indigenous peoples have been employing systematic methods for learning and teaching about the natural world for thousands of years, sometimes utilizing techniques familiar to us today and sometimes not (Johnson, Brewer, Nelson et al. 2023). Our findings included that older people had more Indigenous knowledge than younger ones. Additionally, older people seemed to know more about weather information, particularly when it came to regional and native climate-forecasting indications. One participant, an 87-year-old woman, indicated:

Our livelihoods have always been based on our local expertise. Without our native wisdom, we are nothing as San communities. For your knowledge, we can predict the rainy season using a variety of factors. A healthy rainy season is indicated by a high concentration of butterflies before the rainy season. A drought is indicated when mopane worms proliferate and fruiting is profuse.

The idea that Indigenous knowledge and climate prediction were crucial in helping communities get ready for the impending catastrophic weather patterns came from this involvement. Indigenous traditions of climate change view the very topic of climate change as connected to these qualities, which are sometimes referred to as kin relationships. The entwinement of colonialism, capitalism and industrialization failed to affirm or establish these qualities or kinship relationships across societies (Whyte 2020). As a result of their extensive and rich experiences surviving under such environmental challenges, San societies have evolved a variety of adaptations and coping mechanisms to deal with the effects of climate unpredictability and change. They have Indigenous ecological knowledge passed down through generations, which includes skills in tracking weather patterns, identifying medicinal plants and understanding animal behaviour during changing environmental conditions. Although Indigenous peoples' perspectives and concerns have not always been accommodated in climate change adaptation research and practice, a burgeoning literature is helping to reframe and decolonize climate adaptation in line with Indigenous peoples' lived experiences (Johnson, Parsons, and Fisher 2022). For example, the San have specific knowledge of plants that indicate upcoming rainfall or sources of water during droughts. This Indigenous knowledge plays a crucial role in their resilience to climate change impacts and can also inform broader climate adaptation strategies for their communities and beyond. Zvobgo et al. (2023) support the findings by stating that smallholders use forecasts based on Indigenous knowledge to make context-specific climate decisions that are important for climate risk preparedness and resilience to climate risks. Furthermore, farmers generally used the call of the southern ground hornbill to forecast storms.

The implications of climate change on the lives and livelihoods of the San communities

In the two villages we conducted research, we also tried to determine how the lives and livelihoods of the San might be affected by climate change. The conversations revealed how the lives of the San have become more difficult as

a result of the interplay between climate change and several socio-economic and political variables. The community members reported that Tsholotsho has suffered a high frequency of droughts and other catastrophic occurrences like cyclones and floods. For instance, one of the San people highlights:

The prolonged droughts have led to severe water shortages, affecting both their livestock and agricultural practices. He indicated that traditional crops, such as sorghum and millet, struggle to thrive under changing weather patterns, impacting their food security and traditional livelihoods. Cyclones and floods have not only damaged their homes and infrastructure but also disrupted access to essential resources, such as water and grazing land. After cyclones, we often face challenges in rebuilding due to limited resources and support.

Climate change has significant implications for the San, who rely heavily on natural resources for their livelihoods. Climate change significantly intensifies weather patterns, leading to more frequent and severe droughts, cyclones and floods (Phiri et al. 2020). Rising global temperatures increase evaporation rates, causing prolonged dry spells and water scarcity. Simultaneously, warmer oceans fuel stronger cyclones, resulting in devastating storms and associated flooding. Additionally, altered precipitation patterns contribute to unpredictable rainfall, leading to sudden floods (Kangira et al. 2019). These climatic shifts disrupt ecosystems, threaten food security and pose significant challenges for vulnerable communities, necessitating urgent adaptation and mitigation strategies to address the escalating impacts of climate change on natural and human systems. Increased droughts, erratic rainfall patterns and desertification threaten their traditional way of life, including hunting, gathering and pastoralism.

Communities that were formerly hunter-gatherers now depend on crops and animals raised in rain-fed systems, making them more susceptible to the effects of climate change and unpredictability (Nyong et al. 2007). The transition from hunter-gatherers to farmers has had far-reaching implications on gender roles and relations. Climate justice for the San people involves ensuring their rights to land, resources and cultural heritage are protected, as they are often disproportionately affected by environmental degradation and lack of access to decision-making processes that impact their communities. For the San people in Tsholotsho, climate justice involves securing access to essential services like water and healthcare, which are threatened by changing environmental conditions. One of the participants said:

Climate justice encompasses the recognition of their rights to land, resources, and cultural heritage while addressing the impacts of climate change. It

should address historical injustices, promote equitable resource distribution and support sustainable practices that empower them to adapt, thrive and maintain their cultural identity amidst the challenges posed by climate change. It emphasizes recognition of their traditional knowledge, rights to land and inclusion in decision-making processes, ensuring their voices are heard in addressing environmental challenges affecting their livelihoods.

However, a sedentary lifestyle per se was perhaps less significant in this respect than the adoption of new socio-economic modes. Initiatives promoting sustainable land management, Indigenous knowledge exchange and inclusive climate policies are essential for addressing the challenges faced by the San people in the context of climate change. This was succinctly captured by a 61-year-old woman, who opined:

Our fundamental problem is that, as hunter-gatherers, we never had to strive to exist. Women would make autonomous decisions on what to gather and what not to gather. Wild fruits and meat were our staples. Reduced precipitation and the resulting high temperatures have affected animal raising, crop productivity, and overall food security. Families eat only once a day, are food insecure, and others have lost what little animals they had and fallen into abject poverty.

Even though agriculture is currently the main source of income and survival for most people in the San community, our two focus group discussions revealed that some households were landless, had low purchasing power parity, had limited access to extension services and had difficulty obtaining drought power and farming inputs. Water was considered essential for livestock rearing and a household's existence. It became apparent that, in the few operational boreholes dug by the government and non-governmental organizations, women were increasingly trekking great distances to obtain safe drinking water for home use. Conversations additionally disclosed that individuals in the community had died from waterborne illnesses, including dysentery and cholera, due to their reliance on exposed water sources. The impact of climate change on forestry resources was captured through the anecdotes of a 59-year-old man, who posited:

Even if we no longer have the traditional authority over these forest resources, we nonetheless depend on them. Regrettably, the excessive heat is causing mopane worms to die and decreasing their harvest. Mopane worms are essential for increasing food diversity and bringing in money for the family. Since these mopane worms are sold or traded with neighbours who are Ndebele and Kalanga, they also contribute significantly to the seasonal cash or commodities

revenue. Injiva, or cross-border traders, purchase some of the mopane worms and ship them to South Africa.

Climate change is altering San family structures and gender roles, as traditional livelihoods become unsustainable. Participants in the study reported that some San families have been compelled to relocate to Botswana, Namibia and South Africa in pursuit of better pastures owing to livelihood restrictions resulting from climate change and variability. Men may migrate for work, while women increasingly assume leadership in resource management and decision-making. According to a traditional leader, this pattern of travel is dismantling San families and reorganizing the gendered division of employment that was a feature of their pre-colonial social structure. This shift challenges gender norms, empowering women but also creating stress as families adapt to economic and environmental pressures. Morris (2015) argues that the San people frequently live in a variety of delicate ecosystems and rely on natural resources for their subsistence, which is consistent with the study's findings. Thus, to the Sans, urgent attention to climate change is a matter not only of the environment but also of social justice and human rights.

The intersectionality of customary institutions and climate justice

The San's customary institutions play a vital role in promoting community resilience and sustainable resource management. These traditional structures often embody knowledge systems that are essential for adapting to climate change impacts (Dube et al. 2021; Trisos 2022; Zvobgo et al. 2023). Viewing the Sun community through an intersectional lens highlights the interconnected nature of various identity factors such as ethnicity, gender and socio-economic status, influencing their vulnerability to climate change. Women are often tasked with gathering food and water and bear the brunt of climate impacts. Socio-economic constraints hinder adaptive strategies, perpetuating cycles of poverty and vulnerability. The conversations revealed how important it is for San community leadership to communicate about climate change and make sure that residents follow the recommendations of Agricultural extension agents who are trained professionals that provide vital support to farmers by offering advice on best agricultural practices, crop management, pest control, and sustainable farming techniques or others with local experience. A local authority representative who is the Headman of Mtshina village in Ward 10 told us:

As community leaders, we urge those who follow us to pay attention to the government's and other stakeholders' guidance for adapting to climate change. We urge them to cultivate small grains, harvest water, and lessen deforestation. We also act against violence against women. In this community, women are crucial to the sustainability of households' livelihoods. Women play a vital role in farming, harvesting forestry resources and caring for household members. We are not farmers, as you are aware, but what can we do? Like any other community, we have to embrace modernity and change.

Within the San community, socio-economic status affects access to resources, with wealthier individuals enjoying better livelihoods. Gender roles often confine women to domestic tasks, limiting their involvement in decision-making. By recognizing these intersections, efforts towards climate justice can be more inclusive and effective, addressing the unique challenges faced by different members of the community. Ethnicity influences social standing, with different groups experiencing varying degrees of marginalization, impacting community support and access to opportunities. Tanyanyiwa (2019) has argued that Indigenous communication techniques, such as folk media, puppet shows, folk drama, storytelling, village meetings and informal information exchange at ritual festivals to educate locals on climate change, have been utilized by community structures in Goromonzi by the Shona people to their advantage in Zimbabwe. Upholding and integrating customary practices and understanding intersectional dynamics are key to advancing climate justice among the San people (Madzudzo 2001). Even while Indigenous institutions are essential for promoting adaptation and replication strategies, the severity of unfavourable future climate effects is anticipated to rise, making San people more vulnerable and lowering their current adaptive potential.

Conclusions

This chapter has demonstrated how the San are acutely vulnerable to the shocks associated with climate change as a result of the confluence of systemic issues, most of which are caused by underlying structural reasons. These vulnerabilities emanate from lasting colonial injustices, gender inequality and a history of unsuitable social and economic policies. The historical shift that brought capitalism and new laws controlling forest resources disadvantaged the San by uprooting their economy centred on hunting and gathering. The importance of traditional institutions, such as the traditional leadership structure, particularly

through Chiefs and Headmen, plays a crucial role in preserving Indigenous knowledge for disaster response related to climate change. This local governance is vital for mobilizing community action during crises, leveraging both cultural practices and communal solidarity. Traditional methods of water conservation and Indigenous knowledge of crop rotation are often in response to disasters brought on by climate change and variability have also been highlighted to show the benefits of traditional ecological knowledge. To make Indigenous people resilient to climate change, particularly in arid regions like the Tsholotsho district, customary institutions that have long supported these disadvantaged communities' livelihood patterns must be supported. This chapter cautions against the peril of focusing solely on climate change in a way that is consistent with Western knowledge systems. A contextualized approach to climate change minimizes and dismisses the significance of Indigenous customs, knowledge and practices in explaining climate variability. The chapter concludes that integrating Indigenous Knowledge into climate analysis is vital in the interpretation of space and time, the relationships between people and places, knowledge systems and the appropriation of these concepts across different times and spaces, which can provide a valuable foundation for understanding the diverse experiences of climate change.

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There are other roads

Davina Philomena Kawuma

Experimental approaches to writing fiction allow for flexibility in exploration of meaning and language. This flexibility makes them particularly suitable for amplifying marginalized voices and perspectives, and creating moments of surprise, disorientation and even discomfort. The non-traditional formats characteristic of experimental approaches offer opportunities to address issues whose scale and complexity often overwhelm non-technical audiences, leading to apathy or disengagement when only presented through academic formats and language. When presented through unconventional structures that break them down into more digestible pieces, global issues like climate change, systemic inequality or political unrest may become more accessible.

Rather than adhering to a strictly linear narrative, such as a traditional third-person omniscient point of view, issues might be explored in more roundabout ways, for example, email exchanges, Twitter threads or YouTube comment sections. Such formats are often more relatable, as they ring truer to the way people interact in real life than, say, a discussion of statistical results; they allow us to explore viewpoints that are overlooked but which still play an important role in shaping how people perceive and frame issues. For example, many ideas that are often dismissed as ‘conspiracy theories’ hold considerable influence within many online communities. These ideas may shape everything from personal decisions to the very way they engage with – in fact choose to disregard – scientific findings. However, because experts fail to acknowledge these ideas, they rarely make their way into mainstream discourse. By presenting such ideas in a story formatted as a YouTube comment section, and with a bit of humour and irony, one could gently nudge members of different communities to question their assumptions by revealing the inconsistencies or contradictions within their ideas. It could be a way to spark reflection, helping them step back and reconsider without feeling directly attacked or ridiculed.

‘There Are Other Roads’ is a fictional short story that employs an experimental narrative style to explore the intersection of climate change, displacement, gender and power. Set in Uganda, it spans both the distant past and contemporary times. It unfolds in five sections, including (a) a transcript from a workspace chat between a project lead and a research coordinator and (b) a conversation between a talk show host and one of the main characters, Deogratius, a refugee caught between his dual heritage. It aims to challenge us to think critically about which communities are likely to be most affected by the climate crisis, as well as the ways in which they might resist or harness different forms of power.

SECTION I

PANEL 1: An aerial view of Katuugo swamp in its prime – a dazzling sea of palm trees.

Narrator: ‘Long ago, Katuugo swamp was a vast expanse of lush, green palm trees whose roots were intertwined with the land’s lifeblood.’

PANEL 2: Nightfall. A close-up of women cloaked in bark cloth. They are in a trance-like state, performing an elaborate ritual with several snake species.

Narrator: ‘A group of priestesses devoted to Kasumagizi and his snake spirits, revered as guardians of the land, protected the swamp. No tree was felled, no fruit plucked, without their blessing.’

PANEL 3: Humans in harmony with nature; humans as nature, not as something apart from it – people harvesting palm trees respectfully, children frolicking and animals roaming freely.

Narrator: ‘Under the watchful gaze of the guardians, the forest gave generously, sustaining people, animals and spirits alike.’

PANEL 4: Armed soldiers arrive on large canoes. They disembark, rifles in hand, and march towards an enclave. Men in flowing white robes follow closely behind – men who see demons where there were once only spirits. They appear to be walking on the water as they wield large crucifixes.

Narrator: ‘But the winds of change blew harshly. The guardians were branded as witches by the new order. Overnight, they were vilified as enemies of progress, their ancient rites and sacred traditions dismissed as obstacles to modernization.’

PANEL 5: Inside a guardian’s dwelling, a man in a white robe sprinkles holy water over staffs, carvings, potherbs, animal skins and other religious paraphernalia. Once the man completes his blessings, a soldier follows and sets everything in the dwelling ablaze, reducing everything to ashes, devouring the old ways.

Narrator: 'Sacred artefacts, symbols of centuries-old traditions, were consumed. Most guardians fled, burdened by sorrow and the weight of their loss. However, others, including Kadogo's grandmother, chose to stay, opting to perish in the flames rather than abandon their duties.'

PANEL 6: Transition to modern times – construction crews with heavy machinery are 'reclaiming' Katuugo swamp, uprooting trees from it and filling it with sand.

Narrator: 'With the guardians gone, the swamp was defenceless. The relentless march of progress tore through its heart, uprooting all in its path.'

PANEL 7: Katuugo swamp is now an expanse of gnarly sedges and tree stumps. The palm forest has been replaced by settlements, car washing bays, brick-making kilns and the occasional petrol station. Birds and mammals that depended on the swamp for survival have either been hunted to extinction or migrated elsewhere.

Narrator: 'What was once a thriving ecosystem is now a ghost of its former self.'

PANEL 8: Zoom in on a forlorn palm tree. The palm is drooping over a pond near a washing bay where a group of men are scrubbing the tires of trucks and *boodaboodas*. The water in the pond is murky, a tangled mass of rotting vegetables, misshapen plastic and lacerated *buveera*.

Narrator: 'The few trees that remain cling to life amidst the encroaching tide.'

PANEL 9: Kadogo, now an elderly woman, stands at the edge of Katuugo swamp, looking out over its barrenness; she holds the ceremonial staff that her grandmother once held. Behind her, a group of young people slowly gathers.

Narrator: 'But in the heart of the ruins, hope endures. Kadogo, the last link to a forgotten lineage, guides a new generation, determined to reclaim what was lost.'

SECTION II

@adinotebandeke

10:12 hey Estelle

@adinotebandeke

10:12 just finished drafting the first part of PB 15/24

@adinotebandeke

10:13 you owe me _big time_ for this one

@adinotebandeke

10:13 have a look before i send it over to ROTT

@adinotebandeke

10:13 make sure i haven't missed anything

@adinotebandeke

10:14 also confirm if the email address i've listed for you is still your primary one

@adinotebandeke

10:15 do i need to add phone numbers

@estelleainembabazi

10:21 Good morning, Adino, my hero! ****Swoons**** If you copy and paste it here, I'll review it right away. [starry-eyed-smiling-face emoji]

@adinotebandeke

10:22 here you go

@adinotebandeke

10:23

LAND SCARCITY: A PRIMARY DRIVER OF ENVIRONMENTAL AND HUMANITARIAN CHALLENGES IN KATUUGO REFUGEE CAMP
 JULY 2024
 POLICY BRIEF NO. 15/24

Introduction

Katuugo Refugee Camp (KRC) is situated in Kahanga County, approximately 5 km from the longest arm of the western bypass. Kahanga County borders an area that was once covered by an extensive swamp forest called Katuugo. Most land-use changes in and around Kahanga in recent years have been linked to the construction of the bypass. While the construction of the bypass generated employment opportunities and improved connectivity, it also created several challenges. These include the loss of critical wetland habitats, deforestation, disruption of animal migration patterns, soil erosion and heightened risks of flooding, all of which have threatened the livelihoods of refugees and locals in and around KRC. This policy brief highlights the urgent need for integrated approaches that address environmental degradation and humanitarian needs in and around KRC. By implementing the recommended actions, stakeholders will help restore the environment, ease tensions and improve the living conditions of refugees and host communities.

Background

Given its long history of providing asylum to those fleeing conflict and persecution across East Africa and beyond, Uganda is currently ranked by the United Independent Nations (UIN) as the third most hospitable country for refugees in the world. Despite substantial financial contributions from the International Refugee Fund (IRF), World Reserve Bank (WRB), African Social Development Bank (ASDB), East African Community Bank (EACB) and numerous regional and international non-governmental organizations – amounting to 300 million dollars this year alone – rampant corruption has severely compromised the effectiveness of humanitarian interventions in Uganda. Consequently, services in most refugee camps are inadequate and often fall short of meeting basic needs. This situation has been aggravated by a growing influx of undocumented migrants, driven in part by increasingly porous borders and an expanding human smuggling network, which has led to the creation of many informal and often precarious settlements.

The strain from these influxes has intensified pressure on Uganda's already stretched resources and infrastructure and compounded the challenges faced by displaced populations in refugee camps. Improper waste disposal has become a major issue, leading to unsanitary living conditions and the spread of emerging infectious diseases (EIDs). Overcrowding has also worsened, resulting in inadequate access to clean water, sanitation facilities and healthcare services. Local schools are also beyond capacity, which has left many children without access to education.

Among the approximately 100 informal settlements that have appeared in recent years, KRC is the largest. According to the latest census, it is home to over 300,000 individuals from Rwanda, Burundi, Somalia, the Democratic Republic of Congo (DRC) and the Republic of South Sudan (RoSS), many of whom have been compelled to turn to subsistence agriculture due to insufficient food relief. Unfortunately, the land allocated for cultivation by the Office of the First Prime Minister (OFPM) through the Department of Refugees (DOR) and the Ministry of Estates, Housing, and Urban Development (MEHUD) can't meet the nutritional needs of the entire camp's population. There have been reports of increased encroachment on land outside KRC and of rising tensions between refugees and host communities in surrounding villages. It is important to note that most people in the host communities are climate insecure internally displaced persons (CIIDPs) who were forced to flee their homes due to heatwaves, droughts, floods and storms.

Evidence from the field

To provide a comprehensive overview of the situation at KRC, the following research methods were employed:

- Interviews with resident and non-resident community members and leaders, including village chairpersons, parish chiefs, sub-county councillors, district commissioners and camp cell leaders.
- Direct observations of activities within KRC and neighbouring villages.
- Reviews of current reports and historical records.

Key findings

- The remnants of Katuugo swamp have been encroached on for agriculture and construction materials, which has escalated conflicts between refugees and host communities.
- Kahanga faces a growing risk of becoming a food desert due to the limited availability of land for agriculture.
- Current land tenure systems have created uncertainty over land ownership, which has made it difficult to identify legitimate title deed holders. Some district commissioners have reportedly colluded with camp cell leaders to dispossess local landowners.
- Government officials have been notably absent when their intervention is needed, with some interviewees noting that the area Member of Parliament (MP) hasn't visited since he won the last election four and a half years ago. When government officials do make an appearance, it's often for minor tasks like overseeing cleaning of Katuugo channel. This has left residents frustrated and with numerous unresolved issues.

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@estelleainembabazi

10:46 Yeah, my email address is fine – same one I’ve been using. No need for phone numbers. Who even calls anymore when everything’s on email or Slack?
[rolling-eyes emoji]

@adinotebandeke

10:47 [thumbs-up emoji]

@adinotebandeke

10:48 i’d appreciate your input STAT

@adinotebandeke

10:48 the katuugo thing is heating up

@estelleainembabazi

10:48 Isn’t it always?!

@adinotebandeke

10:48 they want something _actionable_ ASAP

@estelleainembabazi

10:49 Actionable? By which you mean no one is going to read this thing?

@adinotebandeke

10:50 [eyes-looking-left emoji]

@estelleainembabazi

10:50 What does the good captain do with all the briefs we write on her behalf?
[face-with-steam-from-nose emoji] We’ve been writing about Katuugo for ages,
but it’s not as if anything ever changes! [red-face-with-an-angry-expression]

emoji] Feels like we just keep changing dates and slapping on new numbers. SMH! I'll take a look, but don't expect miracles. I can already guess it's going to be the same dance – write, send, ignore.

@adinotebandeke

10:53 [sad-face emoji]

@adinotebandeke

10:53 i know but this is what they expect

@adinotebandeke

10:53 we're told to write

@adinotebandeke

10:54 so we write

@estelleainembabazi

10:55 Maybe we should try a different approach? Tell real stories, like what you said the last time we talked. Stories that will make people *_CARE_*** Imagine a brief that actually reads like something real, something that makes people *_WANT_* to act.

@adinotebandeke

10:59 i hear you

@estelleainembabazi

11:00 [teary-eyed emoji] I'm honestly so tired of this shit.

@adinotebandeke

11:01 i'll try my pest to keep pushing for what we discussed

@estelleainembabazi

11:00 Pest? WTF?

@adinotebandeke

11:01 lol _best_

@adinotebandeke

11:02 for now we're stuck in this cycle of writing docs that just get shelved

@adinotebandeke

11:03 [shrugging emoji]

@adinotebandeke

11:04 on the bright side at least we get paid

@adinotebandeke

11:05 [money-mouth-face emoji]

@adinotebandeke

11:05 [money-with-wings emoji]

@adinotebandeke

11:05 [upside-down-face emoji]

@adinotebandeke

11:05 anyway

@adinotebandeke

11:06 i'm heading into a meeting with the line minister at half past noon

@adinotebandeke

11:07 [screaming emoji]

@estelleainembabazi

11:08 [face-without-mouth emoji]

@adinotebandeke

11:08 [hugging-face emoji]

@estelleainembabazi

11:33

Recommendations

Collaborative natural resource management

- Implement sustainable agricultural practices: promote and support the adoption of sustainable farming techniques among refugee and host communities, including crop rotation, improved soil conservation methods and the cultivation of drought-resistant crops.
- Develop reforestation projects: initiate reforestation efforts in degraded areas of Katuugo swamp to provide more resources for communities.

Conflict resolution and community integration

- Facilitate dialogue and mediation: set up platforms for regular dialogue between refugees and host communities to address causes of tension and offer opportunities for cooperation. Implement conflict resolution programmes to manage disputes effectively.

- Support community-based solutions: encourage joint projects that benefit both refugees and host communities, such as communal gardens or cooperative unions.

Increase land allocation and infrastructure support

- Expand access to land: advocate for increased land allocation for cultivation and settlement to alleviate overcrowding and reduce pressure on remaining swamp forest.
- Enhance infrastructure development: invest in infrastructure improvements, including better access to water, sanitation and sustainable energy services.

Strengthen climate resilience

- Implement climate adaptation programmes: develop programmes focused on climate resilience, including early warning systems for extreme weather events and education on climate adaptation strategies.
- Support livelihood diversification: provide support for livelihood diversification, such as skills training and microfinance opportunities, to help communities adapt to changing environmental conditions.

