



POLICY BRIEF

Shelter from the storm Climate-accelerated urbanisation in South Africa

Aimée-Noël Mbiyozo

In the next 30 years, climate change will shape South Africans' lives in numerous ways. One of the most significant effects will be seen in accelerated urbanisation, as changing weather patterns drive more and more people to towns and cities. While responses to climate change are gaining momentum in South Africa, climate-linked migration is still severely under-recognised. Rapid urbanisation can pose significant development opportunities, but it also presents risks. To harness the potential of urbanisation and mitigate these risks, urgent action is needed.

Key findings

- ▶ Currently, only 43% of Africans live in cities, but this is fast changing. By 2050, Africa's overall population is projected to double, with two-thirds of the growth expected to occur in cities, amounting to an additional 950 million people.
- ▶ Climate change affects rural production, which in turn accelerates urbanisation.
- ▶ Africa has the lowest carbon emissions in the world, yet it is severely affected by climate change. The continent bears a disproportionate share of the adaptation burden, despite contributing the least to the problem.
- ▶ On the continent, South Africa is the most equipped to address climate change mitigation and adaptation, and has an elaborate climate governance system.
- ▶ Adaptation lags behind mitigation in South Africa and is worryingly under-implemented. Existing frameworks do not account for the impact of climate change on migration, both within South Africa and from other countries.
- ▶ There are recent promising developments for climate adaptation in South Africa. However, even these strategies do not address climate-linked migration.
- ▶ South Africa needs legislation to drive the change required. The 2018 Climate Change Bill was approved by cabinet in September 2021.

Recommendations

At the continental and regional level:

- ▶ Countries must urgently advance mitigation efforts to prevent worst-case climate change scenarios, including unprecedented migration.
- ▶ The African Union, regional mechanisms and states, must prioritise adaptation and develop context specific measures. These strategies must be generated locally and not rely on international interventions.
- ▶ African civil society and experts should identify and advocate for political champions to raise awareness and generate support.
- ▶ The newly formed Presidential Coordinating Commission on Climate should address the incoherence of existing climate change policies across government.
- ▶ Urban planners at local, provincial, academic and civil society levels should mainstream climate-linked migration into their adaptation and sustainability work.
- ▶ Secondary (smaller) cities should be factored into adaptation planning. They have an important role to play in climate adaptation, which is often overlooked.

In South Africa:

- ▶ As the largest carbon emitter in Africa, South Africa needs to adopt policies to mitigate risks associated with carbon emissions.
- ▶ Parliament should push to rapidly enact the 2018 Climate Change Bill now that cabinet has passed it.
- ▶ South Africa should review its National Climate Change Adaptation strategy to include migration-related factors.
- ▶ The short-term economic costs of climate action will be higher than the short-term benefits. Environmental sustainability plans must address fears about related job losses and economic costs.

Introduction

Climate change and urbanisation are two of the most significant global phenomena to affect Africa in the 21st century. These twin challenges overlap, both driving and – in turn – being driven by one another. Yet, responders have been slow to recognise these links and factor them into adaptation planning.

Climate-linked migration tends to be dominated by narratives that focus on mass migration from the global south to the global north. Yet, the majority of climate-linked migrants have been found to move within their own countries and regions, particularly to urban centres.¹ Changing weather patterns and environmental shocks deeply affect rural production, further driving people to relocate to cities. A 2018 World Bank Report predicts that by 2050, there will be 86 million internal climate migrants in sub-Saharan Africa, and that two-thirds of the world's population will live in cities. This number is expected to accelerate unless significant climate mitigation and adaptation measures are taken.²

With 43% of its population living in cities, Africa currently has the world's lowest urban population proportion. However, it is the fastest urbanising continent.³ In 1960, only 20% of Africans lived in cities. By 2050, it is estimated that this will have risen to 60%.⁴ Africa's overall population is projected to double by 2050. Some two-thirds of this growth is expected to occur in cities, amounting to an additional 950 million people.⁵

Urbanisation has significant potential for development, but only if managed well. Evidence from international research shows that doubling a city's population increases per capita gross domestic product (GDP) between 3% and 8%.⁶ In the United States, 80% of the population is urban, while in the European Union 75% of people live in cities.⁷ Urbanisation has the potential to increase structural transformation, generate economies of scale, reduce logistics costs and increase labour markets. It can improve access to education, drive up incomes, boost health and social services, and enable new skills.⁸

