

**Exploring the interplay
between climate, migration
and urbanisation in
Sub-Saharan Africa**





Advancing knowledge for Long-term Benefits
and Climate Adaptation through Holistic Climate
Services and Nature-based Solutions

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TABLE OF CONTENTS

INTRODUCTION.....	5
BACKGROUND	6
Climate change and human mobility.....	6
Urbanisation as both opportunity and challenge.....	6
OVERARCHING INSIGHTS	7
COUNTRY-LEVEL ANALYSIS	8
GHANA	
Climate trends and impacts in Ghana.....	9
Migration dynamics in Ghana.....	9
Urbanisation trends and challenges in Ghana.....	9
KENYA	
Climate trends and impacts in Kenya.....	11
Migration dynamics in Kenya.....	11
Urbanisation trends and challenges.....	11
TANZANIA	
Climate trends and impacts in Tanzania.....	13
Migration dynamics in Tanzania.....	13
Urbanisation trends and challenges.....	13
MADAGASCAR	
Climate trends and impacts in Madagascar.....	15
Migration dynamics in Madagascar.....	15
Urbanisation trends and challenges.....	15
SOUTH AFRICA	
Climate trends and impacts in South Africa.....	17
Migration dynamics in South Africa.....	17
Urbanisation trends and challenges.....	17
KNOWLEDGE GAPS.....	19
POLICY RECOMMENDATIONS.....	20
CONCLUSION	21

INTRODUCTION

Sub-Saharan Africa (SSA) stands at the intersection of multiple transformative forces: climate change, migration, and rapid urbanisation. This report, published in the context of the EU-funded research project ALBATROSS, offers a comprehensive analysis of how these forces interact, drawing on evidence from Ghana, Kenya, Tanzania, Madagascar, and South Africa. The findings are based on extensive country-level assessments of climate trends, migration dynamics, and urbanisation processes, complemented by a series of interviews with national experts, as well as policy and governance reviews. While climate change threatens livelihoods and infrastructure through slow-onset stresses (e.g., drought, soil degradation) and sudden shocks (e.g., cyclones, floods), human responses—particularly migration—are shaped by diverse social, economic, and political factors. Cities, which receive the majority of internal migrants, offer both opportunities for adaptation and challenges regarding service provision, infrastructure, and equity.

This document summarises the major insights, addresses knowledge gaps, and provides policy recommendations that integrate climate resilience, migration governance, and urban sustainability. It has been extracted from a more in-depth publication produced within the work carried out in ALBATROSS to describe the cause-effect and feedback dynamics between climate change, human response and ecosystem response.

This report adopts a qualitative expert-informed synthesis approach, integrating insights from expert interviews to complement findings from an extensive literature review. Rather than conducting a formal thematic analysis, expert perspectives were used to contextualize and reinforce key arguments, adding empirical depth to the synthesis of existing knowledge. A total of nine expert interviews were conducted in November 2024, following the literature review. Given the complexity of climate change, migration, and urbanisation linkages, this expert-informed synthesis approach helps bridge knowledge gaps by combining theoretical insights with grounded expertise.



BACKGROUND

Climate change and human mobility

The notion that climate change alone drives mass migration is overly simplistic. Research indicates that climate stressors—extreme temperatures, fires, droughts, floods, coastal erosion—often act as “threat multipliers,” aggravating existing economic and social vulnerabilities. People move in response to intersecting drivers: livelihood failures, economic aspirations, resource competition, social networks, and governance capacity. Mobility, particularly seasonal or circular migration, may serve as an adaptive strategy that diversifies income and reduces risks.

Urbanisation as both opportunity and challenge

Sub-Saharan Africa is urbanizing at one of the fastest rates globally, with a projected 70% of its population to be urban by 2050 in certain countries. This “urban pull” is strengthened by prospects of better jobs, education, and infrastructure. However, the report underscores how unplanned urban growth leads to rising informal settlements, overcrowding, and strains on essential services such as water, sanitation, transport, and healthcare. In the absence of climate-sensitive urban planning, climate hazards—like floods in coastal and low-lying settlements, and fires on the urban and settlement fringes—are amplified.

A focused analysis has been conducted of how climate impacts, migration patterns, and rapid urban growth unfold in five selected countries of SSA—Ghana, Kenya, Tanzania, Madagascar, and South Africa (Figure 1). Drawing on data from both primary and secondary sources, as well as interviews with national experts, each country profile explores the distinct ecological realities, mobility trajectories, and urban development challenges. By outlining these varied, context-specific experiences, this analysis underscores the need for integrated policies and interventions tailored to local socioeconomic and environmental conditions. Ultimately, the examination sets the stage for deeper insights into the cross-cutting themes that shape climate resilience and sustainable urbanisation in the region.

Prior to presenting the intricate relationship between climate change, migration and urbanisation in Sub-Saharan Africa, a broader perspective is provided to clarify how climate change shapes migration and urbanisation patterns, while also exploring how these processes are mediated by pre-existing vulnerabilities, socio-political structures, and economic constraints.

This set of insights can guide practitioners, researchers, and policymakers in better understanding these interlinked phenomena. By identifying common trends and critical challenges, we hope to offer valuable perspectives that inform strategies for adaptation, urban planning, and governance in the face of climate-induced mobility and urban transformations.

“We need to be careful with the narrative that more climate change leads directly to more migration and then to more urbanisation. The relationship is not linear; there are many intervening factors, including social and economic conditions”. (Interview with expert, University of Ghana, November 2024)

OVERARCHING INSIGHTS

Eight key insights capture the nuanced interplay between climate change, migration, and urbanisation dynamics in Sub-Saharan Africa. Taken together, these insights show that climate change, migration, and urbanisation are inextricably linked, yet shaped by broader economic and governance contexts. Moving beyond narrow or linear assumptions opens new policy avenues for cities and rural districts alike to reduce vulnerabilities, enhance well-being, and leverage the adaptive potential inherent in human mobility.

#1. It is not only about climate change

Climate variability intensifies existing vulnerabilities but rarely acts as the sole driver of migration. Economic forces, social networks, and governance structures all shape how communities respond to environmental stress. Recognizing the multiplicity of drivers underscores that migration outcomes reflect both ecological risks and broader socio-economic pressures.

#2. Climate–migration relationships are non-linear

Contrary to narratives that assume direct, one-to-one pathways from climate shocks to mass displacement, mobility is better understood as a process that evolves through time, feedback, and thresholds. People's decisions to migrate, stay, or move seasonally are shaped by aspirations, capabilities, and a host of contextual factors—only some of which are climate-related. Climate shocks can lead to increased or decreased mobility, depending on the context.

#3. Immobility is as important as mobility

Some households lack the resources or social capital to relocate away from climate-vulnerable areas, while others remain in place by choice, due to cultural ties or land tenure constraints. Such “trapped”, or “voluntary immobility” can pose serious risks, as limited options may force people to endure increasing hazards without adequate support.

#4. Beyond a simple migration–urbanisation causal framework

Rural-to-urban migration does contribute to urban growth, but it also interacts with market forces, political reform, technological innovation, and evolving social aspirations. Understanding urbanisation as part of broader structural transformations reveals that urban expansion can both result from and further drive mobility, creating complex feedback loops across sectors and scales.