Reform land tenure systems

- Clarify land ownership: conduct comprehensive land surveys and establish clear, transparent land ownership records. Implement reforms to streamline land tenure systems and ensure that land ownership disputes are resolved in a prompt and fair manner.
- Tackle corruption: strengthen oversight mechanisms to prevent collusion and corruption in land transactions. Ensure that land allocation processes are transparent, and that they involve community input and scrutiny.

Enhance government engagement and accountability

- Increase government presence: ensure that government officials regularly visit and engage with their constituents to address local needs and concerns. Develop a schedule for routine visits and follow-ups.
- Improve service delivery: strengthen the ability of local authorities to provide essential services. Address gaps in service delivery and ensure that government interventions are timely and responsive to community needs.

@adinotbandeke

11:34 you're the best!

@adinotebandeke

11:34 [party-hat-face-with-noisemaker emoji]

@estelleainembabazi

11:35 [smiling-face-with-sunglasses emoji]

SECTION III

‘... before the concrete roads and iron machines, this land was alive with spirits,’ Kadogo continued. By the light of the fire, her voice rose like the wind that once rustled through the palm trees of Katuugo swamp. The children gathered around leaned in as she recounted words passed down through generations. ‘The trees spoke to us in the rustling of their leaves; the water sang as it flowed through the roots. Every living thing was connected, bound together with the blessings of Kasumagizi’s snake spirits.’

As Kadogo spoke, the memory of her grandmother’s rituals flooded her mind – the rhythmic dance, the offerings laid at the foot of sacred trees, the snakes coiled around her arms like living jewellery. These were not mere stories; they were the foundation of who she was, a call to action, a bridge between the past and the future. They informed her actions as she cultivated drought-resistant crops, tended the earth with the same reverence her ancestors had shown and entertained the children who gathered in her compound every day.

‘The land remembers,’ Kadogo told the children. ‘It may be bruised, but it is not broken. Just as my grandmother stood tall in the face of the flames, so too must we stand for what we believe! We must not be afraid!’

As the shadows on the ground lengthened, Kadogo’s voice softened. ‘The spirits find peace in the hearts of those who remember.’

The children began to stir, their curiosity sated for the day. After a final, affectionate pat on the heads of the youngest children, Kadogo watched them scamper off to their homes.

As the night settled in, accompanied by the low, monotonous churring of long-absent crickets, Kadogo noticed that Deogratius still hadn’t returned. Their routine was to share supper, exchange news and then sit by the fire, the warmth of the flames a comforting close to each evening. Deogratius should have been squatting by the fire, adding more wood to keep it alive. Instead, it crackled quietly towards its end, fading in his absence.

Kadogo tried calling Deogratius’ phone, but it went straight to voicemail. She told herself not to worry – Deogratius was a grown man, fully capable of

taking care of himself – but the knot in her stomach tightened, nonetheless. She tried to busy herself with warming their supper, tried to focus on other similarly mundane tasks, but her thoughts kept drifting back to him.

To keep herself distracted, Kadogo went over the agenda for the next day's local council meeting with camp cell leaders. Though she didn't live in Katuugo Refugee Camp and held no official title, many refugees often gravitated to her home when they needed advice or mediation. Over the years, she had earned herself a respected place in the community. Although she was a leader in all but name, the thought of the council meeting filled her with doubt and made her question her ability to guide.

A young man from the camp had impregnated a girl from a nearby village, and now her father was demanding a dowry far beyond the young man's means. Kadogo knew the girl's father well, so she could already foresee the chaos that would unfold. She also knew she would have to publicly contradict him. She had credible information that he had misled the police about his daughter's age; she was actually twenty-three, not sixteen, and the boy fathering her child was only fifteen. As a proud, stubborn man and a candidate for the ruling party, the girl's father would no doubt perceive Kadogo's exposure of his deceit as a personal affront. The responsibility of finding a fair resolution and preventing the situation from escalating sat on her chest.

Kadogo took several deep breaths, drawing strength from the steady rise and fall of her chest. She removed her glasses and rubbed her tired eyes before finally resting her head on the table. Worries about tomorrow's decisions mingled with today's concern about Deogratius as she drifted into a dreamless sleep.

Kadogo must have been asleep for a long time, for when she woke, Deogratius was back, washing dishes in the kitchen. She quietly listened to the loud hiss of water on metal until he entered the living room and leaned against the doorframe, his hands raised so he wouldn't make the floor froth with soapsuds. Though he wore a smile, Kadogo sensed unease, a tautness in his posture that belied his calmness.

When he brought her tea a few minutes later, she gestured for him to come closer. 'What troubles you, my son?'

'I'm just tired', Deogratius said as he settled into the chair closest to Kadogo.

Watching him, she quickly understood that pressing further would only drive him away. It wasn't just physical fatigue he was talking about. He was weary of the system, frustrated that his efforts yielded little reward. The strain was evident in his hunched posture and reddening eyes.

Kadogo nodded as she held the mug of tea close to her chest. ‘How did the interview go?’

Deogratius shrugged. ‘Same as all interviews’, he replied. ‘No one hires people without national IDs.’ His smile was thin, barely concealing the anger bubbling beneath.

‘Things will get better’, Kadogo said.

Deogratius clearly didn’t share her optimism, but chose to remain silent. He stood up, muttering that he was going to bed. Kadogo squeezed his hand and bid him a good night. As she watched him disappear into the dimly lit corridor, she recalled the winding path that had led him to her.

Born to a Rwandan father and a Ugandan mother, Deogratius had grown up straddling two worlds, neither of which fully accepted him.

Though officially categorized as a Munyarwanda, Deogratius saw himself as quintessentially Ugandan. Born in Kampala and educated throughout Uganda, he considered Uganda his home. After graduating from university with an honour’s degree in drama and film, he struggled to find employment. Eventually, he accepted his maternal aunt’s invitation to Rwanda, where he taught English at a high school for three years.

Upon returning to Uganda, Deogratius discovered that his national ID had expired. His attempts to renew it were blocked when he disclosed his Kinyarwanda heritage on his father’s side. This denial limited his job prospects and left him unable to open a bank account, buy a SIM card or access medical services at government hospitals. He pressed on, undeterred, continuing to submit application letters and copies of his transcripts to offices across Kampala. Eventually, his persistence paid off when an NGO that distributed solar-powered water pumps took him on as a volunteer. This role brought him to Katuugo Refugee Camp, where he received a refugee ID, which offered him freedom of movement but denied him the right to vote and receive loans.

Deogratius met Kadogo at a village meeting shortly after his volunteer contract ended. She was drawn to him immediately, largely because he reminded her of her lost brother. Their connection quickly blossomed into a friendship, and Kadogo took him under her wing, entrusting him with the care of several native species her grandmother had cultivated. When she handed him the seeds for drought-resistant gooseberries, she gave him more than a crop to grow – she offered him a renewed sense of purpose, something to root him in a land that otherwise refused to recognize his worth.

Kadogo quickly recognized Deogratius’ gift for nurturing life, and his respect for the rhythms of nature. The way he spoke about the soil and the crops

reflected a wisdom far beyond his years – a deep understanding of the land that seemed instinctual. It wasn't the kind of knowledge that could be easily taught in classrooms or absorbed from textbooks; it came from being present, from paying close attention, from watching the seasons shift, from learning to interpret subtle cues. Like Kadogo's grandmother, Deogratius seemed imbued with the wisdom of generations who had survived by living in harmony with the land.

Unfortunately, this wisdom was dismissed by programmes like The State House Initiative on Sustainable Sustainability and The Comprehensive Initiative for Equitable Resilience, which often ignored whatever couldn't be neatly codified onto a degree transcript – ambitious programmes that promised much but delivered little by way of help to people like Deogratius. This disconnect was especially obvious during election seasons, when politicians and government officials were focused on securing votes. In the rush to show quick results, they threw money at projects that could be easily packaged for campaign speeches and photo ops.

Kadogo had once allowed herself to be photographed, believing that her participation in these photo ops would lead to change. Standing alongside government officials from the Office of the President, the Ministry of Labour and the Ministry of Internal Affairs, hopeful for the promised benefits, she'd smiled sweetly for the cameras.

Later, through the village grapevine, she discovered that some locals had been paid to appear in the photos. It became clear to her that the project had been more about improving the image of those officials than about helping her community.

Now, with the general elections only a few months away, Kadogo knew that the stakes were even higher – that there would be much more than money going around. The air was already thick with tension. Candidates were no longer just making empty promises; many were actively fuelling division, scapegoating refugees and foreigners to rally support from fearful voters. Host communities, already struggling with their own economic challenges, had been pitted against people like Deogratius, who were portrayed as outsiders competing for scarce resources.

Kadogo feared that the divisions being sown by politicians vying for power would leave scars on the community that might never heal. After all, it took little for simmering resentment to erupt into violent retaliation.

Despite Deogratius' efforts to keep a low profile, his past troubles would inevitably make him more vulnerable in this volatile environment. He was at greater risk of being targeted not just by the system but by the people he now considered family.

SECTION IV

Anchor: Good evening, I'm Jules Karamagi, and we begin tonight with a story that has captured national attention. A dramatic protest unfolded earlier today at the Kahanga municipal council offices. Theresa Namisango, an 81-year-old woman popularly known as Kadogo, staged a nude protest in response to the arrest and ongoing detention of a young man, one Deogratius Mbabazi. Kadogo is currently chained to the gate at the entrance of the municipal council offices. It remains unclear how she managed to do this without being noticed.

Footage of Kadogo's protest rolls, blurred for viewer discretion.

Anchor: The incident unfolded during a regular market day at the freedom square, where Deogratius had gone to sell gooseberries. City council officials accused him of trading without a license, confiscated his produce and arrested him on the spot. We are now joined by our reporter, who is live from Kahanga, for more on this story. What's the situation like there, Betsy?

[Cut to reporter on the ground.]

Reporter: Good evening, Jules. There is a palpable sense of uncertainty here. Security officials and onlookers are grappling with how best to address Kadogo's protest.

Footage pans from shocked onlookers who are gathering in large numbers to armed, nervous-looking security personnel wearing personal protective equipment. The security personnel are standing off at a distance, clearly uncomfortable.

Anchor (voiceover): What is the relationship between Kadogo and Deogratius?

Reporter: Kadogo is described by people I've spoken to as a mother figure to Deogratius, someone who saw potential in him when others overlooked it. Deogratius has been struggling to make a living, having faced countless obstacles due to doubts about his citizenship status. He has been behind bars for three months now, despite concerted efforts by members of the community and several non-governmental organizations to secure his release. When Kadogo's pleas to the city council went unheard, she took matters into her own hands. In a

powerful display of defiance, she marched to the city council offices early today, stripped naked and demanded justice for Deogratius and all the young people in her community who have been deprived of their rights to earn an honest living.

Anchor (voiceover): How exactly did Kadogo manage to chain herself to the city council gate? It seems quite a feat, considering the security measures in place.

Reporter: Feat is the right word, Jules. It's truly remarkable how she managed that. Our sources have confirmed that she appears to have used a combination of makeshift tools and possibly some outside help. Despite the heightened security, she did manage to bypass the first barrier. There's also speculation that her knowledge of some, uhm, spiritual customs may have helped her bypass security.

Anchor (voiceover): Surely, you're not alluding to juju!

Reporter: [*Laughs nervously.*] While no one is openly discussing witchcraft, there's extreme hesitation on the part of security personnel to remove Kadogo from the premises, much less approach or touch her. It's going to have to be a delicate balance for the authorities – they need to be seen to be doing something, but they're also wary of inflaming the situation further by ignoring deeply held beliefs that touching a naked, female elder – especially in a protest of this kind – can bring a curse on oneself and one's descendants.

Anchor (voiceover): What are council officials saying?

Reporter: So far, the spokesperson of the municipal council has remained tight-lipped. There have been no official statements from other government officials either.

Anchor (voiceover): There was a message earlier today from the former speaker, Dr. Nvannungi, who is currently the senior presidential advisor on strategic policy and crisis response. I thought that might offer some direction. Or is a tweet not official enough?

Reporter: I saw that tweet, Jules. It certainly set 'X', formerly Twitter, on fire, but it is more sentiment than official stance. Doctor Nvannungi called for caution, but didn't outline specific actions or make any commitments. Critics are already pointing out that while her sentiments are appreciated, Ugandans

are looking for something more concrete. At this point, the lawyers offering pro bono representation for Deogratius hold far greater public favour than Dr. Nvannuungi and other government officials. Council officials now face immense pressure to explain themselves and respond to growing demands for Deogratius' release.

[Cut back to anchor.]

Anchor: That was Betsy Namboozo reporting live from the Kahanga municipal council offices. Stay tuned for the latest developments on this story.

SECTION V

[Radio station jingle plays.]

Host: For those of you who are just tuning in, welcome to Voices of the Nation, where we share stories of hope. I'm speaking to Deogratius Mbabazi, who is recounting his extraordinary journey from incarceration to an influencer of agricultural development policy. Before we continue, special thanks to our sponsor, Rydberg's organic coffee cooperative. Their commitment to climate-friendly and fair-trade practices helps bring stories like these to you. *[Pause.]* Deo, before the commercial break, you were sharing a rather light-hearted story about your time in prison.

Deogratius: *[Chuckles.]* Ah, yes. Well, the cell was, as you can imagine, far from comfortable. But it had features that made it more liveable than most of the other cells, at least according to what I heard from other inmates when I got out. It had a small, barred window that let in just enough light to distinguish day from night, which believe it or not was a luxury. There was also a surprising amount of ventilation, thanks to a small, rusted grate in the wall. It didn't do much to keep the air fresh, but it was better than being suffocated by the heat and smell. The mattress was thin and stained with blood, but I learnt to make do by folding part of it and using that as a pillow. *[Pause.]* The cell's walls were covered in scribbles left by previous occupants. It was like having a glimpse into the lives of those who had been there before me. I found it oddly comforting to know that others had endured similar hardships and tried to make the best of their

situation. [*Pause.*] Oh, and there were the lice! I used to joke with other inmates during lunch time that the lice were my only true friends there. We'd laugh about how they'd developed a taste for my scalp. It was one of those absurd situations where you have to find humour just to get through the day.

Host: How did you manage on days when humour wasn't enough?

Deogratius: [*Sighs.*] Those days were incredibly tough. I had to dig deep to find strength. I relied a lot on my memories – thinking about the people I cared about and the things I hoped to do when I got out. I focused on setting small goals for myself, staying positive, finding small ways to help others around me, reading whatever material I could get my hands on, writing in a journal that a friend who came to see me sneaked in ... these all helped me stay sane ... everything you've seen men do in prison cells on TV dramas, I did. It was a constant battle to hold on to hope, but those acts of self-care and moments of reflection – however trivial they might seem now – made a huge difference.

Host: What was it like to learn about the scale of support you had on the outside?

Deogratius: It was overwhelming. When I first heard that Theresa had chained herself to the gates of the city council offices, I was astonished. To think that she would go to such lengths for me, to put herself in such a vulnerable position, was incredibly humbling and moving. The courage and sacrifice she showed were beyond anything I could have imagined. I know people often say that a man should never admit to such emotions, but the truth is, I cried for several minutes. It was an emotional release I hadn't allowed myself until that moment. I still cry, sometimes, when I think back to that time.

Host: Do you miss her?

Deogratius: What kind of question is that?! [*Long pause.*] Of course I miss her. Theresa was like a mother to me. I wouldn't be here if it wasn't for her. Even now, as I navigate my new life, I find myself wishing I could talk things over and enjoy a cup of tea with her. Her death left a hole that no one else can fill. But I also know that the impact she had continues to drive me. Every success I achieve in my work, every challenge I overcome, reminds me of how much she believed in me and how much I want to make her proud. So, while I miss her very much, I also feel a deep sense of gratitude for the time we had together.

Host: Speaking of impact, you've become quite the force in agricultural development spaces. This is a huge shift, given that your formal background is in drama and film. How does it feel to be in this new role?

Deogratus: It feels like I've been given a second chance. Every day, I'm reminded of the support that got me here. But it's not just about having a stable nine to five; it's also about giving back and ensuring others have the opportunities I was once denied. [*Pause.*] What's really interesting is that my training in drama and film hasn't been left behind – it's actually a key part of what I do now. In many ways, climate-smart agriculture is about narrative, too.

Host: That's a really interesting connection.

Deogratus: In drama and film, you learn to understand characters and motivations, to tell their stories in ways that resonate with an audience. I'm applying that same mindset to what I do now, which is helping farming communities communicate their needs, their challenges, and their successes in a language that policy makers and investors understand. Why do certain plants matter? Why are sustainable practices important? In what ways might local knowledge solve global problems? And so on.

Host: So, it's about more than just data and numbers?

Deogratus: Data is important, but it's the human element that moves people to act. My training in the performative arts helps me shape that element, whether it's through documentaries, community theatre or even using film to educate farmers. These tools create emotional connections, which can inspire change in ways most traditional, top-down approaches can't.

Host: It sounds like you're blending worlds in a really unique way.

Deogratus: I like to think of it as interdisciplinary problem-solving. Drama teaches you to see multiple perspectives, and film teaches you to frame those perspectives visually. That's exactly what we need in our agriculture spaces – new ideas that come from understanding the complexity that people and processes must navigate, and finding creative ways to solve problems. I believe in using every tool at my disposal, from the stage to the field.

Host: Fascinating! As much as I'd love to keep listening to you, Deo, it looks like we've run out of time. My producer just signalled that we've already gone over the extra time she generously allotted us!

Deogratius: Oh! I'm so sorry about that! I've talked too much!

Host: Not at all – no need to apologize – our listeners have been asking me to host you on this show for quite some time now! I'm sure they've been hanging on to every word!

Deogratius: I hope so.

Host: I have no doubt about it. [*Pause.*] Before we wrap up, what final message would you like to share with our listeners?

Deogratius: First, no matter how hopeless a situation seems, there's always a way out, even if it's not clear at first. Second, never underestimate the power of solidarity. When people come together, incredible things happen. And finally, we can find strength even in life's darkest moments. That's it. That's all I can think of right now. I hope I don't sound like a chapter from a self-help book. [*Laughs.*]

Host: Thank you for sharing your journey. It's been an absolute honour to have you on the show.

Deogratius: Thank you for having me. It's been a pleasure.

Host: Once again, I'd like to extend heartfelt thanks to our sponsor, Rydberg's organic coffee cooperative, for their support. If you haven't tried their coffee yet, be sure to pick up a packet on your next supermarket run – I guarantee you won't be disappointed! Don't forget to join me next Tuesday at eight for more uplifting stories. Until then, take care! And be blessed!

[Radio station jingle plays.]

Rural women and the overlapping climate and energy injustices in Malawi: An intersectional feminist overview

Eilidh Watson Stanfield and Ethel Ngulube

Introduction: Energy poverty and gender inequality in Malawi

The cumulative impacts of energy poverty and climate change in Malawi have resulted in unique injustices for many women, especially those living in rural areas. Although both women and men living in rural Malawi are likely to experience these impacts, women are disproportionately impacted (Jenkins et al. 2016). This is because many of their daily activities are directly affected by climate change, while they simultaneously have less access to support or solutions. This chapter adopts a feminist intersectional approach to climate and energy injustices to explore the climate injustices and energy poverty challenges that are experienced by different women in rural Malawi. Using this approach is critical, as equitable solutions can only be found by understanding the experiences and power dynamics that contribute towards women being unequally burdened by these issues (Ryder 2018; Mikulewicz et al. 2023). The connection between energy poverty, climate change and gender inequality will be explored alongside stories from a case study of rural villages in Northern Malawi collected as part of ongoing research.

Malawi is considered to be one of the poorest countries in the world with around 72 per cent of the population living below the poverty line of US\$2.15 per day (The World Bank 2025). The Southeastern African country borders Zambia, Tanzania and Mozambique and is home to 20.41 million people. A large proportion of this population live in rural areas, predominantly working in the agricultural sector (Zalengera et al. 2014; The World Bank 2018). Rural areas of Malawi, where the majority of people live, have some of the highest levels of

poverty and also have some of the lowest levels of access to electricity (Tauilo, et al. 2015; de Janvry et al. 2022). In Malawi, around 3 per cent of rural areas have access to electricity compared to 15 per cent of urban areas (IEA 2023). The low levels of access to electricity, alongside high levels of poverty, mean the majority of people experience energy poverty.

Energy poverty is broadly defined as lacking access to modern energy services (like electricity) and/or being unable to afford the financial costs of energy (Sovacool and Dworkin 2012; Bouzarovski 2018). In Malawi, those living in rural areas are likely to experience more significant impacts of energy poverty as there are less connections to the national electricity grid, compared to urban areas. In addition to this there is limited household financial capacity to pay for energy services like electricity. Around the world, there are 675 million people who do not have access to electricity and 2.3 billion people who rely on biomass for cooking (IEA 2023). This is despite sustainable energy development being a key priority and being one of the United Nations' Sustainable Development Goals (Chirambo 2018). With only around 12 per cent of the total population considered to have access to electricity in Malawi (IEA 2023), achieving Sustainable Development Goal 7 by 2030 appears to be unattainable. Many researchers are concerned that efforts to try and achieve universal energy access by 2030 will place the burden of responsibility on the poorest in society – those who are already considered to be the most energy poor (Samarakoon 2020).

Understanding the gender dynamics in Malawi is critical if meaningful solutions to energy poverty and climate change are to be achieved. Gender inequality is an ongoing challenge for Malawi and results in women being disproportionately impacted by climate change and energy poverty. There has been a recent shift in culture, resulting in women having more rights and access to opportunities that were previously only available to men. However, this change is small and has only been realized at some local levels. Significant policy action and financial investment are required if there is to be significant changes to meaningfully address inequality (Wilson and Kachipande 2020). As we shall see below, today many women are still expected to be responsible for 'women's work', as well as income-generating activities, with little support from men. There are also limited opportunities for women's representation in decision-making spaces (ibid.). Despite successive governments' efforts to address gender inequality, the Women Count Programme reported in 2023 that Malawi was ranked 110th out of 146 countries in the 'Global Gender Gap Report' (The World Economic Forum 2023). However, missing data makes it difficult to accurately track progress. When the report was published, the maternal mortality rate in Malawi

was very high, at 349,¹ while the early marriage rate² was 27 per cent. Literacy rates were also low, with Malawi ranked 129th for educational attainment in the Global Gender Gap Indicators (The World Economic Forum 2023). Malawi falls behind neighbours Mozambique and Zambia, who were ranked 25th and 85th, respectively. Other countries with similar profiles in Eastern Africa, like Zimbabwe (45th), Tanzania (48th) and Uganda (78th), were also ranked ahead of Malawi. Addressing gender inequality in Malawi must be at the very heart of solutions to both energy and climate injustices.

Climate and energy injustices in Malawi

Malawi is extremely susceptible to the impacts of climate change, due to both its geographical location and its economic dependence on agriculture. It is estimated that around 90 per cent of cultivated land is reliant on rainfall (Ngongondo et al. 2011; Chimimba et al. 2023). In recent years, Malawi has experienced many extreme weather events including cyclones and heavy rainfall, as well as extreme heatwaves and prolonged drought. Due to the high dependence on rainfall-reliant crops, extreme weather events have contributed to considerable income loss and ongoing food security threats for the country (United Nations 2023). As a least developed country (LDC), Malawi has limited financial and institutional capacity to mitigate and adapt to climate shocks like these (Chirambo 2018; The United Nations 2024). This distributive injustice is compounded by the fact that Malawi has extremely low greenhouse gas (GHG) emissions, while many developed economies have not taken adequate responsibility for their historical emissions. Only now are some countries beginning to curb their emissions, despite decades of inaction. Many believe more action is needed; however, there is ongoing contention relating to responsibility for climate action and finance (Calliari, Serdeczny and Vanhala 2020). It is an injustice that countries in the Global South, like Malawi, should have to experience the consequences of other countries actions, despite contributing very little to the problem (Wilkins and Datchoua-Tirvaudey 2022).

There is limited data available on Malawi's historical greenhouse gas emissions; however, Malawi's 2021 Nationally Determined Contributions (NDC) report stated that in 2017, the total estimated greenhouse gas emissions for the country

¹ Deaths per 100,000 live births.