Historically, however, urbanisation has not reduced poverty in Africa. Instead, urban poverty has increased.⁹ Up to 70% of Africa's urban population is living in 'slum' conditions.¹⁰ This is due, in part, to relative wealth levels. At 40% urban, sub-Saharan Africa had

a per capita GDP of US\$1 018 – compared to US\$1 806 in the Middle East and North Africa; \$US1 860 in Latin America and the Caribbean; and US\$3 500 in Asia.¹¹ This relative poverty, along with a rapid increase in pressure on bulk infrastructure, has meant that most cities are unable to keep pace with transport, housing, health, water, sanitation, education and other needs. The majority of urban dwellers are exposed to overcrowded housing; inadequate electricity, water and sanitation; and insecure living.

According to University of Oxford's Global Change Data Lab, Africa has the lowest carbon emissions in the world at 3.7%.¹² Yet it is – and will continue to be – one of the hardest hit continents by climate change impacts.¹³ Many parts of Africa are warming faster than the global average. The continent is also particularly reliant on rain-fed agriculture, and has less of the infrastructure needed to moderate climate change impacts. Further, many governments are also facing urgent pressures and resource requirements, such that medium- and long-term adaptation is harder to prioritise. Wealthier countries have fewer socio-economic vulnerabilities and are generally in a better position to adapt.

Climate change measures are divided into two broad categories. The first is mitigation, which refers to reducing carbon emissions to slow or stop climate change; and the second category is adaptation, which refers to adjusting ecological, social and economic systems to reduce vulnerabilities and enhance resilience.

Countries must urgently advance mitigation efforts to prevent worst-case climate change scenarios, including unprecedented migration.

Africa must equally prioritise adaptation measures and ensure that they catch up with mitigation.

Despite contributing the least emissions, Africa bears a disproportionate share of the adaptation burden.

Adaptation measures are highly place-specific, and their costs increase substantially over time. Strategies must be generated and prioritised locally.

This policy brief examines the existing outlook for climate change and urbanisation in South Africa, and does so from a migration perspective. Climate change mitigation is an emergency, and mitigating worst-case scenarios – including mass displacement – is urgent for all countries.

However, this brief focuses on adaptation measures, as this is a policy area where migration should be considered a key factor.

South Africa should be regarded as pivotal in any discussion on climate change in Africa. It is the largest carbon emitter on the continent, and the 12th largest in the world.¹⁴ South Africa's economy is highly dependent on coal, and has a significant degree of carbon-intensive infrastructure.¹⁵ Still, it is better equipped than most of its neighbouring countries to address mitigation and adaptation. South Africa has more access to innovation and technology, and the example it sets is likely to be emulated by other countries.¹⁶ It also has one of the most elaborate climate governance systems of all 'developing and emerging' economies, and responses are gaining momentum as the impacts increase.¹⁷

However, adaptation measures are worryingly under-implemented. Furthermore, existing adaptation frameworks do not account for the effects of climate change on migration, both within South Africa and from other countries. South Africa has a high flow of rural to urban migration, and is also a regional hub for migrants from elsewhere on the continent. Climate change will significantly shape how, where and when people move around the region, yet existing urbanisation models do not account for climate-linked migration.¹⁸

South Africa's role in any discussion on climate change is pivotal as it is the largest carbon emitter in Africa and 12th largest in the world

Urbanisation in South Africa

The current level of urbanisation in South Africa is 67%; up from 54% in 1994.¹⁹ By 2050, the South African population is projected to have increased by 23.6 million people, with 62% of that growth expected to in cities.²⁰

South Africa's history of colonialism and apartheid gave rise to cities with extremely high levels of inequality and very unevenly distributed resources.²¹ Unemployment is significant. Poverty and informality have increased as cities have grown. Many urban migrants have settled in dense, informal spaces that are vulnerable to environmental hazards and face a lack of services, poor land management and inadequate housing.