#5. Acknowledge translocality and the rural–urban system

Many families pursue multi-local strategies—keeping one foot in rural agricultural livelihoods while tapping urban employment or markets. Migrants' remittances and social ties sustain not only urban livelihoods but also rural adaptation, underlining that policy interventions must address and leverage the connectivity between sending (rural) and receiving areas (urban).

#6. Cities as adaptation hubs

Urban centers can provide migrants with better livelihoods, healthcare, and education, thus boosting resilience. However, inadequate planning, infrastructure deficits, and social exclusion in fast-growing urban settlements can exacerbate vulnerabilities. Policies that incorporate climate risks into city planning—such as flood protection, green infrastructure, and inclusive service delivery—are critical for leveraging cities as engines of adaptation.

#7. Migration toward cities as a sustainability force

While migration can strain public services, it also brings new skills, economic dynamism, and social remittances that benefit urban and rural areas alike. Harnessing migrants' contributions—through vocational training, social protection, and investment channels—can help align urban growth with long-term sustainability goals, including climate resilience and inclusive development.

#8. Going beyond a static, sedentary vision of climate adaptation

Migration itself can be a proactive strategy for dealing with climate threats, rather than a failed response. Recognizing this adaptive function demands policies that enable safe and planned mobility—such as well-regulated internal migration frameworks, social protection for migrants in urban areas, and support for translocal livelihood systems. By treating mobility as a legitimate adaptation pathway, policymakers can reduce harm and strengthen resilience in both origin and destination communities.

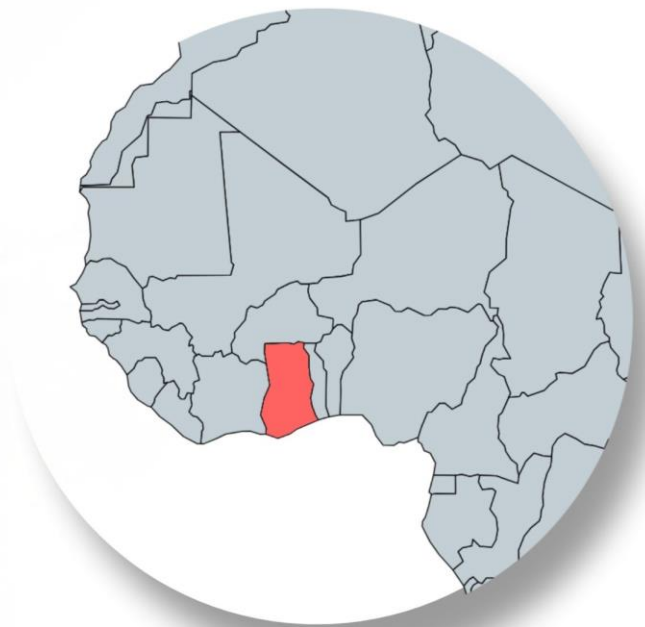
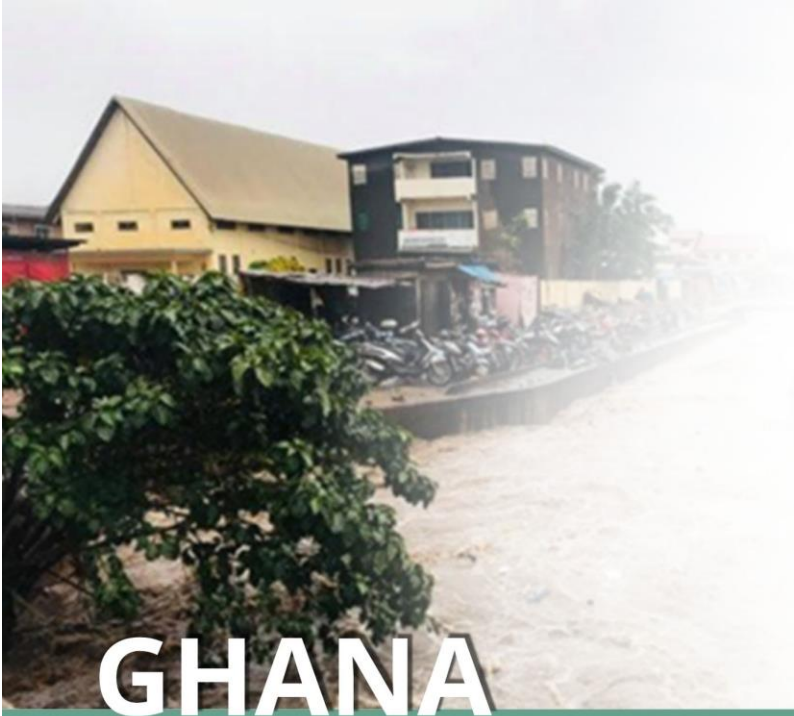
COUNTRY-LEVEL ANALYSIS

This chapter provides a focused analysis of how climate impacts, migration patterns, and rapid urban growth unfold in five selected countries of Sub-Saharan Africa—Ghana, Kenya, Tanzania, Madagascar, and South Africa (Figure 1). Drawing on data from both primary and secondary sources, as well as interviews with national experts, each country profile explores the distinct ecological realities, mobility trajectories, and urban development challenges. By outlining these varied, context-specific experiences, the chapter underscores the need for integrated policies and interventions tailored to local socioeconomic and environmental conditions. Ultimately, the examination sets the stage for deeper insights into the cross-cutting themes that shape climate resilience and sustainable urbanisation in the region.

For each country, graphics on the urbanisation dynamics are shown, as well as a summary of the most important insights in terms of climate trends, migration dynamics, and urbanisation challenges. Finally, a pool of policy recommendations tailored to each country is provided,



Figure 1. Map of Africa highlighting the Country case studies for this report.



GHANA

Climate trends and impacts in Ghana

Ghana, situated in West Africa, is grappling with the far-reaching impacts of climate change, which are reshaping its environmental and socio-economic dynamics in intricate and region-specific ways. From the arid savannahs in the north to the humid coastal areas in the south, the country faces a variety of climate-related challenges such as rising temperatures unpredictable rainfall, sea-level rise, and extreme weather events. These challenges cut across existing vulnerabilities, weaving a complex web of risks that threaten livelihoods, deepen inequalities, and hinder sustainable development.

The socio-economic impacts of climate change in Ghana are closely intertwined with these environmental challenges. Agriculture, which employs over 40% of the population and plays a crucial role in the national economy, is one of the most climate-sensitive sectors. Climate change also presents growing public health challenges across Ghana. Rising temperatures and shifting rainfall patterns create favourable conditions for the spread of vector-borne diseases such as malaria and dengue fever. Flooding events further heighten the risk of waterborne diseases like cholera, especially in densely populated urban areas with inadequate sanitation systems.

Migration dynamics in Ghana

A dominant trend in Ghana is the north-to-south migration flow, which reflects long-standing socio-economic disparities and unequal resource distribution, which have their roots in colonial and post-colonial policies. Economic inequalities, uneven infrastructure development, and disparities in access to education and healthcare have historically fuelled this movement. The northern regions—comprising Upper East, Upper West, and Northern—are marked by high poverty rates, limited industrialization, and fewer economic opportunities compared to the more urbanized and economically vibrant southern regions, such as Greater Accra, Ashanti, and Western.