² Women married before eighteen years.

were 9.33 million tonnes of carbon dioxide equivalent (MtCO₂e) (Malawi Government 2021). When considered as tonnes per person, there was <0.1 tonne per person emitted in Malawi compared to 5.5 tonnes per person emitted in the UK in 2017 (Ritchie, Rosado and Roser 2023). Malawi's contribution to the issue of climate change is negligible; yet Malawi continues to suffer some of the most severe impacts. Without urgent climate action and finance, this injustice is likely to intensify, with the poor and the marginalized disproportionately impacted. As climate change impacts escalate, food availability and household income for those working in the agricultural sector in Malawi will continue to be strained. Therefore, it is possible that there will be more reliance on 'free' energy resources like wood, rather than electricity. This reliance on biomass is a challenge for Malawi as availability has been impacted by a combination of high demand for firewood, as well as climate change-induced flooding and droughts, which have been depleting local supplies of wood and impacted charcoal production (Chisale et al. 2021). In Malawian culture, gendered roles dictate that women are predominantly responsible for tasks like firewood collection (McCauley, Grant and Mwachunga 2022).

Ultimately, the impacts of climate change, alongside environmental degradation, are impacting the availability of firewood, as well as impacting women's ability to collect it. Therefore, women who have reduced financial security and who rely on this resource for household energy are disproportionately affected (Grant et al. 2021). Men from low-income households experience energy poverty too, but are not exposed to the same risks, dangers and injustices that women are. Women who are energy poor must spend their time collecting firewood for energy provisions. Men are not expected to do this. Therefore, women are exposed to more dangers and challenges while simultaneously having less access to support, finance and power (Camey et al. 2020; Wilson and Kachipande 2020; Njenga, Gitau and Mendum 2021). Women who have experience of climate and energy injustices should be at the heart of decision-making processes, yet women in many parts of the world have limited opportunities to meaningfully participate in these spaces (Wilkins and Datchoua-Tirvaudey 2022). This is an ongoing recognition and procedural justice issue in Malawi, and there is a need for more meaningful engagement opportunities for women in relation to climate change and energy poverty issues (McCauley, Grant and Mwachunga 2022). Although many women are vulnerable to the impacts of climate change, they should not solely be framed as climate victims (Terry 2009). Women are an incredibly diverse group with different identities, experiences and perspectives, and so there is not a universal solution to these challenges that will suit all.

Therefore, an intersectional approach to energy and climate injustices is crucial as it considers these different identities and perspectives, and also benefits other groups that are vulnerable to these issues (Ryder 2018; Sultana 2022; Mikulewicz et al. 2023).

Feminist intersectional research methods

Within the context of energy poverty, class and gender intersect and cause unique patterns of oppression experienced by poor women in rural Malawi. Men from low-income households experience energy poverty too, but are not exposed to the same risks, dangers and injustices that women are. Women who are energy poor must spend their time collecting firewood for cooking. Men are not expected to do this. When tasks like this are impacted by climate change, women disproportionately experience the impacts and have less opportunities to enact change. Despite these difficulties, many women who participated in this project shared their coping strategies. It is hoped that by sharing their experiences, women's voices can be kept at the forefront of conversations about issues that are directly experienced by them. In order to gain a better understanding of women's experiences of energy poverty and climate change in rural Malawi, this chapter draws on research conducted using a mixed methods feminist intersectional approach.

I adopt an intersectional feminist approach to consider the legacies of colonialism. The links between colonialism and patriarchal systems are well documented and are known to be drivers of reinforcing systems of oppression (Spencer-Wood 2016; Al-wazedi 2020). Malawi gained independence from British colonial rule in 1964; however, the legacies of colonialism, alongside post-colonial political agendas immediately after independence, have contributed to wide-ranging intersectional injustices (Mathur and Mulwafu 2018; Wilson and Kachipande 2020; Namusanya 2023). These events have both independently and cumulatively resulted in women's rights, safety, opportunities and access to land to be significantly reduced compared to pre-colonial times as elements of patriarchy were maintained and reproduced in Malawian culture and politics, post-independence (Spencer-Wood 2016; Wilson and Kachipande 2020). Today, the impacts of climate change in Malawi are exacerbating some of these injustices, with deep roots in interweaving colonial and patriarchal systems.

An intersectional feminist approach considers how colonial legacies in Malawi have contributed to women having less opportunities than men. It also

explores the overlapping issues of gender inequality, class and age for women in rural Malawi who are experiencing the impacts of climate change and energy poverty. Gender inequality limits the opportunities for women to access the solutions, support, finance or knowledge that are more readily available to men. At the same time, poverty restricts women's opportunities to leave oppressive situations (Bohren et al., 2024). Women living in poverty are oppressed by both gender inequality and class. Therefore, their experiences of climate change and energy poverty differ from women and men who are wealthy, as well as men living in poverty (ibid.).

To better understand these experiences, research methodologies must be underpinned by feminist principles of equality, equity and social justice, while also being conscious of the processes involved in the production of knowledge and systems of oppression that creates injustices (Al-wazedi 2020; Wilkens and Datchoua-Tirvaudey 2022; Wilson 2023). Feminist intersectional research involves exploring the experiences of the most marginalized in societies, with the aim of achieving more equitable research outcomes. The need for an intersectional feminist approach when considering climate and energy justice issues in Malawi is essential as it creates the space for understanding that women can have multiple identities and so can also experience multiple forms of oppression. This involves understanding how different experiences can produce patterns of injustices for different groups of people (Crenshaw 1991). In doing so, we can focus on women's resilience and shift the focus away from women being viewed as vulnerable and in need of saving (Mohanty 2003; Al-wazedi 2020).

Data was collected from rural villages in three districts in Northern Malawi: Nkhata Bay in the Northeast; Mzimba, in the Northwest of Malawi; and Rumphu, in the North. The villages within these districts were chosen as they had community access to the national electricity grid but other energy resources were favoured. The sixty-five women who participated in the project differed in age and stage of life, and some were married, while others were widowed. Both the details of the villages and participant names have been changed to ensure their anonymity. A 'snowball' sampling technique was used to collect data through the combined use of interview surveys and semi-structured interviews. All interviews were conducted in Chichewa and translated to English and took place between January and March 2022.

Data was analysed using descriptive and thematic analysis techniques. For this research project, I have collaborated with local researchers and local experts, aiming to acknowledge and be mindful of the power structures and positions of privilege associated with research in post-colonial settings (Vanner

2015). The data collection component of the research project involved working with a field assistant from Mzuzu University. Guidance was also sought from local community groups. Through exploring the everyday realities of different women that participated in this project, the chapter will proceed by examining the key themes that emerged from this research that are critical to addressing energy and climate justice issues in Malawi.

Gendered labour

A key theme that emerged from this research was the gendered division of household labour, which complements existing gender inequality literature focusing on time poverty (Arora 2015). Sarah, from a rural community in the Nkhata Bay district, had aspired to be a teacher but currently spends her time farming to sell produce at the local market. Her husband also worked in agriculture but Sarah was responsible for the majority of the household work, including caring for their small children, in addition to the income-generating work that she does such as farming and selling at the market. As a family they did not use electricity at home as 'it is very expensive', so they predominantly relied on firewood. Sarah spends on average six hours a week collecting firewood, including the two-hour round trip to get to a woodland area. When asked if men in her community ever help with household work like collecting firewood, Sarah explained that she sees 'a lot of men just drinking beer and they leave all the household chores to women'.

Another woman, Chikondi, from a rural community in Rumphi district also relied on firewood for cooking. When asked who is responsible for firewood collection in her household, Chikondi explained that 'men don't help in collecting firewood, that's a women's job. We are the ones who cook and the ones who notice that there is no firewood, so fetch it'. Chikondi usually spends four hours a week collecting firewood. Chikondi explained what she does if she ever needs help to collect firewood. She said: 'I go with my daughter, my son can't go ... it's work for women', highlighting the clear gendered division of labour that exists even at a young age.

Anne, who is from a rural community in the Nkhata Bay area, expressed dissatisfaction with the lack of opportunities, options or freedom of choice for women. She said she was 'not satisfied with how things are'. She explained that 'men always look down on us because they are the ones who always provide for the family and we just look to them. It's time women start depending on

their own'. Many of the women who participated in the research were involved in income-generating activities like selling produce at the market, alongside their household work. While their husbands also worked, men rarely completed household work as this was largely seen as a woman's responsibility. When asked about the importance of earning their own income, many women reported that this was very important for a variety of reasons. Joana from Mzimba district said: 'for us who are not working, our husbands don't value us. They know we can't leave because we don't have the money.' This sentiment of respect and being valued by your husband when associated with earning money was a common theme that emerged from this project.

Alongside the link between respect and generating income, there was an acknowledgement that money addressed power imbalances and provided opportunities for women to be 'able to leave the marriage if you are being mistreated', as Praise noted in Nkhata Bay. Beth, from another village in Nkhata Bay, worked as a house maid and shared her experience in relation to household finance and gender dynamics. She said: 'Women are victims in marriages; most men don't show their salary. Women suffer with children but if you earn your money, you are free to do anything.' It is often difficult for women to leave unhappy, difficult or violent marriages because of financial insecurity and cultural expectations (van Schalkwyk, Boonzaier and Gobodo-Madikizela 2014; Mkandawire-Valhmu et al. 2020). These pressures limit many women's opportunities for financial independence and opportunities to focus on careers that support financial security or independence.

Climate change and energy poverty challenges for women

The majority of the women who shared their experiences predominantly relied on income from agriculture. This is of concern as the extreme changes in weather in Malawi are leading to serious food security issues, which in turn are pushing more people into poverty (United Nations 2023). Eliza from a rural community in Rumphi district, who lives with her husband and two children, shared her experiences of climate change. She said: 'This year we have had delayed rainfall, last year there was too much rains and also this year there are a lot of diseases for crops', highlighting the ongoing challenges that she is having to adapt to. In total, over 80 per cent of the women who participated in this project reported to have experienced a loss of income relating to changes in the weather. In efforts to adapt to insecure household incomes, there was an increasing reliance on

'free' energy resources like wood, rather than using electricity. However, the cost of this 'free resource' is paid by women sacrificing their time.

Alongside this increase in demand, many reported a shortage of firewood in their local area. Some women shared that the shortage of wood that they had observed was due to high demands for this resource and noticed that shortages were particularly apparent during the rainy season if there has been increased flooding and extreme weather events in the region. Research shows that women can be more vulnerable to flooding due to their limited financial capacity and socio-economic status, influenced by gendered roles and unequal power structures (Mwalwimba, Manda and Ngongondo 2024). Martha, from Rumphu district, who lives with her husband and six children, explained that 'it's very difficult to get firewood now and becomes difficult for us women because we can't cook without firewood ... and during the rainy season the woods are always wet and it's not easy to make fire.' Alongside Martha, and many other women, Jean from Mzimba district also noticed that there has been less firewood available. She believed that 'it's because we are so many and everybody wants firewood for cooking'. She later added: 'We cut down all the trees ... that's why we have delayed rainfall.'

In addition to impacting resource availability and women's ability to collect firewood, climate change has been impacting existing electricity infrastructure in the region, compounding prevailing energy poverty challenges. The Malawian government has been working to expand access to the national grid in rural communities through the Malawi Rural Electrification Programme (MAREP) (The Malawi Government 2017), but progress has been slow and the price of electricity is still unaffordable for many (McCauley, Grant and Mwachungu 2022). Furthermore, this expansion does not resolve the disruption issues associated with extreme weather events. For those who do have access, distributional injustices persist as electricity supplies are frequently affected by load-shedding and capacity issues, which result in unreliable connections (Jenkins et al. 2016; Samarakoon 2020; Chaima et al. 2023). Load shedding is an electricity management strategy which is implemented when there is not enough energy to generate and meet demands. Load shedding occurs frequently in Malawi (Zalengera et al. 2014). Electricity supplies in different areas are shut off for periods of time in order to supply electricity to other areas. However, electricity supplies can be unavailable for longer periods of time than advertised and so access to electricity is often unreliable.

One woman, Jen, from Rumphu district expressed her frustration with the electricity disruption issues. She said: 'The main challenge we meet is power cuts

... as I am talking now, there is no electricity ... it has been off since morning!’ Nearly 80 per cent of the women who participated in this study reported that they experienced power cuts in their community every day, and nearly 90 per cent reported that power cuts happened more regularly during the rainy season. Chikondi, from another village in Rumphi district, did not have access to electricity at home but relied on electricity in her community. She explained: ‘The main problem we experience is electricity power cuts. It can go off for about nine hours in a day, and this gives us problems when we want to [use] the maize mill which uses electricity. As a result, we stay hungry since we don’t have flour to make nsima.’ The unpredictability of the electricity supply also causes wider distributional injustices and exacerbates existing food insecurity issues caused by climate change.

Despite the climate challenges, women are not passive and are continually adapting to rapidly shifting situations. The main coping strategy reported to deal with shortages of firewood or increased prices of other energy resources was to spend more of their time collecting wood and to travel further distances. Hannah, from a village in Nkhata Bay, explained that ‘trees are now remaining in only far places, making people travel far distances.’ However, some women shared that they were dissatisfied with how they had to spend their time. Martha explained: ‘I really wish to spend less time on energy because most of the time we get very tired from the farm, and from there you have to go and look for firewood ... unlike when you use electricity. You just switch on your cooking device and then off you go. It saves time and also allows you to rest.’ Many women do not have control or access to household finance and so utilize a resource they do have control over: their time. However, this coping strategy may not be an option for those who have disabilities or who are older. Mary, from Rumphi district, said: ‘I don’t work, I have an injury’, and explained that she relied on her grandchildren for support.

The increased travel to collect firewood has the potential to expose women to new and unforeseen dangers, including land-use conflicts and gender-based violence. Travelling to more remote locations also means that women are further away from help should they be in danger or fall ill. When asked about any dangerous experiences when collecting firewood, Jessie, from Nkhata Bay district, shared that ‘the estate guards would beat us if we are stealing firewood’, highlighting the risks some women have to take when collecting firewood. Chimwemwe, from Rumphi district, shared an experience of someone she knew who had been collecting firewood: ‘One woman was raped. It happened that some women went to look for firewood and an unknown man caught one of

them and raped her while others ran away. It is not known whether the man was arrested or not.’ In total, 85 per cent of the women who participated in this project stated that they felt unsafe when collecting firewood. The Global Gender Gap Indicators estimated that 37.5 per cent of women in Malawi will experience gender-based violence in their lifetime (The World Economic Forum 2023). In recent decades the Government of Malawi has increased policy and legislation to address gender-based violence; however, there is little evidence that these efforts have made a meaningful difference (Wilson and Kachipande 2020). This is of concern as there is growing evidence that climate change, coupled with energy poverty challenges, could increase women’s risks to experiencing gender-based violence (Camey et al. 2020).

In order to reduce risks, many women reported that they work in groups when collecting firewood. Maggie, from Rumphu district, explained: ‘We go in groups of three or four, or sometimes we beg men who are related to us to go with us for safety reasons.’ As well as this, women ‘go during daytime to be safe and avoid any dangers’, explained Deborah, from Rumphu district. Many women also shared local knowledge of unsafe areas to avoid through these groups. Although the majority of women reported that they felt unsafe when collecting firewood, the most common coping strategy reported to deal with firewood shortages was still to spend more time and travel further distances. These examples highlight just a few of the risks and land-use conflicts that women face when trying to collect this free resource. Women are not passive to the impacts of climate change; however, without access to decision-making opportunities, finance or support, women have limited choices and are forced to spend more of their time on this task. While this increased time spent by women helps keep household financial costs low, it is resulting in a higher cost for them personally, exposing women to more risks and pushing women further into time poverty.

Intersectional responses to energy and climate change challenges

All women who participated in the project experienced energy poverty and climate change impacts and over 70 per cent of the women who took part in this project reported that they were ‘very worried’ about the cost of energy. However, their experiences of energy poverty are not uniform and are shaped not just by their gender but by other factors like age, disability and poverty. Taking an equitable approach to tackling energy poverty and climate justice

thus necessitates an approach that considers different intersecting identities. Mary, from Rumphu district, was one of the many women who was concerned about energy costs. However, Mary's experiences differed from others as she was older and unemployed, and so had limited opportunities to generate income that could help alleviate energy cost worries. In addition to this, she explained that she had an injury so she was unable to carry out physical work like firewood collection. She relied on her grandchildren for financial support and to collect firewood. As discussed above, one of the most common coping strategies women reported to deal with energy poverty issues was to spend more time collecting firewood, but this is not a viable coping strategy for Mary due to her age and disability. In contrast to this, Chimwemwe, from a village in Mzimba district, still experienced climate change impacts and energy poverty, but was 'indifferent' when asked if she was worried about the costs of energy. Chimwemwe had an income and worked as a tailor, which provided her with an increased capacity than some others to cope with climate and energy shocks. As Mary and Chimwemwe's stories show, experiences of energy poverty and capacities to respond to climate change are directly shaped not just by gender but by age, disabilities and poverty. To be truly transformative, an intersectional approach is required to better understand the lived experiences and differences of different women.

Conclusion

The impacts of climate change and energy poverty are disproportionately impacting women in rural Malawi. Gender inequality, age and class result in different intersecting injustices for women who have low or limited access to household income. There are low levels of access to electricity in rural areas, and therefore there is a high dependence on 'free' firewood for household energy needs. However, this resource is not 'free' as women are spending their time collecting firewood, which is exposing women to new and unforeseen injustices. This cost that women bear is routinely not accounted for, which is in direct contention with the aims of energy and climate justice. Equitable solutions to climate change and energy poverty cannot be discussed without understanding the differential costs that women bear and the risks that women are disproportionately exposed to. Coping strategies to adapt to these impacts demonstrate women's resilience, but challenges and new injustices also exist. There is a need for more intersectional climate justice research to actively

consider other interconnected issues, like energy poverty and energy justice, to ensure that climate action encompasses all aspects of a person's life. Further, climate finance and action are required to address the overlapping impacts of climate change and energy poverty that are pushing more women into dangerous situations. It is vital that there is meaningful inclusion of women in research and the co-production of climate actions, as their knowledge and lived experience are critical to ensuring that equitable solutions for all are achieved.

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Rural women, climate change and information ecosystems in Kenya

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Introduction

This chapter presents findings from a collaborative research project between University of Nairobi and University of Leeds researchers conducted between 2019 and 2021. We sought to develop nuanced understandings of how local information ecosystems operate in rural Kenya in the context of intersecting threats to climate justice. Following the prescription of Malin and Ryder (2018: 4), and numerous others (Crawford et al. 2023; Mikulewicz et al. 2023), our research explores ‘links between environmental inequities and relevant systematic social inequities’ to better understand climate change adaptation in rural Eastern Africa. Kaijser and Kronsell (2014: 417) similarly urge researchers to examine ‘how different individuals and groups relate differently to climate change, due to their situatedness in power structures’.

Through a multi-site quasi-ethnographic research approach, the researchers assessed how and where rural women in East, West and Coastal parts of Kenya get their climate information from and how useful this information is in enhancing their adaptive capacity. The research findings demonstrate how local information ecosystems operate to enable women in rural Kenya to combine Indigenous and externally sourced knowledge in their engagement with, and pursuit of, climate change adaptation.

We attempt to show that women are frequently key change agents in rural communities, yet their voices are often disregarded or relegated in pursuit of conventional information. From the findings, the mismatch between technocratic sourcing and the gendered, lived experiences of adapting to climate change for

women is responsible for maladaptation, and can be resolved by way of a hybridized information ecology. Women's voices should be at the centre of adaptation as opposed to relegating women as mere recipients or victims lacking agency.

Adaptation to intersecting challenges is, of course, an issue of climate justice in part due to Kenya's almost negligible contribution to causing global climate change. Kenya is largely an arid and semi-arid land with agriculture as the main source of livelihood. Agriculture is a major driver of the economy, contributing 54 per cent to the national gross domestic product (GDP) and accounting for 65 per cent of total export earnings. Kenya's GDP growth is highly correlated with the sector's performance, but its performance is highly volatile (Handjiski et al. 2016). Kenya's agriculture is 98 per cent rain-fed (USAID 2018). This renders it highly vulnerable to food supply disruptions and shortages caused by climate change.

Timely and accurate information on climate change is critical for climate change adaptation among rural communities in Kenya. There are different sources of climate information that circulate in urban and rural locations. Given rapid change in the nature and availability of information across Africa, in this project we were interested in establishing what sort of climate information is available to rural communities, the sources of this information and its utility in building resilience to climate change. Communities in rural contexts have for centuries developed indigenous modes of adaptation to reduce vulnerability, yet it is still unclear how 'local' or 'indigenous' knowledge might be interacting with conventional information flows to facilitate effective adaptation strategies.

Climate information services available in Kenya include immediate and short-term weather forecasts mainly from the Kenya Meteorological Department (KMD) and advisories and long-term information about new seed varieties, technologies and market development from different stakeholders. Climate information services are important in helping farmers to manage risks in an already exceptionally risky sector and to offset much of the uncertainty that so often constrains decision-making and innovation. Climate information is a relatively new area in extension service delivery in Kenya and several studies have shown that only a few farmers currently access climate information services provided by the Kenya Meteorological Department (Musembi and Cheruiyot 2016). Climate information is generated through monitoring and analysis of the behaviour of climate systems by meteorologists and climate scientists, the National Meteorological and Hydrological Service Provider and other public and private organizations (Wilkinson, Budimir, Ahmed, and Ouma 2015). We were interested in finding out if this information reaches the ultimate end users: small-scale farmers who are mostly women in rural areas in Kenya.

Gender and climate change adaptation in Kenya

Although climate change is a global problem, it is not gender neutral, hence affecting men and women differently. Gender therefore becomes an important driver of vulnerability to climate risks (Nyukuri 2016). Climate change intensifies the traditional inequalities between men and women, further deepening women's vulnerabilities to climate change (Dhanashri 2010). Across rural Africa, women are the primary providers of water, food and energy at the household and community levels, hence highly disproportionately impacted by any adverse effects of climate change (UNEP 2013, 2015; Smith et al. 2015; Campbell et al. 2017). Most small-scale farmers doing rain-fed agriculture in rural Kenya are women. Africa Development Bank (2011) and our research findings established that prolonged droughts, decreased rainfall and high levels of climate variability have led to loss of livelihoods for these women.

For rural women, their vulnerability is further exacerbated by the existing gender inequalities they face across social, economic, political and environmental systems (UNDP Kenya 2020). As discussed by Nyukuri (2016) and Henriksson et al. (2021) and as was evident from our findings, rural women face barriers in accessing information, technologies and financial services and this further exposes them to the vagaries of climate change. It has also been observed that Climate Information Systems (CIS) ignore gender-specific needs or fail to use gender-sensitive dissemination channels (Partey et al. 2020). Our findings show that women farmers do not have timely weather and climate information. This constrains their capacity to manage increasing climate risks.

To sustain adaptation among those who are most marginalized, there is a need to have a nuanced understanding of how women act and operate within the local information ecosystems and the resultant effects on local women's ability to combine indigenous and externally sourced knowledge in their engagement with and pursuit of climate change adaptation. We recommend that the focus of external climate change interventions should be on women's active participation in the entire climate information ecosystem since they are frequently vital change agents in rural communities but are often overlooked as such by mainstream climate change adaptation discourse and practice.

The findings we present here show that rural communities, and especially women, are generally information deprived due to the nature of information circulation. In this chapter, we argue that although women are disproportionately affected by climate change, they are not only victims of climate change but also contribute considerably to adaptation. Women's close

dependence on natural resources has positioned them well to understand and innovate livelihood strategies adapted to climate change and resulting food insecurity (Aoyagi et al. 2011).

Yet, despite being key change agents embedded within an existing 'information ecosystem', there persists a lack of consideration for women within the formal information process. Within formal spaces comprising processes tied to National Action Plans and stakeholders such as Meteorological Offices, there is a tendency to cast women as 'victims' of climate crisis rather than agents and holders of expertise who could and should be incorporated more inclusively in adaptation and mitigation efforts. Informal community information networks remain an important channel for ensuring access to crucial and relevant information. Furthermore, there is a need to reflect on the intersectional barriers that women face in accessing information and consider how these barriers are reflected in the proposals women make for improving the information ecosystem.