Despite these difficult conditions, rural to urban migration in South Africa has had a positive effect on poverty reduction. A 2018 Human Sciences Research Council study found that between 2008 and 2014, as many as 385 000 people reduced their poverty levels by half after moving from rural to urban environments.²²

However, this speaks more to the poverty and lack of income opportunities in rural areas than it does to opportunities for economic betterment in urban areas. Many rural migrants are destitute to begin with, and their upward mobility often centres around being able to access labour markets for the first



BY 2050 SOUTH AFRICA'S POPULATION IS PROJECTED TO INCREASE BY 23.6 MILLION WITH 62% OF THAT GROWTH IN CITIES

time – even if informal or casual. Many such migrants maintain a foothold in rural areas, and contribute to the development of these areas through remittances. Apartheid laws that denied black South Africans the right to reside in cities resulted in strong financial and cultural attachments from cities to rural homesteads.²³

South Africa is also a regional hub for African migrants, most of whom are low-skilled migrants from neighbouring countries who seek temporary work.²⁴ There are no legal pathways for this category of migrant. This means that many enter and stay irregularly, and are unable to access public services. Most of these migrants move to cities and reside in informal settlements where locals are already facing high unemployment rates and poor access to basic services. Many locals perceive these migrants as competition for scarce resources, which frequently gives rise to xenophobic violence.²⁵ Politicians and even government departments have contributed to anti-immigrant sentiments by scapegoating foreigners for political failures.

Climate impacts are increasing in neighbouring countries and can be expected to drive even more cross-border migration. Due to the irregular nature of low-skilled African migration in South Africa, data about the number and nature of African migrants in the country is sparse, as is information around the role of climate change.

South Africa's key national governance mechanism for addressing urbanisation is the Integrated Urban Development Framework (IUDF). The 2016 IUDF translates the Sustainable Development Goals and national policies into a set of guidelines for sustainable urban planning and, among other things, addresses climate change factors.²⁶ Implementation, however, has been slow and the government has been criticised for its reluctance to implement its policies.²⁷

While national frameworks are important, land-use planning remains the mandate of local authorities. Much of the work of developing a vision for, and implementing urban planning, is conducted by local and provincial government, academics and non-governmental organisations. In recent years, these entities have had a strong and growing focus on environmental sustainability and climate resilience in cities. This has included energy systems, sustainable infrastructure and land use. Standard models for structural transformation do not, however, include climate-linked migration.²⁸

Emphasis on the role of cities in climate change is growing quickly. In some cases, cities have been taking the lead on climate initiatives over and above national governments. Many cities have conducted climate-change risk assessments, have put in place adaptation plans and are participating in global climate change networks, such as the Global Covenant of Mayors for Climate and Energy, or C40 Cities.²⁹ Some South African metropolitans now include environment and climate adaptation in their mayoral offices.

Climate impacts are increasing in neighbouring countries and can be expected to drive even more inward migration

Secondary cities

South Africa's eight largest cities are defined as metropolitan areas, and are governed by metropolitan municipalities. The next 22 largest cities – determined by population, economic and municipal budget size – are classified as secondary cities.³⁰ Adaptation efforts tend to focus on capital cities with less emphasis on secondary cities, even though the latter have a significant role to play in climate change mitigation and adaptation.³¹

Urban development in the major metropolises across the country can be limited by factors such as physical form and historical land-use patterns.³² Smaller cities often have more opportunities for sustainable development, because there is less existing infrastructure and more prospects for planned development. Secondary cities also, however, typically have less revenue or capacity available for infrastructure changes. In South Africa, smaller cities lack the decision-making authority of larger metropolises, and are more likely to fall under national or sub-national authorities for issues related to urbanisation or climate adaptation.³³ They sometimes also lack the specific human resources needed to minimise climate impacts, such as planners or environmental experts. A 2021 study on small South African cities identified a 'surprisingly persistent gap' in sustainability knowledge and practices in smaller urban spaces.³⁴

Climate change in South Africa

The impact of climate change is escalating in South Africa and projected to worsen. Between 1960 and 2021,

mean annual temperatures in the country have increased by twice the global average (0.7°C).³⁵

Hot and cold extremes have increased. Rainfall seasonality has changed, and intensity has increased. Heat waves are more frequent and dry spells last longer. Crop yields are decreasing, and livestock losses have become more frequent. Food insecurity and food prices have increased, while vector- and waterborne diseases have grown in frequency and intensity.³⁶

Since 1980, there have been 86 weather-related disasters, which have affected more than 22 million people and have cost more than R113 billion in losses.³⁷ In 2018, Cape Town almost became the first major city in the world to run out of water. In the first half of 2021, all provinces experienced flooding.³⁸

Average temperatures are expected to increase between 2°C and 5°C by 2100, depending on mitigation.³⁹ The 2018 Climate Change Bill Socio-Economic Impact Assessment predicts GDP losses of between R217 billion and R651 billion by 2050.⁴⁰ Adaptation costs will increase substantially over time as impacts increase.