Environmental factors, as well as the impacts of climate change, have also significantly shaped migration trends from northern Ghana, where agriculture remains the primary livelihood for many communities.

Beyond the north-to-south migration pattern, Ghana's coastal regions are also witnessing significant internal mobility, driven by economic opportunities in fishing, trade, and port-related industries.

A notable trend shaping internal migration in Ghana is the feminization of migration, which reflects broader shifts in socio-economic roles. Increasingly, women are migrating independently from rural areas in the north to urban centers in the south in pursuit of economic opportunities, education, and greater autonomy.

Urbanisation trends and challenges in Ghana

Urban growth in Ghana has been primarily concentrated in key metropolitan areas such as Accra, Kumasi, Sekondi-Takoradi, and Tamale. Accra, as the capital city, remains the largest urban hub. Multiple factors contribute to the rapid urbanisation of Ghana, including internal migration, economic prospects, natural population growth, and infrastructural expansion.

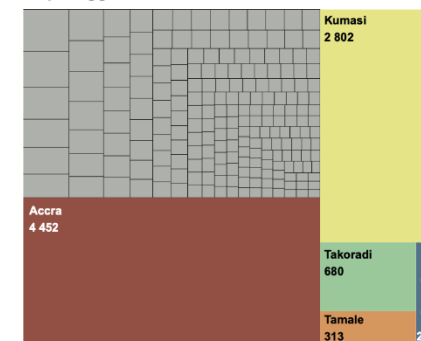
While urbanisation has brought economic growth and improved access to essential services in Ghana, it has also introduced significant challenges that threaten the sustainability of urban centers:

- The rapid expansion of cities has outpaced the provision of affordable housing, leading to the proliferation of informal settlements.
- Environmental degradation is another consequence of rapid urbanisation. The expansion of cities has led to widespread deforestation, biodiversity loss.
- Access to essential services such as healthcare, education, and waste management remains unevenly distributed across Ghana's urban areas,

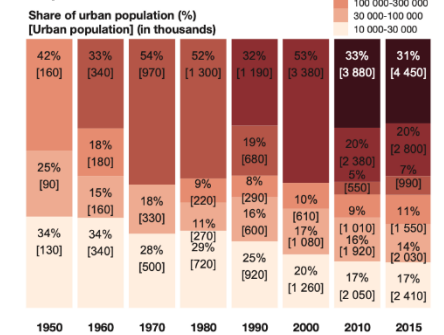
Ghana

Population	Total population 27 403 000	Urban population 14 236 000	Urbanisation level 52 %
Agglomerations	Number of agglomerations 209	Metropolitan population 51 %	Average distance between agglomerations 17 km
Density	Average urban density 3 901 hab./km ²	Urban land cover 3 650 km ²	Urban land cover/total land cover 1.6 %

Major agglomerations



Population distribution



AFRICA'S URBANISATION DYNAMICS 2020 © OECD 2020

Main insights regarding climate, migration, and urbanisation



The **main climate threats** in Ghana are as follows:

- ! Intensifying heat and drought in Northern Ghana
- ! Environmental pressures in the middle belt
- ! Flooding challenges in the middle belt
- ! Rising seas and coastal erosion in southern Ghana.



Migration Dynamics: Despite the hardships, migrants play a crucial role in both urban economies and rural development. Research has shown that remittances sent by urban migrants to their families in northern Ghana constitute a vital source of household income.



Urbanisation Challenges: Rapid urban growth outstrips city infrastructure, leading to extensive informal settlements in Accra, Takoradi, and Kumasi. Flood-prone neighborhoods and precarious housing amplify vulnerability. The National Migration Policy and National Urban Policy provide frameworks but face coordination and funding deficits.

Policy Recommendations adapted to local context

1

Mainstream climate-induced migration into the National Migration Policy

- Northern Ghana's droughts and coastal erosion in the south heighten mobility pressures.
- Climate factors are only loosely integrated in migration governance.
- Strengthening the National Migration Policy can harmonize development, climate adaptation, and migration.

2

Invest in integrated flood management for Accra & Kumasi

- Accra & Kumasi face recurring floods due to heavy rainfall & poor drainage.
- Flood-prone informal settlements are most vulnerable.
- Coordinated drainage upgrades, early warning systems, and resilient infrastructure are critical.

3

Expand rural development programs (e.g., 'One District, One Factory')

- Persistent north-south inequalities push migrants to urban centers.
- Strengthening rural industries, infrastructure, and social services can reduce 'distress migration' and support local resilience.

4

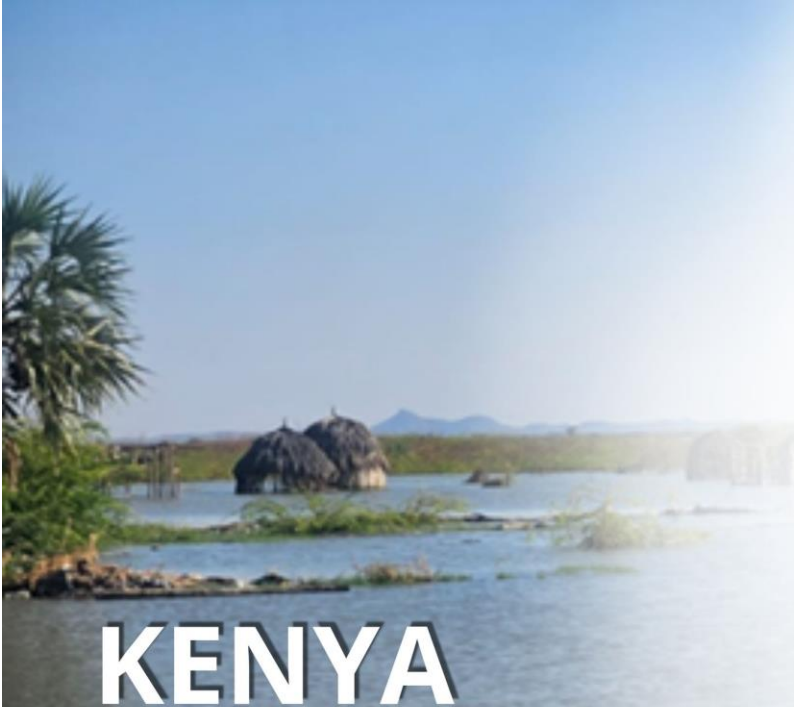
Enhance data collection on internal mobility and climate impacts

- Existing censuses/surveys rarely capture short-term, seasonal, and climate-driven moves.
- Improved data can inform targeted interventions, especially in drought-prone regions.

5

Strengthen local governance & capacity for climate adaptation

- Decentralized governance means local authorities need training/resources to manage flood risks & influx of migrants.
- Strengthening District Assemblies fosters more effective disaster response and climate planning



KENYA

Climate trends and impacts in Kenya

Kenya, situated in East Africa along the equator, is facing significant challenges due to climate change. The country's diverse ecological zones—ranging from arid and semi-arid lands (ASALs) to fertile highlands—are experiencing distinct climate-related impacts that are reshaping its socio-economic and environmental landscapes. Rising temperatures, erratic rainfall patterns, prolonged droughts, and increasingly severe weather events are among the key challenges threatening livelihoods and ecosystems. These climate trends interact with Kenya's existing socio-economic vulnerabilities, exacerbating inequalities, hindering sustainable development, and intensifying climate-induced migration:

- Women and children are disproportionately affected by the impacts of climate change and migration.
- Urban food systems are having a profound impact, where disruptions in rural agricultural production are creating ripple effects on food security and affordability.
- Public health systems are also under growing strain. Rising temperatures and stagnant floodwaters have created ideal breeding conditions for vector-borne diseases such as malaria and dengue fever.

