INTERNATIONAL CONFERENCE | GAPSYM17

DATE: 28-29 NOVEMBER 2024

Africa at the intersection of Climate, Migration & Health challenges

GHENT UNIVERSITY

AFRICA PLATFORM
Ghent University Association

CLIMATE — MIGRATION HEALTH

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PROGRAMME

THURSDAY 28 NOVEMBER 2024

8h00-9h00 Registration and coffee [Zaal Vos]

9h00-9h30 Opening and words of welcome by the presidents of the Africa Platform and co-organisers [Zaal De Blauwe Vogel]

9h30-11h00 Individual Oral Presentations - Session One

	Session 1A Chair: Ilse Ruyssen [Zaal De Blauwe Vogel]	Session 1B **ANSER Panel - Strengthening SRHR in Africa amid climate change: A review of research and innovative approaches** Chairs: Emilie Peeters & Céline Delacroix [Zaal Haas]
9h30	**Marwa Neji** (Ghent University, Belgium) Climate change inducing female migration: An empirical study of the Tunisian case	• **Emilie Peeters** (UGent/ANSER) Introduction • **Malachi Ochieng Arunda** (Karolinska Institutet) Climate change and sexual and reproductive health and rights research in low-income and middle-income countries: a scoping review • **Amref International University** The intersection of climate change and adolescent sexual and reproductive health • **Céline Delacroix** (FP Earth Project) Women's Reproductive Rights intersect with environmental issues • **Regenerate** Showcase the work of an initiative aiming to bridge health and climate in Africa • **Lou Compernolle** (OASIS) Showcase the work of an initiative aiming to bridge health and climate in Africa • **Brian Sibanda** (CeSHHAR & UGent) Impact of heat on wellbeing of health workers and QoC in Zimbabwe (HIGH Horizons) • **International Medical Corps** Innovative climate change integration and adaptation projects for resilient community health and health systems in humanitarian settings • **Marleen Temmerman** (Aga Khan University) ICPD+30, climate change and Africa • Q&A
9h45	**Pascalia Munyewende et al** (University of the Witwatersrand, South Africa) online Perceptions of the effects of heat exposure on healthcare worker well-being, performance, and quality of care, in two healthcare facilities in Tshwane, South Africa	
10h00	**Tomiwa Fapohunda & Nancy Stiegler** (University of the Western Cape, South Africa) online The impact of climate change on gender-based violence and gender equity	
10h15	**Maria Martin de Almagro Iniesta** (Ghent University, Belgium) Gendering climate-related security risks in Eastern DRC: social cohesion, embodied knowledges and resilience practices	
10h30	**Suzie Imelda Foudjo** (University of Yaoundé II, Cameroon) & **Joseph Keneck-Massil** (University of Yaoundé II, Cameroon & University of Versailles, France) online Climate vulnerability and child health outcomes in developing countries: Do women's political empowerment and female education make the difference?	
10h45	Discussion	

11h00-11h30 Coffee break and showcasing of the academic posters [Zaal Vos]

11h30-12h30 Keynote lecture by Houriiyah Tegally (Centre for Epidemic Response and Innovation (CERI) at Stellenbosch University, South Africa) & Guy Midgley (Director of the School for Climate Studies and the Center for Invasion Biology, Stellenbosch University, South Africa): Human/ecological perspectives on climate change impacts, adaptation, and infectious diseases in Africa [Zaal De Blauwe Vogel]

12h30-14h00 Lunch break [Krook café – ground floor]

13h00-14h00 Africa Forum – General Assembly of the Africa Platform (for AUGent staff) [Zaal Haas]

14h00-15h30 Individual Oral Presentations - Session Two

	Session 2A Chair: Ilse Derluyn [Zaal De Blauwe Vogel]	**Session 2B** Chair: Karen Büscher [Zaal Haas]
14h00	**Taofeekat O. Adigun & Selamawit E. Yeromaw** (University of Sheffield, UK) online When borders become barriers: Improving healthcare access for migrants in Africa	**Triantafyllos Gkaragkanis** (Babeș-Bolyai University, Romania & CY Cergy Paris Université, France) Through the lense of international media: A critical analysis of climate migration discourse in Africa
14h15	**Beatrice Muhu & Robert Mash** (Stellenbosch University, South Africa) The impact of climate change on children in primary health care in Isiolo County, Northern Kenya	**Oumaima Ramdani** (Mohammed V University, Morocco) online Migrants' right to health in Morocco: will and reality
14h30	**Belayneh Fentahun Shibesh** (University of Oviedo, Spain) **& Nidhi Nagabhatla** (UN University Institute on Comparative Regional Integration Studies, UNU-CRIS, Belgium) online Promoting mental health and psychosocial support (mainstream and migrant communities) - Towards building climate resilience	**Sara Buekens** (Université de Gand, Belgique & Vrije Universiteit Brussel, Belgique) in French Migration et écologie dans l'œuvre d'In Koli Jean Bofane
14h45	**Christian Lueme Lokotola et al** (Stellenbosch University, South Africa) online Migration and primary health care in sub-Saharan Africa: A scoping review	**Lehasa Moloi** (University of South Africa, South Africa) online Rethinking the politics of knowledge production for sustainable futures and healing from coloniality of nature: An afrocentric perspective
15h00	**Laetus Lategan** (Central University of Technology, South Africa) online One nexus in service of another? The interplay between the climate-migration-health nexus and the planetary health, climate, and care ethics nexus	**Wambua Muindi** (University of Nairobi, Kenya) Perspectives from literature: Reading intersectionality and climate justice in (East) Africa in Wangari Maathai's Unbowed
15h15	Discussion	**Clement Oteng** (University of Cape Coast, Ghana) online Intersectionality and clean energy transition among the aged in Ghana: An analysis of access and use

15h30-16h00 Coffee Break and showcasing of the academic posters [Zaal Vos]

16h00-17h30 Individual Oral Presentations - Session Three

	Session 3A Chair: Sorana Toma [Zaal De Blauwe Vogel]	Session 3B Chair: Amaury Frankl [Zaal Haas]
16h00	**Nicolás Caso** (Ghent University, Belgium & UN University Institute on Comparative Regional Integration Studies, UNU-CRIS, Belgium) Thwarted aspirations: the impact of involuntary immobility on subjective well-being among young adults in Asia and Africa	**Bert Van Schaeybroeck et al** (Ghent University, Belgium) Investigating rainfall and rainfall extremes in Ethiopia using high-resolution climate models
16h15	**Fredrick Okaka** (Moi University, Kenya) Impact of climate change-induced migration on the health and well-being of pastoralist migrant communities in Kenya	**Juliet Nwakaego Nwachukwu & Chux Gervase Iwu** (University of the Western Cape, South Africa) online The effect of climate change induced flooding in Durban on its residents
16h30	**Fatoumata Sawo** (Ghent University, Belgium) Navigating the 'Back Way': Understanding young Gambians' irregular migration in the face of societal pressures	**Adugnaw Birhanu Zegeye et al** (Ghent University, Belgium) Spatio-temporal groundwater recharge estimation of Mount Guna, Northwest Ethiopia: Implications on climate and migration challenges
16h45	**Moses Mukasa et al** (Ghent University, Belgium & Makerere University, Uganda) Suicidal ideation and suicidal behaviours: Their risk factors, explanatory models and coping strategies among refugees in humanitarian settings in Northern Uganda	**Alemu Yenehun Beyene et al** (Ghent University, Belgium) Groundwater recharge and water table response to seasonal variability in diverse physiographic settings: The case of a semi-humid river catchment, northwestern highlands of Ethiopia
17h00	**Getnet Tesfaw Demsie** (Wollo University, Ethiopia) Parental migration and behavioral outcomes of children left behind in Ethiopia	**Kaleab Adhena Abera et al** (Ghent University, Belgium) Natural and anthropogenic influences on groundwater resources of Mekelle city, North Ethiopia
17h15	Discussion	Discussion

19h30-21h00 Ghent University Nelson Mandela Lecture, with Gulshan Khan and Adriaan van Dis, moderated by journalist Bart Luirink – with opening by UGent vicerector Mieke Van Herreweghe [Zaal De Blauwe Vogel]

21h00-23h00 Launch of Gulshan Khan's picture exhibition Strength and Resilience in the Western Cape + reception [Agora De Krook – ground floor]

FRIDAY 29 NOVEMBER 2024

9h00-11h00 Individual Oral Presentations - Session Four

	Session 4A Chairs: Freke Van Damme & Ivan Lizaga [Zaal De Blauwe Vogel]	Session 4B Chair: Charlotte Scheerens [Zaal Haas]
9h00	**Pascal Boeckx et al** (Ghent University, Belgium) The UGent Congo Basin forest Centre of Excellence: Integrated ecosystem research in the heart of the Congo basin	**Kwinten Van Weverberg et al** (Ghent University, Belgium) A CLEAR vision about the climate-migration-health nexus: Introducing climate research at the UGent Department of Geography
9h15	**Pauline Hicter et al** (Royal Museum for Central Africa, Belgium & Ghent University, Belgium) The TREE4FLUX Project: Monitoring woody productivity and respiration to track Congo Basin Forest Carbon Dynamics	**Gladys Chelagat Biwott** (Moi University, Kenya) Prevalence of floods and landslides and their impact on human settlements in Elgeyo Marakwet County, Kenya
9h30	**Nestor Kashikija Luambua** (University of Kisangani, DRC & Ghent University, Belgium) in French Light-demanding canopy tree species are not indicators of past human disturbance in the Yangambi rainforest (Democratic Republic of the Congo)	**Femke Maes et al** (Ghent University, Belgium) Household drinking water treatments on trial: an RCT in Western Uganda
9h45	**William Verbiest et al** (Ghent University, Belgium) Synthesis of national carbon fluxes of African rainforest countries	**Sithabile Hlahla et al** (University of Cape Town, South Africa) The climate, water and migration nexus: the impact of climate change and water security on migration trends and health in southern Africa
10h00	**Brice Yannick Djiofack et al** (Ghent University, Belgium) Protecting an artificial savanna as a nature-based solution for restoring carbon and biodiversity in the Democratic Republic of the Congo	**Komlan Olakossan Gbegnon** (Université de Kara, Togo) online – in French Effet de la vulnérabilité du système sanitaire au changement climatique sur la migration: une évidence des économies de l'Afrique Subsaharienne
10h15	**Judith Awacorach** (Gulu University, Uganda) **& Quentin Gausset** (Copenhagen University, Denmark) Assessing the competitiveness of green charcoal energy as an alternative source of cooking fuel in Uganda	**Kikè Yra Fonton (**Ghent University, Belgium & Université Gaston Berger, Senegal) **& Ilse Ruyssen** (Ghent University, Belgium) online West African fishing communities' mobility response to climate anomalies
10h30	**Alain Kadorho et al** (Ghent University, Belgium) Untangling forest history in the Central Congo basin through fossil charcoal analysis	**Alix Debray et al** (Ghent University, Belgium) Irrigation as a mitigator for migration intentions following drought in West Africa
10h45	Discussion	Discussion

11h00-11h30 Coffee Break and showcasing of the academic posters [Zaal Vos]

11h30-12h30 Keynote lecture by Leander Kandilige (Centre for Migration Studies, University of Ghana, Ghana): Emerging realities on the climate-migration-health debate in Africa [Zaal De Blauwe Vogel]

12h30-13h30 Lunch Break [Krook café – ground floor]

13h30-15h30 Individual Oral Presentations - Session Five

	Session 5A Chair: Karen Büscher [Zaal De Blauwe Vogel]	**Session 5B** Chair: Amaury Frankl [Zaal Haas]
13h30	**Ivan Lizaga et al** (Ghent University, Belgium) Landscapes of conflict: Analyzing environmental and geophysical impacts in the Lake Kivu region	**Aschalew Abeje** (Bahir Dar University, Ethiopia) online Causes and effects of rural-urban migration in Ethiopia: Child migration from Wag Hemra Zone under the spotlight
13h45	**Chamunorwa Huni** (University of the Western Cape, South Africa) online Integrating climate change adaptation and migration management strategies in Nyanga district-ward 15 and 16, Zimbabwe	**Daniel Nkosinathi Mlambo** (Tshwane University of Technology, South Africa) Rural-urban migration enigma in South Africa: Key trends and issues
14h00	**Elizaveta Barabanova et al** (University of Milan, Italy) Climate change and conflict: Using space technologies to build resilience	**Tadie Degie Yigzaw** (Bahir Dar University, Ethiopia) online Sudanese refugees in Ethiopia's Benishangul Gumuz Region: Vitalities and pitfalls
14h15	**Chibuzor Charles Ubah & Nidhi Nagabhatla** (UN University Institute on Comparative Regional Integration Studies, UNU-CRIS, Belgium & Ghent University, Belgium) Malabo Declaration as a regional food security agenda for mainstream and migrant communities in Africa	**Ann-Christine Link et al** (Philipps-Universität Marburg, Germany & United Nations University Institute for Environment and Human Security, Germany) The tail end of migration: Assessing the climate resilience of migrant households in East Africa
14h30	**Solomon Abebe Addis** (Joint Labour Migration Programme, ILO - Addis Abeba, Ethiopia) online Policy framing in the context of climate-influenced migration and mobility	**Christian Ndzie Omgba & Babacar Sene** (Université Cheikh Anta Diop, Senegal) online – in French Impact de l'interaction transferts de fonds des migrants et changements climatiques sur la production agricole en Afrique subsaharienne
14h45	**Jean-Paul Nizigiyimana** (Independent researcher, Burundi) **& Tomas Van Acker** (Ghent University, Belgium) Loss and damage: Insights from the Ruzizi Plain, Burundi	**Khaoula Charrek et al** (Ghent University, Belgium) Embracing interdisciplinary and transdisciplinary approaches to address climate change. Case study: Kairouan region Tunisia
15h00	**Nguweneza Espoir B. Rwakira** (ISP Bukavu, RDC) online – in French Regards croisés sur la gouvernance climatique dans la Région des Grands Lacs: Défis, perspectives et approche pédagogique	**Tsegaye Eskezia Almaw** (Bahir Dar University, Ethiopia) online Land use change and the socio economic challenges of rural people in the case of Dembecha Zuria Woreda, West Gojam Zone, Amhara, Ethiopia
15h15	Discussion	Discussion

15h30-16h00 Coffee Break and showcasing of the academic posters [Zaal Vos]

16h00-17h30 Documentary screening: Sculpting this Earth - https://sculptingthisearthfilm.com/ [IPEM film lab]

17h30-18h00 Closing [IPEM film lab]

ABSTRACTS
KEYNOTE SPEAKERS
AND PANEL

Human/ecological perspectives on climate change impacts, adaptation, and infectious diseases in Africa

Houriiyah Tegally
(Centre for Epidemic Response and Innovation (CERI) at Stellenbosch University, South Africa – houriiyah.tegally@gmail.com)

Guy Midgley
(Director of the School for Climate Studies and the Center for Invasion Biology, Stellenbosch University, South Africa – gfmidgley@sun.ac.za)

We will set the historical climatic context for human evolution in Africa during the Pleistocene Epoch, focusing on the rise of animal and plant domestication and agriculture, and human migration and invasion on all continents (except Antarctica) during the Holocene Epoch. This is an under-appreciated perspective that can inform our current contentious view of the "Anthropocene" Epoch, and provide insights into the basis for our current human social-economic-ecological niche on the planet and in Africa. We will consider how this history lies at the heart of many current human social-economic, food security and health concerns in the face of anthropogenic climate change.

In the second part of this keynote, we will explore the complex relationships between climate change-related human migrations and infectious diseases in Africa. We will lay out the mechanisms linking climate-induced migrations to disease burden, such as the expansion of pathogens into non-endemic areas, overcrowding in new informal settlements, and the increased proximity of disease vectors and susceptible human populations. We will highlight that countries predicted to suffer the highest impact are those that have made the least contribution to climate change. Finally, we will consider analytical methods such as machine learning, ecological modelling, and genomic epidemiology to formally quantify climate-induced people movements, estimate risks of pathogen cross-border introductions, and link human mobility to epidemic dynamics, with specific case studies.

Keywords

Anthropocene, Resilience, Vulnerability, Migration, Infectious Diseases, Genomic Epidemiology, Human Mobility, Ecological Modelling

Emerging realities on the climate-migration-health debate in Africa

Leander Kandilige
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Africa is mostly a misunderstood continent that has been labelled as 'lost' or 'ahistorical'. Different negative global problems have been transposed on the continent as the source or instigator rather than mostly the 'victim' that picks up the pieces after others. The dynamics of migration within or from the continent has been shaped by, and has shaped, climatic and health conditions. However, the historical context within which the climatic conditions of the continent intersect with political experimentation creating peculiar migration trajectories, is less well understood. The health outcomes that are related to the various nodes of the migration cycle (pre-departure, movement, arrival and return phases) are under-researched, especially as they relate to climatic episodes. Akin to the work of Jarawura et al (2024), I use the political ecology approach and the growing body of research on climate related mobilities to frame reflections on the nexus between migration, climate change and health. This approach allows me to shed light on the current and historical factors that are shaping climate-related migration within and from Africa. This is done by drawing on political ecology's strengths in linking environmental and political factors with differentiated vulnerabilities within Africa. Notably, the political ecology approach has also been used within migration literature to analyze how inequalities shape internal (Carr, 2008) and international (Ribot et al., 2020) migration patterns, and the relationship between extractive development policies and different types of migration (Barney, 2012). An analysis of the political ecology of climate-related migration from a historical perspective enables a historical account of the shifting environmental, socio-political, and migration dynamics in Africa.

The keynote address will be structured around four main sections – 1) my trajectory within the migration studies space 2) misunderstandings about Africa and its people 3) the climate change-migration-health nexus in Africa 4) key questions and lessons that need to be examined.