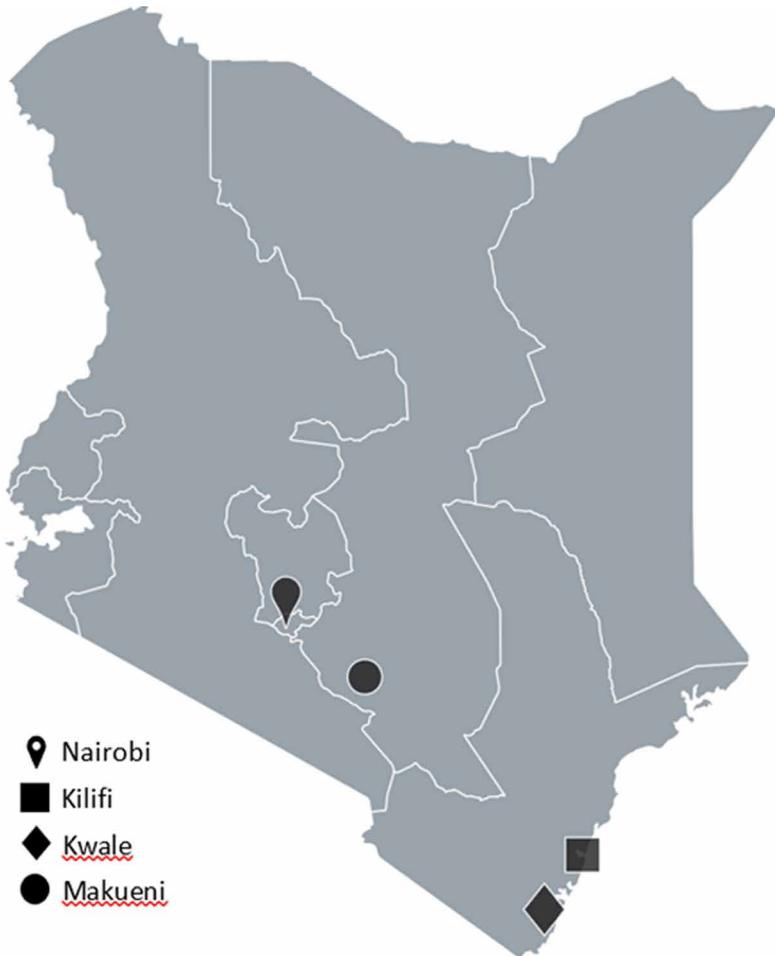
Methodological approach

To gather extensive and illuminating data on climate information flows in the select arid and semi-arid (ASAL) communities in Makueni, Kwale and Kilifi counties in Kenya, we adopted a multi-method qualitative approach of in-depth interviewing, focus groups and a varying extent of ethnographic observation (lasting from multiple days with families to weeks with communities). Our quasi-ethnographic approach enabled the researchers to gain exposure to a wide range of community members and observe the insertion of cultural and media products in the local reality and to locate the reception practices within a broader context (see La Pastina 2004). Indeed, it was only through days of intimate interaction with families that our researchers could provide the wider research team with detail of the effects of climate change on the most vulnerable women in our study communities, such as the frustrations of planting on the basis of inaccurate forecasts, only to lose those crops at great cost.

Focus groups with both male and female community members were conducted in ways that took account of local power hierarchies that may affect group interactions and helped further to determine critical sources of climate and weather information, how people engage with and understand the information available from different sources and how they translate their understanding into forms of usable knowledge that can underpin adaptation strategies. Triangulating

these methods was important to gain a more rounded picture of climate change adaptation and associated challenges in these communities.

The guiding research questions were: What is the nature, sources, flow, availability, accessibility and usability of climate change information among members of rural communities? How does the accessibility or inaccessibility of climate information affect women's capacity to build resilience and better adapt to climate change in rural Kenya? The research involved engaging women and additional stakeholders such as policymakers, journalists, meteorologists, district officials and other climate information curators within the local and regional information and media ecosystems.



The communities were selected based on the urgency of the climate change risk and cultural/contextual factors (gender, education, ownership of media such as TV or radio) that may affect their access to and use of climate change information. The study also sought to build an empirical understanding of diverse climatic challenges, notably trans-boundary geographies of climate/ changing weather patterns, including how climate change is experienced across borders and on coastal areas, affecting both fishing and farming.

The three research sites were Makueni, which is one of the drought-prone ASAL regions in Eastern Kenya and is a small-scale farming community totally dependent on rain-fed agriculture. On the Coast, Kwale and Kilifi counties were selected. Kwale County is situated in the south-eastern part of Coastal Kenya. Subsistence farming accounts for 80.6 per cent of the average household income. The two sites chosen in Kwale captured the farming and fishing communities in the county. The Pongwe site represented the fishing community, while the Kikoneni site represented the farming community. Both sites are in Lunga Lunga Sub-county. Pongwe is prone to ocean erosion, while Kikoneni is prone to persistent drought. In Kilifi County, the chosen sites were Garash and Gochi, separated by the Galana River. In both sites, the community comprises smallholder farmers who practise subsistence farming, growing crops such as maize, cowpeas, green grams and fruit trees such as mangoes. Both areas are prone to droughts and flooding.

Manifestations and implications of climate change for women in Kenya

The findings show that there is a general understanding of climate change among community members explained through its impacts: prolonged droughts, flooding, coastal erosion, changes in rain seasons, increased temperatures and so on. The respondents observed that the most prevalent manifestations of climate change are seasonal and rainfall changes as well as extreme weather phenomena such as floods and droughts. While women in Makueni said that they mainly experience droughts due to the lack of rain, those in Kilifi faced flooding. Increased high temperatures, water scarcity and low soil fertility resulting in a poor or low harvest have led to acute food shortages in the research areas. Women as primary caregivers said that it was becoming almost impossible to feed their families due to high food prices which resulted from decreased yields (see Smith et al. 2015). Our respondents observed:

The failure of rains means we don't get a harvest. The price of maize doubles, from around KSh twenty-five to KSh fifty. Larger families have bigger problems because of the many children. The children in more occasions go hungry. In classes teachers have reported learners sleeping a phenomenon associated with hunger. The best families can afford is one meal per day, supper (Dorothy,¹ Makueni).

Unstable or no income results in a lack of money to pay for the children's school fees. A number of school-going girls are at home, and some have already fallen victim to early pregnancies (Rosemary, Kilifi).

The respondents in Kilifi commented that the soils close to the river have become infertile due to sand deposits on the land after flooding, while in Makueni, low soil fertility from poor farming practices has increased the dependence on chemicals (fertilizers). Women also observed that climate change has seen increased crop pests that were not common, and this has in turn meant using more pesticides which are harmful to human health.

Decreased crop yields and unpredictable starts of rain seasons have led to massive losses in sources of livelihoods, further intensifying the vulnerabilities of these women. From the findings, women's livelihoods and income security are affected in two ways. First, due to the changing environmental conditions, fewer crops grow, and therefore they have fewer goods to sell, resulting in a lack of income. Second, families with less overall income bought less, negatively affecting all women selling their crops. This loss of income leads to a greater dependence on men, most of whom have left for urban centres in search of job opportunities. According to one focus group respondent: 'When we used to get plenty of harvests, we would sell the food, get money and pay school fees for our children, buy livestock and clothes for our children; we never used to depend on our spouses for support' (Akeyo, Makueni).

In all the sites, our respondents identified the main causes of climate change as mainly human centred (anthropogenic) through charcoal burning, tree cutting, poor farming practices such as encroaching and farming on riverbeds, deforestation, clearing indigenous trees and replacing them with commercial trees that drain water levels, and air and environmental pollution. Some of the respondents also identified cosmic realities and metaphysical factors such as 'climate change is a result of God's wrath on us for disobeying Him.' Others observed: 'we have sinned against God and that is why all these changes are happening.'

¹ Pseudonyms have been used to protect respondents' anonymity.

Sources and types of climate information

Our findings show there is a wide range of sources of climate information ranging from traditional media such as radio and TV to chief's *barazas* (community meetings) as well as information from NGOs based in these communities. Although agricultural extension officers are the official link between the farmers and the government in regard to providing climate information and related services, it was observed that they are hardly available to offer these critical services. Radio emerged as the most popular source of climate information among women in rural set-ups, and mobile phones the least used source.

The most common type of information is seasonal weather updates about amounts of rainfall, delayed or diminished rainfall levels and sometimes on the best seed varieties to plant. Some international NGOs such as the Kenya Red Cross, Caris Foundation and Seaweed East Africa were identified as among those actively involved in providing climate information and capacity building to increase the adaptive capacity of women in the selected sites. For instance, most women in Kilifi and Kwale said they had received an SMS from Kenya Red Cross warning of floods.

Our respondents observed that they receive advice from community leaders and agricultural extension officials on when and what to plant from various sources based on the expected amounts of rainfall. They also receive guidance and training on how, for instance, to use fertilizers, pesticides and the right varieties to apply, among others. They observed that there were also calls to do massive reforestation, which, they were aware, increases and stabilizes rainfall patterns.

It emerged that climate information from the Kenya Meteorological Department was in the form of weather forecasts predicting the amount and timing of rainfalls, especially if expected rainfall amounts were below or above average. Regarding soil and water conservation, women were taught to build terraces and climate-smart agricultural practices such as digging Zai pits that retain water longer to sustain crop yields even with minimal rainfall. Some women observed that one-on-one communication through demonstrations was more practical than more conventional sources such as through the media.

It also emerged that due to their socio-economic status, most women in rural areas have less access to information services. Most of our informants reported not owning a radio, TV and/or smart phone. It is worth noting that Indigenous knowledge (IK) was one of the most common and trusted sources of climate information. All our respondents observed that traditional ways of

understanding climate and weather changes can be more reliable and accurate than scientific weather forecasts, with one respondent sharing, for instance: ‘Yes sometimes we see some butterflies passing, and then we know it’s about to rain ... The butterflies are more reliable, sometimes we get information from the radio, but [it doesn’t rain] the way they say it will rain’ (Amina, Kwale). The following exchange between two women in a focus group in Makueni emphasizes that the reliability of information is key, where these women draw explicitly on IK to support their livelihoods-related adaptation efforts:

Q: So if the weather people are not reliable are there other means (local) that you rely on to get weather/rainfall information?

Lulu: Do you mean like the traditional ones?

Q: Yes, Yes.

Lulu: Yes, there are some trees which people usually check, like the old women usually depend on that tree called ‘Kikwasu’; they usually say that they would only plant when that tree generates some leaves. They say when it generates red leaves, rains are near.

Q: And when this tree generates the leaves does it usually rain?

Lulu: Yes.

Niara: There is also another plant which looks like sisal called ‘Ngala atumia’, which when it sprouts, then we know that rains are just about the corner. Even now it is there. There is also another bird which makes some certain noise just before rains come, and when I hear it, I just know that rains are about to come.

Respondents observed that there should be efforts to integrate traditional ways of knowing and scientific ways to make weather and climate information more useful. Observations emerging out of our other research (Paterson et al. 2023) highlight the indivisibility of how the rural Kenyan women that the research team met engaged with different ‘knowledges’. In other words, there is no clear distinction made between ‘official’ scientific information shared by various authorities and indigenous knowledge and experience, which is itself imbued with various aspects of shared religious and cultural beliefs. The findings in our study would suggest that reliability is key and that narrow appeals to ‘scientific rationality’ may have limited success. In future research, we hope to examine more closely the role of women’s perceptions of loci of control and self-efficacy. Such an understanding would enable a more informed appreciation of possible barriers to behaviour change communication and, as such, permit more bespoke messaging.

Usability of climate information

Some of our respondents observed that in most cases, the available climate change information from different sources empowers them to better adapt to climate change. They observed that accurate weather predictions (the expected amount and timing of rainfall as well as storm and flood warnings) can lead to changes in farming strategies. Most of the women reported planning and adapting their daily activities according to the weather forecast. Specifically, in the coastal regions women seem to rely on this information in deciding whether and when to smoke fish so that the humidity of the rainfalls would not result in spoilage. In Kilifi, due to the information about expected flooding, people moved to higher ground and were less heavily affected by the water.

Most of them, however, said the climate and weather information relayed by the meteorological department is sometimes 'unreliable, inaccessible, irrelevant and often impractical'. Our key informant interviews with Kenya Meteorological Department (KMD) officials established that this perceived unreliability of climate and weather forecasts is due to its generalized nature. This indicates the need for more localized forecasts. Respondents pointed out that most women in rural areas do not own either radio, TV or a smartphone, yet these are the key avenues through which forecasters communicate. Most of them reported that climate change information is only reliable if offered by experts and in local languages so that most women who are illiterate can understand.

The fact that most climate change information is given through the government bureaucracy headed by climate change experts, agriculturalists and meteorologists using the English language on this relatively new subject is a challenge. Women emphasize they find it helpful to listen to FM radio stations as they broadcast the information in the local language, preferring climate change information to be packaged in native or local languages for improved access and understanding.

Barriers and challenges to uptake of climate change information by women

While barriers to receiving information are considerable for all rural people, women generally face the greatest limitations. Firstly, one of the main issues for women across all regions was access to technology, particularly newer ones

such as smartphones and computers. Apart from lacking and broken devices which seem to be the most prominent technical issues preventing access to information, some women, especially in Kilifi, reported a lack of electricity. Secondly, we occasionally found a lack of self-belief preventing some from demanding a voice in information generation and sharing processes. This manifests as a sense that there was something inherent about 'being a woman' that limited their capacity to understand climate change itself and its causes: 'We women have a reputation of not taking up new information very fast' (Lucy, Kilifi).

This finding demonstrates the gendered nature of the information dynamics that places women at the bottom of knowledge hierarchies. Patriarchal norms can be disempowering in ways that women themselves internalize. The resultant perception creates a dual challenge insofar as women are not perceived as knowledgeable change agents, and the internalized sense of a 'lack of capacity' may prevent some women from demanding a voice in information generation and sharing processes.

Thirdly, illiteracy seems to hinder access to climate-related information. While men can often read, some women emphasized that they cannot and so they have to show written communication to their husbands or children. Thus, information distributed via text message was not helpful in many cases. Finally, women's workload and domestic obligations present barriers to receiving information. Women have primary responsibilities in the private, domestic sphere. They expect to look after the children, keep the house, cook and clean, in addition to outward-facing activities including managing the smallholder farms they own. Some are also involved in small-scale markets. Over and above managing their households, women can also be responsible for supporting the farms of extended family members if the need arises. These multiple responsibilities affect their engagement with climate information in two ways. First, their responsibilities mean that they are incredibly time poor. Their days are already packed, and opportunities to go to meetings, sitting down to watch news or listen to radio or access training (if they were invited) are correspondingly limited:

Women's constant attention to family commitments takes away their patience and time to get climate information (Janet, Kilifi).

Sometimes I can't go to the chief *baraza* or even listen to the radio because I get so busy on the farm, and sometimes only hear this information from neighbours (Naya, Kwale).

Second, the timing of climate information sometimes conflicts with farmers' schedules or routines. Women work outside the house most of the day, so they may not access information during the day: 'Time of audience is the biggest challenge, so the radio stations need to design specific programs on weather issues that they can broadcast in the evening when people are at home, even if it's for thirty minutes' (Penelope, Makueni).

Closely related to the timing is the tension between climate change mitigation and the needs and priorities of communities battling poverty. It is important to note that rural communities generally experience such challenges as livelihood insecurity. For instance, women refer to the tension between attending a group meeting and devoting time to providing food for their families. In addition, some women mentioned that the information is not accessible as it might not be distributed everywhere and to everyone or that people cannot afford public transport to a meeting. Access to better information is undoubtedly important, but efforts geared towards addressing material deprivation and time poverty are crucial dimensions to any discussions on climate adaptation.

Aside from the day-to-day responsibilities that women have, patriarchal structures also disadvantage women in terms of information uptake. First, men might not share climate-related information they received in meetings with their wives; secondly, it may be challenging for women to raise some questions in the presence of men; and, finally, some men refuse to let their wives attend meetings or training where climate information is disseminated, an issue recognized by one Kenya Met Office official who noted that 'women are the ones who do farming ... and you know the land belongs to men. So everything that is to be done there, the man must give consent' (Peter, Regional KMD Office).

Notwithstanding the concerns around patriarchal disempowerment noted above, many women nonetheless demonstrate a strong desire for education, regardless of their literacy levels. For them, the 'difficulty' resides elsewhere, for example, in how information is communicated. Their comments show that they recognize the ways in which the gendered division of labour and the resultant unequal power dynamics in their communities affect their access to information and, thereby, their ability to make better-informed decisions about the ways they adapt to climate change. Far from being happy with being left uninformed and perceived as lacking ability, they argued strongly for more education: 'The information [via radio] is good ... but if we can have someone who can visit farmers and educate us on how we should farm, it can be very helpful and would help us to get better harvest in our farms' (Imara, Kwale).

Powerful cultural norms around women's roles mean that even when efforts are made to address these barriers and make access to information and training more

equitable, success could be limited. While the Agricultural Extension Officers often recognized how gender played out in mixed meetings, they tended to put this down to women's acceptance of their roles and inherent shyness. Women speaking on the same issue, however, offered a different picture. For them, it was men's dismissal of their views that stopped them from speaking. The women also recognize a gendered difference in how they and men handle information of any kind, creating an additional barrier to their ability to access information.

Information-based solutions

With regard to information-based resources, women, for the most part, wish to receive more information on weather forecasts and farming advice. For the former, the exact timing and amount of rainfall were seen as crucial as this information affects the timing of sowing, the choice of seeds and the sowing location. In terms of farming advice, women wished to obtain more instruction on when, how and what to plant, how to take care of the crops and deal with pests, how to take care of the soil and conserve water, as well as further education about chemicals (pesticides and fertilizers).

Women suggested that information curators should increase the relevance of climate change information by providing it early enough to inform their actions: 'Let them continue giving information; if they can send us messages in our phone it will be good so that we get the information early enough' (Omari, Kwale). Additionally, they think there is a need to give more specific information than general information. It is found that women needed information tailored to their community contexts, meaning that only information that concerns them was necessary to avoid apathy. Women observe that most of the information on climate change was too general and emphasize that the information should mirror the contexts of their lives instead of information on disasters from other parts of the country or world.

Women agreed that receiving training and education through personal contact would be desirable, such as visiting their areas or undertaking practical farm demonstrations. Information distributed via mobile phones – despite limitations in phone access noted earlier – through calls and voice messages was seen as beneficial because women even received them when they were not at home, for example, while working on their farms, while the radio and television were only accessible at home. Calls and voice messages were preferable due to illiteracy or difficulties with reading. Some women proposed adding more information channels and multimedia tools to reach people through various means.

With reference to improving the general access to information, three ideas were identified: implementing a set broadcasting time, especially from well used community radio stations; the distribution of climate-related information, which goes hand in hand with establishing a designated climate program; and repeating the same information/programme on different days and times, especially in the evenings. In future iterations of our project, we hope to facilitate such radio programming in the areas we research. Lastly, there was a need to increase the number of agricultural extension services to promote women's understanding, involvement and participation. This can be done by putting women at the centre of activities through the recognition of women's agency, thus ensuring women are enabled to feel they are part of change processes rather than being mere targets.

Conclusion

Our research findings point to a weak information ecosystem with a top-down communication model where although the media or extension officers should avail reliable, timely and usable information to the small-scale farmers, they rarely do so. Our research also established that most women are knowledgeable about climate change, and they demonstrated an awareness of the information deficits that limit their agency and how these can be addressed. There is, however, a lack of 'listening infrastructure' picking up on women's voices. The top-down communication model ignores the vast body of knowledge that women hold, gained from their everyday lived experiences and close connection with their environment. There is also no systematic approach to ensure that information is reaching the community level (ultimate end-users), where the majority of subsistence or small-scale agriculture takes place. Extension officers who are ideally the link between the government and the farmers are not readily available.

Our findings also show that weather forecasts from KMD need to be further localized to ensure relevance while capturing local realities. This will rebuild trust in the reliability of such information. The communication of climate information in English or Kiswahili is a major hindrance to accessibility and usability of this information since a majority of the women are not able to access these languages and/or may not be literate. Climate information should therefore be disseminated through local languages for ease of access.

The general lack of ownership of technology such as smartphones, radio and TV also limits women's capacity to access climate information, and women's roles as caregivers and related domestic duties leave them with no time to

access information either from the media or experts. Finally, we observed that information curators, including meteorological agencies, must seek to improve the relevance of information to make it timely, reliable and disaggregated to ensure that it's relevant to the specificities of different communities.

We hope that this research demonstrates the value of placing intersectional analysis and gender at the centre of research into communication to support climate adaptation (Kajumba & Shakya 2021). Our close examination of power dynamics and structural barriers within rural communities has provided necessary context for research primarily focused on how and why knowledge of climate change is generated as it is. The larger challenge now is to incorporate improved understanding of the lived realities of rural Kenyans into efforts at the local, national and international level to facilitate adaptation at the sharp end of climate change. Ensuring that rural women are at the centre of adaptation efforts recognizes the work they already do and the knowledge(s) they have gained in these endeavours. More importantly, it is crucial to ensure that rural women, disproportionately facing challenging socio-economic circumstances and working to sustain rural communities through (gendered) labour in both public and private domains, are recognized as both agents and experts whose material and informational demands must be met if intersectional climate justice is to be achieved.

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‘We let the blood flow’: Flooding, health and overlapping crisis as experienced by south Sudanese women

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Introduction

‘Women are the people who suffer most in every community. We have a significant number of widows after they lost their husbands in the war. Others have their husbands away in the cattle camps. This leaves the women to take care of the children solely. Even where the husbands are present, women are the major breadwinners’, explains the secretary for the Sudan People’s Liberation Movement (KII 002). This quote highlights not only the vulnerability marginalization and burdens faced by women in South Sudan but also their resilience and ability to serve as key leaders for their families and communities in the face of incredibly difficult situations. South Sudan’s population – and in particular, South Sudanese women – are experiencing floods, displacement, conflict and the lasting impacts of the Covid-19 pandemic, all in a country with a nascent health system and deeply vulnerable to the consequences of climate change.

In this chapter, we utilize an intersectional lens to look at how multiple crises, in particular disasters, the Covid-19 pandemic and climate change affect vulnerable groups, in particular, women. We analyse the different experiences and needs of women across ethnicities and age groups to bring out an intersectional understanding of vulnerability. The chapter begins with an outline of the political and historical developments in South Sudan and draws upon extensive literature to describe the humanitarian, health and climate vulnerabilities. Next, we describe the methodology and data collection which was undertaken in Jonglei state in 2021 and South Sudan’s capital, Juba, in 2023.

The findings describe impacts of climate and conflict on women's health and well-being. Finally, the conclusions set forth the need for gender-sensitive policy responses to address the ongoing humanitarian crises and the displacement.

Contextualizing South Sudan's overlapping crisis

South Sudan is ranked as the second most vulnerable country globally to environmental hazards (OCHA 2025). Since its independence in 2011, the country has experienced severe droughts (2011, 2015) and floods (2014, 2017, 2019, 2020, 2021, 2022, 2023 and 2024), resulting in a high number of deaths, displacements and livestock losses, all of which have had a significant impact on people's livelihoods (World Bank 2023; UN OCHA 2024). As a result, in 2023 and 2024, the country experienced severe food insecurity compounded with high inflation rates. The overlapping vulnerabilities have reduced the coping abilities of the population, especially women who are mostly the breadwinners in the communities. There were four consecutive seasons of intense annual flooding between 2019 and 2022 (UNHCR 2022). Two-thirds of the country experienced flooding in 2022, with over 900,000 people affected (UNHCR 2022). In 2024, situation reports highlight the plight of people with disabilities, women, children and older persons in these overlapping crises, with their pre-existing challenges intensifying their several needs (REACH 2024a). Disasters are not felt uniformly across the country – in Greater Kapoeta and Lafon County in Eastern Equatoria, in the south-east of the country, drought has affected farming and livestock for the displaced populations, limiting access to food, water and pasture for livestock and significantly disrupting food production and availability (REACH 2023). Meanwhile, flash floods have affected lives and livelihoods in Western Equatoria, Upper Nile, Central Equatoria, Jonglei and Warrap states (OCHA 2024). Along the White Nile, Pibor, and other riverine plains, floods have been a regular phenomenon (REACH 2023). Beyond disasters, climate change has resulted in decreased agricultural productivity and food insecurity, increased frequency, water scarcity and reduced availability of clean drinking water, loss of biodiversity, and ecosystem services, and community displacement due to sea-level rise and land degradation (Ebi 2020). These challenges stemming from climate change and environmental shocks take place in a politically unstable country regarded as the world's third 'most fragile' state (Fragile States Index 2024). South Sudan has around 2.2 million internally displaced people (IDPs) – a number which is growing as a result of increased returnees in the wake of the crisis in Sudan, which began in April 2023, and an increase in violence and

cessation of food distribution in parts of Ethiopia (UNUNOCHA 2024). These issues have disrupted cross-border trade, humanitarian access and oil exports, all of which are vital to South Sudan's economy and food security. The influx of returnees, alongside environmental shocks, has affected food security and access to basic needs and services (IFRC 2023).