Migration dynamics in Kenya

The predominant migration pattern in Kenya is the rural-to-urban shift, with cities such as Nairobi, Mombasa, and Kisumu attracting a large share of internal migrants. Conversely, rural regions—particularly the ASALs, including Turkana, Mandera, and Garissa—experience high out-migration rates due to limited economic opportunities and escalating environmental stresses.

Migration data underscores the stark disparities fuelling these trends. By 2020, poverty levels in the ASALs averaged 68%, with Turkana's poverty rate exceeding 75%, compared to 29% in urban areas like Nairobi and Mombasa.

While urban centers across Kenya provide opportunities for migrants, they also present significant challenges. Many migrants settle in informal settlements, where overcrowded living conditions, poor sanitation, and inadequate access to healthcare services heighten their vulnerability.

A notable shift in Kenya's migration patterns is the increasing participation of female migrants. While migration provides them with greater economic independence and agency, it also exposes them to significant challenges, including exploitation, gender-based violence, and limited access to social protections.

Urbanisation trends and challenges

In the early post-independence years, urbanisation in Kenya was relatively modest, with only about 8% of the population living in urban areas in 1960. By 2020, this figure had risen to nearly 30%, and projections suggest that by 2050, more than half of the population will reside in urban areas.

A range of factors drives urbanisation in Kenya, with internal migration playing a crucial role. Economic disparities between rural and urban areas push many individuals to seek better opportunities in cities, as rural regions.

A defining feature of urban life is the widespread presence of informal settlements, as cities struggle to meet the housing demands of a rapidly expanding population.

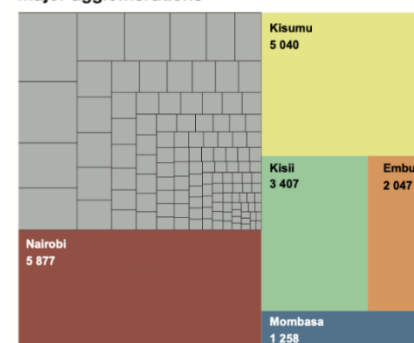
The environmental consequences of urbanisation are also a growing concern. Rapid construction and expansion have resulted in the depletion of forests, wetlands, and other ecosystems that provide crucial environmental services.

Urban resilience efforts are also gaining momentum, with cities like Nairobi and Kisumu investing in climate adaptation strategies such as flood mitigation projects and green infrastructure development.

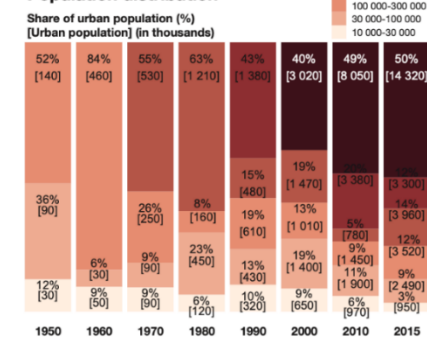
Kenya

Population	Total population 44 157 000	Urban population 28 559 000	Urbanisation level 65 %
Agglomerations	Number of agglomerations 126	Metropolitan population 25 %	Average distance between agglomerations 28 km
Density	Average urban density 1 235 hab./km²	Urban land cover 23 131 km²	Urban land cover/total land cover 4.1 %

Major agglomerations



Population distribution



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Main insights regarding climate, migration, and urbanisation



The **main climate threats** in Kenya are as follows:

- ! Intensifying droughts in ASALs
- ! Changing rainfall patterns in the highlands
- ! Escalating flood risks
- ! Coastal challenges: sea-level rise and erosion



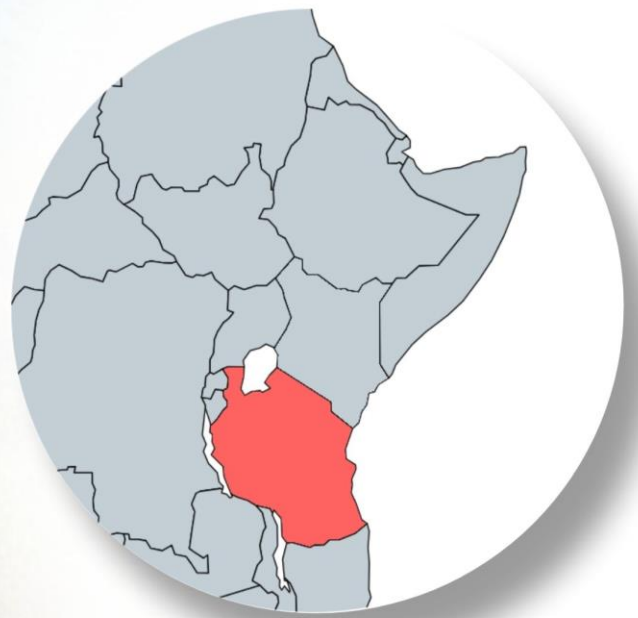
Migration Dynamics: Rural–urban migration to Nairobi, Mombasa, and Kisumu is driven by uneven regional development and persistent drought in the ASALs. Seasonal and circular migration patterns reflect livelihood diversification; pastoralists, for example, move seasonally to manage scarce water and pasture.



Urbanisation Challenges: Urban expansion in Nairobi and Mombasa frequently occurs in floodplains or areas lacking formal planning. Large informal settlements (e.g., Kibera in Nairobi) face overlapping risks of floods, food insecurity, and disease. The National Climate Change Action Plan and Urban Areas and Cities Act guide adaptation and development but limited municipal resources hamper effective implementation.

Policy Recommendations adapted to local context

- 1 Refine the National Climate Change Action Plan to address internal climate mobility**
 - ASALs face recurrent droughts; displaced pastoralists move to cities (Nairobi, Mombasa).
 - Incorporating mobility into climate planning ensures timely support (housing, water, services) in receiving areas.
- 2 Strengthen early warning systems in drought-prone regions (Turkana, Garissa)**
 - ASAL communities rely heavily on pastoralism; timely drought onset info can reduce livestock losses & forced displacement.
 - Early warnings can trigger local-level mitigation & reduce humanitarian crises.
- 3 Upgrade urban infrastructure & services in informal settlements**
 - Rapid urbanization in Nairobi, Mombasa, Kisumu outstrips service delivery.
 - Flooding & poor sanitation in informal settlements multiply health risks.
 - Targeted slum upgrading & resilient housing reduce hazard exposure.
- 4 Expand rural livelihood diversification (e.g., irrigated agriculture)**
 - Persistent droughts threaten subsistence farming & pastoralism.
 - Irrigation, climate-smart agriculture, & value addition can reduce 'distress migration' & boost local economies.
- 5 Enhance policy coordination for rural-urban migration**
 - Multiple agencies handle migration, land use, & disaster management with limited inter-agency cooperation.
 - A central coordinating body can align policies for pastoralist support, social protection, & urban planning.