Keywords
Political ecology, Climate mobility, Health, Africa, Historical perspective

ANSER Panel – Strengthening SRHR in Africa amid climate change: A review of research and innovative approaches

Outline of the panel

- Introduction by the facilitator Emilie Peeters (UGent/ANSER)
- Presentation: Scoping review, by Malachi Ochieng Arunda (Karolinska Institutet)
- Prerecorded video: The intersection of climate change and adolescent sexual and reproductive health, by Tammary Esho (Amref International University)
- Presentation: Women's Reproductive Rights intersect with environmental issues, by Céline Delacroix (FP Earth Project)
- Prerecorded video: Showcase the work of an initiative aiming to bridge health and climate in Africa, by Charles Kabiswa (Regenerate Africa)
- Presentation: Showcase the work of an initiative aiming to bridge health and climate in Africa, by Lou Compernolle (OASIS)
- Presentation: Impact of heat on wellbeing of health workers and QoC in Zimbabwe (HIGH Horizons), by Brian Sibanda (CeSHHAR & UGent)
- Prerecorded video: Innovative climate change integration and adaptation projects for resilient community health and health systems in humanitarian settings, by Rachel Sorcher (International Medical Corps)
- Presentation: ICPD+30, climate change and Africa, by Marleen Temmerman (AKU)
- Q&A, moderated by Emilie Peeters (UGent/ANSER)

Author(s) and short individual abstracts of their presentations

This panel is facilitated by the Academic Network for Sexual Health and Reproductive Health and Rights Policy (ANSER). The panel focuses on the intersection of climate change and sexual and reproductive health and rights (SRHR), explores the current state of research and innovative approaches to strengthening SRHR in the context of a changing climate, and presents solutions to be better prepared for climate hazards in Africa.
[Emilie Peeters]

Our panel session starts with a scoping review on the impact of climate change on SRHR, highlighting existing knowledge and gaps. A structured literature search identified 75 relevant peer-reviewed articles, two-thirds from Africa or the Western Pacific. Events like extreme temperatures, drought, and floods were linked to SRHR issues such as gender-based violence and HIV prevalence. Key research gaps include abortion, reproductive cancers, and contraception use.
[Malachi Ochieng Arunda]

We then present research conducted by Amref International University that investigated the effects of flooding, drought, and dwindling livelihoods on communities in Kenya's Kajiado and Uganda's Namayingo districts. The evidence has been used to inform interventions to support sexuality education efforts in schools, and strengthen community health systems for SRHR education and referral pathways to relevant health facilities.
[short video by Tammary Esho]

Next, we present the results of a study by the FP Earth Project exploring the perceptions of sub-Saharan African stakeholders on the interconnectedness of reproductive health and rights, population dynamics, and environmental sustainability. This study showed strong support for integrating reproductive health and rights, along with education and women's empowerment, into environmental policies.
[Céline Delacroix]

We then showcase the work of two initiatives aiming to bridge SRHR and climate in Africa. First, Regenerate Africa, a Uganda-based NGO, promotes an intersectional lens of population dynamics, health, SRHR and climate change to deliver sustainable and inclusive climate solutions. Secondly, the work of OASIS, an initiative aiming to advance education and choice for women and girls in the Sahel, shows evidence-based strategies that national and subnational level advocates in the Sahel are using to shape gender transformative regional and national climate policies.
[short video by Charles Kabiswa & presentation by Lou Compernolle]

Next, we present findings from the HIGH Horizons project documenting amongst others the impact of heat exposure on health worker wellbeing, health, productivity and on the quality of care provided in health facilities in Zimbabwe. We demonstrate how this evidence is used to co-design, implement and evaluate adaptation interventions in selected health facilities to reduce heat exposure for health workers.
[Brian Sibanda]

We showcase the work of International Medical Corps (IMC) in implementing innovative climate change integration and climate adaptation projects in Mali, Zimbabwe, Somalia, Pakistan, and Afghanistan to strengthen community and health system resilience. The main focus is on enhancing climate disaster preparedness at the community level, through training and support to health workers and local government stakeholders, and at the health facility level to ensure health providers are skilled and equipped to respond to climate-related hazards.
[short video by Rachel Sorcher]

We then discuss how women's reproductive rights intersect with environmental issues, situate this discussion in the context of ICPD+30, the 30th anniversary of the International Conference on Population and Development, and reflect on the path forward.
[Marleen Temmerman]

Keywords

Sexual and reproductive health and rights, Community resilience, Health system strengthening, Environmental sustainability, Adaptation

Affiliation author(s):

Moderation and presentation: Emilie Peeters (Ghent University), Malachi Arunda (Karolinska Institutet), Céline Delacroix (University of Ottawa/Population Institute), Marleen Temmerman (Aga Khan University), Brian Sibanda (CeSHHAR), Lou Campernolle (OASIS/Elles du Sahel)

Prerecorded contributions by Charles Kabiswa (Regenerate Africa), Rachel Sorcher (International Medical Corps) and Tammary Esho (Amref International University)

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ABSTRACTS
INDIVIDUAL PRESENTATIONS

Spatio-temporal groundwater recharge estimation of Mount Guna, Northwest Ethiopia: Implications on climate and migration challenges

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The Spatially distributed water balance model WetSpass was chosen to estimate spatial and temporal recharge and evapotranspiration of Mt. Guna. Field based data and remote sensing data were used to successfully run the WetSpass Model. The observed meteorological input data were corrected to minimize topographical effect by developing a regression equation, which is crucial in recharge estimation for such a mountain site. The model was calibrated based on observed average discharge data collected at six river gauges. The recharge estimated by Water Table Fluctuation (WTF) and Chloride Mass Balance (CMB) methods was used to validate the model. The comparison of the calibrated WetSpass estimated mean monthly runoff and the mean monthly observed runoff shows a strong coefficient of determination (94%). The mean annual recharge estimated by WetSpass is 409 mm in Mt. Guna. The recharge accounts for about 28% of rainfall received in Mt. Guna. On the other hand, the mean annual recharge of Mt. Guna estimated from Water Table Fluctuation and Chloride Mass Balance methods is 357 mm and 417 mm respectively. This confirms that WetSpass is effective for estimating spatial and temporal recharge in mountains. However, the meteorological inputs and water level data should be corrected to minimize topographic effect. Hence, we propose using the methods we applied in our study to correct meteorological input data at similar mountain sites. Overall, the study explores the implications of these findings on climate and migration challenges in the region.

Keywords
Mount Guna, Recharge, Spatio-temporal, WetSpass, Water table fluctuation method, Chloride mass balance

Untangling forest history in the Central Congo basin through fossil charcoal analysis

Alain Kadorho
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The humid tropical forests of the Congo Basin, considered to be mature forest, are strangely characterized by an abundance of light-demanding species in the canopy, most of which are commercially exploited. This feature remains something of a puzzle because the abundance of light-demanding species in the canopy indicates an intermediate stage in forest succession. Current explanations show divided opinions within the research community. The first response is that these forests are undergoing recovery after human disturbances in the 19th century, which would explain the current abundance of light demanding species in the canopy. The second response is that light-demanding species, such as fast-growing species, require a lot of nutrients in the soil to establish, justifying their abundance in areas where the soil is rich. The third response is that light-demanding species are a component of mature forests and grow in natural clearings, contributing to the high functional and taxonomic diversity characteristic of tropical forests. However, within the boundaries of these diverse mature tropical forests, pockets of monodominant mature forests with *Gilbertiodendron dewevrei* coexist, and their presence remains a puzzle that has yet to be solved. Although the scientific community is increasingly unanimous on the causes of *G. dewevrei monodominance*, the origin of this phenomenon remains only partially studied. The period of appearance of this phenomenon in the Congo Basin still divides researchers. The first proposed hypothesis considers the monodominance of *G. dewevrei* as a recent phenomenon resulting from an expansion dynamic favored by the current environmental and human context. The second hypothesis considers the forests as an ancient phenomenon that persisted in the historical context of the environment and human activities. Here, we propose a pedo-anthracological approach based on the analysis of fossil charcoal and physico-chemical properties of soil to highlight these two persistent contrast in Congo Basin. Our main objective is to untangle the origin of the present-day Central Congo basin. To achieve this objective, we excavate 61 pits, each 2-meters deep. Each plot was installed in a pioneer forest, in the secondary forest, in the mixed primary forest, and in the monodominant forest of *Gilbertidendron dewevrei*; these pits are used for soil description, soil and charcoal sampling. With these samples, four types of analyses were

performed : (i) Anthracomass analyses by profile interval, following standard procedures, will identify and stratify past fire events in forests. (ii) Stable carbon isotope(^{13}C) analyses will differentiate the factors inducing forest fires. (iii) Identification of fossil charcoal using partial identification protocol and (iv) Radiocarbon dating will reveal changes on the century and millennium scales in biodiversity. Until now, *G. dewerei* forests have experienced fire events in past. Dating them will provide the link between monodominance and disturbance. The implications of these results for understanding long-term forest dynamic or long-term resilience of essential ecosystem functions and management of tree species in Central Congo Basin will be discussed.

Keywords

Fossil charcoal, Central Congo basin, Light-demanding tree species

Groundwater recharge and water table response to seasonal variability in diverse physiographic settings: The case of a semi-humid river catchment, northwestern highlands of Ethiopia

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Sustainable water resource management is a critical global issues in today's world. Continuing pressures from population growth and climate change are straining limited water resources. Groundwater, a significant component of freshwater resources, is essential for domestic, agricultural, and industrial water supplies. Quantifying the groundwater recharge rate is one of the key factors in setting extraction limits and ensuring sustainable groundwater utilization. Accurate recharge estimates are vital for models predicting the impact of climate change on groundwater resources. Additionally, these estimates aid in developing adaptive management strategies to address changes in recharge patterns due to climate variability. Groundwater recharge estimation, aquifer response to meteorological variables, and evapotranspiration calculations have been performed for a semi-humid catchment, on the northwestern Ethiopian plateau. The Soil Moisture Balance (SMB), WetSpass water balance model, Water Table Fluctuation (WTF), and Chloride Mass Balance (CMB) methods are applied to estimate the groundwater recharge. Accordingly, 431 mm, 462 mm, and 477 mm recharge amounts are estimated as mean annual values, respectively, using SMB, WetSpass, and CMB methods. Based on the WTF method, the annual recharge rates of the volcanic aquifers range from 157 mm to 760 mm, respectively. The SMB and WetSpass methods are less effective for the flat physiographic area, where the recharge rate is storage-controlled rather than by precipitation amount. The calculated high recharge for mountain-front aquifers using WTF is attributed to extra rising due to lateral groundwater flow, which restricts the reliability of the method for diffuse recharge estimation for such aquifer geometries. High groundwater level rising rate (121 mm/day) has been observed for the steep slopes, low rates (11 mm/day) for the flat floodplain, and intermediate rate (52 mm/day) for the gently sloping volcanic aquifers. Similarly, receding rates of 3.18 mm/day were found for the steep slopes, 0.40 mm/day for the floodplain, and 1.14 mm/day for the gentle sloping aquifers. A strong connection between the shallow and deep groundwater aquifers is noted. Storage change in the deeper volcanic aquifers is due to vertical groundwater flow from the overlying alluvial aquifer. This indicates that the recharge mechanism is local, and may be the reason for the low aquifer productivity of the Dangila wellfield. Diurnal water table fluctuation is detrended from the receding trend of the dry period, and evapotranspiration from the groundwater is estimated at 28% of total ET.

Keywords
Groundwater recharge, Shallow aquifer, Water table, Recession, Rising, Evapotranspiration

Irrigation as a mitigator for migration intentions following drought in West Africa

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This article contributes to the debate on the causal relationship between climate and migration, which often overlooks alternative adaptation mechanisms. Specifically, we examine the role of irrigation in mitigating migration intentions following droughts in 13 West African countries. Using cross-country Gallup World Poll surveys combined with fine-grained geo-local data on irrigation and drought intensity, our findings indicate that irrigation can reduce migration intentions, especially in dry regions. The effect is mainly driven by an agricultural income mechanism, as it disappears when including individuals living in urban areas, highlighting the different dynamics in rural areas. Our results remain robust to the inclusion of additional controls such as conflict and remittances, or to the use of different drought and irrigation measures. These findings highlight the importance of considering alternative adaptation mechanisms in the climate-migration nexus.

Keywords
Irrigation, Drought, Internal migration, International migration, Migration intentions, West Africa

The tail end of migration: Assessing the climate resilience of migrant households in East Africa

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Climate change is associated with increasing frequencies and intensities of extreme weather events. These can, directly and indirectly, shape human (im)mobility. While most research on migration in the context of climate change focuses on climate as a migration driver in origin areas, there is a gap in knowledge on the role of migration in terms of climate resilience in the destination areas. Consequently, this paper aims to study differences in resilience (resistance and recovery) to climatic shocks between migrant and non-migrant households at migration destinations in East Africa (Ethiopia, Malawi, Tanzania, and Uganda). This region is highly exposed and vulnerable to climate change. We use longitudinal data from the Living Standards Measurement Study (LSMS) conducted by the World Bank to construct a comprehensive Well-Being Index, which is used to analyze the impacts of climatic shocks and identify households that are more or less able to resist and recover from shocks. We use fixed effect panel regression approaches to model the impacts of climatic shocks on well-being over time for migrant and non-migrant households. Further explorative mediation analyses yield insights into mechanisms explaining differences between households. We find that migrant households have an overall lower climate resistance as they experience double the well-being impacts when exposed to climatic shocks compared to non-migrant households. Preliminary results from Ethiopia show that climatic shocks significantly reduce the food security of all affected households and, in addition, negatively impact access to basic infrastructures and health for migrant households. Mediation analyses suggest that these differential climatic impacts are mainly driven by characteristics of migrant-origin regions, including poverty. Migrant households originating from less prosperous regions still face disadvantages even if they now reside in more prosperous regions. This is in contrast to the experience of non-migrant households whose resilience benefits from increased prosperity in their region of residence. While migrant households show lower resistance to climate shocks, they recover faster from climatic shocks, which can be associated with diversified livelihoods and remittances that take time to unfold. This research is highly relevant to policy as it improves our understanding of the underlying factors shaping differential vulnerability to climate change impacts and supports targeted interventions to increase the resilience of affected households.

Keywords
Climate, Human (Im)mobility, Well-being, Resilience, East Africa

Causes and effects of rural-urban migration in Ethiopia: Child migration from Wag Hemra Zone under the spotlight

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The migration of children from the rural Wag Hemra Zone of the Amhara Region, Ethiopia, has been prevalent for the last few years. This article analyses the causes and effects of migration on migrant children in towns in Amhara. Data were collected through interviews, observation, and archive analysis in Bahir Dar City to which children predominantly migrate. Analysis of triangulated data revealed that child migration in the context of the Amhara Region, Wag Hemra in particular, has been prevalent due mainly to climate change, but also waning soil fertility. The study showed that food shortages are the principal effect of migration on migrant children. Examination of the negative economic effects showed that the issue was not simply about food shortages but also the starvation of migrant children. The findings revealed broad health effects on migrant children, such as diarrhea and pneumonia. Anxiety arising from the undesirable effects and the pessimism in terms of the prospect of improved status were further detrimental aspects of migration. Therefore, the positive framing of migration as a basis of socioeconomic upgrading does not apply in all contexts, and policy objectives should take into account that migration is not always a positive. I further conclude that the complexity of migration causes, processes, and migrant agencies means the phenomenon could constitute much more complex effects across contexts and, thus, there is a need for greater attention to contextual analysis.

Keywords
Rural-urban migration, Cause, Effect, Amhara region, Children

The impact of climate change on children in primary health care in Isiolo County, Northern Kenya

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Background: Climate change has an adverse impact on health in Eastern Africa, specifically due to increasing temperatures and decreased rainfall. Climate-sensitive diseases pose a significant threat to the well-being of children, making them especially susceptible to conditions such as malnutrition and water-related disorders. These diseases not only limit their growth and development but also have a negative impact on their overall health. This study examined the impact of climate change on the health of children receiving primary care in Isiolo County, Kenya. The study also highlighted the challenges faced by healthcare workers, including insufficient primary healthcare services, restricted infrastructure, a shortage of essential equipment and medication, which increases disease prevalence and mortality among children.

Aim: To determine the impact of climate change on children in primary health care in Isiolo County, Northern Kenya.

Methods: Utilizing a convergent mixed-methods research design, quantitative data on climate variability and disease patterns was collected, alongside qualitative data from interviews with parents, caregivers, and healthcare workers

Results: The county experienced climate fluctuation between 2019 and 2023, characterized by reduced rainfall, a low vegetation index, food insecurity, and limited access to water sources. Climate change has resulted in increased heat stress and hyperthermia in children exacerbated by very high temperatures and reduced rainfall, leading to depletion of food and water resources. The community reported outbreaks of diseases, including malaria and respiratory disorders, while flash floods destroyed shelters and farms. Social disruption included child neglect, heightened anxiety levels, and disruption to educational activities. Cultural beliefs and high healthcare costs further impeded effective health-seeking behaviors and access to services. Healthcare workers noted increased malnutrition and micronutrient deficiencies, with prolonged hospital stays due to low immunity and increased nosocomial infections.

Conclusion: Climate change has significantly impacted children's health in Isiolo County, Kenya, through increased heat stress, food and water scarcity, and a rise in climate-sensitive diseases. These effects, coupled with inadequate healthcare services, have exacerbated malnutrition and disease prevalence among children. The study highlights the immediate necessity for policy actions aimed at enhancing healthcare infrastructure, improving disease surveillance, and creating adaptation methods to reduce the negative impact of climate change on vulnerable populations.

Keywords

Climate change, Child health, Primary care, Isiolo County, Kenya, Mixed-methods

Promoting mental health and psychosocial support (mainstream and migrant communities) - Towards building climate resilience

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Climate change represents a significant threat to global health, particularly in Africa, where its impacts on mental health is becoming increasingly evident. Vulnerable populations, including women, children, migrants, and those living in poverty, are disproportionately affected, facing heightened rates of depression, anxiety, trauma, and a pervasive sense of hopelessness. The complex challenges posed by forced displacement further exacerbate these mental health issues, as refugees and migrants often find themselves in detrimental environments that severely impact their well-being. There is substantial existing research on the physical health impacts of climate change, but the connection between climate change and mental health in the African context has received insufficient attention. It is essential, therefore, to identify specific gaps and needs within the current landscape. First, there is a lack of comprehensive research that focuses on the mental health implications of climate change, particularly concerning the unique socio-economic and cultural contexts of African communities. Most studies fail to differentiate between mental and physical health impacts, which limits understanding of the full spectrum of climate change effects. Second, many National Adaptation Plans in African countries overlook mental health considerations, highlighting the urgent need for targeted research and policies. Accelerated action is necessary to resolve these issues effectively. Strategic interventions should include increased funding for research that examines the mental health impacts of climate change, particularly among vulnerable populations. Third, integrating mental health considerations into climate adaptation strategies and disaster response plans is crucial, as it will ensure that mental health services are accessible and culturally appropriate for all (mainstream and migrant communities). Additionally, developing policies prioritizing mental health in the context of climate change at both national and sub-national levels will help create a comprehensive approach to addressing these challenges. Furthermore, collaboration among governments, NGOs, and international organizations is vital to building capacity and implementing effective interventions. By fostering partnerships and empowering local communities, stakeholders can develop tailored solutions that address the mental health needs of those affected by climate change. In conclusion, addressing the mental health challenges of climate change in Africa requires urgent and comprehensive action. By identifying gaps and needs, prioritizing research and policy development, and implementing strategic interventions, the countries can mitigate the adverse effects of climate change on mental health and ensure the well-being of vulnerable populations across the continent. We also explain how, despite efforts such as the Rabat Declaration by WHO, addressing the health of refugees and migrants requires strategic interventions to navigate the intricate intersection of climate change and mental health vulnerabilities in the African context.

Keywords
Climate change, Mental health, Vulnerable /Displaced populations, Gaps, Africa

Investigating rainfall and rainfall extremes in Ethiopia using high-resolution climate models

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Global warming has a significant impact on the global water cycle and rain formation, increasing the frequency and intensity of extreme precipitation. These changes may result in more land degradation, landslides and flooding in tropical mountain regions, causing damage to settlements and croplands. Rainfall distribution over the Ethiopian highlands is notably influenced by the region's complex topography and circulation patterns, presenting significant challenges for water-resource management and agricultural practices. Additionally, reliable and widespread climate observations are lacking in this area. High-resolution climate models, however, may provide valuable insights into past and future climate dynamics. In this study we investigate the performance of two such climate models in the Ethiopian Highlands. We focus on summertime (extreme) rainfall at sub-daily timescales and their temperature dependence which is highly relevant for climate-change studies. The models included are the ALARO-0 model and the Unified Model (UM) of the UK Met Office.

The study compares the performance of ALARO-0 and UM simulations in capturing sub-daily orographic rainfall over Ethiopia, using IMERG satellite-based observations as a reference. Both models exhibit biases, with excessive rainfall over mountainous regions and overestimations in the southwestern lowlands, while rainfall in the southeastern lowlands is underestimated. The UM, with improved physics, shows better alignment with observations than ALARO-0 for rainfall quantity but not rainfall frequency. While both models and IMERG show a clear diurnal rainfall signal with afternoon peaks extending into night hours, ALARO-0 shows peaks that occur too early in the

afternoon and overly localized extreme events. In contrast, the UM shows later maxima, a broader spatial distribution, and a prolonger diurnal range of rainfall.

The linear dependence of extreme rainfall on temperature (i.e. temperature scaling) displays a pronounced diurnal cycle, with nocturnal scaling rates of up to 15% per degree of temperature increase (for ALARO-0) and negative or near-zero scaling rates during the daytime, particularly above 1000m. This suggests that commonly-used rates based on all hours of the day may be poor indicators of future rainfall extremes. The findings indicate the importance of using sub-daily rainfall and temperature data to understand changes in rainfall extremes, especially in orographically-complex regions. The obtained changes suggest a shift towards more extreme nocturnal rainfall but less intense daytime rainfall.