Underlying healthcare challenges aggravate and reinforce existing health inequities in the country. Floods directly affect water, sanitation and hygiene (WASH) systems, limit access to health and markets as well as lead to a rise in cases of waterborne diseases such as malaria and cholera. Malaria was the leading cause of morbidity and mortality in the country, accounting for 65 per cent of outpatient visits and 20 per cent of deaths in 2017 (WHO 2017). Since the 2013 crisis, cholera cases have been reported every year between 2014 and 2017 (at least 28,676 cases including 644 deaths) in major urban centres such as Juba, in internally displaced populations and cattle camps, flood-affected locations and other locations with inadequate access to safe water, sanitation and hygiene (WASH) (WHO 2022). A cholera outbreak was declared by the government on 7 May 2022 in Rubkona County. In 2020, heavy rains and floods affected more than one million people, increasing the risk of waterborne diseases such as cholera, typhoid and hepatitis E (IRC 2020).

The health system in South Sudan faces severe challenges arising from historical legacies, continuous conflicts and limited resources. War, conflict, neglect and corruption have prevented the expansion of basic services and infrastructure, which has severely impacted the country's health system (Sørbo, Schomerus and Aalen 2016). Jones, Howard and Legido-Quigley (2015) describe how the conflict has impacted the health systems either through attacks on clinics or professionals, looting of medicines and resources at health centres during conflict, as well as limitations in providing services to the populations who are regularly displaced or returning. The Government of South Sudan allocated less than 2 per cent of its national budget for health care in 2021 (WHO 2021). The fragility of the system is worsened by the lack of health workers: with only one midwife and one doctor per 65,574 people, South Sudan has severe shortages in its medical workforce (UNFPA n.d). Only one-third of medical facilities are still open in conflict areas (Dafallah 2023) and the health system has an estimated \$700 million in financial losses in 2023 (Dafallah 2023). The health system cannot meet the growing demand and complexity of health services while also providing quality and equitable care to the population. The consequences of climate change and disasters compound health and well-being issues of the people of South Sudan, necessitating immediate and coordinated action from

the government, donors and partners to strengthen the health system's resilience and adaptation (Odhiambo, Jeffery, Lako, Devkota and Valadez 2020).

Women also experience specific challenges in South Sudan during crisis. The gender disparities in South Sudan are particularly challenging due to lack of monitoring data for reporting on Sustainable Development Goals (UN Women 2024). In the absence of updated information, the recent statistics report data from 2018, 26.7 per cent of women aged fifteen to forty-nine years were subject to physical and/or sexual violence by a current or former intimate partner in the previous twelve months (UN Women 2024). Moreover, women of reproductive age (15–49 years) often face barriers with respect to their sexual and reproductive health and rights: contraceptive prevalence rate was only 6 per cent for all methods (UNFPA 2022). The maternal mortality rate is 1,223 deaths per 100,000 live births, which is among the highest in the world (WHO 2024). Only 16 per cent of women and girls over fifteen are literate, compared to 40 per cent for men (World Bank 2016). Women and girls also face barriers while accessing basic menstrual health information and supplies during floods due to limited income-generating opportunities, reduced buying power and under-prioritization of sanitary materials during prolonged emergencies. Their means of managing their menstrual periods is by just letting it flow, sometimes using old and dirty rags to absorb the blood or by sitting on the ground and allowing the blood to flow. This has left girls and women further vulnerable and prone to the risk of infections and indignity. Furthermore, delivery of menstrual supplies to rural parts of South Sudan is hindered as the transport infrastructure is destroyed by the floods.

Sexual and gender-based violence (SGBV) is also prominent in South Sudan and is often most pronounced during periods of crisis. In 2020, conflict-related crimes perpetrated on women primarily consisted of abduction (41%) and killing (28%), for the most part during localized violence, with 18 per cent of victims being subjected to conflict-related sexual violence, including rape and sexual slavery (UNICEF 2019). In October 2020, UNICEF reported that early and forced marriages are common in South Sudan with 52 per cent of all girls married before eighteen years of age (UNICEF 2020). A study conducted by South Sudan Women Empowerment Network SSWEN (2021) found that sexual violence against children is one specific form of GBV that is reported and channelled into conflict dispute mechanisms, which refer cases to the police or other legal authorities. Women living with disabilities are also twice as likely to experience domestic violence or another form of SGBV as other women and up to three times more likely to experience sexual assault by a stranger or

acquaintance (SSWEN 2021). In their assessment of gender inequitable norms and gender-based violence in South Sudan, Scott et al. (2013) found that the customary laws regarding rape in South Sudan often reflect the culture and do not include rape in the context of marriage. Conflict and SGBV are also frequently managed through the customary law system, which can be more focused on easing tensions between communities, primarily through the payment of compensation or the return of stolen property, than providing justice for an individual. This creates a culture of impunity for perpetrators and can leave the grievances of an SGBV survivor and their family unaddressed (LAW 2016). Thus, the women survivors face several barriers in accessing medical support for their recovery. These include lack of awareness of the physical, mental and socio-economic consequences of SGBV, poor knowledge of and the types of services available, as well as the limited availability and poor quality of services. They also face societal challenges which are compounded by pervasive stigma associated with various forms of violence that prevent SGBV survivors from seeking support and accessing health services (SSWEN 2021). Previous research from other fragile and conflict-affected areas such as Cambodia indicate that the risks of SGBV are exacerbated during disaster situations (IFRC 2022). The impact of overlapping crises not only affects women and increases the risks of violence against them, it also remains underreported and thereby several challenges emerge while designing and developing humanitarian interventions. The next section describes the methods used to understand how crises impact women, the emerging needs, measures and actions as well as existing gaps in humanitarian interventions.

Methodology and data collection

This chapter uses data gathered in 2021 (phase 1) and 2023 (phase 2) using semi-structured interviews, household surveys, focus group discussions and key informant interviews. The lead author was commissioned to undertake a study on Christian Aid's and partner NGO's response in Ayod and Fangak counties in Jonglei state. The second author was the lead at African Development Aid (ADA), the local partner organization, who were implementing the humanitarian response programme to Covid-19 in Jonglei in 2021. During phase 1, the second author was involved in data collection with three investigators from ADA (2 men, 1 woman) who conducted a needs assessment using a mixed-methods approach in July 2021. Ayod and Fangak were hard hit by the overlapping crises

of Covid-19, conflict, displacement, flooding and food insecurity in South Sudan. During phase 2, in December 2023, the lead author visited Juba and conducted interviews with key informants and stakeholders who were responding to floods, displacement and chronic food insecurity.

In phase 1, the data collection instruments – interview, focus group discussions (FGD) with topic guides and household survey – were developed by the lead author and refined based on feedback from CAID and ADA staff. The ADA field team undertook field visits to Ayod and Fangak and collected data on the floods and waterlogging, and specifically discussed women’s needs during Covid-19 and floods. This mixed methods approach was essential because it not only provided data on household coping strategies in response to floods and displacement but also gathered perspectives from community members and leaders in the *payam*. In 2021, 462 household surveys were conducted using a structured questionnaire administered using KOBO Toolbox. KOBO Toolbox has been widely used in humanitarian settings, where internet connectivity can be a challenge, as was the case in Fangak.

The questionnaire included seven sections with roughly eighty questions. It covered a wide range of topics, including socio-demographic information, current household status, socio-economic household profile, support, local challenges and capacities, health and trust, and accountability and information sharing. The responses were recorded by research assistants, hired and trained by ADA, whereby the answers could be selected from a dropdown list with five to seven relevant options. The questionnaire allowed for a variety of response formats, such as open-ended questions, yes/no answers and multiple-choice options. Nineteen key informant interviews (KIIs) with NGO staff, technical experts on protection, international donors and field team members were held from May to July 2021. A semi-structured discussion guide was developed to elicit the views and experiences of community members, particularly women and other vulnerable groups such as persons with physical difficulties, mental challenges and elderly persons (>60 years). Six FGDs were conducted separately for men and women, as well as for various age, ethnic and displacement groups. There were two separate FGDs conducted in Ayod, with seven male and female members in each. Four were held in Fangak – two each with separate male and female members. In total, twenty-nine people participated in the FGDs. A full breakdown of research participants can be found in Tables 12.1 and 12.2.

During phase 2 in December 2023, twenty-two additional KIIs were conducted with local government representatives, health workers, community leaders, women’s groups, youth groups and humanitarian NGO staff in Juba.

Table 12.1 Total number of KIIs and FGDs across Ayod, Fangak and DEC partners

Province	FGDs	No. of participants FGDs			KIIs	No. of participants KIIs		
		Total	Female Age (30–65)	Male Age (30–65)		Total	Female Age (30–65)	Male Age (30–65)
Ayod	2	8	4	4	9	1	5	
Fangak	4	21	7	14	6	1	4	
DEC Partners	-	-	-	-	3			
Total	6	6	11	18	19	2	9	

Table 12.2 Household survey respondents' characteristics in Ayod and Fangak, 2021

Type of household respondents	Statistics (%)
Distribution by gender	
Male respondents	5
Female respondents	95
Distribution by location	
Ayod	56.28
Fangak	43.79
Languages spoken	
Nuer	99.78
Dinka	12.36
Households consisting of	
– Persons with physical difficulties (mobility, sight, hearing)	12.72
– Person with mental challenges	5.89
– Elderly person (>60 years)	26.60
– Pregnant or lactating woman	32.81
– Caregivers for children under two years	21.98
Household composition	
Married respondents	69.28
Widowed	8.87
Separated/divorced	5.63
Unable to read	91.77

KIIs helped gather detailed information on how various actors are responding to the challenges of disasters and displacement and issues faced by women in South Sudan. These were conducted in English primarily and lasted between forty and fifty minutes. All the study participants were informed about the study, prior to any data collection, in their own language. There was no monetary compensation for participation. The field team observed steps to ensure confidentiality and anonymity of responses and assured the respondents that their participation was voluntary and they were free to withdraw at any time. The respondents were assured that the information collected will be kept confidential and would only be used for purposes of the study. ADA team members conducted key informant interviews, which were recorded in handwritten notes and then transcribed and translated. All databases, field notes and typed transcripts were stored in password-protected computers with access only to the research team.

Women comprised the vast majority (95%) of respondents to the survey, with the remainder (5%) completed by men. The households included respondents who self-reported as follows: people with physical disabilities (12.72%), people with mental health issues (5.89%), elderly persons (>60 years) (26.60%), pregnant or lactating women (32.81%) and caregivers for children under the age of two (21.98%). The data also includes the respondents' marital status and level of literacy. Most respondents (69.28%) were married, with 8.87 per cent widowed and 5.63 per cent separated or divorced. The data also shows that a significant number of respondents (91.77%) are unable to read.

Findings

Our study underlines the role of women across ethnic groups in South Sudan during complex emergencies. They act as providers for their families and are the primary caregivers for children and older people. In the following section, we explain how overlapping crisis impact different women. We found that the combined effects of Covid-19 and disasters further restricted access to basic services such as health care, water, sanitation, and hygiene (WASH), food and protection.

Access to services amidst overlapping crisis

In Ayod and Fangak, it emerged that as overlapping issues continue – floods, Covid-19 and displacement – women were the hardest hit as their access to basic

services – food, WASH, education, health facilities and information, markets and livelihood opportunities – deteriorate. Ayod County faced floods due to heavy rains from mid-August 2020 and the subsequent rise in water levels in the rivers Nile, Phow and Canal. The floods rendered most parts of the county inaccessible, forcing residents to use canoes or wade through knee-length and sometimes chest-level water levels to access facilities such as toilets, markets and health facilities. The most affected locations of Ayod were Jiech, Kedak, Pagil, Gorwai and Mogok. Floods severely affected shelter, mobility, farming, fishing, WASH and health facilities. On the other hand, during an FGD with female participants in Fangak, the participants reported that about 85 per cent of the land was covered by water. Since there was no harvest after 2020, people in the community were running out of food. One participant in the all women's FGD in Fangak told us, 'Floods destroyed all our crops in the farms and also the food we had stored in our houses. The days have been very hard on us; we didn't have anything to feed our children. There were days we went to bed hungry and woke up the following day without knowing what to eat.'

Food scarcity affected the entire community at large. According to our research participants, the World Food Programme (WFP) and other humanitarian services provided food. WFP airdropped food, but due to flooding, several locations were inaccessible, and there were no clear locations for the drops to take place. According to a key informant (KII 001) the food airdrops had not happened in sometime. They informed us that

The last distribution was last year in July [2020]. The composition of food stuff supplied were 50 kgs of sorghum, 3 litres of cooking oil, 500 grams of salt and 50 kgs of pulses. The food does not last long because households are hosting other IDPs. I think the household that had the food longest would be two months. [...] Humanitarian assistance has been hard due to poor access to this location.

The food supplies were expected to last until three months as per the WFP calculations. However, as the household sizes had increased up to eight members in average due to additional IDPs, it shortened the number of days while the food stock lasted.

Survey respondents mentioned that due to the severity of floods, dry areas for cultivation were difficult to find, with most of the farmlands occupied by water. The rest of the dry land has clay soil, which is not very fertile. KIIs indicate that the 2019 floods had led to no 'harvest' in 2020, and as the floodwater had not receded, there would be no harvest in 2021. There has been a drastic decline in the area planted leading to a significant deterioration of crop production in

the two counties since the flooding started. From the Crop and Food Security Assessment Missions (CFSAM) crop production data, in Ayod and Jonglei there were major reductions in areas that produce cereals and the gap between overall requirements and production in cereals in 2022 and 2023 (CFSAM 2023). People coped by eating water lilies, grass and wild fruits, while others sold their cattle at low prices. Though humanitarian assistance was limited, participants remarked that nets distributed by ADA in 2020 had been helpful. Action Contra le Faim (ACF) also distributed food supplies in May 2021 to 950 households. People were unsure about the coming years because more rains are expected. Those living near the river continued fishing, while those surrounded by floodwaters were adopting fish breeding and catching without any equipment. Initially agencies such as Christian Aid and local partner ADA focused largely on Covid-19 response, but once the grave need for the floods was understood, they adapted their programme to meet the needs of the flood-affected and the displaced communities.

The floods in 2019 and 2020 had resulted in major waterlogging in Fangak. This meant that women, primarily mothers and young girls, had to wade through knee-deep waters to access health centres. Since their access to markets was cut off, they struggled to produce any food and failed to ensure one meal for their families in waterlogged areas. Survey results indicated that only 16 per cent of respondents had enough food to meet their needs, while 81 per cent said they had experienced food shortage. The primary barriers to food access were a lack of income, high food prices, a scarcity of markets and insecurity. Environmental disasters, such as floods, disrupted agricultural production and market availability, as well as the accessibility and distribution of food aid. The floodwaters have even hampered the ability of business owners to restock their supplies. An NGO staff member (KII 05) told us that

survival is very difficult since [the] majority consume water lily. The flood water has small fishes, but the young men have moved to the fishing camps or near the Nile River which is a day's distance to fish. Families that have money and those with energy to row or move slowly in the water are able to reach out to the neighbouring Payams (Pagil, Mogok and Gurwai) to purchase or borrow food from relatives.

According to our household surveys, most people reported food shortages, as can be seen in Figure 12.3. During the FGD held in Paguir, Fangak, a woman recalled that as 'All the men were engaged in constructing the dyke', there was 'no one to go hunting or fishing'. As a result, the women of the area

had to go in the swamps to get fish (sit in the water and spread our dresses, then wait for the fish to get trapped in the dress). We boiled the fish since we didn't have any other ingredients like cooking oil, salt and other accompaniments like maize flour, and rice. When fish became hard for us women, we cut the water lilies, grass and lalop (wild fruit).

At the same time as flooding was impacting the type and quantity of available foods, so too was the Covid-19 pandemic. The pandemic reduced income and livelihood opportunities, raised food prices and inflation, and restricted food movement and trade. According to a local administrative authority (KII 01) in Paguir, food prices had increased and community members still faced several challenges to rebuild their livelihoods, chiefly since the region was controlled by the opposition party. They reported,

The fluctuation of the dollar against [South Sudanese Pound] SSP plus effects of floods and Covid-19 has had negative effects on Paguir's population. Right now, only three major shops are operating here, and they still don't have most of the items. This is because of the high prices of items. [...] We lack space ... most of our land is covered in water; we can't farm or keep our livestock with us. This year, no single household planted anything. Paguir is also among the inaccessible payams in Fangak. Most humanitarian agencies in Fangak concentrate in areas near the river because they can be accessed by the river.

The impacts of food scarcity, malnutrition and hunger are not evenly felt across communities. Children, for example, are more vulnerable to the effects of undernutrition, including stunting, wasting and micronutrient deficiencies (UNICEF 2022). Often it is women who have hurt the most. According to a woman (KII 004) who ran a small business in Paguir,

Table 12.3 Household survey on self-reported food shortages

Variables	Statistics (n)
Household experienced food shortages in the past eighteen months	
Ayod	
Respondents who self-reported having experienced food shortage.	141
Respondents who self-reported not experienced food shortage	11
Fangak	
Respondents who self-reported having experienced food shortage	117
Respondents who self-reported not experienced food shortage	3

I think it has gotten worse. We wake up not knowing what to feed our children. Before the floods, Old Fangak was accessible by foot (two hours walk). Right now, we have to pay [for] canoes to Old Fangak at [a] minimum 5,000 SSP. Most of us cannot afford that. Most organizations who were supporting the people here before can no longer come because of poor access. Food shortages is the major problem for most people here.

The existing crumbling WASH services further deteriorated due to waterlogging and floods from 2020. Survey results indicate that people relied on a variety of primary sources of water, including tube wells (1%), harvested rainwater (13%), streams and rivers (41%), ponds (2%) and other sources which were not specified (43%). Only 6 per cent of respondents said they had access to sanitation facilities, while 94 per cent used unimproved sanitation, such as open defecation, pit latrines without slabs or bucket toilets. In terms of hygiene, 50.32 per cent of respondents wash their hands with water from ponds, swamps or floodwater, while 35.97 per cent use ash or mud as a substitute for soap due to limited availability. Even though only 13.71 per cent of people use soap to wash their hands, they have foregone this practice as they can no longer access markets to purchase soaps.

These findings were corroborated by a County Education Director in Ayod (KII 005), who, in July 2020, told us:

WASH has totally collapsed and the community members, including the children defecate, either directly in the water or move to the bush to relieve themselves. The toilets in the schools are in bad shape with many in a filthy condition that cannot be used anymore [...] for most homes who have the elderly or disabled they have invented unique methods of cutting plunks and mounting them on top of each other inside the water to create room for defecating and urinating [...] [Only half of bore holes are functioning and they] cannot serve the whole community since they are situated at one end of the Payam with the rest [are] either submerged under water [while] others [are] totally damaged and need repair and or a dyke constructed around them. This has made it difficult for the elderly and families far away from the water points [to] use the flood or surface water for their domestic consumption. No proper training has been done for the past 10 months hence the serious danger that has led to diarrhoea cases, increased mosquito breeding habitats leading to Malaria cases.

Through focus group discussions, it emerged that the primary barriers to accessing safe water were distance, cost, lack of maintenance and contamination. The term *safe* is also relatively used here since most of the boreholes were submerged by the floods. With the majority of the population practising open

defecation, all the faecal waste matter along with the floodwaters contaminated the groundwater. So the water from the boreholes was not entirely safe for human consumption. Floods also damaged or destroyed existing water infrastructure, reducing the availability and quality of water sources and increasing the risk of waterborne diseases like cholera, typhoid and hepatitis. The Covid-19 pandemic increased the demand and need for safe water, which is necessary for hygiene, infection prevention and control. However, the supply and availability of water did not meet the demand and need, resulting in water scarcity, rationing and conflict. The lack of access to safe water had an impact on the population's food security and nutrition, as water is required for agricultural production, food preparation and consumption. These effects were unevenly felt with women, people living with disability and older people, among others, who were acutely impacted.

Sexual and reproductive health, sociocultural norms and overlapping crises

Sexual and reproductive health outcomes for women remain largely unaddressed during crises situations, such as after extreme flooding (UNFPA 2024). In Ayod and Fangak, most respondents mentioned lack of hygiene awareness and facilities, increasing instances of gender-based violence, and lack of access to health information and facilities. Women's menstrual needs during floods, in particular, remain largely ignored. According to survey results, 60.1 per cent of female respondents reported not using menstrual hygiene products, while 17.6 per cent reported using old clothes or rags in general. They either buried their menstrual waste or threw it away in floodwaters. While 23.19 per cent of female respondents believe that providing menstrual hygiene awareness to their spouses would help them deal with the issue in a culturally and respectfully open manner, others suggested that providing information on sanitary pad usage and disposal, as well as counselling support, could improve menstrual hygiene management. The flood situation worsened hygiene practices, as reported by participants. In Fangak and Ayod, many of the challenges women faced stemmed from cultural taboos surrounding menstruation, as well as the community's patriarchal nature. During an FGD with women in Ayod, it emerged that young girls and women who could not afford sanitary pads used rags to stop the bleeding. Due to floods and waterlogging hygiene practices have worsened as women faced mobility restrictions. Women reported defecating in the water, bathing in the flood water, drinking and cooking using the flood water, as a result of which

they could not manage their menstrual hygiene needs effectively. Similarly, in Fangak, a woman in an FGD in Paguir mentioned, ‘We just let it [menstrual blood] flow and avoid going near men [during those days]. We do not have sanitary towels; most women here don’t even know what that is.’

A major challenge within sexual reproductive healthcare is addressing menstrual hygiene needs for women and young adolescent girls. Due to persistent traditions, cultural beliefs and norms, menstrual hygiene is not discussed publicly, and as a result, support for girls and women at home and in the community is insufficient to effectively manage menstruation (UNESCO 2015). There is a lack of discussion and education about sexual maturation and reproductive health, and it exposes girls and women to misinformation and myths from a variety of sources, including peers, parents and teachers (Sumpter and Torondel 2013). Programmes fail to address the structural and systemic barriers that prevent them from accessing and utilizing the services they require. Following from lack of menstrual hygiene knowledge and awareness and availability of cheap menstrual products, the provision of critical WASH infrastructure, especially resilient to flooding and waterlogging, means women and girls cannot wash their sanitary clothes, properly dispose the sanitary napkins and maintain personal hygiene due to lack of bathing and toilet facilities at the household and communal level.

Women also experience heightened household and caring burdens during and following disasters as a result of sociocultural norms and the gendered division of labour. As a woman at an FGD in Ayod articulated, ‘Men are weak and lazing at the marketplace waiting for the women to look for food. Traditionally, most women have learnt how to take care of the family through observation and socialization. Men are trained to cultivate land, build Tukul, cattle rearing, and that highlights a lot about gender roles and norms.’ Key stakeholders observed that although the uncertainty of the future has affected both men and women, there is a gendered burden of caring, which falls upon women alone. With the extended nature of crises – conflict, disasters, pandemic – it becomes hard to ascertain whether this is a result of adverse coping strategies. The expectations placed on women, along with the burden of caregiving, become their sole responsibility. When they were unable to meet these demands, it led to violent incidents involving their spouses.

The intersectionality of culture and gender also becomes apparent in polygamous societies. These need to be factored while designing relief interventions and identifying households to receive support. A respondent in

Paguir told us, 'Our women grew up upholding the Nuer culture. Most of them have not gone to school and get married from the age of seventeen years. They are generally expected to provide food for their household, fetch firewood and take care of the children, while men engage in fishing and livestock rearing.' In Jiech, Ayod men often have more than two wives, and this has implications for the distribution of aid, as not all family's members will be registered. An NGO official in Ayod explains that 'the community in Jiech is a polygamous one yet the distribution doesn't target the whole household during distribution. Most families are selected based on the need and support is spread evenly in different families, the polygamous families only get the first or second family registered for services.'