TANZANIA

Climate trends and impacts in Tanzania

Tanzania is experiencing a range of climate-induced changes, including rising temperatures, unpredictable rainfall patterns, and an increasing frequency of extreme weather events, such as floods and droughts. However, these impacts are not uniform across the country. The southern and semi-arid regions are particularly affected by water scarcity, while coastal and low-lying areas are increasingly vulnerable to recurrent flooding caused by rising sea levels and extreme rainfall events. Studies indicate that Tanzania's annual mean temperatures have been steadily rising, with projections suggesting further increases of 1.5 to 3°C by mid-century.

Agriculture, which serves as the backbone of Tanzania's economy and supports approximately 80% of the population, is especially vulnerable to these climatic changes. As rain-fed agriculture remains dominant, farmers are highly susceptible to fluctuations in precipitation.

Climate change presents substantial threats to human health in Tanzania. Rising temperatures and altered precipitation patterns are creating ideal conditions for the spread of vector-borne diseases such as malaria and waterborne diseases like cholera.

Migration dynamics in Tanzania

Tanzania's internal migration trends can be broadly categorized into rural-to-urban, rural-to-rural, and circular movements. Urban centers, such as Dar es Salaam, Arusha, and Mwanza serve as major destinations for rural migrants seeking improved economic opportunities, particularly within the informal sector. However, the rapid pace of urbanisation driven by these migrations presents significant challenges, including overcrowding, unemployment, and the expansion of informal settlements, where access to essential services remains limited and living conditions are often precarious.

Climate variability, including recurrent droughts and floods, has been a major driver of population movements. In

drought-prone areas, declining agricultural productivity has compelled households to send family members to more viable locations to diversify income sources.

Migration flows are predominantly driven by younger individuals, particularly men, who often move independently to urban centers or agricultural zones in search of better economic prospects.

The economic implications of migration are multifaceted, as it contributes to poverty alleviation, but also exacerbates regional inequalities. The rapid influx of people into urban areas places immense pressure on infrastructure and public services, leading to overcrowding, inadequate housing, and strained healthcare and education systems.

Urbanisation trends and challenges

Urbanisation in Tanzania is a dynamic and evolving process characterized by rapid population growth, spatial expansion, and significant socio-economic challenges. Despite these complexities, urban growth holds immense potential for economic transformation, as cities serve as hubs of innovation, trade, and industrialization, providing opportunities for economic diversification.

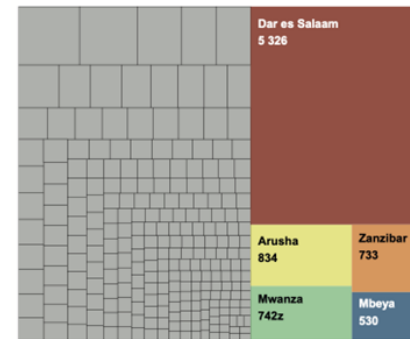
Despite its potential, urbanisation in Tanzania presents challenges linked to the development of infrastructure and services, leading to issues such as overcrowding, traffic congestion, and environmental degradation. Rapid urban expansion often occurs at the expense of natural ecosystems, with forests and wetlands being cleared to accommodate growing populations and infrastructure demands.

Tanzania has implemented various policy measures to manage the challenges of urbanisation. However, it has important shortcomings such as limited financial and technical resources. Efforts to integrate informal settlements into formal urban planning frameworks and encourage vertical development in cities represent important steps toward addressing land scarcity and infrastructure deficits.

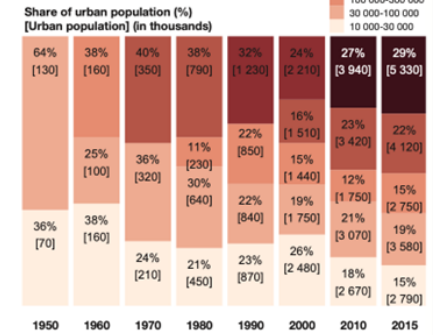
Tanzania

Population	Total population 48 786 000	Urban population 18 567 000	Urbanisation level 38 %
Agglomerations	Number of agglomerations 249	Metropolitan population 29 %	Average distance between agglomerations 24 km
Density	Average urban density 3 357 hab./km ²	Urban land cover 5 531 km ²	Urban land cover/total land cover 0.6 %

Major agglomerations



Population distribution



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Main insights regarding climate, migration, and urbanisation



Climate trends: Rising temperatures, erratic rainfall, and recurrent floods mark Tanzania's climate profile. Drought-prone central regions contrast with flood-susceptible coastal areas like Dar es Salaam.



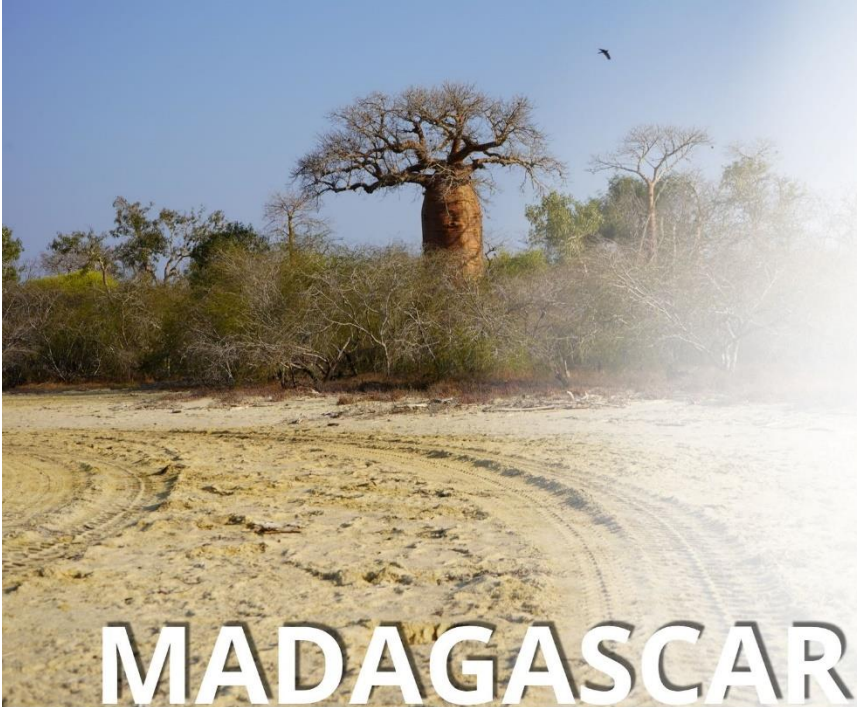
Migration dynamics: Rural–urban flows to Dar es Salaam, Arusha, and Mwanza are motivated by perceived economic opportunities. Environmental stress—especially drought—pushes agricultural communities out of Dodoma and Singida, though many also engage in circular migration to maintain rural ties.



Urbanisation challenges: Dar es Salaam is Africa's fastest-growing city, with extensive informal sprawl and limited infrastructure. Weak coordination between land-use planners, climate agencies, and local authorities leads to unregulated development on flood-prone land. The National Climate Change Strategy and the Urban Planning Act contain climate-related provisions but lack operational capacity and integrated oversight.