Our efforts are crucial for improving the predictive capabilities of climate models at different timescales, ultimately supporting water resource management and agricultural planning at local scale over Ethiopia.

Keywords

Ethiopia, Climate change, Extreme rainfall, Climate modeling, Mountains

Protecting an artificial savanna as a nature-based solution for restoring carbon and biodiversity in the Democratic Republic of the Congo

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A large share of the global forest restoration potential is situated in "unstable" mesic African savannas, contributing about 23% to the worldwide mismatch between potential and actual terrestrial carbon stocks. However, uncertainty regarding central African forest recovery rates impedes science-informed implementation of forest restoration efforts. Here, we quantify the forest restoration success of 17 years of fire exclusion within a mesic artificial savanna patch in the Kongo Central province of the DR Congo. We found a rapid increase in the stem density of pioneer forest species (e.g., *Xylopia aethiopica* and *Albizia adianthifolia*) and a significant decrease in the stem density of savanna species (e.g., *Hymenocardia acida* and *Maprounea africana*). On average, forest species ' above ground carbon (AGC) recovery was 11.97 ± 0.20 Mg C ha^{-1}. We predicted that AGC stocks take 112 ± 3 years to recover to 90% of AGC stocks in old-growth forests. We showed that "unstable" artificial savannas across DR Congo, Congo, and Angola have a total carbon uptake potential of 12.13 ± 2.25 Gt C by 2100. Species richness recovered to 33.17% after 17 years, and we predicted a 90% recovery at 54 ± 2 years. In contrast, the recovery of species composition was much slower, with an estimated 90% recovery after 12 ± 3 years. We conclude that the relatively simple and cost-efficient measure of fire exclusion in artificial savannas is an effective Nature-based solution to climate change and biodiversity loss. However, more long-term and in situ monitoring efforts are needed to quantify variation in long-term carbon and diversity recovery pathways.

Keywords

Forest restoration, Carbon recovery, Biodiversity recovery, Congo basin, Central Africa

Structure spatiale des ecosystèmes et potentiel du stock de carbone de la Forêt Classée d'Amou-Mono au Togo

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Au Togo, l'avènement des troubles socio-politiques ont entraîné l'envahissement de plusieurs aires protégées par les populations entraînant la perte de vitalité de plusieurs d'entre elles. La présente étude est réalisée dans l'une des aires protégées les plus anthropisées du Sud Togo, la Forêt Classée d'Amou-Mono (FCAM). Elle a pour objectif d'analyser l'impact de l'anthropisation sur les écosystèmes forestiers et le flux des gaz à effet de serre de la FCAM. L'analyse s'est basée sur les images satellitaires Landsat des années 1986, 2001, 2013 et 2021 réalisées grâce aux logiciels ENVI, QGIS 3.18.2, Invest, Google Earth, Zonation et IDRISSI. Les quantifications au sol du stock de carbone se sont basées sur les données d'inventaire forestier des ligneux (diamètre et hauteur) et les équations allométriques. Ces stocks de carbone ont été combinés aux classes thématiques pour générer les cartes de distribution spatiale. Les résultats montrent une régression de la végétation naturelle au profit des champs et des bâtis entre 1986 et 2021. Le taux de déforestation est de 0,28 % entre 1986 et 2001 ; 1,23 % entre 2001 et 2013 et 3,25 % entre 2013 et 2021. La dynamique du stock de carbone montre que la FCAM a connu une évolution régressive. A l'absence des mesures efficaces de gestion, le scénario d'anthropisation simule une déforestation de plus de 2 % d'ici 2050, avec une perte considérable des forêts claires (11 %). Par contre, le scénario d'aménagement simule une reconstitution forestière de plus de 3 %. Des actions de reboisement et de protection sont primordiales pour renforcer le potentiel de séquestration du carbone. Le gain économique prédit à l'horizon 2050 dans les forêts denses, forêts claires/savanes boisées et champs/jachères s'élève à 1 014 911, 3 $.

Mots clés

Anthropisation, Occupation du sol, Balance carbone, Aire protégée, Togo

Spatial Structure of Ecosystems and Carbon Stock Potential of the Classified Forest of Amou-Mono in Togo

In Togo, the socio-political unrest which began in the 1990s has led to human encroachment on several protected areas, causing some of the areas to become depleted. This study is conducted in one of the most anthropogenic protected areas in Southern Togo, the Classified Forest of Amou-Mono (FCAM). It aims to analyse the impact of anthropisation on the forest ecosystems and the GHG fluxes coming from the FCAM. The analysis was based on Landsat satellite images for the years 1986, 2001, 2013 and 2021. The images were processed using ENVI, QGIS 3.18.2, Invest, Google Earth, Zonation and IDRISSI software. Forest inventory data (diameter and height) and allometric equations were used to quantify carbon stocks on the ground. Spatial distribution maps were generated by combining these carbon stocks with the thematic classes. Results showed a regression of natural vegetation towards fields and buildings between 1986 and 2021. Forest loss rates are 0.28 % between 1986 and 2001, 1.23 % between 2001 and 2013 and 3.25 % between 2013 and 2021. Carbon stock dynamics show that the FCAM has undergone a regressive evolution. In the absence of effective management measures, the anthropisation scenario simulates a deforestation rate of more than 2% by 2050. This is accompanied by a significant loss of open forest (11%). In contrast, the management scenario projects a forest recovery of over 3%. Afforestation and protection measures are essential to increase the potential for carbon sequestration. The projected economic gain by 2050 in dense/riparian forests, open forests/wooded savannas and fields/croplands is $1,014,911.3.

Keywords

Anthropisation, Prospective modelling, Carbon, FCAM, Togo

Integrating climate change adaptation and migration management strategies in Nyanga district-ward 15 and 16, Zimbabwe

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This study examines the integration of climate change adaptation and migration management strategies in Nyanga district, Zimbabwe, with a specific focus on wards 15 and 16. The study aims to analyse the existing climate change adaptation measures and migration management approaches in the region, identify challenges and gaps, and propose integrated strategies to enhance resilience and sustainable development. The research methodology involves a combination of desk research, including analysing qualitative and quantitative documents with the aim of providing historical findings. Also, findings from a literature review and analysis of relevant policies and reports, as well as stakeholder interviews and focus group discussions with local communities, government officials, and civil society organizations will be presented. The findings will highlight the need for a holistic and collaborative approach that addresses the complex links between climate change, environmental degradation, and human mobility. The study will conclude with recommendations for policymakers, practitioners, and researchers to foster the integration of climate change adaptation and migration management strategies in Nyanga district and beyond.

Keywords
Migration, Climate Change, Adaptation, Governance, Policy

Malabo Declaration as a regional food security agenda for mainstream and migrant communities in Africa

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In 2014, the African Union and Heads of Government adopted the Malabo Declaration, setting forth a strategic regional agenda aimed at eradicating hunger in Africa by 2025. Central to this declaration, Commitment 3 underscores the importance of three key objectives: (1) doubling agricultural productivity, (2) halving post-harvest losses, and (3) improving nutritional status. However, as the 2025 deadline looms, the region's progress remains disappointingly inadequate, with efforts consistently falling short of the benchmarks for each biennial review cycle . This study undertakes a comprehensive review of selected literature, applying composite score analysis of commitment areas and performance category scores and calculating improvement rates across three biennial review intervals (2017, 2019, 2021, and 2023). The analysis evaluated Africa's temporal progress and that of its subregions toward achieving the goals outlined in Commitment 3. From the first biennial review in 2017 to the fourth in 2023, T-scores – measuring overall regional progress in reducing hunger – revealed an alarming trend: the gap from the benchmark widened from 1.92 to 6.36. This widening gap highlights that the region is increasingly falling short of its targets, particularly in Central, North, and West Africa, where the situation is most dire. The reduction of post-harvest losses has emerged as the region's most pressing challenge, with severe underperformance attributed to various factors such as data quality limitations, assessment methodologies, implementation barriers, financial constraints, structural issues, and external socio-economic and climatic influences. Note that many recent studies in Africa have linked loss of income from agriculture as a direct or indirect driver of migration.

As the region confronts these challenges, it is imperative to focus on food security for both mainstream populations and migrant communities. Migrants, who often face heightened vulnerabilities, are particularly at risk of food insecurity due to displacement, lack of access to resources, and social exclusion. A well-coordinated regional agenda (post the tenure of this declaration) and one wherein collaboration among African nations towards eradicating hunger and ensuring food security is a key priority, remain key to addressing these disparities. A post-Malabo agenda must prioritize regional collaboration with clear, scalable policies, measurable indicators, and enhanced financial mobilization mechanisms that consider the unique needs of migrant populations and other communities. Significant investments in capacity-building initiatives, coordinated multi-level governance, inter-sectoral collaboration, and robust monitoring and evaluation frameworks are critical. Such a well-formulated agenda, rooted in the structured coordination of food security efforts, which involves aligning the activities of various stakeholders, sharing resources and information, and ensuring that all efforts are directed towards a common goal, can significantly strengthen regional development efforts, ensuring that all communities – mainstream and migrant alike – can achieve food security and well-being.

Keywords
Malabo declaration, Africa, Hunger, Climate change, Regional, Food security, Hunger

Migration and primary health care in sub-Saharan Africa: A scoping review

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Background: Migration in Africa is increasing and driven by a variety of inter-related socio-economic, conflict and climate-related causes. Primary health care (PHC) services will be in the forefront of responding to the associated health issues.

Aim: To review the literature on the effect of migration of PHC service delivery in Africa and the challenges facing migrants in accessing PHC.

Methods: A systematic approach (Preferred Reporting Items for Systematic Reviews and Meta-analysis extension for Scoping Reviews) was applied across six databases and grey literature from African universities (2010 to 2021). Data were extracted and analyzed quantitatively and qualitatively.

Results: A total of 3628 studies were identified and 50 were included in the present paper. Most studies were descriptive or used mixed methods. Publications came from 25 countries, with 52% of studies from South Africa, Uganda and Kenya. Zimbabwe, the Democratic Republic of Congo and Somalia were the most common sources of migrants. Population health management for migrant communities was challenging. Migration impacted PHC services through an increase in infectious diseases, mental health disorders, reproductive health issues and malnutrition. PHC services were poorly prepared for handling displaced populations in disaster situations. Access to PHC services was compromised by factors related to migrants, health services and healthcare workers.

Conclusion: Countries need to better prepare their PHC services and providers to cope with the increasing number of migrants in the African context.

Contribution: The review points to the need for a focus on policy, reducing barriers to access and upskilling primary care providers to equip them for dealing with diversity and complexity.

Keywords

Migration, Internally displaced people, Primary health care, Primary care, Africa

Impact de l'interaction transferts de fonds des migrants et changements climatiques sur la production agricole en Afrique subsaharienne

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Cet essai analyse les effets de l'interaction envois de fonds des migrants et les variabilités climatiques sur la production agricole en Afrique sub-saharienne (ASS). Nous utilisons l'estimateur Common Correlated Effect Mean Group (CCEMG) pour identifier et analyser les impacts recherchés. Les résultats montrent que ces capitaux ont un effet négatif sur la production agricole mais cet effet devient positif par l'interaction de la variable transferts de fonds et les variables de changements climatiques. Le financement des activités d'adaptation aux changements climatiques par les transferts de fonds reçus constitue une stratégie africaine pratique pour améliorer l'effet de ces capitaux sur la production agricole.

Mots clés
Transferts des migrants, Changements climatiques, Production agricole, CCEMG, ASS

This study analyzes the effects of the interaction of migrant remittances and climate variability on agricultural production in sub-Saharan Africa (SSA). We use the Common Correlated Effect Mean Group (CCEMG) estimator to identify and analyze the desired impacts. The results show that remittances have a negative effect on agricultural production, but this effect becomes positive through the interaction of the remittances variable and the climate change variables. The financing of climate change adaptation activities by remittances received constitutes a practical African strategy to improve the effect of this capital on agricultural production.

Keywords
Migrant remittances, Climate change, Agricultural production, CCEMG, SSA

Intersectionality and clean energy transition among the aged in Ghana: An analysis of access and use

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The present era is characterised by remarkable changes and disruptions with regard to climate change and access to clean energy. However, amidst these shifts, one enduring and unavoidable pattern persists – the global ageing of our population. In this study we address a crucial gap by employing an intersectionality framework to investigate the dynamic relationship between renewable clean energy access and consumption among the aged in Ghana. Our study offers a comprehensive strategy spanning various industries to address global challenges in an ageing society, concurrently shaping a future that guarantees clean energy accessibility across all generations. We use the Annual Household Income and Expenditure Survey (AHIES) data collected by the Ghana Statistical Services in 2023. By adopting the probit estimation techniques, we found that the aged population are less likely to access electricity. Additionally, the aged person consumes more electricity compared to their counterparts who are active. Furthermore, we found that the aged are less likely to have access to clean cooking and exhaustive systems than the active population. We recommend that the Ministry of Energy of Ghana clearly define the plans for tracking and evaluating targets connected to the aged population, including the provision of human and economic resources across all regions.

Keywords
Intersectionality, Aged, Access, Use, Renewable energy, Energy transition

Rural-urban migration enigma in South Africa: Key trends and issues

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From an Afro-centric perspective, migration during and after colonialism and apartheid in South Africa has created many intertwined intricacies that are not well understood. There are continued attempts by numerous stakeholders and interested parties to resolve the complexities associated with the issue. In South Africa, the post-apartheid dispensation brought many political changes in South Africa's political arena, and the movement of individuals from a place of origin to a place of destination was primarily driven by numerous pull factors. Similarly, there was an upsurge in migration patterns from rural to urban settings because of better employment opportunities and improved general livelihoods.

The focal point of this chapter is the key trends and issues of rural-to-urban migration in post-apartheid South Africa particularly in terms of poverty and inequality, which, in most cases, push individuals to move or migrate. Migration is witnessed globally, and the drivers differ for each migrant. By employing a qualitative research approach complemented by secondary data and driven by Lee's push-and-pull theoretical setting, this chapter aims to draw a nuanced appraisal of the stimulus of South African rural-urban migration through the lense of remittances. The approach is driven by the question of whether it is a viable African development paradigm for rural development. This is drawn from the fact that it (migration) is not seen as a long-lasting solution to improving South African communities through wealth and income generation. An ever-increasing population in urban areas brings essential policy recommendations through which the South African government and the private sector may implement long and sustainable rural development strategies for the largely marginalised black population. The findings articulate that individuals migrate for different and diverse reasons but typically to pursue better work opportunities. While remittances are essential to the migrant and the family, they are not a lasting solution in the long run.

Keywords
Rural Development, Rural, Urban, South Africa, Migration, Remittances

Climate change and conflict: Using space technologies to build *resilience*

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The increasing proliferation of violent conflicts and the substantial rise in conflict-related civilian casualties, internally displaced persons, and refugees have strained communities globally. Moreover, the impacts of climate change on security have led to the emergence of the environment-conflict nexus paradigm, which highlights how climate change exacerbates armed conflicts (Galgano and Ehlen, 2019). Despite international recognition of this nexus, substantial knowledge gaps remain in understanding the pathways from climate change and environmental degradation to conflict and their broader societal, governance- and health-related systemic implications. Additionally, although the cross-cutting capabilities of space technologies and their ability to provide reliable data make them powerful tools for addressing the challenges posed by climate-exacerbated conflicts (UNOOSA, 2022), their potential roles in building resilience towards environment-climate-conflict nexus have not yet been explored.

This study addresses the gaps established within the environment-climate-conflict nexus and pinpoints the potential entry points for space technologies to build resilience towards climate-exacerbated conflicts using comprehensive systemic analysis. To identify leverage points for outer space technologies, a Causal Loop Diagram (CLD) was developed, based on an in-depth literature review and anonymized interviews with employees of the United Nations and international non-governmental organizations. The analysis focused on case studies from the Sahel, East Africa, West Africa, and the Horn of Africa. Using thematic analysis (Attride-Sterling, 2001), we derived qualitative themes from the texts and interviews, and integrated them into the CLD to identify patterns of interrelationships between elements pertaining to the areas of climate change and environmental degradation, socio-economic and agricultural development, domestic security and armed conflict, as well as state governance.

The resulting systemic diagram revealed key mechanisms sustaining the nexus: a) the reciprocal adverse impacts of climate change and agricultural insecurity, compounded by inadequate adaptation capacity; b) the effects of in-country and cross-border migration, exacerbated by agricultural insecurity, social tensions, and conflict; and c) the impact of conflict on state governance, undermining environmental governance and the adaptation capacity of local communities. Based on these findings, we developed policy recommendations for the application of outer space technologies, focusing on agricultural security and environmental governance, data management, staff training, and inter-institutional cooperation. Implementing these recommendations could enhance resilience to the climate-environment-conflict nexus and mitigate associated societal pressures and precarity.

This work was supported by the Regional Academy on the United Nations 2023 and the United Nations Office for Outer Space Affairs (UNOOSA).

Keywords

Causal Loop Diagram, Space technologies, Climate-Environment-Conflict nexus, Resilience, Sub-Saharan Africa

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Navigating the 'Back Way': Understanding young Gambians' irregular migration in the face of societal pressures

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Irregular migration to Europe started in the 1990s when legal pathways to Europe significantly decreased making it extremely difficult for ordinary sub-Saharan Africans to fulfil visa requirements. The closure of legal migration pathways turned migration to Europe from the African continent into an ever more dangerous and potentially fatal endeavour. Yet, despite the increased risks of migratory journeys, many young West-Africans, including young Gambian men, seized the opportunity to try and make it through, what they call 'the back way'. In my master thesis I sought to explore why this is so.

I combined a literature study with in-depth interviews with young Gambian men living in Belgium without a legal residency permit, and who entered Europe through 'the backway'. Analysing the existing literature on the drivers of (irregular) migration from Gambia to Europe, I found a lack of attention to the societal expectations and pressures experienced by young men. This stood in contrast with studies that emphasize primarily socio-economic and political dynamics as migration drivers. It was hence my endeavour to better understand how social norms and expectations, the achievements of peers and the cultural attitudes towards migration shape young Gambian men's decisions to try 'the backway'.

The one-on-one, in-depth interviews I conducted with Gambian young men who migrated irregularly to Europe, and were living in Belgium at the time of the interviews, provided much more nuanced insights into the dynamics of different migration drivers and led to a more comprehensive understanding of the young men's motivations and decision-making.

My research shows that migration is highly valued in Gambia and this appreciation of migration transcends age, gender and class. Being a migrant or even a migrant-adjacent significantly increases one's status within society, as migrants are considered the 'heroes' of their communities. They provide financial as well as social remittances, and they bring with them new flows of ideas, behaviours, norms and values. This, in combination with a set of, often unrealistic, expectations about life 'abroad' has led to the creation of 'a culture of migration', which has become an inherent part of people's daily lives in Gambia.

Furthermore, the existence of social networks – set up by established migrants – provide aspiring migrants with relevant information and resources throughout the various stages of their migration process. Having access to such networks – or simply being aware of their existence – influences people's decision-making processes too.

Lastly, my study revealed that gender roles and ideas around masculinity play a significant role in the decision-making processes of young males. Gambian society is very patriarchal in nature and daily life is centred around the family and how to provide for one's family. In a country stripped of opportunities to properly take on this providing role, many young men feel pressured to leave, to be able to take care of their families in the best ways they can.