It emerged that scaling up and enhancing the quality of health services was necessary to improve health access and outcomes for women. There are major gaps in sexual and reproductive health services in Ayod and Fangak, especially in providing information and services for family planning, menstrual hygiene, and sexually transmitted infections, which results in lot of misbeliefs and spread of misinformation. For instance, while discussing infections and family planning services, a woman in an FGD in Paguir shared: 'For UTIs [urinary tract infections] we only pray to God for protection since we do suffer from UTIs. We visit the clinics in the County Health Department for treatment. This has affected women from getting pregnant because fewer women have been conceiving since the onset of floods.' This infertility during emergencies could potentially be due to the urinary tract infections, which were prevalent during floods, and very limited treatment options were available to the women. From a programmatic perspective, distribution of disposable sanitary towels was extremely unsustainable, as it would mean distributing monthly. Bulk transportation was impossible with very limited landing spots. On the other hand, distribution of reusable towels would have a health implication, considering that women and girls had extremely limited access to clean water and dry spots for hanging the pads to dry.

The health interventions need to adopt an intersectional approach so that access to timely and reliable information can be ensured for young girls and women across different ages and cultural groups. For instance, young school-going girls lacked access to information on the onset of menstrual hygiene, adolescent girls and young married women did not receive any information or knowledge of safe sex practices, awareness on sexual violence, while pregnant women shared the lack of inputs on nutrition. This finding is consistent with

Atari et al.'s (2024) study, which investigated menstrual hygiene knowledge and practices among young adolescent girls in South Sudan.

Conclusions

This chapter has argued that women's experiences in South Sudan are varied according to their age, physical capability, location, as well as the opportunities and barriers they encounter in accessing health services in the face of overlapping crises, namely environmental disasters, ongoing conflict and insecurity, and health emergencies. This chapter indicates that as women's access to basic services – education, WASH, health and livelihoods – deteriorated due to multiple crises, they resorted to maladaptive strategies because the responsibility to feed and care for their family was their sole responsibility. We further found that the lack of quality and accessible healthcare and sociocultural norms reinforced women's experiences with gender-based violence. An intersectoral lens indicates how women's needs and experiences intersect with the nature of crises: floods, displacement, health; exposure to risks: financial, diseases, infections; geographical location: rural or town-based, proximity to markets, river and health centres; social categories: ethnicity, age and ability.

In this chapter, we examined the health equity implications of environmental disasters in South Sudan. We used a gender and intersectionality approach to investigate how different groups of women are affected by and respond to health risks and environmental disasters, taking into account the numerous and interconnected factors that shape their vulnerabilities and capacities, such as age, ethnicity, disability and socio-economic status. We utilized new data from our survey and field visits in two provinces in Jonglei, to demonstrate the challenges and opportunities that women face during Covid-19 and environmental disasters, as well as the strategies and behaviours that they use to cope and adapt to the changing situation.

We discovered that the impact of disasters, in particular flooding, significantly impacted access to basic services and women's broader vulnerability. The disruption of these services had a significant impact on the population's health and well-being, particularly on women and other vulnerable groups, who were at higher risk of morbidity and mortality, as well as food insecurity and gender-based violence. More must be done to address the complex and interconnected crises women face during and after disasters, especially since the frequency and intensity of these are predicted to increase as a result of climate change.

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Chair in Entebbe / Entebbe E’Ntebbe

Daphine Arinda

This poem brings together and reflects on the lived experiences, personal narratives and creative reflections of lesbian, bisexual and queer (LBQ) women on the urban climate crisis in Kampala, Uganda. Co-convened between the GENERATE Project¹ and an LBQ-led civil society organization,² this two-day workshop used poetry as a tool to interweave discussion, performance, group feedback and individual writing and quiet reflections. In so doing, the workshops aimed to provide LBQ women with a safe and caring space through which to creatively explore and reflect on their lived experiences of climate change and environmental injustice and how these relate to broader sociopolitical injustices they face. Creative writing enabled us to celebrate and centre the creativity, agency and resilience of LBQ women, providing materials and mentorship to experiment with creative expression and ways of supporting each other. LBQ women used creative writing to highlight interrelated issues relating to housing and being unhoused, ageing, economic justice, and health and well-being, and how these are impacted by and intersect with queerphobia and broader environmental and climate challenges. Entebbe E’Ntebbe pulls together multiple threads from across two days of reflective discussions, new friendships, shared meals and a portfolio of powerful queer poetry.

Give me a chair
 I’m in Entebbe
 Where I can breathe
 Where I’m from is not the nearest of places; Kampala.

The English-language version of ‘Chair in Entebbe’ was previously published in *Critical Studies on Security* and is republished here with permission and thanks.

¹ Supported by UK Research on Innovation [MR/S015299/1]. See also www.generateproject.org.

² In light of the ongoing socio-legal persecution of queer communities in Uganda, we will not name them here.

I was even slapped
In the Park, for showing skin
In my skimpy attire.
So, hurry with the Chair!
I'm out of breath
It's a hot day
I have sanitary towel burns
I saw the moon
I'm bleeding
The sun too
My sweat is stinging
The dust of this place sickens one with cough
And yet herbs for concoctions are out of sight
For we cut down trees
Because we don't have time to sweep
You know trees! they shed their leaves all over our concrete-aspiring gardens.
It rained
But there is no water
Houses have no gutters
So rain water harvesting is impossible.
Even the electricity took a trip
It's generated from water in Jinja
But it just can't stand the rain at all.
Fuck UMEME.
Fuck National Water.
See how I'm forced to resort to the well
Where I could be raped!
At the well, I'm not welcome
They are short of undressing me
To look into my reproductive organs
And ascertain whether I'm a man or woman.
Okay, I am a woman
But the villagers named me
'It-grew-like-a-man'
Now even public taxis are out of the question
Because passengers bother me
They ogle at me
And all of me feels like retreating into myself
Just like a snail into its shell.
On a boda boda
Is where I find freedom

But I cannot take it when it rains
Because the street trenches turn into rivers
And yet there are no boats for hire!
These days I don't go to work.
In fact, I don't eat either.
Where will the food come from
When windstorms have annihilated banana plantations
And even amaranth is to be bought from the market!
Oh, my people
Bring me a chair
My lungs have got to calm down
They crave for O₂
Do you make sense of that?
We need self-reflection, each of us.
We discovered that O₂ is pricey
When the Virus preyed on us
And yet the little we get for free, we waste.
But, it isn't us. I swear, it isn't us
Those factory people, those ones!
They had better vacate the city
And go far to isolated bushes
Where there is a bit of forest cover
Where people do not reside.
Eh! My Lord.
It is tough
My dear
Why are you gay?
You should be grey
Concrete is grey
Roofs are grey
Tree tops are bare
Green became gold
It is as rare.
You can only see green in rich suburbs like Naguru and Kololo.
Us in Kasokoso,
Khat leaf is the only green that keeps us going, but really we don't see no trees.
Hey
Let me calm my soul,
Sit myself here at the beach,
And luxuriate in the breeze that soothes
The breeze of Nalubale.

*bampe Entebbe
 anti ndi Entebbe
 where I can breath.
 nvudde waala
 Kampala siyekumpi
 bankunbye nempi
 mu parka enkadde
 Lya kweyambaza ebimpi.*

*Kati yanguya Entebbe
 I am out of breath
 it's a hot day
 ne padi yanjokyeza
 nalabye omwezi
 ntilika
 naye no musana
 Gundabikide
 entuyo esisitira*

*enfufu yakuno
 elwaza nenkolola
 kyoka ebikola
 tebifunika
 anti emiti twatema
 obudde obwela, tetulina,
 emiti tetugyaliza mbu zikunkumuka amakola on our concrete aspiring gardens.*

*enkuba yatonye
 naye teli maazi
 anti amayumba
 tegaliko migogo
 okuseera tekusoboka
 na'masanyaraaze gekyanze
 bagakola mu maazi wali e Jinja
 naye tegagalilako nkuba na wadde.*

*fuck UMEME
 Fuck National Water
 olaba bwengenda ku luzi
 nebampambile'yo?
 ku luzi, tebanjaliza*

*banatera okunyambula
bandabe mu busolo okukakasa ddala,
ndi mukyala oba musajjaa?*

*kale ndi mukyala
naye abokukyalo
bantuma 'kyakula sajja'
Kati ne taxi, sikyalinya
kuba banchokoza
bansamalilira!
nzena nenjagala okwedamu nge ekovu.*

*ku boda, wenfunila eddembe
naye lwetonye, sikola
emyala zifuka emiga
ngate obwato tewali.
Katie sikyakola
in fact, sikyalya
emele enavaawa,
nge embuyaga zasanyawo olusuku lwa matooke
ne dodo, yakugula buguzi*

*eh! my Lord
it is tough
my dear
why are u gay?
you should be grey!
nze kati kilagala sikyagilabako
ndaba grey!
concrete is grey!
roofs are grey
tree tops are bare
kilagala yafuka zaabu
anti talabika
Abe kolo be Naguru eyo
bebagilabako
ffe Eno ekasokoso,
akakola kekatubezawo
naye Nga Dala, tetulaba kumuti!*

*kale banange
 mumpe Entebbe
 mpumuze ku bihaha
 bi yayanila ka o2.
 okitegera!
 tweddeko banange
 twakizula nti ka O2 kabusere
 oxygen SI wa layisi
 ngate ke tufuna akwo-bwelele
 tukonona.*

*Naye, sife! walai!
 sife
 abamafactory abo
 bandituvilidde my city
 Nebada eyo mu kibira
 awali ka forest cover
 abantu gyebatabera.*

*owaye!
 kankakanye omwoyo
 netulile wano ku beach
 nyumirwe ku kawewo akawewetera
 akawewo ke nalubaale.*

Reference

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Queer diffabilities in Uganda: Experiences of intersectional complexity and the urban climate crisis

Katie McQuaid and Neil J. W. Crawford

Introduction

'Double stigma, trouble and phobia comes with being a person with disabilities and then being queer', Kira tells us. They lead a small civil society organization supporting queer people living with diffabilities in Uganda. We adopt the term 'diffability' here to recognize – and normalize – the diversity of abilities among people.¹ One of the initiatives Kira tells us most passionately about is a project designed to mitigate the high levels of food insecurity many in this community experience. Incomplete schooling, inaccessible and discriminatory employers, lack of social support networks, poor quality and congested housing in dense underserved urban neighbourhoods and high levels of sociopolitical stigma all collide to sustain both queer and diffabled communities in high levels of social, economic and environmental precarity. Working to mitigate the impacts of these overlapping inequalities is a vibrant civil society. In the initiative above, Kira's organization keeps a modest urban garden, and uses their fast-growing nutrient-rich produce to bolster purchases of goods from the local market in a series of food parcels that they deliver to the homes of people who are both queer and diffabled.

Their organization poses as a purely PWD (people with diffabilities) organization, so as not to raise the suspicion of family members. Though some families are suspicious, they allow the meetings to take place because it results

¹ This term was derived by Mansour Fakhri and Setiadi Purwanta, two blind people in Indonesia, as a critique of the term *disabilitas* (disability), which re-produces the marginalization of people with disabilities. For a full discussion, see Pirmasari and McQuaid (2023).

in food (and sometimes toiletries) being delivered, which are then shared by the family. Kira, a gender non-conforming, non-binary person, often does the home themselves. While they engage in conscious acts of altered appearance and dress, suspicion remains. This serves, Kira explains, not only to provide a small degree of food security for people often unable to work and who often have complex under-served health needs but also to pierce the isolation and loneliness of housebound people, especially for those trapped in houses with discriminatory family members. During their home visits, the organization tries to manage some time alone with the individual, but this can pose challenges due to limited space, multiple people around, nosy or curious family members or neighbours, and so on. Due to limited resources this initiative is reserved for 'members' of the organization who have the greatest needs but also the greatest restrictions in terms of mobility. Primarily this initiative is only in greater Kampala, where the organization is based, to enlarge part of the transport costs that are entailed.

In this chapter we introduce our approach to intersectional climate justice that argues for a greater focus on disability and queerness in (intersectional) climate justice studies and climate change research more broadly. To do so, we will recount the lived experiences of a queer person in Uganda we have named Kay. Their stories emerged out of our broader applied research on the gender-age-urban interface of climate change in both Uganda and Indonesia, in which we conducted fieldwork across seven cities. To protect the anonymity and security of our research collaborators, we have chosen to blend the experiences of several queer wheelchair users we met during a creative workshop co-hosted with Kira's organization in summer 2022. Experiences recounted here were lived by different people from across the LGBTQ+ community – as such, we have only identified Kay as queer; however, we acknowledge the rich diversity within the community and how different sexualities and gender identities can and do shape individual experiences and daily life in Kampala. All quotes we include here are drawn from verbatim transcripts from our fieldwork and reflect real lived experiences. Kay's stories as they appear here were chosen to evidence intersectional complexity and the ways in which power works to drive the social inequalities, marginalization and exclusion that position some minds and bodies more vulnerable to climate change impacts. We hope that amplifying these voices opens up alternative ways of thinking and theorizing about climate justice that interrogates normativity, provides space for a greater embodied diversity of lives impacted by climate change, (re)visions just futures that centre inclusion, social and environmental justice, and compels transformative approaches to climate justice in our research, actions and engagement with climate governance.

Queer diffabilities and climate justice

Our chapter highlights some of the ways in which systemic inequalities and oppressions layer and accumulate for certain people, with queerphobia and ableism both serving to exclude and stigmatize particular bodies and minds. Recent climate change and justice research has embraced intersectionality to address gaps and failures in climate adaptation and mitigation theory and practice (Bulkeley, Edwards and Fuller 2014; Chu and Michael 2019) and to recognize and confront systems of oppression, inequalities and promote inclusion, equity and recognitional justice (Strange et al. 2024; Dodman et al. 2022; Revi et al. 2020). The emerging field of intersectional climate justice research thus highlights how specific communities are disproportionately affected by the negative impacts of climate change and supervening policies, attending to often overlapping factors (e.g. gender, race, ethnicity, diffability, class, citizenship, sexuality, among others), and historical injustices that further exacerbate the inequitable distribution of climate impacts (Mikulewicz et al. 2023; Amorim-Maia et al. 2022 and 2023). By centring the lived experiences of both diffabled and queer people in urban Uganda, this chapter aims to demonstrate how being multiply marginalized leads to more acute experiences of climate change, with less opportunities and resources to be able to mitigate impacts and environmental harms. This must begin with better understanding how power works to inequitably position people within overlapping systems of domination. Amplifying multiply marginalized communities thus allows us to recognize diffability and sexual and gender diversity as sites of critical embodied and experiential knowledge and sociopolitical resistance (Belser 2020); thus ensuring we start our climate justice work here in the messy and complex lived experiences of those ‘on the ground’

Understanding the lived experiences of queer and diffabled people, and amplifying their voices, encourages us to push for inclusive, reflexive and contextualized climate knowledge production. Knowledge which is sensitive to how power operates in and through gender and sexuality, ableism and other oppressions, and that can identify structures that perpetuate vulnerability and precarity for certain bodies and not others. Centring queerness and diffability allows us to foreground embodied diversity and address at the heart of climate justice how poverty, structural exclusion, social disadvantage and other categories of difference disproportionately render some people more vulnerable to climate change (see Bell 2011; Engelman et al. 2022; Erevelles and Minear 2010; Priestley and Hemingway 2006). It responds to calls for ‘much

more diverse set of knowledges, values, skills, and experiences that would allow humanity to overcome what are quintessentially Western understandings of climate change' (Michael et al. 2023: 4), which is necessary if we are serious about finding solutions to the climate crisis.

Decentring climate justice through amplifying embodied and diverse Indigenous frameworks means taking 'into account local contexts, cultures, and economic and political factors' and beginning the 'intellectual decolonisation of the discourse about disability' (Mbazzi et al. 2020: 404; see also Grech 2011; Phasha 2017). For example, the African notion of ubuntu ('I am because we are') can provide an alternative approach to diffability that compels us to 'ask why the social responsibilities of ethical actions are enabled or disabled individually, socially, by the state or structurally' (Berghs 2019: 6; cf. Bannink Mbazzi et al. 2020: 404). We can then act, as Berghs (2017: 6) suggests, according to how diffability 'needs to be about ensuring greater ubuntu in society in a wider sense of diversity than impairment'. Feminist diffability studies encourage us to approach diffability through 'complex analyses of embodiment, representation, identity and activism' (Mohamed and Shefer 2015:6) and ask questions such as 'Whole role does gender play in the experience of disability? ... How do institutions, global economic inequalities, and ideas of citizenship and the nation produce gendered, raced and classed disability?' (Hall 2011:8).

Efforts towards queering climate change are small but growing. Queer ecology, as Mortimer-Sandilands (2010) notes, understands sexuality as a matter of environmental justice, calling on us to challenge the existence of homophobia and heterosexism in prevailing environmental discourse and queering heteromale understandings of nature. Queer ecofeminism (Gaard 2015) emphasizes how all our climates are both gendered and sexualized, and simultaneously material, cultural and ecological. It highlights the importance of including sexuality as part of a broader intersection of oppressions such as class, gender, race and speciesism, highlighting climate change as a 'white industrial-capitalist heteromale supremacy on steroids ... boosted by widespread injustices of gender and race, sexuality and species' (Gaard 2015: 27). An emerging body of work draws our attention to the heightened environmental vulnerabilities of LGBTQI+ people (Dwyer and Woolf 2018; Balgos, Gaillard, and Sanz 2012; Gaillard et al. 2017; Rumbach and Knight 2014), including specific environmental injustices such as disproportionate exposure to air pollution and other hazards (Collins et al. 2017). The primary focus of this work so far is on (post-)disaster and humanitarian settings and demonstrates the shortcomings of humanitarian systems that are often ill prepared to address, or

actively ignore, LGBTQI+ issues at multiple scales (Dominey-Howes et al. 2014; IGLHRC and SEROVie 2011). Gaillard et al. (2017) highlight, for example, how LGBTQI+ people are regularly excluded across response, relief and recovery stages following disasters.

An approach to climate justice that explicitly investigates multiple marginalization sets our focus on material, political and sociocultural workings of power and the complex everyday ways in which intersecting axes of systemic inequality – derived from being queer, living with diffabilities and generally as part of the urban poor – result in unique layered precarities. As Green et al. (2018) argue regarding the lived experience of First Nations diffabled people in Australia, an intersectional approach is critical if we are to address cumulative systems of social inequalities perpetuating the experience of multiple and intersecting barriers and discriminations, each of which works to amplify and compound the impact of each other (Cooms et al., 2022).

As Judith Butler (2009) poses the question ‘whose lives are grievable?’, Sandberg and Marshall (2017) compel us to ask ‘whose lives matter?’. Climate justice must consider and question the drivers of inequality, unmasking the unequal impacts of urbanism, environmental harms, post/colonial histories, global capital, heteronormativity, ableism and social factors, including gender, sexuality, race, diffability, class and age, and the social norms and practices that govern whose bodies matter in responses to the climate crisis. To begin this work, the next section introduces Kay’s story. Here, in the depth that the space here allows, we can begin to glimpse the myriad forces at work in shaping climate precarity and consider how queer and diffabled people are forced into the margins of society and are denied basic human rights and dignity, healthcare, shelter and employment, and justice.

Decolonizing diffability and gender beyond the binary: Our applied arts-led research

Kay’s stories emerged as part of our larger GENERATE project,² which explores the gender-age-urban interface of climate change in Uganda and Indonesia. Our applied creative methodologies explore new feminist, intersectional and decolonial routes to laying bare the messy and complex politics of everyday urban lives in the face of the climate crisis. We collaborate with local civil society and

² This work was supported by the UK Research on Innovation [MR/S015299/1].

artists to open up safe creative spaces for exploring, imagining and articulating future climates and environments that can name and transcend the inequalities and oppressions plaguing the present (see McQuaid and Pirmasari 2023).

Over sixteen months, between 2021 and 2023, we collaborated with LGBTQ+ communities across Uganda to better understand their lived experiences (and responses) to climate, environmental and social challenges. Our methods included extensive participant observation, thirty in-depth life-story interviews, two multi-day applied-arts workshops, three focus group discussions with residents of LGBTQ+ shelters and a series of fifteen creative workshops with over 200 participants, co-facilitated with a total of fifteen local civil society organizations.³ Our workshops combined drawing and reflective discussions to better understand how systemic oppressions and environmental challenges affect different LGBTQ+ people, while also cultivating a safe space for reflection and solidarity. Separate workshops were held for lesbian, bisexual and queer women; gay, bisexual and queer men; transgender women; transgender men; older LGBTQ+ people; sex workers; refugees and asylum-seekers; LGBTQ+ people living with disability; and LGBTQ+ people with experiences of incarceration. These categories reflect the LGBTQ+ activist landscape in greater Kampala, where organizations are geared towards specific segments of the community. To better situate this landscape amidst a broader context, we now turn to explore three key threats to queer and disabled Ugandans living in Kampala: queerphobia, ableism and the (slow) onset of the climate crisis.

Queerphobia, ableism and climate change in Uganda: The importance of context

In this section we begin with queerphobia and ableism, as these presented the clearest dangers and threats to the everyday lives, health, well-being and rights of our research collaborators, before turning to the broader climate crisis. While the vast majority of our research collaborators could be categorized as being part of the ‘urban poor’ and thus facing disproportionate climate impacts (Douglas et al. 2008; Twinomuhangi et al. 2021), here we are interested in how the impacts of stigma, marginalization and persecution further exacerbate and compound precarities.

³ To protect the anonymity and safety of our collaborators we do not name any organization and all names here are pseudonyms.

To advance our understanding of how this works, we must situate everyday lived experiences among broader sociopolitical and environmental contexts and contend with complex and situated colonial histories. Colonization brought 'crisis to the social orders in which embodiment had been organised ... creating new hierarchies of bodies' (Connell 2011: 1374). Many traditional caring practices for people with diffabilities were destroyed by the introduction of colonial humanitarian models (Ingstad 1999; cf. Bannink Mbazzi et al. 2020: 412). Colonial regimes disrupted sociocultural meanings of gender, sexuality and diffability through the imposition of new gendered and patriarchal social orders, legalized homophobia in the form of the colonialists' codified and religious laws (Achmat 1993) and created the elaborate 'othering' of African sexualities (Tamale 2013:36). Colonization produced both a racialized subaltern and a diffabled subaltern, as Meekosha (2011:673) argues: 'The idea of racial and gender supremacy of the Northern Hemisphere is very much tied to the production of disability in the global South.' As local gender orders became 'subsumed in a global economy, a modernised patriarchy has become internationally hegemonic' (Connell 2011: 1376). Today, enduring links between gender, sexuality and regimes of power continue to marginalize amidst the disenfranchising effects of neoliberal global capital. For example, Meekosha (2011: 668) highlights the link between 'the struggle over the control of minerals, oil and other economic resources' and the ongoing production of diffability. Certain bodies were, and continue to be, contained and maintained in precarious conditions (Puar 2017). It is imperative, therefore, that we centre and amplify diverse communities from the Majority World (Crawford, Michael et al. 2023) to highlight environmental and infrastructural challenges in the context of colonial legacies (Meekosha 2011).

(Homo)sexuality and more explicitly staunch heteronormativity, homophobia and transphobia have emerged as political tools to entrench dictatorships across the globe. In Uganda, anxieties surrounding queer existence have spurred efforts to restrict organizations 'promoting LGBTIQ activity' (Ministry of Internal Affairs 2023) and prompted calls for tougher criminal sanctions (Owiny 2023). On 26 May 2023, a new Anti-Homosexuality Bill was signed into law by President Yoweri Museveni after being passed by parliament with only one opposing vote. As recently as August 2024, government figures in Uganda linked LGBTQ+ communities to what it called 'Coordinated Efforts to Overthrow the Government of Uganda' (Ministry of Defence and Veteran Affairs 2024). It comes as little surprise, then, that LGBTQ+ people in Uganda face high levels of stigma, persecution and widespread political, legal and social attacks. At the time

of writing, legal challenges to the Act are ongoing. Regardless of the outcome, the consequences are wide ranging. One report argues that there is a 'clear connection between the enactment of the Anti-Homosexuality Act and the cases involving violence and violations against human rights of persons on the basis of sexual orientation and gender identity' (HRAPF 2023: 21). These challenges are heightened given that the Act actively targets not only LGBTQ+ people and those perceived to be but also those who 'aid and abet homosexuality', carrying serious implications for service providers, aid organizations, media outlets, landlords and other institutions.