Policy Recommendations adapted to local context

- Integrate climate mobility into the National Climate Change Strategy**
 - Recurrent drought in Dodoma & Singida spurs rural-urban migration.
 - Coastal flooding in Dar es Salaam is a growing concern.
 - Mainstreaming migration can guide adaptation priorities & resource allocations.
- Enhance local government capacity for planning in Dar es Salaam & secondary cities**
 - Dar es Salaam is among Africa's fastest-growing cities, with sprawl & flood-prone informal settlements.
 - Limited urban planning capacity heightens vulnerability.
 - Training & resources can help local authorities implement land-use plans & upgrade settlements
- Promote climate-smart agriculture in drought-prone regions**
 - Agriculture remains the main livelihood; recurrent droughts threaten food security.
 - Investments in irrigation, drought-tolerant seeds, & market access reduce forced migration
- Strengthen data systems & research on migration drivers and hotspots**
 - Reliable info on climate mobility is scarce.
 - Coordinated surveys & remote sensing can capture short-term & seasonal movements, guiding targeted interventions.
- Expand flood mitigation & coastal protection measures**
 - Low-lying coastal areas exposed to storm surges & sea-level rise.
 - Infrastructure upgrades (drainage, seawalls, mangrove restoration) needed to safeguard expanding urban areas.



MADAGASCAR

Climate trends and impacts in Madagascar

Madagascar, an island nation off the southeastern coast of Africa, exemplifies the acute and diverse impacts of climate change. Its unique ecosystems and vulnerable communities are facing increasingly severe climatic disruptions, including cyclones, droughts, and erratic rainfall patterns. These challenges are not uniform across the island; rather, they manifest in distinct ways across different regions, each with its own set of vulnerabilities.

In southern Madagascar, drought is the most pressing climate hazard. This arid and semi-arid region has experienced prolonged and worsening dry spells, driven by declining and irregular rainfall patterns. In contrast, Madagascar's eastern rainforests face frequent and intense tropical cyclones. This region, which receives some of the highest rainfall levels on the island, is particularly vulnerable to storms originating from the Indian Ocean. In the central highlands, which serve as Madagascar's agricultural heartland, erratic rainfall patterns and rising temperatures are posing serious threats to rice production.

Efforts to mitigate and adapt to these hazards remain uneven and are constrained by limited resources.

Migration dynamics in Madagascar

Population movements within Madagascar are shaped by regional disparities in economic opportunities, environmental challenges, and social factors, with significant variations across the island's diverse geographic and ecological zones.

It is clear that climate change is an important force disrupting and exacerbating migration patterns across Madagascar. Extreme weather events such as cyclones, droughts, and soil erosion have displaced tens of thousands of people annually.

The compounded effects of climate change and environmental degradation create a vicious cycle where vulnerable populations are often displaced to areas that are themselves at high risk, intensifying competition for already

scarce resources and services. However, internal migration in Madagascar reflects a complex response to economic, environmental, and social challenges.

Urbanisation trends and challenges

Urbanisation in Madagascar reflects the interplay of economic, social, and environmental forces. While cities like Antananarivo, Tamatave, and Morondava, in which urban growth is concentrated, illustrate both the opportunities and challenges associated with urban growth, broader urbanisation trends reveal critical issues related to housing, infrastructure, and environmental resilience. The rapid growth is placing pressure on the cities' infrastructure and services. For example, recent studies indicate that over 60% of Antananarivo's residents live in informal housing, underscoring the challenges of urban planning in the face of rapid population expansion.

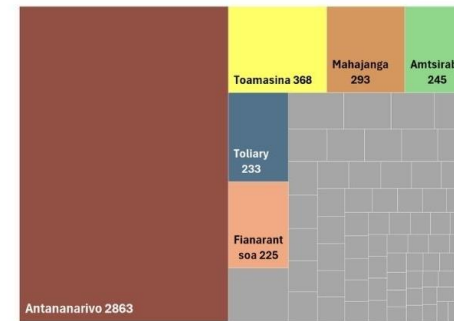
Urbanisation in Madagascar is closely linked to rural-to-urban migration, driven by a combination of push and pull factors. Economic opportunities in cities—such as access to formal employment, better wages, and improved services—act as strong pull factors for rural residents. Meanwhile, environmental challenges, including droughts and soil degradation, push people out of rural areas in search of more stable livelihoods.

Urban development plans, such as those implemented in Antananarivo, have sought to improve housing, transportation, and sanitation, but progress has been slow due to financial constraints and limited institutional capacity. Rapid urban expansion in the capital has led to the proliferation of informal settlements in flood-prone areas, exacerbating the risks posed by climate change and highlighting the critical need for integrated urban planning solutions.

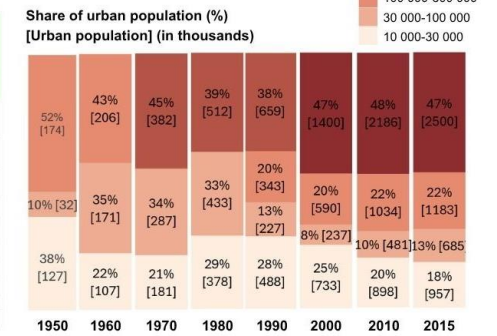
Madagascar

Population	Total population 27 500 000	Urban population 6 231 177	Urbanisation level 23 %
Agglomerations	Number of agglomerations 77	Metropolitan population 50 %	Average distance between agglomerations 50 km
Density	Average urban density 8 400 hab./km²	Urban land cover 740 km²	Urban land cover/ total land cover 0.1 %

Major agglomerations



Population distribution



Africapolis - calculation based on Madagascar 2018 Census and OECD/SWAC 2024 projections

Main insights regarding climate, migration, and urbanisation



Climate trends: The island's ecological diversity features recurrent cyclones in the east, persistent drought in the south, and rising sea levels along the coasts. Southern Madagascar has faced near-famine conditions due to multi-year droughts.



Migration dynamics: Drought-induced displacement from the south is widespread. Coastal livelihoods in western and northern regions face threats from coastal erosion and coral reef degradation, pushing fishers and farming communities toward larger cities like Antananarivo and Tamatave.



Urbanisation challenges: Antananarivo, the capital, struggles with unplanned settlements, flood risks, and insufficient infrastructure. Port city Tamatave attracts rural migrants but suffers from severe cyclones, limited drainage, and vulnerabilities in low-lying areas. National climate policies remain fragmented, and no comprehensive migration policy addresses climate-induced displacement.

Policy Recommendations adapted to local context

- 1 Develop a national policy on climate-induced displacement & rural-urban migration**
 - Southern droughts displace thousands annually, east & north face frequent cyclones.
 - No dedicated policy addresses internal climate-driven mobility.
 - A coordinated framework can link humanitarian relief, adaptation, & urban planning.
- 2 Integrate migration into Plan Emergence Madagascar**
 - Migration to Antananarivo & port cities (Tamatave) spurred by ag. failures & job-seeking.
 - Including climate migration in dev. plans aligns infrastructure investments (housing, transport, drainage) with demographic pressures.
- 3 Strengthen reforestation & nature-based solutions for flood/cyclone risk**
 - Coastal erosion & deforestation worsen flood/cyclone impacts.
 - Community-based mangrove restoration & watershed protection can reduce forced displacement in vulnerable areas.
- 4 Improve urban infrastructure & slum upgrading in Antananarivo & Tamatave**
 - Inadequate drainage, housing deficits, and flooding hamper resilience.
 - Targeted investments to support migrants from the south & other vulnerable groups.
- 5 Enhance cyclone early warning & disaster risk reduction**
 - Cyclones (e.g., Enawo 2017, Batsirai 2022) displaced hundreds of thousands.
 - Upgraded warning systems & local evacuation planning reduce losses & limit prolonged displacements.