Keywords
The Gambia, Irregular Migration, Societal Expectations, Gender Roles, Social Networks

Household drinking water treatments on trial: an RCT in Western Uganda

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Background. Approximately two billion people in low and middle-income regions rely on unsafe water supplies. Climate change is expected to intensify the issue in the coming decades. The lack of potable water at home, together with low hygiene and sanitation facilities, is a major cause of morbidity and mortality. Point-of-use (POU) drinking water treatment plays a crucial role in overcoming the health burden associated with waterborne diarrheal disease. However, uptake of and compliance with treatment technologies is often low. Evaluation of water treatment technologies should therefore move beyond technical effectiveness and health impacts to a more holistic approach that includes user perspectives. In particular, the perspectives of women, who are traditionally burdened with drinking water tasks, are underrepresented in this literature.

Objectives. This Randomized controlled trial (RCT) evaluates the impacts of three POU water treatment methods (boiling on a rocket stove, ceramic filtration, and membrane filtration) on both water quality and health outcomes. Furthermore, the study tries to understand user perspectives, including acceptance, affordability, willingness to pay, and the labor burden of water treatment, with a focus on the experiences of women.

Methods. A total of 600 households in rural Western Uganda were involved in the RCT with 450 households receiving one of the three treatments and training on its adequate usage and 150 households being assigned to the control group. Data collection involved household surveys and water sample analysis during a baseline and four follow-ups in the course of 18 months.

Preliminary results. After nine months, 25% of ceramic filters, 14% of membrane filters, and 4% of cookstoves were irreversibly damaged. Additionally, only about half of the households in each treatment group used their assigned product at least once every two days to treat drinking water. The high rates of breakage and low usage rates highlight significant challenges in product design for daily life in low-income rural areas. Although rocket stoves are durable, their use for water disinfection is limited, likely due to recurring fuel costs and a higher risk of recontamination. Membrane filters demonstrate greater durability compared to ceramic filters, which are more susceptible to breakage. The reported time burden of water disinfection is considerable across all treatment groups, potentially contributing to low usage rates. Ceramic filtration requires approximately 106 minutes per cycle, membrane filtration 72 minutes, and boiling 65 minutes. Households that were assigned a membrane or ceramic filter, however, report significant reductions in fecal contamination and turbidity, along with notable improvements in the appearance, taste, and odor of their water. In contrast, boiling water using a rocket stove does not produce significant effects on water quality. While all households assigned to the treatments report a marked decrease in the consumption of untreated water, significant reductions in medical visits and costs are observed only in the group using membrane filtration. Despite differences in effectiveness and durability, respondents equally value all three treatment systems at around 20 USD. The rocket stove is valued the highest, despite its limited effectiveness for drinking water treatment, likely because of its multifunctional use in meal preparation.

Keywords

Boiling, Filtration, Water quality, Health, User perspectives

Impact of climate change-induced migration on the health and well-being of pastoralist migrant communities in Kenya

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Migrant pastoralists in East Africa use mobility to respond quickly to fluctuations in resource availability, dictated by the dry land's erratic climate and changing natural conditions. However, more recently, there has been a growing concern that in the face of climate change this response to nature is making their livelihood, health and well-being increasingly precarious. While migration can help people cope during a climate crisis, it also generates issues surrounding physical and mental health and wellbeing along with other secondary and tertiary consequences and risks. This is true both for migrants and their families who are left behind (mostly women, children and the elderly) or those not able to migrate. Furthermore, climate change induced migration impacts on the provision of health care services. On the other hand, climate change itself not only increases the frequency of migration but significantly increases vulnerability to a myriad of diseases. Therefore, the nexus between climate change and pastoral migration will complicate the health and well-being conditions of the pastoralist communities. However, there is dearth of information on the impact of climate change-induced migration on the health and well-being of pastoralist migrant communities in Kenya. This is despite the fact that understanding the relationship between climate change-induced migration trends and patterns, and health outcomes, is essential for identifying potential health risks faced by migrant pastoralists and for designing targeted interventions to address these challenges. There is a need to generate knowledge which can be more effectively translated into forecasting the health consequences of climate change induced-migration on vulnerable pastoralists communities. Drawing upon the existing literature, this paper makes an assessment of how climate change is impacting the migration of the pastoralist communities and how this is going to affect their health and well-being. The reviewed literature reveals that climate change induced migration takes the pastoralist to far removed remote areas away from areas with health facilities, leading to limited access to healthcare services. These areas lack water and sanitation contributing to the increased incidence of malnutrition and waterborne diseases. School going children who rely on the school feeding programme are exposed to malnutrition and related illnesses. It also contributes to escalated conflicts leading to injury and death on a large scale.

Keywords

Climate Change, Migration, Health, Pastoralists, Kenya

Parental migration and behavioral outcomes of children left behind in Ethiopia

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This study examined the behavioral outcomes of left-behind children (LBC) due to parental migration in Southern Wollo, Ethiopia. A concurrent mixed-method approach was utilized to achieve the study's objectives. A total of 360 children with migrant parents (mother, father, or both) were selected from two woredas in Southern Wollo using a stratified sampling method. Additionally, 360 children living with both parents were selected from the same woredas for comparison. For qualitative data, 12 caregivers, 18 teachers, and 13 LBC were purposely selected. The behavioral outcomes of the children were assessed using the Strength and Difficulty Questionnaire (SDQ). Interviews and focus group discussions were conducted to explore the perceptions of caregivers, teachers, and LBC regarding parental migration and its consequences. The findings revealed a significant mean difference in psychosocial well-being between LBC due to parental migration and children living with both parents ($t(718) = 24.64$, $p < 0.01$).The mean score of the behavioral outcome of LBC as measured by SDQ was significantly higher than children of non-migrating parents. A statistically significant mean difference was also observed between the migration status of parents (the migration of fathers, mother migrants, and both parent migrants) $F= F(2, 357)=19.18$, $P<.01$. The results suggest that a mother migrant and both parents' migrant situation, left behind children experienced behavioral outcomes significantly higher than children whose fathers migrated. Children of migrant mothers and both parent migrants showed nearly similar and higher behavioral difficulties compared to children of father migrants. Furthermore, a significant mean difference was observed among the children left behind and cared for by different caregivers grandparents, mother only, father only, relatives, non-relatives, and children living alone) $F(5,354)=21.64$, $P<.01$. The score of behavioral outcomes of children cared for by mothers and grandparents showed significantly lower than the other groups of caregivers providing care for LBC. Children cared for by mothers and grandparents look more advantaged than the other groups of LBC. The qualitative data also confirmed that parents are migrating overseas due to poverty and the desire to ensure the wellbeing of children and families left behind. The teachers and caregivers showed that LBC experienced isolation, longing, sadness, and lack of motivation in schooling following their parents' migration. Children also reported that even if they understand the reasons for their parents' migration they faced various behavioral, social, and emotional issues. To conclude, compared to children of the non-migrating parent, children of migrating parents showed behavioral problems. To intervene in the problem of migrant families, governmental and non-governmental agencies should play a role in caring for or providing psychosocial and related support for the affected children.

Keywords
Parental migration, Behavioral outcomes, Left behind children

Prevalence of floods and landslides and their impact on human settlements in Elgeyo Marakwet County, Kenya

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Although floods and landslides are often purely natural phenomena, their increasing frequency and magnitude have been triggered by deleterious human activities. These events have become recurrent in sections of Elgeyo Marakwet county, and worsened by steep slopes and deforestation. As a result, lives have been lost, massive amounts of property damaged or destroyed, and daily routines disrupted leading to substantial human suffering and displacement. The goal of this study is to map out flood- and landslide-prone areas with the aim of enhancing disaster preparedness in the rainy seasons. The objectives include: to map out areas affected by these climate-change related disasters, assess the socio-economic and health impacts, that these phenomena are having on communities living in the region, and to suggest policy interventions to address, mitigate and/or adapt to these disasters. Sections affected will be mapped out using geospatial techniques and households selected randomly for data collection. A mixed approach for data collection will be utilized, including guided questionnaires for households, interviewing key informants and focus group discussions. Aerial photography will be collected and processed using remote sensing. Findings will be very beneficial to national and county governments, helping them tobetter manage this seasonal menace hence protecting communities from forced migration and turmoil.

Keywords
Floods, Landslides, Mapping, Land use change, Disaster preparedness

Landscapes of conflict: Analyzing environmental and geophysical impacts in the Lake Kivu region

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Human displacements, particularly those caused by violent conflicts, significantly impact landscapes and ecosystems. These disruptions challenge food security, biodiversity conservation, and traditional land management practices, often leading to increased erosion, loss of fertile soil, sediment transport, and natural disasters. This phenomenon is particularly pronounced in regions experiencing high rainfall intensity, coupled with inadequate land use and agricultural management practices. Understanding the factors behind land degradation and sediment export is crucial for preventing further ecosystem deterioration in conflict-affected areas and safeguarding food security.

To address this problem, we developed an integrated approach using core sampling, sediment fingerprinting, high-resolution sampling, and automated remote sensing to identify hotspots and track conservation efforts. The Lake Kivu region, bordering Rwanda and the Democratic Republic of the Congo, serves as our case study due to its history of prolonged conflict since the 1990s.

Our results indicate an increasing trend in exported sediment over the last decade, particularly in politically unstable areas. More stable regions generally exhibit better conservation practices and robust transport infrastructure, resulting in less erosion and, consequently, more consistent sedimentation rates over time. This research highlights the lasting effects of 'polycrisis' on landscapes and underscores the significant influence of agricultural practices and land (mis)management on sediment export, particularly during high-intensity storm events. Our goal is to target specific areas within conflict-affected regions to mitigate environmental degradation, strengthen food security, address associated challenges, and reduce heightened instability by understanding the primary factors driving land degradation and sediment export.

Keywords

Soil degradation, Conflict-affected areas, High-intensity storm events, Sediment export, Water quality decrease

Loss and damage: Insights from the Ruzizi Plain, Burundi[1]

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The concept of loss and damage (L&D) is broadly understood as the negative impacts of climate change which cannot be mitigated nor adapted to. The concept also refers to an emerging pillar in climate change policymaking, which, as shown by the lengthy trajectory leading up to the foundation of a fund to address L&D in frontline nations, is still a controversial issue, putting to the test the principles of common but differentiated responsibilities and 'polluters pay', enshrined in climate policy since the 1990s. Moreover, there are important challenges to operationalizing the concept in climate policy. These challenges are reflected in debates around attribution, measurability of costs, the inclusion of so called non-economic losses and damages, or the difference between losses and damage resulting from slow onset climate change impacts and those resulting from extreme weather events.

In this contribution, we want to explore some of the challenges to operationalizing policies to address L&D through the case study of Burundi. Irregular rainfall and torrential downpours, combined with the phenomenon of rising levels of Lake Tanganyika, have in the recent past caused yearly floods in communities near the Ruzizi delta and the Tanganyika shore in the communes of Mutimbuzi and Bujumbura. These resulted in loss of lives and damage in terms of habitation, public infrastructure, social service provision, livelihood opportunities and economic activities. Moreover, these climate related disasters come on top of other climate stresses experienced by farming, livestock rearing and fishing communities in this area (and in Burundi at large). For example, between September 2023 and April 2024, on the entire Burundian territory, more than a hundred thousand people were internally displaced, more than twenty thousand houses destroyed, two hundred and nine classrooms were destroyed, etc. And in the zone of our research alone, in the same period, more than fifteen thousand habitants were forced to leave their homes, eight persons were killed and the bulk of the communities economic, social and spiritual infrastructure was destroyed (six of eleven classes, four of six health center and the only existing hospital, two of the four existing small markets , ten of the fifteen public taps, seventy percent of agricultural field, forty of sixty-four churches, etc.).

In response to these recurring floods and related consequences, the relocation of communities is foregrounded as a solution by the national government. We will present findings from an ongoing policy supporting research project which builds on perspectives from various vulnerable groups within affected communities to 1) map L&D and 2) assess the policies and interventions which are set up in response to these impacts. Furthermore, we will reflect on what these impacts mean for building solid and climate just policy responses to L&D.

Keywords
Climate policy, Loss and Damage, Burundi, Relocation, Climate justice

1 A case study in the framework of the VLIR/ARES/DGD Policy Supporting Programme on Climate change, Environment and Agroecology

Assessing the competitiveness of green charcoal energy as an alternative source of cooking fuel in Uganda

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Wood charcoal and firewood are the primary sources of energy for cooking fuel in most Sub Saharan African countries, including Uganda. This leads to unsustainable forest use and to rapid deforestation. Green charcoal (made out of agricultural residues that are carbonized, reduced in char powder, and glued into briquettes using a binder such as sugar molasse, cassava flour or clay), is a promising and sustainable alternative to wood charcoal and firewood. It is considered as renewable energy because the carbon emissions released by the combustion of green charcoal are immediately captured again in the next agricultural cycle. If practiced on a large scale, this has the potential to replace wood charcoal and stop deforestation. However, uptake of green charcoal for cooking remains low in Uganda despite the introduction of the technology 15 years ago. The present paper reviews the barriers to the production and commercialization of green charcoal.

The paper is based on the study of 13 production sites, recording the raw materials used, the production techniques, the quantity produced, the frequency of production, and the business model. Observations were made on each site, and interviews were conducted with the managers of the facilities, and with one or two employees in the larger facilities. We also interviewed project administrators from four funding agencies interested in financing green charcoal production.

The results of our research identify the main barriers as follows: 1) The price of green charcoal is not competitive (it is more labor and capital intensive than wood charcoal). 2) There is a problem of quality control and labeling (one finds a wide variety of green charcoal, with very different performances). 3) The carbonization of agricultural crop residues is a major bottleneck in green char production. Most briquettes are produced with wood charcoal dust or powder, which is a by-product of wood charcoal. As such, they increase the efficiency of wood charcoal but do not yet replace it. 4) There is almost no marketing chain for the product (most green charcoal is sold directly from producer to consumer without any middleman). 5) The financing institutions are reluctant to lend money for this kind of activity. 6) Storage can be challenging, as briquettes can dissolve due to moisture.

In conclusion, a number of important barriers need to be overcome before green charcoal can become a serious alternative to wood charcoal.

Keywords
Briquettes, Competitiveness, Deforestation, Green charcoal, Renewable energy

The effect of climate change induced flooding in Durban on its residents

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Climate change is a global challenge, and South Africa is not immune. It has emerged as a realistic threat to livelihoods, with effects of long-term temperature shifts and weather patterns that are unevenly distributed across the globe. These shifts can be natural due to changes in the solar activity, significant volcanic eruptions, but can also be human-induced. The primary cause of climate change is the burning of fossil fuels such as coal, oil and gas, and its impacts are far-reaching, including intense droughts leading to water scarcity and severe fires, rising sea levels causing flooding that threatens coastal communities, melting polar ice contributing to sea level rises, catastrophic storms, and declining biodiversity.

Climate change is a societal issue in South Africa, and the outcome effect of climate change events is severe. In a stark illustration of this, one of the eastern Provinces, Durban in Kwazulu-Natal, experienced a catastrophic natural disaster in April 2022. Floods and mudslides overflowed the river banks, affecting over 40,000 people and causing significant damage to infrastructure and loss of livelihoods. The human toll was devastating, with over 440 fatalities. This event, which forced people to migrate for safety due to flooding resulting from sea level rises, underscores the urgent need for action on climate change. These conditions not only endanger the health of the victims but also put them in a vulnerable situation. Thus, this Durban flooding is intrinsically linked to the United Nations Sustainable Development Goals agenda number 13 on climate change.

While addressing the adverse effects of flood events in Durban, the victims faced different challenges. For example, over 13,000 homes were damaged, 600 schools temporarily closed, there was a shortage of drinking water, and many roads became impassable. Consequently, and in spite of the temporary houses and funds allocated by the South African government, most victims are still homeless; some are living in shacks while some have migrated to other provinces. The incident left the victims traumatised, which contributed to poor mental health challenges such as depression, anxiety and grief. In order to address the ongoing climate change effect on the victims of the April 2022 flood in Durban, this study aims to examine how to mitigate the impact of the flood on the victims, the emergency relief and humanitarian assistance and the psychological effect on them.

In this study, the researcher will adopt an exploratory design. The proposed data collection tool will be a semi-structured interview that identifies and engages the victims, relief assistance, and health care in Durban. The findings will form the mitigation and intervention strategy to support the affected Durban victims.

Keywords
Climate change, Societal ills, Flood, Migration, Mitigation

Natural and anthropogenic influences on groundwater resources of Mekelle city, North Ethiopia

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Mekelle City, the capital of the Tigray region in northern Ethiopia, is known for its thriving local and international Laboratory industries. A semi-arid climate and undulating topography characterize the area. Geologically, it is a young sedimentary basin surrounded by old metamorphic rocks, giving it the name Mekelle outlier. This basin is one of the five major basins in Ethiopia and has been intruded by a later dolerite intrusion, resulting in a complex structural and hydrogeological setting. This research aims to map the structural geological orientations that directly influence water resource percolation and identify the spatial distribution of industries that could impact groundwater resources. Satellite images and fieldwork have been utilized for surface geological and structural mapping to achieve these goals. Subsurface geological and hydrogeological formations have been assessed through resistivity geophysical surveys, which have generated five profiles from 30 VES (vertical electrical sounding) points. These profiles have been interpreted using lithological data from well logs. Additionally, the physico-chemical characteristics of water samples have been evaluated. The area consists of limestone, shale, and limestone-shale-marl intercalation rock types. The Mekelle regional fault and most extensional fractures align in the NW to SE direction, while the Endayesus scissor fault and most master joints align in the NE to SW direction. These structures act as conduits for surface water percolation into the underground. In areas with industries and agricultural activities, these structures harm groundwater quality due to pollution from surface water percolation. The presence of a gypsum layer, which is a major source of sulfate, also has a direct impact on groundwater quality. Laboratory analysis of water samples showed the following concentration ranges for major cations and anions: calcium (1.06 mg/l to 425 mg/l), magnesium (0.56 mg/l to 45 mg/l), sodium (0.18 mg/l to 96 mg/l), bicarbonate (3.83 mg/l to 486 mg/l), sulfate (1.78 mg/l to 981 mg/l), and chloride (0.16 mg/l to 92 mg/l). A Piper diagram revealed the presence of calcium bicarbonate, mixed type, and calcium sulfate hydrochemical facies. The gypsum layer, excessive fertilizer use in agriculture, and industrial effluents are among the main factors influencing groundwater quality. There are a total of 36 large industries in the area that have groundwater boreholes, consuming 11,107,914 m^3/year of groundwater. The largest users of groundwater are Velocity Textile, Desta alcohol, Moha soft drink factories, and Messebo Cement Factory. Messebo Cement Factory, in particular, contributes to nitrate pollution in the groundwater due to its use of ammonium nitrate as an explosive. In conclusion, the geological structures and the presence of the gypsum layer within the aquifer are the primary natural factors influencing groundwater quality in Mekelle City. Agricultural activities and industries are the main anthropogenic factors affecting groundwater quality in the area.

Keywords
Mekelle, Basin, Anthropogenic, Gypsum layer, Industries

Embracing interdisciplinary and transdisciplinary approaches to address climate change. Case study: Kairouan region Tunisia

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The Kairouan region in Tunisia exemplifies the urgent need for coordinated climate strategies due to significant decreases in precipitation and increases in temperature. Projections suggest a decrease in precipitation of 4 to 22% and a temperature increase of 1.2 to 3.8°C by 2050 (USAID). Kairouan, one of the hottest places on Earth, recorded a temperature of 49°C on July 24, 2023, marking the highest temperature recorded there since measurements began (El Dorado Weather). Consequently, both fresh and mineral water availability are projected to decline, with conventional water resources estimated to decrease by approximately 28% by 2030 (USAID, 2018).

In the first months of 2023, worsening conditions led the government and the national water distributor, Sonede, to implement water restrictions in April (Cordall 2023; Peoples Dispatch 2023). Restrictions included limited access to water between 9 P.M. and 4 A.M. and total bans on using potable water for watering lawns, cleaning streets, washing cars, or for farmland irrigation. This lack of rainfall has heightened interest in groundwater, which in turn has led to issues such as increased groundwater salinity. Interviews with local farmers and water resource managers revealed reduced crop yields, increased irrigation costs, conflicts over water allocation, and exacerbated rural-urban migration.