In contrast to such hostile legal persecution, Uganda boasts very progressive policies on diffability, even if these are dominated by imported understandings of diffability and subject to donor whims and cycles (see Whyte 2020). However, the Baganda saying *omulema y'amanya bw/afuna ekkubo lye* (the disabled person will have to figure out their path), highlights enduring challenges with implementation. For many, there is an ongoing absence of government support and experiences of social exclusion in schools, workplaces, healthcare and public spaces across Uganda, despite the implementation of many inclusion programmes and policies (Bannink Mbazzi et al. 2020: 404). Reported by long-time diffability activist Lukabwe Fred Kisirikko in our *See Change* book (Crawford, Kućma et al. 2023), people with diffabilities in Uganda must contend with discrimination from employers, informal and poor urban planning, inaccessible walkways, poor sanitation, environmental vulnerabilities and donor fatigue. As highlighted by postcolonial diffability studies (e.g. Meekosha 2011), diffability and poverty go hand in hand. The Ugandan government reported in 2020 that 'around half of Ugandans in households with persons with disabilities are living in extreme poverty (less than \$1.9 PPP or UGX 2,400 per person per day), and over three-quarters are living in poverty'. Ableism, here and elsewhere, operates as a sociopolitical mechanism of marginalization, systematically reinforcing the social differentiation of diffability and vulnerability (Bell 2019). We must better understand the historical, structural and systemic manufacturing of gender, sexualities and diffabilities amidst an unfolding urban climate crisis.

Looking at the climate, in its latest Nationally Determined Contribution, Uganda reported a high vulnerability, sensitivity and exposure to climate change, accompanied by low adaptive capacity (Republic of Uganda 2022). Uganda's tropical climate, which traditionally observed stable rainfall patterns, is increasingly facing extended droughts, longer rains and extreme weather conditions, all of which disrupt livelihood practices (Nuwagira and Yasin

2022). Projected temperature rises of between 2 and 5°C over the twenty-first century could lead to decreases in rainfall, triggering more frequent droughts, extreme heat and erratic rainfall (Twinomuhangi et al. 2021). Kampala is already impacted by shifting water levels and waterborne diseases from nearby Lake Victoria (Twinomuhangi et al. 2023), and flooding is ‘by far the most significant impact of climate change for the city’ (Twinomuhangi et al. 2021: 39).

Climate changes are projected to be felt acutely by people often characterized as the ‘urban poor’, who lack access to services (Lwasa 2010). Kampala’s geography tends to exacerbate these risks. The city is spread across seven large leafy hills with dusty congested valleys in between, crowding poorer residents into informal neighbourhoods comprising densely occupied substandard dwellings with little drainage, infrastructure, nor green space. Many of these neighbourhoods, which are often the only ones accessible (and affordable) to diffabled and LGBTQ+ households, often run counter to official urban and environmental planning with inadequate roads, access, transport options and street lighting undermining residents’ dignity and safety (Vermeiren et al. 2012). These informal settlements increasingly encroach on wetlands and have poor drainage and waste disposal (Semiyaga et al. 2022), and are the areas most impacted by climate change (Arinabo 2022). It is within one of these settlements that our research collaborator Kay lives, as we shall turn to next.

‘There are those I have met who cannot speak or even say anything because the world has made them silent’: Lived experiences of intersectional complexity

Kay is a middle-aged queer person with diffabilities. They live in Katwe, a densely populated neighbourhood where one- and two-room dwellings crowd together between unpaved roads and open sewage and drainage channels. As they get older the physical demands of navigating this dense and informal neighbourhood become more acute:

what’s most challenging is jumping omwaala [trenches]. Even the toilets are built so high with steps whereby we cannot access them. Right now I cannot jump omwaala. When I was younger, I could get off my wheelchair, put the wheelchair over the trench and then get over the trench, but now I can’t. If we go for trainings and there is a trench I just stay on the other side, because my body cannot let me do that anymore ... When I was young there are some ways I could handle things ... because I was energetic by then.

Open drainage trenches, unpaved roads, unmanaged waste and informally constructed toilets restrict movement around the neighbourhood as well as access to water, markets, healthcare and safe spaces. This is, as we see below, exacerbated during the rains. The trainings which Kay mentions are generally organized by non-governmental organizations and not only provide training on a given subject or issue but also allow for social interaction with others as well as financial assistance since some trainings offer a per diem, transport refund and/or free meal. All of this means there is a lot to be lost when Kay cannot access the training.

The physical landscape of the city increasingly restricts Kay's mobilities, dignity and opportunities, while sociopolitical stigma and marginalization further curtail their livelihood options. As they explain: 'It doesn't matter whether you're capable or you're educated, once they find out you have a disability then nobody wants to hire you ... every time you ask for a job, they can never give it to you.' Even in the case of being offered a job, 'previously people used to take us for granted because they thought we didn't have value.' The situation is exacerbated for LGBTQ+ people: 'sexual orientation? This one cuts across. If you come out and say maybe "I'm a queer person" or "I'm a lesbian", automatically you will lose your job.'

For many of the LGBTQ+ people we spoke to, civil society organizations offer not only a safe space to seek community, advice and services but also livelihoods as project staff and officers. However, stigma against disabilities cuts across. Kira, who leads a civil society organization, reflects:

I know very many persons with disabilities who are queer but they will not come out. They would rather talk to me on the phone than even come into a setting like this [the organization's office]. However much I tell them it's a safe space, they'll tell me, 'We're not coming to your office. Meet me at this restaurant or here or here.' They will not come because already they have stigma and now they are like, 'Now kati bagambe ate kati ndi mulema. Actually, abamu babayita nabassiru' ['Now they will say that I am disabled'. Actually, some are called stupid'.]

Stigma against disability is deeply entrenched in Uganda. As Kay tells us: 'For us, all of us who are here, we are minorities in our communities we come from, and it hurts if I have a disability and I come. I come out and you victimized me again. Because for you, you don't have disability, but you are in this community.' Such experiences highlight the complexities of intersectional identities. Any fleeting privileges of being positioned as part of one marginalized community are refracted through the lens of mis/understanding another, serving to demonstrate

the situated and unequal positionings of people as well as the fluctuating positions of privilege and exclusion as people move through different spaces.

The economic injustices facing both diffabled and queer communities have ramifications that cut across all aspects of life, from where you can afford to rent a house, if a landlord will rent to you, the assistive devices you can purchase, your healthcare, food security, transport options and so on. 'That's why persons with disabilities are poor, because whatever you buy, the climate affects it', Kay explains: 'Living with disability, it's kind of expensive, most especially when it's like rainy season ... like when we are transporting ourselves. So, at times, we feel like it's better staying at home than moving.' Transport options rapidly reduce when it rains, especially with regard to 'taxis', which are an informal system of small minibuses that operate daily routes across the city and offer the most affordable means of public transport: 'with just ordinary climate it's hard for a taxi person to let you board the taxi. Now imagine when it has rained or it starts raining. That means nobody is going to take you and then I will have to push my wheelchair back again 200 metres to my house under the rain.' Restricted mobility options 'means I won't do my activities. Any programme I have on that day, I won't do it. And this is because my age, the strength of my muscles have reduced ... When it rains, I use a lot of energy because I need to put a lot of effort on the ground ... This whole situation breaks my heart.' 'Programme', like trainings, can be inclusive of many things and come with different benefits, which are lost on days when inclement weather impacts Kay's mobility.

Kay's house, however, offers inadequate protection from the increasingly hostile weather:

The housing we are staying in? Some of us are in slums. Whereby these slums that we are living in, when it rains it's horrible for us. When it rains you need to wake up. For example, when it rains at night, just know it's horrible, because other people without disability, they have to climb up, put their things up, because they don't want them to [get damaged]. When I am asleep, I have to move, go to the wheelchair, pick up all my cups, my bedsheet and everything, the TV, and put them up. By the time I can do so, I have lost everything.

Such environmental burdens are exacerbated by social exclusion and stigma. As Kay reflects: 'You live in an environment which is not favourable to you. And which is making you feel like you are less valued. By the time you come out to the public, you know, you even feel shy to talk ... They despise us so much. You hear them and you keep quiet, but in your heart, you are hurt.' Another participant in the creative workshop interjects to describe the situation as 'noise

pollution'. Kay agrees: 'Someone will be like, "you're a curse to our society". Then another will be like, "are you a male or are you female?" Then another will say, "You should be stoned or burned to death".'

Looking to the future, Kay calls for diversity and acceptance. In our creative workshop, Kay's small group of queer and diffabled participants held up their collective drawing of a house. They used it to describe their vision of what a just future might look like. Among other factors, they pointed out accessibility, covered drainage channels, a crossing point on the road, before turning to describe a world of social acceptance of diversity amongst neighbours, employers and health workers:

We want unity because we feel like if we come together and be one family everyone could understand one another ... And the cooperating ... Loving each other, caring and then acceptance. We talked about awareness. But in awareness, we talked about like first accepting yourself before you can create it to others. First, understand yourself before you let others to understand you too ... And then we talked about inclusion, like including ourselves in places ... And then we talked about self-love, like I said: acceptance. Accepting yourself first before you can let others accept you. And then humanity. You can't love yourself if you're not having that. And then consideration. We made this in bold letters. Like: don't judge a book by its cover, like don't think for another person until you have interacted with them and everything ... That's why we created the house: like if we come together, I think our tomorrow will be better, because this is the shade that we need, but our voices are hidden very far, the security is not yet enough, and yet we need all of this. That's why we drew the house.

Conclusion

A focus on the lived experiences of queer and diffabled people in Uganda forces us not just to consider the vulnerabilities of all bodies to climate change but to highlight how complex intersectional identities increase the precarities faced by particular bodies (and minds), and how social and political forces and material circumstances continue to maintain them in situations of precarity. A focus on both queerness and diffability here thus compels us to better understand how multiple and reinforcing systemic sociocultural, economic and political factors create lived experiences of precarities and barriers in daily life, which, while becoming normalized, are exacerbating the impacts and limiting responses to climate change. Without rendering these precarities and barriers visible we cannot strive for the multifaceted justice required for more inclusive and equitable

climate futures. As we have argued here, it is critical that we understand the ways in which some bodies are maintained in positions more vulnerable to climate change than others, and our calls for climate justice tackle these oppressions head on. Here, in amplifying Kay's story, we seek to recognize gender, sexuality and diffability as socially contingent and relative (Eriksen et al. 2021) and as sites of structural, political, sociocultural and environmental injustices and violence (Belser 2020; Lawson and Beckett 2021; Oliver 1996).

Our chapter thus addresses broader concerns that climate justice has overlooked the experiences, vulnerabilities and capacities of both queer people, and people with diffabilities, generally, but especially in Majority World contexts, where they are subjected to intense socio-legal persecution. Our work thus aims to decentre, contextualize and deepen the ways in which we understand how diffability, gender and sexuality intersect with other forces in shaping the impacts of, and vulnerabilities to, climate change. By centring Majority World lived experiences of diffability and queerness, we aim to enrich – from the ground up – conceptual understandings of how marginalization works in practice, the necessity for an intersectional lens in climate knowledge, and place the need for explicit action to address social inequalities and exclusion at the heart of climate justice.

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The Covid-19, equity and climate change nexus: The case of the East African Region

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Introduction

The Covid-19 pandemic has highlighted the interconnectedness of global challenges, particularly climate change and social equity (Watson et al. 2020). As communities faced the health crisis, the disparities in access to healthcare, economic resources and environmental protections became starkly apparent. Vulnerable populations, often on the frontlines of climate impacts, were disproportionately affected by both the pandemic and ongoing environmental degradation (Meltzer et al. 2021). This intersection calls for a holistic approach to recovery that prioritizes equitable solutions such as green jobs, sustainable infrastructure and universal healthcare that not only address immediate needs but also promote resilience against future crises (Koundouri et al. 2023). Integrating equity into climate action can create a more just and sustainable future for all (Folqué et al. 2021). Eastern Africa faced multiple crises including the Covid-19 pandemic, climate change and conflicts (Megersa 2020). Amidst such crises are underlying socio-economic challenges such as unemployment, social inequalities, gender-based violence, poverty and debt. The pandemic exacerbated the state of these socio-economic challenges across the continent (UNDP 2021). For vulnerable groups, such as women and children, it weakened social structures, limited access to economic resources, aggravated the impact of climate change, hampered crucial access to healthcare services and highlighted existing gender divides (Cocks 2020). Within the East African Community (EAC) region, most countries already had in place legislations, strategies and plans to mitigate effects of climate change. However, there is limited reference

to strategies that should be adopted when a pandemic response is urgently required. While Eastern African countries largely responded to the pandemic by following the advice of the World Health Organization, evidence on the linkage between Covid-19 and climate change vulnerabilities and inequalities remains limited. There is a need for greater integrated solutions to such global intractable challenges (Rosenbloom et al. 2020). This chapter examines the interconnections between climate change and Covid-19, elucidating how these concurrent challenges can be strategically harnessed to formulate optimal solutions. It emphasizes that both phenomena operate within the same social systems and vulnerabilities, thereby necessitating an integrated approach to address their compounded impacts.

Methodology: Rapid evidence synthesis

To conduct this study, a rapid evidence synthesis approach was utilized. This approach does not involve intervention but rather involves a systematic search for relevant literature. The SPIDER framework (Sample, Phenomenon of Interest, Design, Evaluation, Research type) was employed as a search tool, which has been tested and recommended for qualitative literature searches. In this study, the sample was Africa, the phenomenon of interest was Covid-19, and the design centred on qualitative studies. The evaluation of experiences and perceptions primarily focused on the impact of Covid-19, and the research types included qualitative data collection and analysis for case studies, phenomenology and narrative studies. The study only considered research published in English between December 2019 and January 2021. Additionally, East African reports from local media outlets and relevant reports from national and local governments, international organizations and NGOs related to the subject matter were also reviewed. Overall, the initial search yielded a total of 1,076 articles from a global perspective. However, these articles were then narrowed down based on geographical scope to focus solely on Africa, resulting in 457 articles. Further refinement of the search was conducted to specifically look at East Africa, which led to the identification of twenty-nine relevant results. The countries in East Africa which formed the focus of this study are: Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda. Among these articles, twenty-three addressed the impacts of Covid-19 on social inequalities, while only six articles linked Covid-19 to climate change in the East African context.

Findings

In this section, we discuss the findings that relate it to how Covid-19 exacerbated prevailing climate injustices and further widened gender inequalities. This section covers pandemic experiences from Burundi, Kenya, Rwanda, South Sudan, Tanzania and Uganda. These countries were heavily impacted by the pandemic and are also heavily impacted by climate change with prolonged periods of drought and flooding (UNEP 2021).

Integration of climate injustices in Covid-19 recovery strategies

In the EAC regional countries, the Covid-19 pandemic was mostly viewed from a socio-economic lens with little attention paid to its impact on existing vulnerabilities (UNEP 2021). This lack of consideration exacerbated climate injustices, such as for communities grappling with the effects of the 2021 flooding in Burundi and South Sudan (Modber Maka et al. 2021). In Kenya, the Covid-19 response strategy focused on containment measures and the restoration of the economy in general. It emphasized socio-economic engineering by reopening businesses and markets that had previously experienced shutdowns or had limited access. Most of these recovery strategies were undertaken at the county level (Council of Governors 2020). The 'COVID-19 County Strategy in Kenya (2020–2022)' was developed by the Kenyan Ministry of Health in collaboration with various stakeholders, including county governments, non-governmental organizations and international health partners like the World Health Organization (WHO). This collaborative effort aimed to create a comprehensive framework for managing the pandemic at the local level, ensuring that responses were tailored to the specific needs and contexts of different countries. The County Strategy in Kenya outlined a comprehensive approach to managing the pandemic at the county level. It emphasized coordinated efforts in public health response, including testing, contact tracing and vaccination campaigns. The strategy also focused on strengthening healthcare systems, ensuring the continuity of essential services and addressing social determinants of health. Moreover, it incorporated community engagement to enhance awareness and compliance with health guidelines. This framework aimed to mitigate the impact of Covid-19 while integrating lessons learnt into future health planning and disaster preparedness. Through the county reengineering recovery strategy, local authorities expressed commitment to better prepare for future

health pandemics by developing a Disaster Risk Management Policy covering unforeseen disasters, including those related to the sectors of health and climate change, that may occur in future. For instance, on Kenya's coast, the County Government of Lamu, in partnership with USAID KUZA, established the Lamu County Disaster Risk Management Policy to guide disaster prevention and mitigation, preparedness, response and recovery mechanisms. With this policy, the County Government of Lamu became the first among the Frontier County Development Council to establish a Disaster Risk Management Policy. The policy clarified roles and responsibilities in the County by creating the Directorate of Disaster Management to deal with disaster issues across the ten wards. The policy also outlined rehabilitation and recovery strategies to provide reliable solutions to the victims in case of any disaster in the county. The Lamu County COVID-19 Social Economic Re-Engineering Recovery Strategy 2020/21–2022/23 had earmarked the establishment of this Policy as one of the reforms for Strengthening County Government's Preparedness and Response to Pandemics and Disasters. Despite these progress policy-related steps, there is limited evidence on whether the county recovery response considered climate injustices, other than recognizing the existing adverse effects of climate change among other challenges.

On the other hand, according to Uganda's Green Recovery Action Plan, the government aimed to integrate climate-resilient and low emission measures into short-, mid- and long-term responses to Covid-19 (Margini et al. 2020). This was in conjunction with efforts to strengthen plummeted food systems and economic sectors, which led to a reduction in GDP in 2021, necessitating the establishment of emergency funds and financing from the International Monetary Fund during the pandemic; there were environmental-related impacts, such as deforestation, as increased pressure was placed on the use of natural resources (IMF Country Report 2023). The Plan indicates that subsequent efforts to revive the economy could potentially lead to further environmental degradation, resulting in increased climate injustices for vulnerable groups, including women, children and people living with disabilities. Strategies to reduce climate injustices in the Covid-19 recovery phases therefore include incorporating adaptation into the Nationally Determined Contributions agenda and integrating the need to equitably address health emergencies even in National Adaptation plans (Ministry of Water and Environment, Republic of Uganda 2020). In this case, Uganda's National Adaptation Plan (NAP) was developed by the Ministry of Water and Environment, with support from various stakeholders, including the United Nations Development Programme (UNDP) and other international

partners. The plan was finalized and launched in 2020. It aimed to enhance the country's resilience to climate change by identifying key sectors vulnerable to its impacts and outlining strategies for adaptation.

In Tanzania, Covid-19 caused the loss of many livelihoods and had an adverse economic impact. It resulted in a drastic reduction in tourism and traditional export receipts, which exerted budget pressures, and decelerated GDP growth from about 7 per cent in 2019 to a projected 5.5 per cent and 5.4 per cent in 2020 and 2021, respectively (Henseler et al. 2022). These statistics highlight the rationale for focusing the Covid-19 recovery on economic stimulus and revival of crucial sectors that suffered severely from the impact of the pandemic such as food, health, tourism and agriculture. Research on macroeconomic policy implications of Covid-19 pointed to the need to 'build back better', by developing and implementing, among other things, a climate-resilient economy (Oswald and Kazi 2021). This can be achieved through the implementation of environmental-related aspects of the country's Third National Five-Year Development Plan. In Burundi, recovery efforts from the impacts of Covid-19 have been hindered by ongoing challenges, including conflict in the neighbouring Democratic Republic of Congo. Additionally, natural disasters like the flooding in 2020 have further strained the country's resources (IFRC 2021). Consequently, it has become difficult for already vulnerable groups to regain socio-economic stability. Burundi's Covid-19 recovery plan was developed in 2020. It aimed to address the immediate health impacts of the pandemic while also focusing on long-term recovery and resilience-building in various sectors. Burundi's Covid-19 recovery plan was developed by the Ministry of Public Health and the Fight Against AIDS, in collaboration with various stakeholders, including international organizations such as the World Health Organization (WHO) and the United Nations Development Programme (UNDP). These collaborations aimed to ensure a comprehensive approach to public health and socio-economic recovery. The Covid-19 recovery plan incorporates addressing the present issues affecting the socio-economic sectors of the country and the provision of humanitarian aid to vulnerable groups, such as women and children. Some of the strategies highlighted include operationalizing the public health emergency centre and distributing food aid to address acute malnutrition. The implementation of the recovery plan is also indicative of the heavy reliance on humanitarian efforts by UN Agencies and other NGOs. For instance, UNICEF has been instrumental in protecting children in Burundi from the impact of flooding in the regions of Gatumba and Bujumbura by providing 145 community-led child-friendly safe spaces (UNICEF 2020).

The Government of Rwanda responded substantially to the economic effects of Covid-19 after the country witnessed a GDP decline of 12.4 per cent in the second quarter as per the Rwanda Development Report (National Institute of Statistics Rwanda 2024). The RDB Report 2021 was prepared by the Rwanda Development Board (RDB). This government agency is responsible for promoting and facilitating investments, tourism and the overall economic development of Rwanda. The report typically includes information on the country's economic performance, investment activities and initiatives aimed at fostering sustainable growth. Its Covid-19 recovery plan assessed the impact of the pandemic on health, poverty, gender inequality and education (RDB 2021). According to the recovery plan, the pandemic exacerbated existing climate-related shocks, especially for rural livelihoods. An example of climate-related shocks that exacerbated rural livelihoods during the pandemic, as mentioned in the RDB Report 2021, includes recurrent droughts in Rwanda. These droughts can lead to reduced agricultural productivity, impacting food security and income for rural households. Farmers often rely on rain-fed agriculture, so when droughts occur, they face significant crop failures, which in turn worsens their economic stability and ability to cope with the additional challenges posed by the Covid-19 pandemic. This interplay between climate shocks and the pandemic has heightened vulnerability for many rural communities. As a result, the plan envisions an adaptive social protection system that is beneficial to vulnerable groups of people and which considers existing climate-related shocks (World Bank 2021). South Sudan already suffered from weakened food and nutritional systems, as well as conflict, which has resulted in 1.7 million people being internally displaced (Modber Maka et al. 2021). As of 2024, South Sudan continues to face a significant internal displacement crisis, with approximately 2 million people internally displaced due to ongoing conflict, violence and environmental factors such as floods and droughts (UNCHR 2024). Unforeseen and extreme weather conditions, such as flooding, have delayed the revival of the crucial agricultural sector. This situation arose because the Covid-19 outbreak intersected with the desert locust outbreak, leading to increased bureaucratic impediments for humanitarian efforts in monitoring and response, as well as the slowdown of regional and national food supply chains. The desert locust outbreak in East Africa began in late 2019 and peaked in early 2020. It significantly affected several countries in the region, including South Sudan, Kenya and Ethiopia, exacerbating food security issues. The outbreak continued to pose challenges throughout 2020, coinciding with the Covid-19 pandemic, which further complicated humanitarian efforts and food supply chains. The country's recovery plan incorporates and advocates for Covid-19 context-specific

agriculture, food security and nutrition information management for informed decision-making and early warning in South Sudan (FAO 2021). Apart from the lack of clear integration of historical climate injustice issues into the Covid-19 recovery plans and policies in the EAC region, there is also a pressing need for greater community involvement and stakeholder engagement. Effective recovery strategies must prioritize the voices and needs of marginalized groups, such as women, children and rural communities, who are disproportionately affected by climate change. Furthermore, the absence of inclusive decision-making processes can lead to policies that fail to address the specific vulnerabilities these groups face, resulting in continued inequities. It is essential to incorporate traditional knowledge and local expertise into planning efforts, ensuring that solutions are culturally relevant and effective. This holistic approach not only fosters resilience but also promotes social justice, enabling all communities to actively participate in shaping their future in the face of climate change.

Policy considerations on climate change, Covid-19 and equity

Covid-19 and its impacts in many EAC countries are characterized by negative outcomes, such as sexual and gender-based violence; the existing policies have failed to provide guidelines on how to manage gender issues in a pandemic (Africa Union 2020). In April 2020, the EAC unveiled a regional COVID-19 Response Plan to reinforce measures in place and prevent further spread of Covid-19 in the region. The Response Plan was submitted to EAC Partner States to guide key interventions and help coordinate the regional response. East African countries have adopted and implemented pandemic-response strategies differently. Most countries sought to leverage existing preparedness and response measures put in place during recent outbreaks in the region, such as Ebola virus disease and Rift Valley fever. The Covid-19 pandemic, however, has exposed critical gaps in national and regional health systems. This is mainly because most policies have adopted gender responsive approaches, rather than gender-inclusive approaches that could enable a multi-sectoral dimension of gender issues. Existing climate change policies in most EAC countries advocate for just transition, which includes safeguarding rights to social equity, jobs and development. This could provide a window of opportunity towards strengthening the gender ambitions in these policies in ways that support integrated actions towards related challenges of climate change, pandemics and even disaster risks (Africa Economic Outlook 2022). Within the EAC, countries such as Kenya, Uganda, Tanzania and South Sudan have climate-related policies to address the

impact of climate change in various communities. However, most of the policies have failed to provide an integrated approach to addressing complexities such as a cross-cutting pandemic, in a manner that does not exacerbate the plight of communities already struggling with the impacts of climate change, such as drought and flooding.