Since 1980, there have been 86 weather-related disasters, which have affected more than 22 million people and have cost more than R113 billion in losses

Climate change frameworks in South Africa

There is currently no climate change legislation in South Africa. The Draft Climate Change Bill was published in June 2018, and was approved by Cabinet in September 2021. The approach so far has focused on policy measures to govern climate change. The bill recognises that this approach has proven insufficient at driving the fundamental economic, environmental and social change required to achieve South Africa's climate objectives and meet its international obligations, and that a binding legal framework is necessary.⁴¹

A multitude of policies address climate change across many sectors and departments. The Department of Environment, Forestry and Fisheries is the focal point for these policies. Sector departments, provincial and local governments are also responsible for developing and implementing strategies and plans. Multiple institutional structures exist, such as the Presidential Climate Change Coordination Commission, the Inter-Ministerial Committee on Climate Change, and the Provincial Forum on Climate Change. These structures are responsible for coordinating coherence and implementation across government and with other stakeholders, including business partners, civil society and researchers.⁴²

Despite relatively strong governance, South Africa's climate change progress has been delayed and fractured. A lack of alignment and policy coherence, limited human and financial resources and a shortage of relevant skills are key

SOUTH AFRICA WILL INCUR
PROJECTED GDP LOSSES
OF BETWEEN
R217–R651
BILLION
BY 2050 DUE TO
CLIMATE CHANGE

challenges.⁴³ Coherence across levels of government, agencies, departments and ministries has been weak, and this has slowed implementation.⁴⁴

South Africa has a Disaster Management Act (2002) and Amendment Act (2015), which require cities and provinces to have comprehensive disaster risk-reduction plans. These plans are of great relevance to climate-linked migration, because disasters often fuel migration. South Africa has also enacted the Spatial Planning and Land Use Management Act (2013), which requires detailed municipal land-use plans. However, these actors and systems are isolated from those working on climate change.⁴⁵ A Climate Change Act would legally require climate change plans and significantly strengthen responses.

There is currently no climate change Act as the Draft Climate Change Bill was published in June 2018 but has not yet been enacted

Internationally, South Africa ratified the Paris Agreement on Climate Change in 2016. It complies with the United Nations Framework Convention on Climate Change (UNFCCC) reporting guidelines, and has submitted three Biennial Update Reports, with a draft of the fourth prepared for submission in 2021.⁴⁶ It is also complying with the requirement to deposit a Nationally Determined Contribution with the UNFCCC every five years. The updated draft has been launched for public consultation for deposit this year.⁴⁷

Adaptation instruments

The majority of climate change policies in South Africa are focused on mitigation, while adaptation has received very little attention.⁴⁸ This section analyses national-level adaptation policies, and examines how they address climate-linked movement. A summary of these policies follows in Chart 1.

The adoption of NCCAS in 2020 and the launch of the 2021 NDC draft, which is based on the NCCAS, are promising developments for climate adaptation, which has lagged behind mitigation. However, even these instruments do not address climate-linked migration.

The NCCAS is comprehensive and provides thorough details for priority sectors, namely water, agriculture, commercial forestry, health, biodiversity, ecosystems and disaster risk reduction and management. It identifies impacts on human settlements and the need to relocate businesses to areas that have lower risks of climate impacts. Yet the NCCAS fails to address the links between climate change and migration, or the adaptation measures needed to address them.