Our research employed a mixed-methods approach, combining quantitative climate data analysis with qualitative field interviews to assess the vulnerabilities and adaptive capacities of local communities. We analyzed historical climate data from meteorological stations in Kairouan to identify trends in temperature and precipitation. Additionally, we conducted semi-structured interviews with local farmers and water resource managers. We also performed a structural study using geophysical methods, including gravity and TDEM (Transient Electromagnetic) surveys, to understand the structural setting of the area and delineate the aquifer architecture.

Our analysis confirmed significant trends in recent decades in terms of increased warming and decreases in precipitation . Projections indicate more frequent and intense heatwaves, further exacerbating water scarcity. Interviews revealed severe socio-economic impacts, including reduced crop yields and increased irrigation costs. The structural study identified key zones within the aquifer where water is more likely to be present, providing crucial information for effective water management. However, the increased reliance on groundwater has led to heightened salinity levels, posing additional challenges.

Our research highlights the critical need for interdisciplinary and transdisciplinary approaches to address climate change impacts in vulnerable regions such as Kairouan. By combining climate science, hydrological modeling, and socio-economic analysis, we provide a comprehensive understanding of the challenges and opportunities for adaptation. Effective climate strategies must integrate scientific research with local knowledge and stakeholder engagement to develop sustainable and equitable solutions.

Keywords

Climate Change, Interdisciplinary Collaboration, Policy Reform, Climate Ethics, Tunisia

West African fishing communities' mobility response to climate anomalies

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This paper aims to empirically estimate the impact of environmental change on the migration patterns of fishing communities in West Africa. Coastal countries in West Africa are highly vulnerable to environmental changes such as coastal erosion, soil salinization, land degradation, and temperature and rainfall shocks.

A large body of research has examined the impacts of climate change on migration flows through food security shocks, considering migration as a strategy for adapting to climate stress in vulnerable countries. Martínez Flores et al. (2021) show how West African populations rely on migration to adjust to the negative impacts of climate change. Faced with the seasonality of the climate, which significantly impacts agricultural outcomes, these populations often migrate to mitigate household food insecurity and generate alternative income. This behavior is deeply rooted in the region's long history of seasonal migration patterns, influenced by rainfall and agricultural cycles (Land et al., 2018).

This study area tends to emphasize agricultural yield production shocks as the primary transmission channel, but often overlook other vital aspects of food security that influence livelihoods and migration decisions. However, environmental changes impact populations differently based on their socio-economic status and dependence on natural resources (Gemenne et al., 2017). Research on the direct and indirect impacts of climate change on livestock production – encompassing animal productivity, health, and the development of capture fisheries and aquaculture – remains limited, particularly in the context of the physical and chemical changes affecting aquatic environments. This gap highlights the need to investigate how climate anomalies influence migration patterns in communities that rely heavily on fishing and other non-agricultural activities, offering a broader understanding of the diverse ways environmental shifts drive migration.

This study aims to address this knowledge gap by focusing on the responses of natural marine resource users, particularly fishing communities, to environmental changes in West African coastal countries, using an empirically designed strategy. Furthermore, we aim to draw migration routes and cycles of these communities across West African coastal countries. To achieve this, we utilize a panel data approach that combines spatially granular data from the IOM Displacement Tracking Matrix with NASA climate data, alongside spatial and time-fixed effects from living standards measurement surveys of West African countries.

Keywords

Climate change, Migration, West Africa, Fishing communities

Effet de la vulnérabilité du système sanitaire au changement climatique sur la migration: une évidence des économies de l'Afrique Subsaharienne

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La vulnérabilité du secteur de la santé au changement climatique joue-t-elle un rôle sur la migration dans les pays de l'Afrique Subsaharienne ? Des travaux récents soutiennent l'évidence selon laquelle les crises sanitaires, la détérioration de l'appareil sanitaire, et les risques climatiques contraignent certaines populations à la migration. Pour ce faire, ce papier analyse l'effet de la vulnérabilité du système sanitaire au changement climatique sur la migration dans les pays d'Afrique subsaharienne (ASS). Pour atteindre cet objectif, cet article utilise la méthode des moments généralisée (GMM) du système à deux étages. Des données de panel de 45 pays d'ASS sur la période 2004-2021 sont utilisées à partir de deux sources, à savoir celle relative aux l'indicateurs du développement mondial (WDI) et Notre-Dame Global Adaptation Index (ND-GAIN, 2024) sur une période allant de 2004-2021. Les résultats révèlent, d'une part, que la vulnérabilité du secteur de la santé au changement climatique entraîne une augmentation significative de la migration d'environ 2% en moyenne dans la majorité des économies de l'Afrique Subsaharienne (ASS). Pour réduire la migration via la résilience du système sanitaire face au changement climatique, les décideurs politiques devront peut-être élargir les assurances maladie universelles aux couches les plus vulnérables généralement concentrés dans les milieux ruraux des pays en développement.

Mots clés
Vulnérabilité climatique, Système sanitaire, Migration, GMM, Afrique-Subsaharienne

A CLEAR vision about the climate-migration-health nexus: Introducing climate research at the UGent Department of Geography

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In this paper, we introduce current research by the newly established Climate and Earth (CLEAR) Lab at the Department of Geography, Ghent University. The CLEAR Lab embodies a dynamic and forward-thinking team focused on understanding and addressing the impacts of climate change on tropical Africa. The research agenda is rooted in a diverse approach that integrates advanced climate modeling and empirical observations to inform and enhance societal resilience.

The CLEAR Lab's research is organized into three pivotal areas:

1. **Regional Climate Modelling and Rainfall Extremes:** Utilizing and enhancing the regional climate model ALARO, co-developed at the Royal Meteorological Institute of Belgium, our team strives to unravel the complexities of rainfall dynamics in tropical Africa. This includes assessing the impacts of land-use change, biomass burning and global warming on rainfall patterns. These modelling efforts are complemented by innovative observational techniques, such as opportunistic sensing using antennas from the mobile phone network in Rwanda and Uganda.
2. **Geohazards and the Climate Impacts on Soils:** Through the use of high-resolution climate and erosion models and empirical field campaigns, our focus extends to the repercussions of climate variability on land degradation, soil erosion, and geohazards (e.g. flash flooding and landslides), with current and planned projects centering on Ethiopia and Rwanda. By contributing to the development of early warning systems, we are committed to mitigating these risks and safeguarding vulnerable communities.
3. **Nature-Based Solutions for Environmental Stability:** Investigating the efficacy of nature-based approaches to counteract land degradation and prevent geohazards forms the third pillar of our research. By focusing on sustainable, future-proof solutions, we aim to foster environmental resilience and promote long-term ecological balance in affected regions.

We will present our current research from across Africa, through a selection of ongoing case studies to stimulate the debate on Climate-Migration-Health topics. As we introduce the CLEAR Lab, we invite fellow researchers, practitioners, and stakeholders to collaborate and engage with our team. Our goal is to catalyze significant advancements in climate research and its applications, ensuring that knowledge translates into practical, impactful strategies for communities across tropical Africa.

Keywords

Climate and Earth, Climate modelling, Rainfall, Geohazards, Nature-based solutions

One nexus in service of another? The interplay between the climate-migration-health nexus and the planetary health, climate, and care ethics nexus

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The climate-migration-health nexus contributes to the vulnerability of elderly people. Climate change has many implications of which food security, malnutrition, trauma caused by extreme weather conditions and skin cancer are well documented in the literature. The elderly are a vulnerable community that very often has no other choice but to stay where they are and face the consequences.

Civil and cross-border wars are destructive and contribute to uprooting elderly people. The World Health Organization (WHO) rightfully classifies elderly people and refugees as vulnerable communities. Migration also contributes to a sense of loss and the emergence of new challenges.

It is well-known that social determinants lead to health inequalities and disparities. The latest WHO report on this matter suggests that although there has been a slight improvement in tackling the issue of social determinants, a permanent solution to the problem is not yet in sight.

When the nexus between climate-migration-health is considered, one way of dealing with the various challenges is to understand this nexus from a planetary health perspective. Planetary health is balancing the health of people within the natural systems in which they live and work (Horton & Lo, 2015). The relationship between "human well-being" and the "earth's well-being" demands an alignment based on "no harm", as the first dictum of ethics. Redvers *et al.* (2024) rightfully remarks that "... the health of humans cannot be disconnected from the health of the planet." This is particularly challenging in the Global South as exploitation of natural resources is often the result of climate change and human activity such as migration. When a care ethics approach is added to balancing human and planetary well-being two opportunities immediately come to the fore: *relationship-building* and *aiming for the desired outcome*, although this is not attainable at first. The point is that global/regional challenges depart from changing behaviours and views. When the proverbial storm hits, multiple "nexuses" are required to address these issues.

This paper will present the planetary health-climate ethics-care ethics nexus as a solution to the climate-migration-health nexus. The climate-migration-health nexus will be examined from relevant WHO Reports and Strategies and Sustainable Development Reports and views from the South African Development (SADC) community within the Global South. The discussion on the movement towards planetary health will reveal why national and global health strategies are not sufficient to address climate change and that a new climate-based ethics should be developed for the Global South. Care ethics is useful as it focuses on joint responsibilities and moving gradually to the ideal position.

Keywords

Global South, World Health Organization, care ethics, planetary health, vulnerable communities

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Rethinking the politics of knowledge production for sustainable futures and healing from coloniality of nature: An afrocentric perspective

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Contemporary challenges such as climate change and the complexities associated with human migration patterns in Africa necessitate a thorough understanding of their historical contexts. These issues have not emerged in isolation but are deeply embedded within historical trajectories. This paper aims to contextualize the current ecological crisis, particularly climate change, within the framework of modernity as a colonial ideology that has adversely affected both human societies and our relationship with the natural environment in the African context. Central to this analysis is the examination of the motivations behind human theorization concerning existence and the ecological contexts in which humans reside.

I argue that the "coloniality of nature" is a significant consequence of extractive knowledge systems that were perpetuated during the colonial periods following the rise of modern Europe in 1492. The epistemological frameworks and intellectual cultures that emerged from colonial voyages of discovery have fostered a belief in humanity's mandate to dominate nature for survival. This ideology has led to a profound disjunction between human life and the natural world. It neglects the fundamental reality that human existence is intrinsically linked to the health of the environment, highlighting the necessity for humanity to operate within the ecological limits imposed by nature.

To address and dismantle the Eurocentrically inspired perspective of the coloniality of nature, I propose the adoption of Afrocentric perspectives, specifically the theory of Afrocentricity. By prioritizing Afrocentricity as a theoretical framework, African societies can engage more authentically in the pursuit of ecological justice. This approach challenges dominant knowledge paradigms rooted in Eurocentrism and fosters a transformative understanding of humanity's place within the natural world. It promotes sustainable futures that acknowledge the interconnectedness of all life forms.

Afrocentricity, as articulated by Professor Molefi Kete Asante, underscores the importance of centering African experiences and perspectives in the pursuit of knowledge and understanding. This framework challenges the historically dominant Eurocentric narratives that have marginalized African epistemologies. By placing African history, culture, and experiences at the forefront of our analysis, we can develop more comprehensive and contextually relevant approaches to contemporary issues such as climate change and human migration.

Applying Afrocentric perspectives to ecological justice highlights the profound interconnections between humans and the natural environment, as reflected in traditional African worldviews. These perspectives offer valuable insights into sustainable living and environmental stewardship, advocating for harmony and balance rather than exploitation and domination. Integrating these principles into our strategies for ecological justice will not only enhance their effectiveness but also ensure they are just and equitable.

In conclusion, addressing contemporary dilemmas such as climate change and human migration necessitates a decolonial approach that recognizes and confronts the historical and ongoing impacts of coloniality. Afrocentricity provides a robust framework for this endeavor, offering pathways to ecological justice grounded in the experiences, knowledge, and values of African people. Through this lens, we can aspire towards a future that honors the interconnectedness of all life forms and promotes sustainable and equitable solutions to the ecological challenges of the 21st century.

Keywords
Coloniality, Climate change, Social justice, Epistemology, Afrocentricity

Gendering climate-related security risks in Eastern DRC: social cohesion, embodied knowledges and resilience practices

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Last year, catastrophic floods and landslides in Kalehe territory, South Kivu, left almost 500 people dead and at least 15,000 people homeless and displaced in an area where armed conflict is prevalent. Recent research has studied the implications of natural disasters and climate-related security risks for sustainable peace (Ide et al., 2020; Krampe et al., 2024). However, there is little research on how these implications affect the choices of women (and men) in these communities, and on how gender power dynamics impact and shape personal, political and economic responses. This article draws on feminist political ecology alongside critical studies in peace and conflict, to examine how displaced and host communities in Kalehe experience climate-related security risks, and how they develop resilient practices to prevent conflict. Through focus groups, body-mapping and mental mapping with displaced and host communities conducted in February 2024 in Kalehe, we show how the floods are experienced not as a single event, but as a continuation of crises at household, local and regional levels, with practical gendered consequences in terms of livelihood deterioration, mobility patterns and elite exploitation. The article offers original findings on social cohesion by focusing on tensions and conflicting views among women and men in displaced and host communities, with particular attention paid to about the question of how life after a disaster, such as the floods, should be organised and which authorities are responsible for providing meaningful solutions. These findings open new possibilities for interventions to sustain peace, including envisioning more-than-human climate futures (Neimanis et al., 2015) and exploring different relationships between climate change, peace and democracy (Machin, 2022).

Keywords
Gender, DRC, Feminist political ecology, Climate change, Participatory action research

Climate change inducing female migration: An empirical study of the Tunisian case

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Climate change is evident, and the changes it brings about are real. In large parts of the globe, people are not adapting to the changes happening and must move, leading to a new sort of migration: climate-induced migration, a form of forced migration.

Natural disasters are not gender neutral – for example Tunisian women have been impacted by climate change more than their male peers. Moreover, as the climate further deteriorates, related migration will become more prominent. Thus far, the imposed or copied solutions to the problem have proven inefficient. However, more open borders policies and a less "paranoid" narratives about migration in the Global North could be an adequate solution for (forced) climate migration.

This paper analyzes the linkage between women's empowerment and effective global climate action. To do so, we follow a critical approach to show that more gender equality means less climate-induced migration from the Global South. This ethnographic study is based on a mixed methodology employing semi-structured interviews with ten Tunisian female agriculture workers. The analysis has two phases: (1) discourse analyses of interviews with migrant women (2) qualitative analyses of the different impacts of climate change on Tunisian women using second source data. In the first part, we briefly overview women's migration in Tunisia, the gender inequality situation, and the climate change impact.

The second part is dedicated to our literature review and the ongoing debate on climate migration as a new sort of forced migration. Would climate change apply to asylum seekers? If not, why not? The third part is dedicated to discussing and analyzing the results of our fieldwork, while the concluding section will present a number of major inputs and recommendations.

Keywords
Climate change, Female 'migration', Tunisia, Women empowerment, Gender equality

Suicidal ideation and suicidal behaviours: Their risk factors, explanatory models and coping strategies among refugees in humanitarian settings in Northern Uganda

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Background: Globally, suicide is a leading cause of death, responsible for an estimated 700,000 deaths each year. The occurrence of suicides is not necessarily spontaneous, but rather occurs following a process typically denoted by suicide ideations and attempts. Thus, it is suicide ideations that are primarily incident, and if not addressed effectively, they transition into suicide attempts. Suicide attempts, if not coped with effectively, can also transition into actual suicide, implying that the prevention of suicide requires that suicide ideations and hence attempts are prevented. However, such efforts also require that in case suicide ideations and attempts become incident, the victims adopt adaptive coping strategies to deter suicides. This is an even more pressing issue among refugee communities, given their higher propensity to experience severe distress, mental health disorders and specifically, suicides. Uganda currently hosts nearly 2 million refugees, the largest population in Africa, the majority of whom are of South Sudanese origin. Refugees in Uganda have been reported to exhibit suicide rates higher than host communities. Between January and August 2023, there were 170 cases of attempted suicide, 35 deaths by suicide, with more than half of these occurring in refugee settlements in Northern Uganda. The most recent Uganda suicide dashboard showed that there was a total of 153 attempted suicide cases recorded among refugees in Uganda, more than 70% of which were among refugees settled in the Northern region of Uganda.

Objective: This study will assess the risk factors of suicide ideation and suicide attempt, their explanatory models and coping strategies adopted following their incidence, among refugees in Northern Uganda

Method: The study will be organized into three work packages, the first of which will adopt a mixed method case-control study design, with the second and third adopting a mixed method design. The study population will be refugees who will have been settled in any refugee settlement within Northern Uganda, for at least three months. The settlements will be stratified by zone, and then villages randomly sampled in each, followed by the systematic random sampling of households. Refugees will be purposively sampled and engage in structured interviews and in-depth interviews. Structured questionnaires combined with the Beck Scale of Suicide ideation, the coping strategy inventory and the Mental Distress Explanatory Model Questionnaire will be used to capture data. In-depth interviews will be used to collect qualitative data, that will be analyzed thematically. Quantitative data will be analyzed in SPSS using frequency distributions, principal component analysis, and multivariable analysis.

Keywords

Suicide, Refugee, Bereavement, Recovery, Coping

Light-demanding canopy tree species are not indicators of past human disturbance in the Yangambi rainforest (Democratic Republic of the Congo)

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Context. Central African rainforests are characterized by an abundance of light-demanding tree species, which are aggregated in the canopy but underrepresented in the understorey. A popular explanation is that these forests are recovering from slash-and-burn farming activities preceding relocation of settlements during the colonial era. In a previous paper, using an approach that focused on the spatial distribution of the most abundant light demanders, we showed that the abundance of light-demanding tree species in the Yangambi Biosphere Reserve (central Congo basin) cannot be unambiguously attributed to past human disturbances (Luambua et al., 2021).

Aims. As the former study was inconclusive, the present study aims to further test the assumptions behind the 'recovery from human disturbance hypothesis', by considering all species in the forest of Yangambi. We addressed four specific research questions: (i) Do light demanders occur in large 'pockets' occupying large areas of forest? (ii) Are light demanders abundant? (iii) Do they exhibit a regeneration deficit? (iv) Is species composition in pockets of light demanders different from the surrounding forests?

Methods. We identified location and size of pockets of light demanders in several transects cumulating to 50 km. We installed permanent inventory plots within and outside these pockets and calculated diameter and age distributions of light demanders within each pocket. We assessed whether pockets of light demanders are different from surrounding forests, using plot clustering analysis.

Results. Our results showed that light demanders were aggregated, but the pockets were small, scarce and represent a minor fraction of the total forest area. Furthermore, light demanders were not abundant, even in pockets where they were aggregated. Their age distributions did not show a regeneration deficit. Finally, species composition in pockets of light-demanders did not differ substantially from surrounding forests where they were scarce or absent.

Conclusions. We conclude that light-demanding canopy species do not indicate past human disturbance in Yangambi and that they are an intrinsic component of old-growth forests rather than a transient feature of successional forests. Our insights show that the large carbon sink observed in mature forests in this region, is not driven by successional forest dynamics.

Keywords

Central African Rainforest, Forest Composition, Forest History, Recovery from Human Disturbance Hypothesis, Yangambi Biosphere Reserve

Reference

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Regards croisés sur la gouvernance climatique dans la Région des Grands Lacs: Défis, perspectives et approche pédagogique

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Les crises émergentes à l'échelle mondiale font en sorte que l'urgence climatique soit une préoccupation majeure, requérant une mobilisation sans précédent des instances internationales, continentales et sous régionales. En Afrique de l'Est en particulier, de la somalie au Kenya, en passant par Rwanda et Burundi y compris la partie orientale de la RDC, les dangers s'aggravent. Malgré les alertes onusiennes sur les menaces socio-économiques, le front commun des Etats vulnérables face au problème reste un défi.