SOUTH AFRICA



Climate trends and impacts in South Africa

The arid regions of South Africa, particularly the Northern Cape and parts of the Western Cape, have borne the brunt of climate-driven changes. Over the past two decades, prolonged droughts have severely impacted these areas, crippled agricultural output and leading to critical water shortages.

Climate change is profoundly reshaping South Africa's physical and socio-economic landscapes, with its impacts manifesting in complex and unequal ways. Vulnerable populations, particularly those in rural areas and informal settlements, are disproportionately affected, facing heightened risks to their livelihoods, health, and overall well-being. Addressing these challenges requires a coordinated and multi-faceted approach that integrates scientific insights, robust policy frameworks, and community-driven solutions. The Umzimvubu catchment serves as a microcosm of these broader climate challenges, illustrating both the difficulties and opportunities involved in building resilience.

Health outcomes in South Africa are increasingly intertwined with the impacts of climate change, which pose both direct and indirect threats. Rising temperatures have led to an increase in heat-related illnesses, while shifting precipitation patterns influence the spread of vector-borne diseases such as malaria.

Migration dynamics in South Africa

While mobility has long been a defining feature of South Africa's socio-economic landscape, the drivers, patterns, and outcomes of migration have evolved significantly since the end of apartheid in 1994. These migrations are closely linked to broader trends such as urbanisation, resource distribution, and, more recently, the growing impacts of climate change.

Between 1996 and 2011, internal migration data revealed a significant increase in movement toward urban economic hubs such as Gauteng and the Western Cape.

Economic factors remain the primary drivers of internal migration in South Africa. The pursuit of employment opportunities fuels much of this movement, with persistently high unemployment rates in rural areas pushing individuals toward urban centers.

Climate change has increasingly influenced internal migration patterns in South Africa over the past few decades. Rising temperatures and unpredictable rainfall are placing growing pressure on rural livelihoods, particularly in regions dependent on rain-fed agriculture.

Urbanisation trends and challenges

South Africa's urbanisation trajectory is deeply rooted in its colonial and apartheid legacies, which established profound racial and spatial divides. During apartheid, restrictive policies sought to limit the movement of Black South Africans into urban areas, confining them to designated "homelands" or rural reserves. These restrictions resulted in a dualistic urban landscape, characterized by affluent, predominantly White urban cores and underdeveloped, marginalized peripheral townships.

The abolition of these policies in the early 1990s triggered a wave of rural-to-urban migration, with cities such as Johannesburg. By 2011, South Africa's urban population had risen to over 62%, up from 52% in 1990, with projections indicating it could reach 80% by 2050.

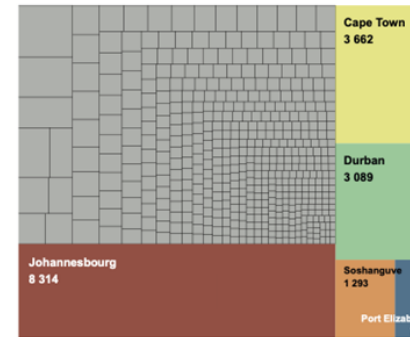
Informal settlements have become a defining feature of South Africa's urbanisation landscape. As rural migrants move to cities in search of employment opportunities, many find themselves living in overcrowded and under-resourced areas on the urban periphery.

Environmental sustainability is another pressing concern within South Africa's urbanisation trajectory. Rapid urban expansion has encroached upon ecologically sensitive areas, contributing to biodiversity loss and heightening vulnerability to climate change impacts.

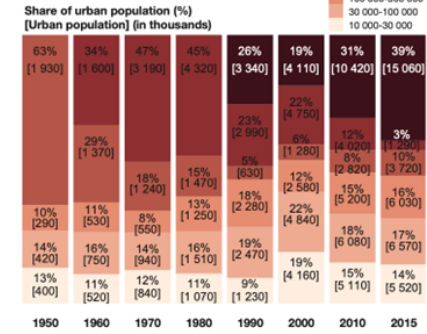
South Africa

Population	Total population	54 647 000	Urban population	38 201 000	Urbanisation level	70 %
	Number of agglomerations	502	Metropolitan population	39 %	Average distance between agglomerations	17 km
Density	Average urban density	3 098 hab./km ²	Urban land cover	12 330 km ²	Urban land cover/ total land cover	1 %

Major agglomerations



Population distribution



AFRICA'S URBANISATION DYNAMICS 2020 © OECD 2020

Main insights regarding climate, migration, and urbanisation



Climate Trends: South Africa's highly variable climate combines severe droughts in the west (e.g., Cape Town's "Day Zero" crisis in 2018) with flooding in KwaZulu-Natal and Eastern Cape. Rising urban heat island effects exacerbate heat stress in major cities.



Migration dynamics: Post-apartheid governance reforms lifted movement restrictions, sparking rural-urban migration into cities like Johannesburg, Cape Town, and Durban. Climate factors—especially drought and soil erosion in the Eastern Cape—further drive out-migration.



Urbanisation challenges: Legacies of spatial segregation persist, with many migrants settling in under-served, peripheral townships. Informal housing expansions aggravate flood and heat vulnerabilities. Although frameworks like the Integrated Urban Development Framework promote inclusive cities, local governance capacity is uneven.

Policy Recommendations adapted to local context

- Incorporate climate migration into the National Climate Change Response**
 - Eastern Cape & Limpopo face rising out-migration due to drought & crop failure.
 - KZN floods also displace local residents.
 - Linking migration with climate frameworks ensures cross-sector coordination (housing, social services).
- Strengthen local government capacities for informal settlement upgrading**
 - Rapid urbanization in Gauteng & Western Cape => sprawling informal settlements with inadequate infrastructure.
 - Municipalities need technical & financial support to integrate climate resilience in upgrading programs.
- Improve data systems on internal migration & climate impacts**
 - Post-apartheid mobility is under-recorded, including climate-driven relocation.
 - Enhanced data is crucial for planning (service delivery, housing, disaster preparedness, social cohesion).
- Tackle xenophobia & enhance social integration policies**
 - Economic competition & inadequate services in major cities spark anti-immigrant sentiment, affecting internal & cross-border migrants.
 - Inclusive dialogues & community policing reduce tensions & support adaptation.
- Expand climate-resilient economic opportunities & skills training**
 - Just transition from coal to renewables can create green jobs.
 - Tailored upskilling programs for urban migrants reduce poverty & enhance adaptive capacity.

KNOWLEDGE GAPS

While the existing body of research has made significant strides in understanding these relationships, substantial knowledge gaps persist. Addressing these gaps is crucial for developing effective policies and interventions to mitigate adverse effects and enhance resilience in affected communities. This section gathers the key areas, identified during our literature review and interviews, where further research is needed to strengthen the evidence base and inform policy decisions.