Kenya's National Climate Change Action Plan (NCCAP) was initially developed in 2018. It provides a comprehensive framework for addressing climate change in the country, outlining strategies for both mitigation and adaptation. The plan is updated periodically to reflect evolving climate challenges and priorities. It also recognized the effects of climate change on deteriorating health systems and decreasing food chains. Additionally, the 'Kenya National Adaptation Plan (KNAP) 2015-2030' seeks to enhance resilience for local communities experiencing climate change. Kenya has been at the forefront of advocating for climate change. It is in this respect that it launched a 'National Climate Change Response Strategy' in 2010 and a 'National Climate Change Action Plan (NCCAP) 2013-2017' in 2013. The action plan has been acclaimed internationally as being very progressive and comprehensive. The NCCAP makes clear that adaptation is the main priority for the country because of the adverse socio-economic impacts related to climate change and the increasing vulnerabilities of different sectors. The policy focuses on key areas such as adaptation, which strengthens resilience in sectors like agriculture, water resources, health and infrastructure to cope with climate variability and extreme weather. It also emphasizes mitigation efforts to reduce greenhouse gas emissions through initiatives in renewable energy, forestry and sustainable land use. The NCCAP promotes stakeholder engagement, encouraging the involvement of communities, private sector actors and civil society in climate action planning and implementation. Additionally, it supports research and innovation to develop effective solutions and establishes mechanisms for monitoring and reporting progress. Aligned with Kenya's Vision 2030 and international commitments, the NCCAP integrates climate considerations into national and local development plans, ensuring a comprehensive approach to climate resilience and sustainability. The NCCAP clearly articulates that sustainable development is difficult to achieve, considering a changing climate that has negative economic, social and environmental consequences. Notably, the Plan does not comprehensively address public health emergencies and how these correlate with the existing climate change impacts for vulnerable communities, further increasing their vulnerabilities. In Kenya's National Climate Change Action Plan (NCCAP), several vulnerable communities are identified as

being particularly at risk from the impacts of climate change. These include smallholder farmers, who depend on rain-fed agriculture and face significant challenges from climate variability and extreme weather events. Pastoralists are also highlighted, as their reliance on livestock makes them susceptible to droughts and shifting weather patterns. Additionally, women and children are recognized for their disproportionate impact due to their roles in food security, water management and caregiving. Low-income households are particularly vulnerable, as they often lack the resources and information necessary to adapt to climate changes. Finally, residents of informal settlements in urban areas face heightened risks due to inadequate infrastructure and services, making them more susceptible to flooding and other climate-related hazards. The NCCAP emphasizes the importance of addressing the specific challenges faced by these groups to enhance their resilience and ensure equitable climate action.

Uganda submitted its 'National Adaptation Programme of Action (NAPA) to Climate Change' to the United Nations Framework Convention on Climate Change (UNFCCC) in 2007. The submission was made based on Uganda's commitment to address climate change impacts as a signatory to the convention. The NAPA aimed to prioritize and implement initiatives that respond to communities' urgent needs to adapt to climate change. The NAPA identified nine adaptation priority areas. These were community tree growing; land degradation management; strengthening meteorological services; community water and sanitation; water for production; drought adaptation; vectors, pests, and disease control; Indigenous knowledge and natural resource management; and climate change and development planning. The NAPA is cognisant that human health suffers from the adverse effects of climate change (Nyasimi et al. 2016). However, there are limited strategies on how to address these aspects in the scenario of a global pandemic and to protect communities already affected by climate change. Tanzania's National Adaptation Plan (NAP) outlined strategies to enhance the country's resilience to climate change impacts, focusing on sectors such as agriculture, water, health and infrastructure. In the context of Covid-19, the NAP proved crucial for addressing the compounded challenges posed by the pandemic and climate change. The plan emphasized the need for integrated approaches that incorporated health considerations into climate adaptation efforts. During the Covid-19 pandemic, Tanzania faced disruptions in agricultural production and supply chains, which highlighted vulnerabilities in food security. The NAP aimed to strengthen adaptive capacity, ensuring that communities could withstand both climate shocks and health crises. It promoted community engagement and stakeholder collaboration to develop solutions that were contextually relevant

and sustainable. By aligning Covid-19 recovery efforts with climate adaptation strategies, Tanzania sought to build a more resilient future for its populations, particularly for vulnerable communities that were disproportionately affected by both climate change and health emergencies.

The 2007 'Burundi National Adaptation Plan of Action (NAPA)' acknowledges that Burundi is a landlocked country heavily reliant on its natural resources. The National Adaptation Plan of Action (NAPA) acknowledges that the country is heavily reliant on its natural resources, which are vital for both the economy and the livelihoods of its population. Key resources include agricultural land, where most people engage in farming crops such as coffee, tea and staple foods like cassava and maize. Water resources from lakes, rivers and wetlands are essential for domestic use, agriculture and fisheries. Additionally, Burundi has forests that contribute to biodiversity, provide timber and support communities through non-timber forest products. The country also possesses mineral resources, including deposits of nickel, gold and coltan, although these are not extensively exploited. These natural resources make Burundi particularly vulnerable to the impacts of climate change, underscoring the need for effective adaptation strategies. It also outlines the perennial challenges that have deteriorated its environment and the general quality of life such as degradation and exhaustion of soils, degradation of forestry resources and human environmental degradation. The impoverishment of soils results from several causes; the most important of these are the strong demographic growth that has resulted in excessive pressure on the arable lands and natural resources, as well as reduced natural spaces. The degradation of forestry resources also relates to the natural vegetation and artificial woodlots. Human health is also recognized as sensitive to the variations in temperatures and the rainfall conditions. With the rise of temperature, the conditions for the development of the vectors of diseases, like malaria, become more favourable. The wettest periods also generally correspond to a recrudescence of the waterborne and diarrheal diseases. The fall in temperatures, in their turn, is responsible for acute respiratory infections. The dry periods correspond, on the other hand, to a recrudescence of diseases like meningitis, or diseases that indirectly result from the deficit in food production, including malnutrition, or lack of water at the disposal of the population. All these problems of health are worsened under anthropic conditions marked by insufficient information on prevention, lack of basic hygiene and sanitation, and the poverty of the at-risk population. The NAPA still falls short of capturing the public health emergencies aspect, such as was witnessed during Covid-19.

Rwanda's National Adaptation Plan (NAP) was notably more progressive than those of other countries in the East African Community (EAC). It included comprehensive strategies for disease prevention and control, better natural resource management and sustainable food production. For example, the NAP prioritized the establishment of community health programmes that focused on nutrition and hygiene, which were essential during the pandemic. The NAP was hailed for addressing the pandemic more thoroughly than those of its neighbours, reflecting Rwanda's commitment to integrating climate resilience into its public health response and ensuring a more sustainable future for its citizens. Rwanda's NAP contributed to the launching of the 'Landscape Approach to Climate Proof the Rural Settlements Project' in 2020. This initiative, funded by the Global Environment Facility (GEF), aimed to advance climate change adaptation efforts and enhance resilience in rural communities. This project focused on enhancing resilience in rural areas by promoting sustainable land management practices, improving water resource management and increasing community awareness and engagement in climate adaptation strategies. By integrating these elements, the project aimed to strengthen the capacity of rural communities to adapt to climate change impacts effectively. The six-year initiative is intended to contribute to the implementation of the National Strategy for Transformation (NST) by not only putting Rwanda's Rural Settlement Programme (Imidugudu) on a climate-resilient pathway but also securing the programme's development gains in the face of uncertainties from climate change, and contribute to the country's recovery from the impacts of Covid-19.

South Sudan's National Adaptation Programme of Actions to climate change addresses five priority areas, including disaster risk reduction, water and agriculture. In addition to the long-term negative impacts of conflict, communities in South Sudan are facing significant challenges from a changing climate (NAPA 2011). The country is experiencing substantially warmer and drier weather, which, combined with these changes, is leading to more frequent droughts. Furthermore, rainfall patterns have become increasingly erratic, resulting in heightened frequency and severity of floods. These climate change effects are diminishing agricultural productivity, which the population relies on for their livelihoods, exacerbating food insecurity and vulnerability among communities (World Bank 2021). Climate change is hindering socio-economic development and is contributing to existing tensions and conflict. To buttress this, it was evident that during the pandemic, South Sudan was also experiencing extreme weather conditions and prevailing conflict. Despite having progressive

documentation on adaptation in place, South Sudan faces other challenges that limit its implementation of the NAPA even during public health emergencies.

Conclusion

Covid-19 is a multidimensional issue that must be considered when analysing the socio-economic responses implemented across the region. A thorough subsequent situational analysis is essential to understand existing conditions, the actions taken by each country, necessary interventions and the best data practices. Policy Labs conducted with East African Community officials highlighted concerns about evidence generation, emphasizing the importance of involving vulnerable groups and actors in collecting data to inform key policy decisions. This analysis underscores the need to build a multi-pandemic response strategy within the region. Institutional innovations have emerged to address the pandemic, including multisectoral committees within the EAC Secretariat and in individual countries like Kenya, which aimed to manage the impacts of Covid-19 and guide containment measures. However, over time, some countries, such as Kenya, reverted to their original institutional frameworks. The link between Covid-19 and the consequences of climate change has not received adequate attention in policy discussions, resulting in unclear data and insights. Although epidemiological and social evidence on Covid-19 impacts was commissioned, priority was given to numerical metrics over qualitative assessments.

According to Scholastica Omondi, a gender expert from the Knowledge Translation Project Committee, numerous studies have highlighted the extensive impacts of Covid-19 across various sectors, including the economy, urban planning, livelihoods and social cohesion. A key lesson learnt is that Covid-19 has revealed the interconnectedness of societal challenges, emphasizing that safeguarding the future involves not only preserving natural resources and reducing carbon footprints but also protecting public safety, health, equity and societal resilience. This complexity has been evident in many EAC countries as they navigated the pandemic. Additionally, low levels of participation in governance, management, and climate adaptation and mitigation actions have emerged as significant challenges. Structural barriers, social norms and gender inequalities have been exacerbated by the Covid-19 pandemic and climate change, resulting in increased incidents of sexual and gender-based violence. Addressing social inequalities and climate change is crucial for mitigating

the impact of Covid-19, or any future pandemics and improving overall health outcomes. The Covid-19 pandemic exacerbated the already dire socio-economic challenges faced by vulnerable communities, including those already feeling the brunt of climate change in Eastern Africa. While the relationship between the Covid-19 pandemic and climate change remains unclear, it is evident that both issues have had negative impacts on vulnerable populations. This chapter has shed light on the unique impacts of Covid-19 on social inequality and climate change in six countries in Eastern Africa. The pandemic has deepened existing socio-economic disparities, particularly for vulnerable groups, such as women and young people, exacerbating poverty, unemployment and food insecurity. Additionally, the impacts of climate change such as droughts, floods and crop failures have further compounded these challenges, particularly for rural communities dependent on agriculture. There are urgent and targeted interventions to address the complex interplay between Covid-19, social inequality and climate change in East Africa. Effective policy responses should prioritize the needs of vulnerable populations and integrate sustainable solutions that promote environmental and social resilience. More critically, the importance of continued research and cross-sectoral collaborations to address these challenges and build more equitable, sustainable and resilient societies in Eastern Africa is essential.

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Climate change, migration and displacement: Considering psychosocial impacts in Uganda

Abbas Mugisha and Sabiti Makara

Uganda is highly vulnerable to the impacts of climate variability and change (Twinomuhangi et al. 2021). According to the 2022 ND-GAIN Country Index, which considers countries vulnerability and resilience to climate change, Uganda ranks 163 out of 187 countries – placing it among the most vulnerable countries in the world (University of Notre Dame 2025). This vulnerability is largely due to heavy reliance on natural resources and agriculture, weak institutional capacity, high poverty levels and limited access to climate information services (Berrang-Ford et al. 2021; Nkuba et al. 2020). Climate change impacts are felt across various sectors, including agriculture, livestock production, energy, water, tourism, transport, human settlements (both urban and rural) and health. The country faces slow-onset climate effects such as soil erosion, declining fertility, land and ecosystem degradation, rising temperatures, erratic rainfall and prolonged droughts (Twinomuhangi et al. 2022). In addition, sudden climate-related disasters like rainstorms, floods, droughts and landslides are increasing in frequency and severity, especially in the semi-arid cattle corridor stretching from southwestern to northeastern Uganda, as well as in mountainous and northern regions. In this think-piece we consider the intersectional drivers and impacts of environmental displacement for people in Uganda, and what it could mean for people in Eastern Africa and beyond. To do so, we focus the spotlight on the growing psychosocial impacts of the expanding climate crisis. In the following sections we draw together international research and a Ugandan case study to highlight the need for greater focus on psychosocial issues in climate action and policy in Uganda and Eastern Africa more broadly.

The devastating impacts of flash floods in Kasese, Uganda

Kasese, a district nestled within the Rwenzori Mountains, has increasingly become a hotspot for flash floods. The region's steep slopes and deep valleys, coupled with erratic and intensifying weather patterns driven by global climate change, have made it particularly vulnerable to extreme hydrological events. Rivers such as Nyamwamba, Mubuku and Nyamugasani frequently overflow their banks during heavy rains, leading to widespread destruction and loss of life.

Over the years, Kasese has been severely affected by a series of natural disasters, including recurrent flash floods, landslides and prolonged droughts. These disasters have had far-reaching consequences on the livelihoods of local communities, whose economies largely depend on agriculture and natural resources. Among the most devastating events were the floods and landslides along the Nyamwamba, Mubuku and Kabiri rivers, which resulted in the loss of lives, destruction of property and mass displacement of residents.

In May 2024, the district experienced yet another catastrophic flooding event when rivers Nyamwamba, Nyamugasani and Mubuku burst their banks. Hundreds of residents endured a night of terror as floodwaters invaded their homes, rekindling painful memories of previous flood-related disasters that had claimed multiple lives and caused economic damages amounting to billions of Ugandan shillings. A few months later, in September 2024, heavy rains once again triggered severe flooding in Kasese when the Nyamwamba River overflowed, devastating the Nyamwamba Division of Kasese Town. Further studies by Muhairwe (2024) reveal that over 1,000 households were displaced, with approximately 250 homes completely submerged. Since May 2023, floods have tragically claimed the lives of 54 people, displaced hundreds and severely impacted more than 5,281 households in Kasese (Kaguta 2024). This occurred at the same time as devastating flooding hit Burundi, Kenya, Rwanda, Somalia, Ethiopia and Tanzania, demonstrating that what occurred in Kasese is part of a broader issue impacting Eastern Africa (UN News 2024).

The recurring floods in Kasese have had not only immediate physical and economic consequences but also profound and lasting psychosocial impacts on the affected communities. The traumatic experience of losing loved ones, homes and livelihoods continues to take a toll on residents' mental well-being. Research by Mutsangya and Ogwal (2024) highlights that river flooding poses severe threats to human life, including drowning and injuries caused by debris. Research conducted in Mountain Elgon and Rwenzori regions shows that the resettlement caused by climate-induced hazards does not impact communities

equally – often there are greater challenges faced by women and children (Serwajja, et al. 2024). Furthermore, the psychological scars left by these disasters – such as post-traumatic stress, anxiety and depression – can persist for years, affecting both individuals and the broader community (Yari et al. 2020).

Kasese's flood crisis underscores the urgent need for comprehensive disaster mitigation strategies, improved infrastructure and sustainable environmental and climate policies to prevent further loss of life and property. Without immediate action, the district's vulnerability to climate-driven disasters will only intensify, exacerbating the hardship and psychosocial impacts faced by its residents and placing immense strain on local resources.

Climate change, migration and displacement

One of the most significant consequences of Uganda's climate vulnerability is displacement and internal migration. As recent studies have shown, displacement resulting from environmental shocks is replete with injustice issues and is experienced unevenly (Crawford et al. 2023a; Langa et al. 2023; Pirmasari and McQuaid 2023). Given this, we must consider the interplay of climate change, migration and displacement in Uganda, as elsewhere, through an intersectional lens (Mikulewicz et al. 2023). In 2024 the western districts of Ntoroko and Kasese floods displaced 25,990 people from 6,650 families, impacting 40,213 individuals, with over a million Ugandans at risk from torrential rain (The Independent 2024). The Uganda National Meteorological Authority reports that various regions, particularly in the west and east, are experiencing above-normal rainfall with devastating effects (Atuhaire 2024). The causes of these floods are both natural and human-induced, including earthquakes, volcanic eruptions, deforestation, mining and groundwater depletion. Floods are particularly destructive due to their rapid onset, strong force and limited time for evacuation. According to the World Bank Group (2021), approximately 200,000 Ugandans have been affected annually by weather-related disasters over the past two decades. Kampala, Uganda's capital, is especially prone to flooding.

Globally, flooding has been a major cause of displacement, and like most consequences of climate change, it is found most prominently in the Majority World (Crawford, Michael, and Mikulewicz et al. 2023) and climate-vulnerable regions like Eastern Africa. The Internal Displacement Monitoring Centre (IDMC 2019: 7) reported that 16.1 million people were displaced by weather-related events in 2018, of which 33 per cent – or 5.4 million – were due to floods.

In Uganda, climate change is also causing long-term shifts in migratory patterns. Without substantial climate adaptation and development interventions, as many as 12 million Ugandans (11 per cent of the population) could be forced to migrate internally due to slow-onset climate factors by 2050 (World Bank 2021). Nomadic pastoralism, conflict and rural-to-urban migration are key internal migration trends linked to land-use changes, livelihood challenges and resource conflicts. For instance, pastoralists in Karamoja are migrating farther in search of water and pasture, with some never returning to their original areas (Haug 2014). Environmental shocks, reduced agricultural yields and population pressures are further driving rural-to-urban migration.

Climate stressors such as erratic rainfall, severe droughts and rising temperatures have significantly impacted livelihoods by reducing agricultural output, water availability, food security and overall well-being. Drought conditions have particularly affected agro-pastoralists, forcing male herders to travel long distances for water and pasture, while women move closer to wetland areas that can support crops during dry periods (Nanfuka et al. 2020; Wennström 2024). In Karamoja, water scarcity, crop failure and pasture depletion have led to declining food availability, worsening poverty and deteriorating health, disproportionately affecting women and children (Karamoja Resilience Support Unit 2016). Climate change's impacts have also contributed to 'new forms of localized conflicts including resource-related conflict, theft, and intrahousehold violence' (Abrahams 2021: 748). Consequently, more women, youth, and children are migrating to urban centres such as Soroti, Gulu and Mbale, and even as far as Jinja and Kampala (Twinomuhangi et al. 2022).

While heavy rainfall can increase water availability for agriculture, it also leads to destructive runoff and flooding, causing displacement, particularly in mountainous and low-lying areas. In rural settings, prolonged droughts and rainstorms severely impact agricultural productivity, forcing people, including children, to migrate to urban informal settlements in search of better living conditions. This intensifies a broader global trend of people of displaced people moving to urban areas for protection and opportunities (Crawford 2021). The vulnerabilities of displaced populations are influenced by socio-economic, political and environmental factors. Historically, migration has been an adaptation strategy for many Ugandan communities facing multi-dimensional shocks and stresses (Maharjan et al. 2020; Sunam et al. 2021). However, migration outcomes vary – while it may enhance well-being and reduce risks for some, it can exacerbate vulnerability when migrants enter precarious livelihoods (Chandrasekhar and Mitra 2019; Szabo et al. 2018).

Environmental degradation has further diminished ecosystem services, lowered productivity, and reduced overall quality of life. Evidence suggests that Uganda will experience more frequent and severe climate events, including heatwaves, erratic rainfall, droughts and floods (Sseviiri et al. 2022). Drought, in particular, is causing severe water stress and declining agricultural output, disproportionately affecting subsistence rain-fed farming communities. The cattle corridor remains highly vulnerable, with frequent droughts leading to water shortages and inadequate forage (Kiggundu et al. 2018), forcing seasonal migrations in search of better grazing conditions. Migration also carries financial and social costs, often straining those left behind and eroding community cohesion.

The migratory consequences of climate change and environmental degradation for Ugandans are substantial. Both slow and sudden climatic shifts are major drivers of migration in Uganda, as rising temperatures and unpredictable rainfall threaten water resources, soil fertility and food security (World Bank 2021). Over the past two decades, the World Bank has estimated that weather-related disasters have impacted some 200,000 Ugandans each year (World Bank, 2021). This is not only an important matter for today but an urgent one for the near future. By 2050 as many as 12 million people – which represents around 11 per cent of the population – could end up moving within Uganda as a result of slow-onset climate change (IOM 2022). Immediate action to respond to interconnected climate and development issues is needed.

The psychosocial impacts of climate change and displacement

While much research has focused on climate change, displacement and economic consequences, less attention has been given to the psychosocial impacts on affected populations, to which we turn next. Psychosocial impacts refer to the effects of environmental or biological factors on an individual's psychological and social well-being. Impacts disproportionately affect economically and socially marginalized groups, raising critical social justice concerns. Mental health consequences are particularly severe for vulnerable populations and those with pre-existing health conditions (Page and Howard 2010), necessitating an intersectional approach to understanding the experiences of displaced individuals.

Extreme weather events and environmental stressors linked to climate change exacerbate mental health challenges, disrupt social and economic stability, and increase demands on mental health services (Costello et al. 2009). As Ingle and Mikulewicz (2020: 128) argue, 'In countries hit by disasters we are likely

to see increases in mental distress and the ability to recover will be determined by having efforts that promote resilience.' Disasters contribute to acute and post-traumatic stress disorder, depression, somatic disorders, addiction, child abuse and increased suicide rates (Van den Berg et al. 2005; Fritze et al. 2008; Goldmann and Galea 2014). Prolonged heat waves are associated with higher mortality, homicide, suicide and domestic violence rates (Basu and Samet 2002). In Uganda, healthcare access is often limited and unequal, with 'the poor receiving less services than needed, and the rich receiving more than needed' (Dowhaniuk 2021: 1). Climate change exacerbates existing health disparities, particularly for vulnerable communities.

Beyond individual health, climate change alters social and community relationships (Doherty and Clayton 2011). Changes in land-use for agriculture, aquaculture and habitation affect interpersonal and intergroup dynamics, particularly in Uganda. Displacement intensifies psychosocial challenges, leading to social and emotional distress, particularly for those experiencing violence, loss and deteriorating living conditions. Limited access to services results in long-term consequences, including post-traumatic stress disorder, anxiety and increased violence. While some impacts are direct responses to trauma, others arise from broader economic and social disruptions.

Displaced populations are at heightened risk of mental health issues due to climate change. Vulnerability varies across communities and individuals, with those facing chronic illness, poverty, old age or social marginalization being particularly at risk. These groups often lack the financial and social resources necessary to adapt to environmental hazards, further increasing their vulnerability (Krestake et al. 2016). As post-disaster Bangladesh indicates, the interplay of gender, age and economic position is essential to understanding climate vulnerability, health consequences and coping strategies (Crawford et al. 2023b). Addressing climate-induced displacement requires shifting the focus from physical health to a more inclusive consideration of mental health and well-being (Ingle and Mikulewicz 2020).

Conclusion

The human cost of climate change-induced displacement in Uganda extends far beyond physical loss – it is a crisis of dignity, survival and shattered futures. Displaced individuals are not just statistics; they are people grappling with relentless anxiety, depression and the psychological trauma of losing

their homes, livelihoods and sense of belonging. Forced into overcrowded resettlements, deprived of basic necessities and subjected to discrimination by host communities, they are left to navigate a system that has failed them.

Yet, these individuals are not helpless. They possess skills, talents and resilience that, if supported, could restore their dignity and independence. Skilled in woodworking, metalworking, agriculture and trade, many have the potential to rebuild their lives – if only they were given the tools to do so. But instead of structured rehabilitation and empowerment programmes, they are forced into desperate survival tactics: selling food rations, pulling their children out of school and risking their lives in hazardous jobs.

This is not just a humanitarian failure – it is a systemic betrayal. Uganda, and the world at large, cannot continue to ignore the growing crisis of climate displacement. The displaced need more than temporary aid; they need sustainable solutions that recognize their potential, restore their agency and provide them the resources to reclaim their future. Anything less is an injustice that will haunt generations to come.

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