Dans la région des grands lacs, les deux villes côtières du lac Tanganyika dont la ville d'Uvira en RDC et Bujumbura sont confrontées à des phénomènes climatiques extrêmes tels que la température élevée et des inondations dévastatrices. D'autres désastres climatiques comme les glissements des terrains et la destruction des infrastructures menacent constamment la vie humaine. De Gatumba à Bujumbura, et même dans la ville d'Uvira, où la montée des eaux du lac Tanganyika s'aggrave progressivement depuis dix ans, l'économie locale basée sur l'industrie hôtelière, les petits commerces transfrontaliers subissent des pertes considérables. Par ailleurs, la crue des eaux montante du lac en jonction à celle de la rivière Niangara, menace la fermeture de la frontière, exacerbant les dangers sanitaires pour les habitants des zones inondées, en particulier les petits commerçants femmes et hommes contraints de naviguer dans les eaux montantes. Au-delà de l'entrave du quotidien humain, ces phénomènes menacent également l'écosystème côtier, risquant de causer d'autres désagréments à l'avenir.

Cependant, la faiblesse des Etats dans la gestion des catastrophes en solo est évidente. Cela amène la plupart des réfugiés climatique à changer leur récit et à se présenter comme des réfugiés de guerre, étant donné que la rhétorique de fuir les catastrophes n'est pas suffisamment comprise, comme l'affirment certaines familles d'Uvira réfugiées à Bujumbura.

Pour autant, comment espérer un nouvel élan dans un fonctionnement d'autosuffisance, alors que les efforts sont concentrés sur les alliances politico-sécuritaires ? Ces constats conduisent à l'objectif de cette étude : étudier les défis liés à l'absence d'une politique climatique globale dans les pays de la sous-région, en prenant comme cas d'étude le territoire congolais adjacent à la république du Burundi et la ville de Bujumbura, en passant par la vallée de Gatumba. En premier lieu, il s'agit donc de mettre en exergue les conséquences sanitaires et socio-économiques, liées aux défis de l'absence de politiques des gestions adaptées et de leadership proactif au niveau local, bilatéral et régional. En second lieu nous analyserons la rupture éducative face aux questions climatiques et les comportements post-catastrophiques.

S'immisçant dans le débat, la question principale est de savoir comment l'absence de politiques climatiques bilatérales et multilatérales entre le Congo et le Burundi affecte la gestion des impacts du changement climatique en général et quelles mesures peuvent être prises pour améliorer la résilience locale et régionale face à ces défis.

Mots clés
Regards Croisés, Gouvernance Climatique, Défis, Perspectives, Approche Pédagogique

Thwarted aspirations: the impact of involuntary immobility on subjective well-being among young adults in Asia and Africa

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As young adults face challenges and opportunities in their lives, some see migrating to another country as their best next step. A sizeable portion of the global young adult population would like to permanently move to another country, especially in Africa where more than half of the population in this age range would prefer to migrate internationally. Yet, a significant gap persists between the desire to move and its tangible fulfillment, giving rise to a phenomenon termed Involuntary Immobility. In turn, Involuntary immobility can lead to feelings of disillusionment or a sense of being stuck, which may negatively impact one's subjective well-being.

The aim of this study is to estimate the impact of involuntary immobility on subjective well-being. To do so, we analysed the MIGNEX project survey data, encompassing over 13,000 opinions of young adults from 25 communities across Asia and Africa. To assess the potentially negative correlation between involuntary immobility and subjective well-being, several forms of regressions including other determinants of subjective well-being and demographic characteristics were run. Due to the cofounding nature of the determinants of involuntary immobility and subjective well-being we relied on Propensity Score Matching to address this issue by creating a matched sample in which the distribution of confounders is balanced between the treated (those that are observed to be involuntary immobile) and the control group. Involuntary immobility is operationalized in three different ways: first under consideration are those that have resolute migration aspirations but are temporarily involuntary immobile as they have not yet fulfilled their aspirations. Secondly, we examine those who have declared having prepared to migrate but do not ultimately do so. Finally, are those respondents that declared having experienced a failed migration attempt. Subjective well-being is assessed using the life satisfaction scale (SWLS) from the World Values Survey (WVS).

While initial findings indicate a negative correlation between involuntary immobility and subjective well-being, the picture is more nuanced depending on the form of involuntary immobility used for the analysis and each community of study. This research highlights the potential psychological and emotional toll of unfulfilled migration aspirations and the need for policies that address the barriers to migration and support individuals' well-being in their communities.

Keywords

Involuntary Immobility, Subjective Well-being, Migration Aspirations, Quantitative Analysis, Propensity Score Matching

Migrants' right to health in Morocco: will and reality

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Morocco's geographical location places it at the crossroads of migratory flows, particularly from south to north. In this respect, the country has ratified international human rights instruments and de facto ratified migrants' rights. However, despite this commitment, many observers criticize Morocco's failure to respect migrants' fundamental rights, particularly with regard to the right to health. The aim of this study is to understand the conditions established by the Moroccan state to organize migrants' access to health services. The information gathered for the presentation of this subject points to a national strategy that takes into account the country's history, traditions and attachment to the exercise of its sovereignty. In addition to this strategy, there are international legal rules which, in principle, go beyond national references. Morocco has made a commitment to the IOM and WHO to bring its own texts into line with those of international law. In this context, we would point out that the design of health-related legislation should be based first and foremost on a scientific interpretation of human nature, and that the law of sovereignty, although limiting the right to health, should remain the rule for legislating on the internal affairs of States. Our discussion will therefore focus on the new provisions for reforming Morocco's health policy. These reforms are deemed necessary to facilitate migrants' access to health services, but insufficient in terms of international law and human rights in particular. Indeed, a simple show of solidarity will have no long-term effect on the very difficult conditions that migrants experience on a daily basis. For example, the IOM recommends preventive health measures during travel or when detaining migrants, whereas Morocco seems to be opting for a method that combines firmness and humanity.

Keywords
Migration, Healthcare, IOM, Governance, Human rights

The UGent Congo Basin forest Centre of Excellence: Integrated ecosystem research in the heart of the Congo basin

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The Congo Basin is home to the world's second-largest tropical forest. However, due to a lack of comprehensive research and in situ observations, our understanding of the forest area's climate is limited, impeding accurate climate change predictions. To address this gap, Ghent University established the UG-CBC (Congo Basin Centre of Excellence) and is currently playing a leading role in ecosystem research in this region. This centre consolidates expertise on the Congo Basin and the forests of the DRC, focusing on field-based ecological and biogeochemical research in pristine forests, secondary forests, and sustainable agriculture through permanent forest inventory plots, eddy covariance and atmospheric measurements, modelling, and remote sensing. Central to several of the research sites lies the CongoFlux site, located in the Yangambi UNESCO biosphere reserve (0°48'52.0 N, 24°30'08.9" E). This site features the region's first Eddy Covariance (EC) tower, accompanied by the region's first wood biology laboratory. The tower is part of the ICOS network, which ensures high-quality data on land-atmosphere exchanges of GHGs such as CO_2, N_2O, CH_4, and H_2O. Additional measurements at the site enhance our understanding of the tropical forest ecosystem, including assessments of O_3 and black carbon, soil greenhouse gas exchange, vegetation photosynthesis and water use efficiency, lateral carbon loss, xylogenesis, woody decay rates, and ancillary data collection from permanent plots. These efforts collectively create a rich data hub within the Congo Basin. By addressing this significant research void, the initiative aims to pave the way for better understanding of these crucial forest ecosystems.

Keywords

Congo Basin, Tropical forest, Flux tower, Biogeochemical cycles, Plant ecology

Perceptions of the effects of heat exposure on healthcare worker well-being, performance, and quality of care, in two healthcare facilities in Tshwane, South Africa

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Introduction: Heatwaves have increased in duration, frequency, and intensity, posing a growing threat to vulnerable populations, especially in low- and middle-income countries. Healthcare workers (HCWs) are vulnerable to heat because of long working hours and less-than-ideal working conditions. With heat exposure, HCW's physical and emotional coping capacities may become strained, potentially leading to poor work performance, adverse health outcomes and poor quality of care (QoC). Protecting HCWs against heat related challenges in work environments is crucial to building climate-resilient health systems. We assessed HCW's perceptions of heat in the health facility and the effect of heat on their wellbeing, performance and QoC.

Methods: Ethnographic observations were conducted from November to December 2023 (hot season), at the antenatal, post-natal, labour and neonatal wards at two health facilities in Tshwane district, South Africa. Trained research nurses used an open-ended observation guide to manually take fieldnotes on HCWs' interactions, work environment, signs of stress, quality of care and heat coping behaviour. In addition, self-administered survey questionnaires were completed by HCWs in the hot season, focussed on HCW's wellbeing (WHO-5), perceived heat stress, and thermal comfort. Participants' weight, height and urine specimens were collected towards the end of their shift on the interview day. Urine specific gravity (USG) (biomedical marker for hydration status) > 1.015 was used to determine dehydration. Informed consent was obtained from all participants.

Results: Forty ethnographic observations sessions were conducted over 25 days, totalling 157 hours. Poor ventilation, inconsistently implemented air conditioning, poorly maintained water coolers, and a lack of fully functional fans led to observed heat-related fatigue, stress, and exhaustion among HCWs. HCWs coped by spending time in front of fans (where functional) and using personal hand-held fans, seeking cooler indoor areas, stepping outside for fresh air, and turning off lights. Despite the impact of heat, HCWs made efforts to maintain a supportive atmosphere for pregnant women and new mothers but also shared frustrations about the hot working environment. Eighty female HCWs, aged 20-64, participated in the survey (65% clinical staff). Working conditions were described as hot or very hot (58%), with light to no air movement (53%). On the hottest day in the past week, HCWs reported getting at least very thirsty (50%), being so tired they wanted to take a break (24%), and severe sweating (21%). Two thirds (66%) of HCWs were dehydrated towards the end of their shift. The mean WHO-5 wellbeing screening score was 60.4 out of 100; 50% qualified for major depression screening. During the last heatwave, HCWs reported observing a reduction in the productivity level per person (52%), poorer communication with patients (40%) and between healthcare workers (35%).

Conclusion: Ethnographic observations revealed that heat exposure negatively affects HCW's well-being. HCWs reported experiencing negative effects of heat on their well-being, performance and QoC rendered to patients. Future adaptations could include improving air conditioner coverage, opening windows, cold water provision for staff, and providing shaded areas around the facility.

Keywords

Heatwaves, Healthcare workers, Well-being, Quality of care, Climate resilience

The TREE4FLUX Project: Monitoring woody productivity and respiration to track Congo Basin Forest Carbon Dynamics

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Tropical forests play a crucial role in the global carbon cycle. Yet, climate change threatens their ability to take up and store carbon. Our understanding of the spatial and temporal carbon distribution in trees and forests remains limited regarding these perturbations, especially in the context of tropical forests of Central Africa. The TREE4FLUX project aims to address these gaps by conducting research at different scales around the CongoFlux tower in the Yangambi Biosphere Reserve (DRC) in the heart of the Congo Basin forests. At the forest ecosystem scale, carbon uptake can be monitored by measurements of CO2 exchanges between the atmosphere and the vegetation using the Eddy Covariance approach. Carbon assessments are also possible through tree-growth measurements within a network of permanent inventory plots. However, refining the carbon cycle at the tree scale requires a detailed study of the numerous metabolic processes that underlie tree growth, e.g. photosynthesis, wood formation, or respiration. Because they are largely controlled by various climatic drivers, it remains challenging to establish climate-growth relationships. The chronology of carbon uptake and attribution to the different mechanisms remain unclear and prevent the grasp of their periodic intra-annual variations. To untangle that problem, monitoring cambial phenology helps characterize the distribution, allocation, and short- and long-term carbon storage in woody material. While tree growth uptakes carbon, respiration and decomposition release carbon back into the atmosphere at various levels. Heterotrophic and autotrophic respirations have therefore a decisive role in the carbon cycle at the forest scale, but face significant misunderstandings in this regard. To enhance our understanding of the carbon dynamic from individual tree to forest scale, we urgently need respiration monitoring in both living and decayed trees. This requires unravelling the metabolic processes driving both autotrophic and heterotrophic respiration, i.e. the tree growth and decayed process, respectively. Characterization of carbon fluxes according to an integrative approach is required to refine forest dynamics models and improve our comprehension of global carbon dynamics.

Keywords
Yangambi, Carbon balance, Rainforest, Congo Basin, Stem respiration, Wood formation

Modelling drought displacement in Africa

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It is projected that because of climate change outcomes, Africa will face increases in both the frequency and intensity of drought. This presents challenges to health due to the large numbers of relatively vulnerable populations who will be exposed to insecurity with regard to food, water and livelihoods. One consequence of these stresses is likely to be increases in the number of displaced persons as climate processes interact with a range of structural and proximate causes to force people to move, posing challenges to states and other actors. Despite modelling efforts, at present little is known about the precise interactions driving drought displacement, nor do scholars have confidence in predicting the numbers of people who will be affected in the future. This paper seeks to address these gaps by building upon the work of the Internal Displacement Monitoring Centre (IDMC) through the use of and development of CLIMADA to model displacement under climate change.

We outline the way in which the hazard and exposure layers are created, with emphasis on improvements in granularity before focusing on how vulnerability contributes to the need to move. We describe the creation of a vulnerability index, informed by theory on environmental migration and comprising a combination of national, and provincial socio-economic and political data integrated with geospatial environmental data. We present projections of displacements by country and discuss what our approach can tell us about how states and international actors can best avert, minimise and address displacement in line with UNFCCC goals.

Keywords

Modelling, Climate, Displacement, Drought, Vulnerability

Migration et écologie dans l'œuvre d'In Koli Jean Bofane

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Dans cette présentation, je m'intéresserai à la façon dont la littérature francophone africaine aborde la question de la migration dans le contexte des catastrophes environnementales contemporaines (désertification, déforestation, extinction des espèces animales, pollution) à partir du roman *Congo Inc. Le Testament de Bismarck* (2014) de l'écrivain congolais In Koli Jean Bofane. En me servant de l'approche de l'écocritique postcoloniale, qui permet d'aborder le rapport entre l'écologie et l'histoire (post)coloniale dans les expressions artistiques, je me concentrerai sur les outils esthétiques – les images, les métaphores, les stratégies rhétoriques – utilisés par l'auteur pour visualiser le trajet de personnages quittant leur « oikos » (le lieu auquel ils sont attachés) sous l'influence de facteurs environnementaux. Il s'agira ainsi de voir comment ce roman procède à une remise en cause de l'image des êtres humains « naturalisés », assimilés à leur environnement, ainsi qu'à une remise en question des dualismes entre nature et culture dans le monde actuel (avec, notamment, un intérêt particulier pour les dialectiques entre la ville et la campagne, thématisées depuis longtemps dans des romans africains centrés sur la migration d'un espace rural vers un espace urbain et *vice versa*). Cette analyse littéraire permettra également d'aborder les questions éthiques liées à l'écologisme social, comme le déplacement d'humains causé par des projets de conservation naturelle et le droit des civilisations africaines au progrès technologique.

Mots Clés
Littérature africaine, Ecologie, Ecopoétique, Migration, In Koli Jean Bofane

The climate, water and migration nexus: the impact of climate change and water security on migration trends and health in southern Africa

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Due to increasing pressures from population growth and climate change, over 2 billion people, globally, lack access to clean water and sanitation, while another ~2 billion are exposed to water-related hazards such as flooding. Water insecurity has led to livelihood losses, hunger, negative health impacts, poor living conditions, and conflict, prompting some of those affected to migrate, especially in low-income countries. As a result, approximately 10 percent of the increase in global migration is attributed to water insecurity. Through a systematic scoping review of the literature, this study investigates the role of water and climate in influencing migration trends in southern Africa, and the health outcomes for environmental migrants, as well as the extent to which water, climate, and health, have been integrated into migration policy and planning in the region. The studies agreed that water and climate have been influencing migration patterns more recently in the region. However, given the interlinkages between environmental and socio-economic factors, it is not easy to isolate environment- or climate-induced migration. Environmental migrants are vulnerable to physical and mental health risks during and after their journeys. Not only do they encounter several health risks while en route, but their access to primary care and continuity of health care is often disrupted. Some migrants also experience anxiety and depression associated with leaving their homes, and social isolation in their new environments. Many of these factors are not addressed in migration policies, as policy making on migration is often conducted in silos. Where migration health policies exist, they often function in isolation at national level and only address fragmented aspects of contemporary migration trends. Moreover, an institutional science-policy gap exists between environmental sciences, climate projections, and health systems. Filling these institutional and policy gaps will encourage the support of migration as a climate adaptation and livelihood strategy, while contributing to the fulfilment of Target 10.7 of the Sustainable Development Goals- "facilitating orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies".

Keywords
Water insecurity, Migration, Climate-related change, Human health, Policy

Policy framing in the context of climate-influenced migration and mobility

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This comprehensive review delves into the complex interplay of policy framing within the context of climate-influenced migration and mobility, with a focus on the roles of climate change and health-seeking behavior as drivers for migration and immobility. It also explores the impacts of migration on healthcare services and the environment. The study contributes to the ongoing discourse on the impact of climate change on global migration patterns, shedding light on how climate change influences migration (beyond the well-studied agricultural income channel) and its effects on health and healthcare access among climate migrants and their host communities.

Climate change has emerged as a significant driver of migration and mobility, exerting its influence through multifaceted pathways (Liang et al., 2023). The traditional focus on agricultural income as a primary driver of climate-induced migration has overshadowed other crucial factors (Nordas, 2007). This review emphasizes the need to broaden the scope of our understanding by considering the diverse roles of climate change and health-seeking behavior as independent or reinforcing drivers for migration and (im)mobility.

By recognizing the nuanced interplay of these factors, policymakers can develop more effective and responsive strategies to address the complex challenges posed by climate-induced migration. Furthermore, the review underscores the far-reaching impacts of migration on healthcare services and the environment. Climate migrants often face unique health-related vulnerabilities, stemming from the disruption of their social and ecological systems. Additionally, the influx of migrants can strain the capacity of healthcare systems in host communities, necessitating a re-evaluation of healthcare infrastructure and resources (McMichael et al., 2012).

Similarly, the environmental implications of migration, such as altered land use and resource utilization, demand careful consideration in policy formulation. By incorporating a detailed understanding of the drivers and impacts of climate-induced migration, policymakers can adopt a more holistic approach to policy framing. This involves acknowledging the multi-dimensional nature of climate-induced migration by integrating diverse perspectives and empirical evidence into policy formulation processes. The review underscores the importance of developing policies that not only address the immediate challenges of migration, but also foster resilience and adaptation in the face of climate change-induced migration and its associated impacts (Warner K, 2014).

In conclusion, this review contributes to the evolving discourse on climate-influenced migration and mobility by providing a nuanced understanding of the roles of climate change and health-seeking behavior as drivers for migration and (im)mobility. By examining the impacts of migration on health care services and the environment, the study highlights the need for comprehensive policy frameworks that encompass the diverse dimensions of climate-induced migration.

Ultimately, the review advocates for policy approaches that are responsive, inclusive, and adaptive, thereby fostering sustainable responses to the challenges posed by climate-induced migration.

Keywords

Climate, Migration, Policy, Healthcare, Vulnerability

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Climate vulnerability and child health outcomes in developing countries: Do women's political empowerment and female education make the difference?