Data deficiencies: A critical challenge in studying climate-induced migration and urbanisation in SSA is the lack of comprehensive and high-resolution data. Many migration studies still rely primarily on national census data, which are often outdated, incomplete, or inconsistently collected. Additionally, the absence of standardized methodologies for tracking climate-induced migration makes it difficult to compare findings across different regions and time periods.

Climate-migration-urbanisation nexus: the specific ways in which climate impacts interacts with other drivers of migration, as well as the feedback loop between migration and urbanisation remain too poorly understood. In particular, the extent to which migration serves as an adaptive strategy versus a response to economic and environmental distress requires further exploration.

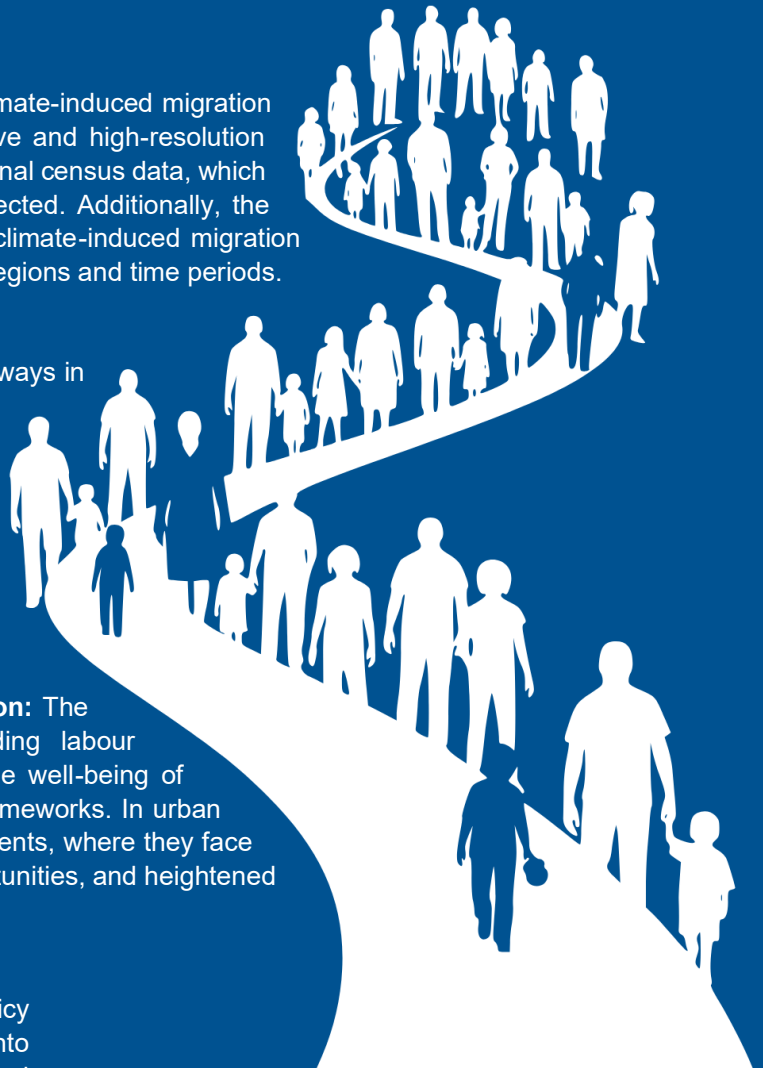
Socioeconomic and health implications of migration: The socio-economic consequences of migration, including labour market integration, access to social services, and the well-being of migrants, remain inadequately addressed in policy frameworks. In urban areas, climate migrants often settle in informal settlements, where they face precarious living conditions, limited employment opportunities, and heightened exposure to health risks.

Governance and policy responses: Existing policy frameworks often fail to integrate climate migration into urban planning and governance structures. Many national adaptation strategies do not adequately address internal displacement caused by climate change, leaving local governments to manage these challenges with limited resources.

Environmental degradation and resource competition: Rapid urbanisation, partly driven by climate migration, intensifies pressure on natural resources, leading to deforestation, water scarcity, and increased vulnerability to climate hazards. However, the extent to which these environmental challenges are exacerbated by migration remains underexplored.

Resilience and adaptation strategies: Although migration is often framed as a challenge, we have seen that it can also serve as a resilience strategy for vulnerable populations. However, there is limited research on how migrants adapt to new environments and how host communities can be supported to facilitate integration.

Translocal strategies: further empirical evidence is needed on how remittances, circular migration, and dual-residence influence both rural and urban resilience.



POLICY RECOMMENDATIONS

Integrate climate mobility into national adaptation plans

Align national urban and climate policies: to address environmental push factors and urban service provision, cohesive frameworks must integrate climate migration into national and local policies.

Enhance coordination: establish inter-ministerial task forces to synchronize migration governance with urban climate planning.

Strengthen local governance and urban resilience

Infrastructure and housing: prioritize public investments in flood defences, resilient housing, and green infrastructure, especially in informal settlements.

Participatory planning: engage migrants and vulnerable groups in decision-making to ensure equitable distribution of adaptation benefits.

Expand research and data collection

Improve migration and climate metrics: develop standardized, high-frequency data mechanisms to track mobility patterns, including city-level registries and remote sensing.

Focus on health and well-being: conduct targeted studies on how climate-induced migration intersects with disease outbreaks, mental health, and household nutrition.

Promote rural resilience to reduce forced migration

Diversify livelihoods: support climate-smart agriculture, livestock diversification, and income-generating activities to stabilize rural incomes and reduce distress migration.

Invest in education and social services: bolster rural schools and healthcare to narrow the rural-urban service gap, thereby decreasing “push factors”.

Harness migration as an adaptation strategy

Facilitate safe and orderly mobility: develop legal pathways and skill-training programs for migrants, ensuring their protection and integration in urban labour markets.

Leverage remittances for adaptation: incentivize diaspora investment and channel remittances into local resilience-building initiatives, such as irrigation and microfinance schemes.

CONCLUSION

This report demonstrates that climate change, migration, and urbanisation in Sub-Saharan Africa are deeply interlinked, yet far more complex than simplistic narratives suggest. Climate hazards—drought, flooding, coastal erosion—contribute to mobility decisions but interact with socio-economic inequalities, governance structures, and individual aspirations. Urban centers can function as engines of resilience if municipal authorities integrate climate adaptation measures, address informal settlement vulnerabilities, and harness migrants' adaptive capacities. However, disjointed policies, limited local capacity, and scarce data hamper effective governance.

A paradigm shift is necessary: rather than viewing migration only as a problem (or the symptom of a failure), it can also serve as a strategic, adaptive response. By building institutional capacity, strengthening data systems, and promoting integrated urban planning, SSA can move toward inclusive policies that embrace mobility as an integral part of resilience. Coordinated national and regional frameworks, backed by sufficient investment and local participation, can ensure that climate-driven urbanisation unfolds in ways that enhance sustainability and equity for all. Whether by stabilizing rural livelihoods or embracing safe migration pathways, actions taken in the next decade will define the region's capacity to navigate the intensifying climate crisis.