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Health as a common good is of paramount importance for the world, especially in developing countries. This paper contributes to the literature by analysing the effect of climate vulnerability on child health outcomes in a sample of 107 developing countries over the period 2000–2020. We also analyse the mediating role of women's political empowerment and women's education in the relationship between climate vulnerability and child health outcomes. Using the method of generalized moments in a two-stage system and linear regression, absorbing several levels of fixed effects, we found robust evidence that climate vulnerability worsens child health outcomes. We also found that women's political empowerment (WPE) and women's education mitigate the negative effect of climate vulnerability on child health outcomes. These results remain robust against several alternative tests and therefore highlight the need to pay closer attention to how the health consequences of climate vulnerability are structured by gender in developing countries. Given the importance of women as agents of change, it would be more beneficial for policymakers to include them in the decision-making process.

Keywords
Climate vulnerability, Child health outcomes, WPE, Women education, Gender roles

Sudanese refugees in Ethiopia's Benishangul Gumuz Region: Vitalities and pitfalls

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This article examines the plight of Sudanese refugees who have sought refuge in Ethiopia's Benishangul Gumuz Region, particularly within the Bambasi, Tsore, and Sherkole camps, since the onset of conflict in 2023. It reveals the harrowing realities faced by these vulnerable populations, uprooted from their homes amid escalating violence and chaos. The significant influx of refugees underscores an urgent need for international collaboration to tackle the humanitarian crisis stemming from the conflict in Sudan. The study aims to explore the motivations behind this mass relocation, the lived experiences of the displaced individuals, and the myriad challenges they encounter while striving for safety in Ethiopia. Using a qualitative research methodology, including interviews, focus group discussions, and field observations, the study explores the theoretical framework of refugee resilience and integration. The findings reveal that while the refugees have found safety and a welcoming environment in Benishangul Gumuz, they continue to face significant obstacles such as inadequate shelter, limited food supplies, lack of healthcare, and security threats. The study also highlights the resilience and resourcefulness of the refugees, who have found ways to support themselves and their communities despite the challenges. Findings indicate that the ongoing conflict in Sudan is a primary driver of this exodus, leading to widespread violence and human rights abuses. Refugees face numerous obstacles in their quest for safety, including discrimination, inadequate housing, and limited access to essential services. Ultimately, this study calls attention to the pressing need for enhanced safety and support for Sudanese refugees in Ethiopia and advocates for comprehensive, long-term solutions to the ongoing conflict in their homeland.

Keywords
Ethiopia, Vitalities, Pitfalls, Conflict, Sudanese, Refugee

When borders become barriers: Improving healthcare access for migrants in Africa

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Background: The African continent has experienced an alarming increase in climate-displaced individuals, including refugees and internally displaced persons, driven by socio-political conflict and climate-induced calamities. Climate change is driving increased migration across Africa, straining healthcare systems in host countries. The multifaceted challenges posed by pervasive resource constraints across many African nations continue to hinder the integration of migrants and refugees into healthcare systems. This predicament is further compounded by the social exclusion and unique barriers to healthcare access due to language, culture, and documentation limitations. Digital health innovations offer a promising solution, but their effectiveness depends on addressing inclusivity and equity.

Methods: We conducted a systematic review of literature published between 2019 and 2024 using Google Scholar, Scopus, and PubMed, focusing on healthcare access for climate migrants and digital health interventions in Africa. Keywords included 'Health,' 'Climate,' 'Migrants,' 'Displaced population,' 'Refugee,' 'Digital Health,' and 'Africa.' We reviewed over thirty relevant studies to synthesise insights and identify best practices.

Findings: Our review revealed significant disparities in healthcare access for refugees in host countries such as Uganda and South Sudan, which struggle with health integration despite hosting large refugee populations. For instance, a study in Uganda found that only 40% of refugees reported receiving essential healthcare services at refugee camps. These disparities underscore the urgent need for innovative solutions. The VHT AHA mobile app in Uganda, which supports Village Health Teams (VHTs) in delivering community health services to refugee settlements, exemplifies a promising digital health technology. However, the implementation of such technologies often falters due to resource constraints, social exclusion, and inadequate digital infrastructure.

Conclusion: Digital health innovations can significantly improve healthcare access for climate migrants in Africa. However, addressing the barriers to adoption and ensuring these technologies are tailored to the unique needs of migrants is crucial. Tailored digital health interventions can bridge the healthcare gap for migrants. Culturally tailored digital health tools hold immense potential for improving healthcare access for climate migrants in Africa. Collaboration between policymakers, healthcare providers, and tech developers is crucial to ensure these solutions are inclusive, equitable, and address the unique challenges faced by migrants. Future research should explore the feasibility and effectiveness of specific digital health interventions in different African contexts, considering the perspectives of both migrants and healthcare providers. Collaboration among policymakers, healthcare providers, and tech developers is crucial to ensure culturally sensitive and accessible solutions. This approach can improve health outcomes for this vulnerable population as alternative healthcare to leverage before mainstream healthcare systems are made readily available to them. By addressing these barriers and tailoring digital health solutions, we can significantly improve health outcomes for climate migrants in Africa.

Keywords
Climate, Migration, Refugee, Uganda, South Sudan, Africa, Digital health

The impact of climate change on gender-based violence and gender equity

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Climate change is the significant alteration in the weather conditions of a place which include wetter, drier or warmer conditions over several years or decades. Human activities are the main cause of climate change. Scientific consensus has stated that unmitigated emissions of carbon will cause global warming of several degrees Celsius by 2100, causing high-impact risks to the natural ecosystem or human society locally, regionally, or globally.

The WHO defines Gender-Based Violence (GBV) as the intentional use of force, power, and threats against a person or group of people, causing physical, economic, sexual or psychological harm. WHO estimates that one in three women have been victims of GBV in their lifetime. The objective of this study was to comprehensively investigate the multifaceted impacts of climate change on violence against women in diverse societal contexts. A document review was conducted to assess the impact of climate change on GBV. The process of the document review includes strategic database search, abstract screening, full-text assessments, data extraction and narrative synthesis.

Our findings indicate that climate change significantly exacerbates gender-based violence. Studies in Arabic, Pacific Island, and East African countries have demonstrated that climate change has led to displacements, economic disruption, food insecurity, public health issues, and other adverse conditions, while also increasing the occurrence of GBV. It is crucial that a strategic plan be developed for protecting girls and women during climatic disasters as part of comprehensive climate action. This approach is essential for achieving SDGs 1 to 6, 11, and 13 (poverty alleviation, zero hunger, good health and well-being, quality education, gender equality, clean water and sanitation, sustainable cities and communities and climate action).

Similarly, climate change will contribute to the escalation of the frequency and intensity of humanitarian emergencies, such as floods, wildfires, heatwaves, hurricanes, and storms. Research has shown that approximately 3.60 billion people are already living in areas highly vulnerable to the effects of climate change. The impact of climate change is expected to cause an estimated 250,000 additional deaths globally each year between 2030 and 2050, due to the increased prevalence of heat stroke, diarrhoea, malaria, femicide, undernutrition, unemployment and GBV. The direct detrimental cost to health is estimated to be two to four USD billion annually by 2030.

Areas with inadequate economic capabilities and infrastructure, such as developing African nations, may struggle to prepare, cope and respond to the impacts of climate disasters. Adhering to the climate action outlined in the 2015 Paris Agreement and reducing greenhouse gas emissions through improved energy, food, and transportation choices can yield significant benefits. This would also prevent several detrimental consequences of climate change, such as forced migration, gender inequality, GBV, undernutrition, forced marriage, children withdrawing from school and unemployment.

Keywords
Climate change, Gender-based violence, Review, Unmitigated emission, Gender equity

Through the lense of international media: A critical analysis of climate migration discourse in Africa

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Climate change has become a primary media topic in recent years due to the abnormal changes associated with rises in temperature and related weather events. Its multiple implications influence social issues ranging from water scarcity to poor living conditions. In this context, the likelihood of human mobility has increased in several parts of the world, where such incidents occur frequently. Countries located in Central (Democratic Republic of Congo) and Eastern Africa (Ethiopia) are in a dire situation due to the lack of resources to support infrastructure projects and protect the interests of their citizens. Moreover, the ambiguous stance of the Western world regarding official development assistance (ODA) has raised the question of whether other stakeholders can raise awareness of climate change and its consequences.

Recently, international media outlets have dedicated more articles and opinion pieces to share policy developments in local communities. One of the topics discussed is climate migration, which can influence public opinion on climate change given that the social perspective is illuminated instead of solely referring to financial packages. Some of these international media outlets that cover topics related to climate change and migration, especially in terms of African countries, are The New York Times and The Guardian.

That most African countries' emissions are below the temperature goals, constitutes a topic of interest at COP (Conference of Parties) meetings. The most vulnerable countries to climate change are primarily in Africa. Hence, developed countries had promised to provide $100 billion annually as climate finance to address climate change. During COP26, the adaptation of Africa and the funding that was due in 2020 was also discussed, but that date was pushed back to 2023. As such, the timeframe for this study will include articles that appeared in international media outlets from the end of COP26 (13th of November 2021) to the end of COP28 (14th of December 2023).

Media often shapes the socio-political views of its readers. Thus, this paper aims to explore the articles written in The New York Times and The Guardian on the topic of climate change in Africa to provide a deeper insight into how international media shape public discourse regarding this subject. More specifically, the research delves into the most common concepts traced in international media outlets, such as climate migration and climate refugees.

The study includes all the articles from the two publications that have the words “climate change” and “Africa” within the text. For data collection, Google Advanced Search was used and then the articles were sorted manually to fit that period. The body of text was then critically analyzed to clarify the relation to climate migration and the type of framing used to discuss such a topic, as well as the keywords used when this issue arose. This study provides an intriguing perspective on the interconnectedness of climate change and migration, especially in the media context.

Keywords

Africa, Climate change, Climate migration, Media influence, Public discourse

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Land use change and the socio economic challenges of rural people in the case of Dembecha Zuria Woreda, West Gojam Zone, Amhara, Ethiopia

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Nowadays the land use system of rural farmers engaged in small-scale farming is undergoing rapid change. This change is compounding climate change effects and many other socio economic challenges in the day-to-day life of rural farmers. This study explores the driving factors for land use change in Dembecha Zuria Woreda of West Gojjam Zone, Amhara National Regional State, Ethiopia. It also analyzes the socio-economic challenges resulting from land use change that face by rural farmers. Primary data was collected through interviews, focus group discussions, case studies and structural observation. In addition, secondary data from different sources were used to complement the primary data. After analyzing the data, the study found that rapid population growth , poverty, failure of land use policies and rules, and the expansion of globalization are the major driving factors for land use change in the study area. Thus, land use change exacerbates the rapid expansion of improper economic activities such as: environmentally unfriendly tree plantation especially eucalyptus planting, illegal land rent, illegal house construction by rural farmers and unstipulated investment activities implemented by private investors and governmental bodies. As a result, rural farmers in the study area faced many socio- economic challenges. Thus, this study identified social challenges such as, social disputes, dispossession or expropriation of farmers especially women and elders from their land holding, unemployment and migration and loss of cultural values. Also there are economic challenges such as, the exploitation of natural resource, shortage of food crops, scarcity of animal products and clean drink water.

Keywords
Land use, Climate change, Migration, Socio economy, Challenges

Perspectives from literature: Reading intersectionality and climate justice in (East) Africa in Wangari Maathai's *Unbowed*

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This paper proposes using the discursive context of literature, especially life writing, to contribute to the study of intersectionality and climate justice. The paper argues that close and critical reading of cultural texts primed by the 'intersectional method' (De Jong, 2023) has the potential to yield nuanced insights for practice-based research on climate change. Further, because social imaginaries philosophise lived experiences, their cultural inscriptions map out points to examining climate resilience and environmental sustainability while simultaneously helping with the analysis of climate change. The paper draws on East Africa's Wangari Maathai's autobiography *Unbowed* (2006), which enlists the spatial consciousness of ecological collapse to re-imagine her life at the intersection of intersectional feminist approaches to climate change. The paper argues that from literature we can derive critical and discursive tableaus on environmental politics as they relate to nuances of femininity, freedom and political forces in African womanhood, focusing on how this triumvirate negotiates climate crises with particular attention to Kenya and Eastern Africa. Moreover, self-fashioning as aided by this literary form allows for the insertion of women's life histories which in Maathai's case help us understand climate change, adaptation, and action. For the conference, I propose to engage with these ideas to ultimately argue that cultural studies encompass tools which climate-related interdisciplinary scholarship can tap into to complicate the climate agenda.

Keywords
Climate justice, Maathai, Unbowed, Life writing, Eastern Africa

Synthesis of national carbon fluxes of African rainforest countries

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African tropical ecosystems possess great potential for nature-based solutions in mitigating anthropogenic greenhouse gas emissions and biodiversity loss. However, past studies mostly focused on pan-continental carbon balance quantification, often ignoring regional differences. Remarkably, few science-informed attempts have been made to refine national-level carbon flux estimates within African rainforest countries. Yet, such refined estimates are essential to improving the quantification of Nationally Determined Contributions for the United Nations Framework Convention on Climate Change.

Here, we present preliminary results on quantifying national carbon budgets for African rainforest countries, disentangling four major carbon fluxes for 2003-2019: (1) the net carbon uptake in intact tropical terrestrial ecosystems, (2) land-use change fluxes, 3) CO_2 outgassing in inland waters, and (4) fossil fuel emissions. The net carbon uptake in intact terrestrial ecosystems is based on Dynamic Global Vegetation Models TRENDY v11[1,2] (DGVMs), ground-based data (AfriTRON[3]), CARDAMOM[4], and remote sensing data products of Net Primary Productivity[5] and soil heterotrophic respiration[6-7]. Land-use change emissions are calculated using bookkeeping models (BLUE[8], H&N2017[9], OSCAR[10]), DVGMs[1,2], and CARDAMOM[4]. Additionally, we estimate carbon emissions from land-use change by analyzing various satellite images and related products providing data on land-use change[11–12], soil and tree carbon stocks[13–18], fire emissions[19–20], and carbon recovery in regrowing forests[21–22] in tropical Africa. We also quantify carbon emissions from CO_2 outgassing in estuaries[23] and inland waters[24-25]. National carbon balances are completed by using data on fossil fuel emissions from the Global Carbon Project[2]. Besides calculating national-level net carbon fluxes using a bottom-up approach by summing individual carbon fluxes, we quantify the net carbon flux using a top-down approach based on atmospheric inversion models (GCP-GridFED[26], CAMS[27], Jena CarboScope[28], MIROC4-ACTM[29], NISMON-CO_2[30]).

We reveal that carbon balances of African rainforest countries remain highly uncertain. Our bottom-up estimates show that Congo Basin countries are net carbon sinks, while most West-African countries are net carbon sources. In contrast, our top-down estimates of net carbon fluxes indicate that African rainforest countries are net carbon sources. Overall, tropical terrestrial ecosystems have played an important role in mitigating anthropogenic carbon emissions in African rainforest countries. Our insights into nation-level carbon fluxes will be crucial for informing African rainforest countries, guiding climate policies to help stay on track to keep global warming well below 2°C.

Keywords

Nature-based Solutions, African Tropical Terrestrial Ecosystems, National-level Net Carbon Flux, Anthropogenic Carbon Emissions, African Rainforest Countries

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ABSTRACTS POSTERS

Heat indicators for global health – Monitoring, early warning systems and health facility interventions for pregnant and postpartum women, infants and young children and health workers

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Background. HIGH Horizons addresses key knowledge gaps around the quantification and monitoring of direct and indirect impacts of heat exposure on maternal, newborn and child health. Pregnant women, infants and health workers serve as sentinel populations for tracking climate change impacts, adaptations and co-benefits. Protecting these vulnerable populations is critical and ensures a healthy future for the next generations.

HIGH Horizons is a collaborative research project including 11 partners across 10 countries in Europe and Africa and is funded through Horizon Europe and UKRI Innovate UK. The project lasts four years and encompasses activities in both the European Union and sub-Saharan Africa. Jointly our partners quantify and monitor direct and indirect health impacts of extreme heat; test a personalised Early Warning System (EWS); and implement integrated adaptation-mitigation actions in health facilities. With heat adaptation interventions such as modifications to health facilities (e.g. passive cooling systems, reflective white paint on the roofs, etc.) and effective messaging through smartphones to accompany heat stress notifications to pregnant and postpartum women and mothers of infants, the burden of adverse health outcomes may be reduced.

Results. Using systematic reviews and data analyses of heat impacts on maternal, newborn and child health outcomes in Europe and Africa, HIGH Horizons increases the understanding of the relationships between heat and maternal, newborn and child health outcomes and informs selection and monitoring of indicators as well as cut-off thresholds for the EWS. Through a smartphone app (MotherHeat Alert), this EWS delivers notifications and setting-specific messages, co-designed locally. The app will be evaluated among cohorts of 600 mothers and infants in Sweden, South Africa and Zimbabwe, from pregnancy through 12 months of infant age. Specific biomarkers are measured among pregnant women and their infants in a prospective mother-child birth cohort in Greece to better understand the role of heat exposures on adverse health effects. A small selection of these biomarkers is measured in the cohorts in Sweden, South Africa and Zimbabwe.

HIGH Horizons is currently documenting the impact of heat exposure on health worker wellbeing, health, productivity and on the quality of care provided in South Africa, Sweden and Zimbabwe. These results support the co-design of modifications to health facilities which help to reduce heat exposure for health workers.

Facility-generated carbon emissions have been measured in Kenya, South Africa and Zimbabwe and are inputted into our own tool, Carbomica, to optimize resources allocated to reduce carbon emissions in health facilities.

Keywords

Heat Exposure, Maternal, Newborn and Child Health, Carbon Emission Mitigation, Health Facility Adaptation, Heat Health Warning System

Evaluating the climate resilience and environmental sustainability of health facilities to improve service utilization – An analysis of service utilization trends in a maternity department context

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Background: Assessing the climate resilience and environmental sustainability of health facilities for pregnant and postpartum women is paramount for ensuring the well-being of both mothers and infants. The particular climate hazard of direct or indirect exposure to extreme heat has been shown to greatly impact access of pregnant and postpartum women to healthcare services thereby increasing the risks of complications that lead to maternal and perinatal mortality and morbidity. This study aimed to evaluate the climate resilience and environmental sustainability of a rural hospital in Zimbabwe and analyze trends in service utilization in the maternity department.

Methods: The study was conducted at Mt Darwin District Hospital in Zimbabwe. Facility assessments were used to evaluate climate resilience and environmental sustainability across key domains such as infrastructure resilience, availability of safe water sources, and waste management. Service utilization data for the maternity department was extracted from facility records for the period 2019-2023. Trends in service utilization were analyzed, including antenatal care visits, facility-based deliveries, and postnatal care.

Results: Facility assessment identified several gaps in climate resilience and environmental sustainability, including critical infrastructure vulnerabilities, limited water sources, and inadequate medical waste management. Analysis of maternity service utilization data showed a fluctuation and decline in antenatal care visits across the years as well as unsteady and fluctuating trends in facility-based deliveries and postnatal care. These trends can be influenced by the facility's limited capacity to withstand climate-related shocks and environmental challenges.

Conclusion: Findings from this study can inform targeted infrastructure upgrades, resource management strategies, and multisectoral engagement initiatives to enhance the overall resilience and environmental performance of hospitals. Scaling up such interventions can contribute to improved healthcare access and utilization, especially for vulnerable populations in rural Zimbabwe. Integrating climate and environmentally sustainable approaches for strengthening health systems can help to increase community trust and utilization of essential maternal and child health services.

Keywords

Climate resilience, Environmental sustainability, Service utilization, Vulnerable population

Linking urban public space and migrant integration: Memories, nostalgia, and belonging

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Chinese rural-urban migrants' post-migratory urban lives seem to be discussed merely from a sociological perspective in most current studies (Yue *et al.*, 2013) where the urban public space is seldom stressed. My research, undertaken during fieldwork in a Chinese mega city, aims to explore the role of such spaces in terms of migrant integration by developing the concept of integration and examining migrant use of and sense of place in relation to such spaces. The evidence suggests that urban public space can promote integration via various approaches, but this presentation focuses on one aspect: how memories and nostalgia, evoked during visits to such spaces, encourage the migrants to achieve 'place identity integration' at different scales, i.e. a sense of belonging (Qian *et al.*, 2011) to such space and/or the city, through fostering a sense of familiarity and positive emotions. The nostalgia associated with rural hometowns as strong emotional ties, however, may conversely hinder migrants building a social identity as an 'insider' and gaining a sense of belonging in the host city. While the influence of nostalgia on belongingness is arguably complex, this study provides urban design recommendations oriented towards using nostalgia and other elements that can boost positive feelings to support migrant integration.

Keywords
Migration, Public space, Memories, Nostalgia, Belonging

Decades of ground-based climate monitoring reveal evidence of climate change in the Congo Basin

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This multi-decadal study published in *Climatic Change* in October 2023 (https://link.springer.com/article/10.1007/s10584-023-03606-0) presents the results of analyses of a unique set of digitised daily temperature and precipitation data from the Yangambi Biosphere Reserve, part of the UNESCO MAB network, covering the period 1960-2020 (61 years) and located in the heart of the Congo Basin, where ground-based data are not available for the last two decades (with a decline rate of ± 40%). To extend our results to the Congo Basin, we compared ground-based climate observations at Yangambi with monthly temperature and precipitation data generated by satellites. Our results indicate a marked shift in rainfall patterns towards a more seasonal climate, with longer dry seasons and shorter but more intense rainy seasons. The change in precipitation patterns is accompanied by a strong warming trend, with a rapid increase in the frequency of hot days and nights and a decrease in the frequency of cool days and nights. This shift towards a warmer, more seasonal climate could have major consequences for life in general (agriculture, agroforestry, water resources, health, etc.) and for the composition and functioning of Congo Basin forests in particular. Our results corroborate the long-term increase in temperature and temperature extremes (since at least 1960) recently reported across Central Africa, and confirm a significant trend towards a drier dry season and an intensification of the rainy season since the early 2000s. Our results have scientific and policy implications. Climate monitoring networks in Congo Basin countries are becoming increasingly weak as they lack stable long-term funding. There is also a need for a broader policy on access to reliable climate data to monitor, among other things, the evolution of climate variability and climate change, and probably their local and regional societal impacts. In particular, there is an urgent need for effective and coherent funding of climate research in Congo Basin countries to improve real-time monitoring of climate change at national and regional levels, with a view to improving policies and strategies for the sustainable management of forests and other strategic natural resources at national and regional levels. The results of climate science will enable policy makers and all actors in multi-sectoral development to better address questions related to adaptation and mitigation strategies for each sector of life in the face of climate change impacts. We therefore argue that this article provides important new information in the Congo Basin on (i) the importance of digitising archives and continuing to monitor ground-based climate observations, (ii) the modelling of drought and humidity based on meteorological indices, (iii) confirmation of the ongoing shift towards a warmer and more seasonal climate, (iv) the dynamics of climate change and climate variability and their impact on populations and natural resources at local, regional and continental levels, and (v) strengthening and improving international, regional and national negotiation strategies on climate economics. This information is likely to be of interest to a wide audience in the field of climate change and sustainable development.

Keywords
Climate change, Congo Basin, Warming, Precipitation seasonality, Station coverage

Mozambique and extreme recurrent climate events: Impacts on health and well-being

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Climate change is not just a global phenomenon, it is a pressing issue that Mozambique is grappling with. In particular, extreme climate events are preventing Mozambique from making any progress towards achieving SDG 13. Although I am not a specialist in Climate Change, my studies focus on the situation of forced migrants due to extreme climate events such as floods and cyclones and other political and economic events. Such events have severe health implications due to the destruction of health infrastructures and the outbreak of diseases such as cholera, diarrhoea and scabies. A few steps away from the SDG target, it remains unclear as to how Mozambique will achieve SDG 3 and 13 as it will be difficult to reduce hunger and poverty. At the same time, the country has people on the move living in tents or resettlement camps. Addressing these critical issues invites all disciplines and sciences to contribute their methodological perspectives to suggest ways of mitigating the direct impact and the health consequences of climate change. Geography, for example, seeks to understand the factors that shape and reshape spaces, particularly the emergence of unplanned settlements as a direct consequence of climate change in contexts where people are pushed from their usual places of residence to new spaces that are unfamiliar in terms of soils, resource availability, connections and social networks established over several generations. Mozambican landscapes today, especially urban areas, feature tents and temporary residences. Families are forced to welcome those who have lost their homes, families, culture, identity and even their freedom due to the impacts of climate change. We are only six years away from 2030! Understanding this complex phenomenon requires an interdisciplinary approach, a collective effort in which we can all participate. So-called non-sciences also have a role to play in understanding issues related to climate change, particularly health. However, I intend to shed light on the deep interconnections between gender, climate change, conflicts and population displacement, highlighting the severity of these issues when we look at women and men in the context of access to resources for reconstruction, and how access might be compromised by different diseases. By collecting the voices of people directly affected by extreme climate events, I intend to answer the question: How long will communities endure or resist these constant clashes? I also seek to answer the question concerning places in Mozambique where extreme climate events are recurrent and what kinds of diseases the populations have to deal with?

Keywords
Climate change, Extreme climate events, SDG 3 and 13, Mozambique, Health

Spatial analysis of malaria in Cameroon: What are the factors of spread?

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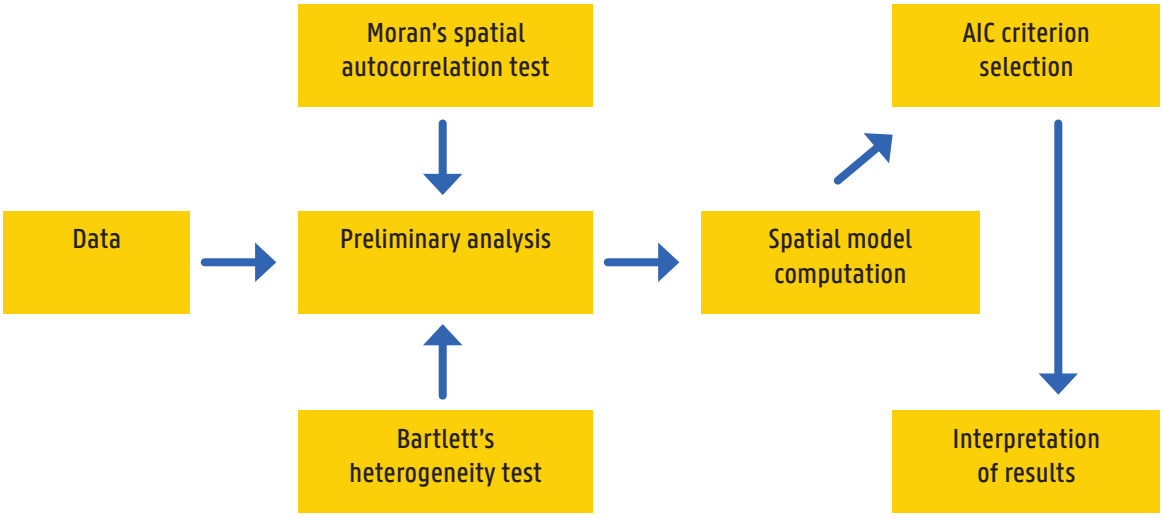
The aim of this study is to analyze the spatial distribution of malaria rates in Cameroon as a function of environmental, socio-demographic and institutional risk factors. Malaria is a major health problem and remains one of the leading causes of mortality in the least developed countries. Despite massive efforts to reduce this endemic disease, it is still prevalent in Africa, which accounted for 94% of malaria cases and 95% of malaria-related deaths worldwide in 2022 (WHO, 2023). Cameroon in particular is one of the 11 most malaria-endemic countries in the world (WHO, 2023). The country recorded more than 3 million cases and more than 3,800 deaths in 2021. As a result, this endemic represents an obstacle to achieving the United Nations' Sustainable Development Goal 3, which is to ensure the health and well-being of all people at all ages. One of the more specific targets is to reduce the burden of disease and eliminate malaria by 2030 (UN DESA, 2015). Cameroon has therefore made malaria control one of the priorities of its National Health Development Plan (WHO, 2023).

Several studies have been conducted to estimate the risk factors associated with the spread of malaria, particularly in Africa. Most of them have shown that malaria is heterogeneous and spatially dependent, partly explained by the variability of environmental, demographic and socio-economic factors (Sanagare et al., 2020; Bayode and Siegmund, 2022; Ekpa et al. 2023; Koné and Atchadé, 2023). However, to the best of our knowledge, there are no empirical studies on the spatial distribution of malaria in Cameroon. The contribution of this study is therefore twofold. First, it provides empirical evidence on the factors influencing the geographical distribution of malaria rates. Second, the results will be used to inform and sensitize the population and policy makers about the risk factors for this disease.

To study the distribution of malaria in the 200 health districts of Cameroon, we used the number of suspected cases of malaria (simple or severe) that underwent parasitological testing (TDR or microscopy) per 1000 inhabitants as the dependent variable. All data used, in particular data on malaria, environmental, socio-demographic and institutional factors, were obtained from the Ministry of Health in Cameroon. Furthermore, given the spatial dependence and heterogeneity of suspected malaria cases in Cameroon, we expect that spatial models will highlight the main risk factors. The analysis is carried out according to the framework described in the following figure:

Figure 1: Analysis framework



Source : Author's

Keywords
Health, Malaria, Spatial analysis, Risk factors, Cameroon

Climate change in the south of Tunisia: A case study of Bou Omrane-Sebkhet Noual Area

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The intricate nexus of climate change, migration, and health challenges in Africa is starkly evident in Tunisia's arid regions. The Bou Omrane-Sebkhet Noual area, located east of the Talh plain in Tunisia's pre-Saharan zone, illustrates these challenges. This region is characterized by an extremely arid climate, especially on the Bouhedma reliefs, which experience temperate winters. Further south, the aridity intensifies, making water resource management and agriculture particularly difficult. Morphoclimatic barriers such as Jebel Bouhedma and the transversal Gafsa chain create marked contrasts between the more humid northern zones and the arid southern zones, exacerbating regional climatic variations. Wind patterns, high evaporation rates, and increased vulnerability due to climate change pose additional challenges for environmental sustainability and local population health.

Our study focuses on the detailed analysis of the specific climatic conditions in the Bou Omrane-Sebkhet Noual region and their impact on water resources, agriculture, migration, and health. We aimed to understand how climate change exacerbates these vulnerabilities and to identify effective adaptation and mitigation strategies to improve the resilience of local communities.

To conduct this study, we used a combination of qualitative and quantitative methods, including data collection, field studies, and climate modeling and cross sections.

Our results show that the Bou Omrane-Sebkhet Noual region experiences extreme temperature variations. The high evaporation rates (approximately 1100 mm annually) and decreased precipitation (below 150 mm in the southern plains) intensify the arid conditions, severely limiting the water resources available for agriculture. Wind patterns significantly influence the climate, with coastal currents bringing limited humidity and hot, dry Saharan winds exacerbating the aridity. Climate change aggravates these vulnerabilities, leading to increased desertification, reduced agricultural productivity, higher migration rates, and negative health impacts, including an increase in heat-related illnesses.

In addition to these climatic observations, it is crucial to consider the complex structural context of the region in order to gain a comprehensive understanding of its hydrogeological challenges and its influence on water storage availability. The structural background of the region is complex, with the Meso-Cenozoic strata being substantially dislocated by folding and faulting, a process that has been a determining factor in the development of the aquiferous units. These units are expected to be deformed and fashioned by folding and shifted out by the Mesozoic inherited fault, mainly reactivated during the tectonic inversion of the basin. Such a configuration has significantly affected the hydrodynamics and made the results of hydrogeological exploration of the region ambiguous.

To address these challenges, it is important to implement integrated adaptation and mitigation strategies focused on climate resilience, sustainable water management, and socio-economic development. Our recommendations include improving agricultural practices, effective water resource management, and strengthening community health services to build long-term resilience to the impacts of climate change.

Keywords

Climate Change, Arid Regions, Structural Context, Adaptation, Sustainability

Déplacement interne dans un contexte de gouvernance fragmentée à l'intersection de la guerre et du changement climatique à l'Est de la RDC

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Dans l'est de la RDC, nous assistons à une situation complexe dans laquelle de larges parties de la population dans les provinces du Nord et Sud Kivu se retrouvent déplacés à l'intérieur du pays en raison de dynamiques à l'intersection de la guerre civile et des changement climatiques. Confrontées à des défis multifactoriels dans lesquels les conflits armées et les conséquences dévastatrices des changements climatiques comme les inondations ont tendance à se renforcer mutuellement, ces personnes déplacées sont confrontées à des vulnérabilités complexes en matière de santé et de protection.

Basé sur un travail de terrain qualitatif mené dans six camps de déplacés au Nord-Kivu et au Sud-Kivu, cet article étudie la question des réponses en matière de gouvernance et des politiques de réintégration dans un paysage de gouvernance complexe, hybride, fragmenté et contesté. L'article démontrera comment non seulement les facteurs et conséquences intersectionnels du déplacement forcé, mais aussi le pluralisme juridique, l'écart entre les normes formelles et pratiques, semblent renforcer la vulnérabilité des personnes déplacées dans l'est de la RDC, les laissant victimes de crises coexistantes et multiformes.

Mots clés

Déplacement interne, Gouvernance fragmentée, Déplacés de guerre, Déplacés climatiques, Changement climatique

Internal displacement in a context of contested governance at the intersection of violent conflict and climate change in Eastern Congo

In Eastern DRC we are witnessing a complex situation where large groups of the population find themselves internally displaced because of dynamics at the intersection of civil war and climate change. Facing multi-factoral challenges in which violent conflict and the devastating outcomes of climatological changes such as flooding tend to reinforce each other, these IDPs experience complex vulnerabilities with regards to health and protection.

Based on qualitative fieldwork conducted in six displacement camps in North Kivu and South Kivu, this paper investigates the question of governance responses and the politics of reintegration in a complex hybrid, fragmented and contested governance landscape. The paper will demonstrate how not only the intersectional drivers and consequences of the forced displacement, but also the legal pluralism and the gap between formal and practical norms, seem to reinforce the vulnerability of internally displaced people in Eastern DRC, leaving them victim to coexisting and multiform crises.

Keywords

Internal displacement, Fragmented governance, War-displaced, Climate-displaced, Climate change

Beyond boundaries: Building blocks of human development - A case of Guinea-Bissau (West Africa)

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In this global era where countries are connected at regional, continental and global levels by their economic interdependence, there remain countries that (intentionally and unintentionally) are not part of the network, and have not been given the level of cooperation that would achieve the development agenda of 2023. Guinea-Bissau is just one example, but there are many other countries in Africa that as a result of sheer negligence by the key global actors have become war zones, unstable economies, exposed to climate change and food insecurity. Such countries often suffer continuous political polarization and entrenched beliefs creating barriers to cooperation that further hinder the global efforts to address key pressing issues which required our immediate attention, and without which the repercussions could be catastrophic. The human development perspective – which focuses on catalytic positive change, which is quite low for African countries when compared to the rest of the world – emphasises the threads that bind us together, economic interdependence in particular. Our interdependence is increasingly planetary and instantaneous, yet our ideological divides prevent us from promptly addressing the common problems. The rising divergence and polarization within our countries have led to a gridlock or point of no return which translates into barriers to international cooperation. This further entrenches the challenges to the leave no one behind (LNOB) approach.

By building human capabilities for everyone we can collectively focus on sustainable, equal and equitable economic development where individuals are less dependent and have more control of their lives. Going beyond existing boundaries and structures of analytical thinking about human progress we should go beyond the theme of economic growth, to an understanding in which human well-being is at the centre of development policies and strategies. In the parallel world where developed countries are moving ahead and improving, the majority of countries in the Sub-Saharan Africa region remain below the low development threshold in terms of Health, Education, Income, Life Expectancy, Gross National Income and Gender Development Index. If timely support is not provided then on the attern of deterioration will continue, and the local populations will ultimately be on the receiving end of neglect, which will further disempower such communities. Although Governments are primarily responsible for the unification process at the national and regional level, the erosion of trust, and the widening gap between the people and their leaders leads to polarization which poses a greater threat to the well-being and even the survival of the under-developed countries. And that is a stage where non-state and miscreant actors become activated or mobilized which then threatens the sovereignty and well-being of states.

Keywords
Polarization, Development, Gridlock, LNOB, Gender

Examining the intersection of climate change and disability law in Africa: A study from a human rights perspective

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Climate change is a universal issue. However, it disproportionately affects Africa as well as persons with disabilities. Africa faces a host of climate change related challenges, including extreme disasters, adverse health effects, food, water, and livelihood insecurity, high sea levels, migration and forced displacement, and loss of cultural identity. Progress and development made by African States is often set in reverse due to climate change issues. At the same time, African States have shown little regard for the United Nations Convention on Rights for persons with disabilities, for the Sustainable Development Agenda, and for the Paris Agreement, etc. In effect, such states exclude persons with disabilities (world's largest minority) from climate change dialogue, mitigation and adaptation efforts, thus failing to meet their human rights obligations. Instead of the human rights/capability approach, the laws of African States by and large follow charity, bio/medical and Social approaches preventing persons with disabilities from being considered humans and rights holders and so climate change promotes more inequality, inequity, discrimination, inaccessibility, exclusion, unfairness and injustice. Further, new studies have found that climate change is also promoting disabilities. A human rights approach ensures persons with disabilities are given equal participation opportunities and can collaborate with government, civil agencies, etc. It also helps provide a deeper level of understanding of the issue of climate change and helps mould the ability to address climate change. The National Legal framework does not address the issue of climate change nor that of people with disabilities and intersection of the two. Accordingly, measures with three main focal areas will be suggested. The first one is assessing the impact of climate change on persons with disabilities through an inter-sectional approach; second, legal measures for developing and implementing climate change mitigation and adaptation policies to prevent and minimize the adverse impacts of climate change on persons with disabilities; and the third providing access to information on climate change for persons with disabilities, and strengthening their capacity to participate in climate decision-making.

Keywords
Intersection, Climate Change, Disability Law, Human Rights, Africa

Groundwater flow system and hydrochemical changes: Insights from flow path analysis; the case of Jimma area, Ethiopia

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The groundwater flow system in the Jimma area is not well understood and has not been subject to research. The paucity of knowledge of the system has an impact on groundwater management. This study aims to understand the groundwater flow system in the Jimma area by utilizing hand-dug wells for water-level monitoring, and spring discharge monitoring with response to rainfall. In addition, topographical, lithological, and hydrogeochemical data were utilized to study the groundwater system. Results indicate that shallow groundwater table fluctuations are influenced by local recharge from summer rainfall (June-August) and water extraction. Hydrographs from hand-dug wells show groundwater levels rising to a maximum during the rainy season, with fluctuations directly responding to precipitation. These wells are situated at various topographic elevations and lithological types (highly weathered basalt and ignimbrite, sand, and alluvial deposits). Most groundwater levels in monitoring wells exhibit a seasonal fluctuation pattern, increasing during the wet season. Conversely, a deep well monitored using a diver shows minimal fluctuations and responds less due to the confined nature of its aquifer. The constructed piezometric map indicates water levels follow surface topography and groundwater flow is towards lowlands areas in the southerly direction. Based on the insights of topography, lithology, the piezometric map, and hydrogeochemical data, a conceptual groundwater flow model was developed. Based on these findings, the groundwater flow system in the Jimma area is classified into local, intermediate, and deep (regional) flow systems. **These results could be used as a basic reference for groundwater management in the Jimma area, allowing the evaluation of further evolutions in the future.**

Keywords
Conceptual model, Diver, Groundwater Flow System, Hydrographs, Piezometric Map

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