The sole mention of migration falls under the research chapter. It calls for the development of a research roadmap, and includes 'the relationship between climate change and rural urban migration' in a list of potential research areas.⁵⁵



1 NOVEMBER
SOUTH AFRICA RATIFIED
THE PARIS AGREEMENT
ON CLIMATE CHANGE

Chart 1: South African climate adaptation instruments

Instrument	Date	Description	Ways for migration to be included
National Climate Change Response White Paper ⁴⁹	2011	Comprehensive strategy paper addressing mitigation and adaptation measures. It acknowledges that, even if slowed, climate impacts are and will continue to occur and measures need to be taken to reduce vulnerabilities to the adverse effects. It advocates to prioritise near-term adaptation interventions, while researching and developing longer-term measures.	Lays a foundation for migration considerations without directly referencing them. Identifies human settlements as a key focus area for adaptation strategies and calls for improved planning tools.
National Development Plan ⁵⁰	2012	Seeks to deliver environmental protection by 2030. It highlights climate change as a key element, and includes a vision and pathways for a just transition towards a climate-resilient economy and society.	The plan is guided by the implications of climate change on vulnerable groups. Migrants should be included as a vulnerable group.
National Climate Change Adaptation Strategy (NCCAS) ⁵¹	2017 Adopted in 2020	This is a 10-year strategy for all adaptation efforts. It outlines nine strategic interventions and seeks to integrate adaptation across sectors. It calls to improve understanding of climate change impacts. It serves as the National Adaptation Plan, as required under the Paris Agreement.	Since it has been adopted in 2020, the five-year review should mainstream migration considerations. Panels should include migration and urbanisation experts.
Climate Change Bill ⁵²	2018 Not yet enacted Adopted by cabinet Sept 2021	Clearly differentiates between mitigation and adaptation and calls for a National Adaptation Plan to be reviewed every five years. It seeks to reduce overall social, economic and environmental vulnerability; strengthen resilience; and enhance adaptive capacity using an integrated and coordinated approach across all spheres of government.	The bill should be enacted urgently to legally require climate change plans. These plans should include migration-related factors.
Nationally Determined Contribution (NDC 2021) ⁵³	2021 draft	Submission for the United Nations Conference of the Parties (COP 26). The NDC 2021 addresses adaptation and bases the contribution on the NCCAS.	The NDC should reflect NCCAS and include migration-related factors.
Annual Climate Change Reports ⁵⁴	2015 and 2016	Reflects on and updates the South African public on climate change progress across all sectors. The reports address adaptation and develop eight desired adaptation outcomes needed to become more climate resilient.	The reports should be reinstated and include migration-related factors.

Source: Author

The NDC reflects mostly the same content as the NCCAS, and provides a similarly thorough analysis of the impacts of climate change on sustainable development and poverty eradication. It provides actions and costs for the economic areas that will be most affected – namely health, agriculture and forestry, human settlements, biodiversity and water. The NDC also outlines detailed strategic objectives, interventions and outcomes. It calls for efforts to be made to ‘improve the understanding and awareness of climate change impacts and capacity to respond...’ and to ‘develop a pipeline of adaptation activities to support South Africa’s just transition to a climate resilient economy and society’.⁵⁶ But it does not address migration.

As the impact of climate change intensifies across Southern Africa, movement will not only increase, but existing migration patterns will change

These two documents represent a promising increase in attention towards the adaptation aspect of climate change responses. While neither instrument sufficiently addresses climate-linked migration, both call for more research, knowledge and lessons learned. These strategies will be reviewed regularly. It is imperative that migration-related impacts be included in these reviews so that measures will be incorporated into future strategies and plans.

Conclusion

As the impact of climate change intensifies across Southern Africa, movement will not only increase, but existing migration patterns will change. Diminishing yields in rural areas from increased drought and less reliable rainfall will drive people toward cities. Coastal erosion, salinisation and sea-level rise will also push some communities inland. Sudden-onset climate events will displace large numbers of people. Cities that are more vulnerable to climate change could lose some population groups, while more resilient ones will grow at faster rates. In some cases, the planned relocation of vulnerable communities could occur.

These climate-linked migration issues will have a significant impact on South Africa, but have not yet featured in climate change adaptation strategies. South Africa is making fractured progress towards climate change objectives, but has thus far demonstrated a worrying lack of political will in this domain.

In December 2020, the president appointed a Presidential Coordinating Commission on Climate. It will reportedly plan the transition to reach net zero emissions by 2050 and addresses both mitigation and adaptation. It is unclear how the commission will use or advance existing instruments. In April 2021, President Cyril Ramaphosa participated in the G7 Leaders’ Summit in the United Kingdom and called climate change ‘the most pressing issue of our time’.⁵⁷



SHORT-TERM ECONOMIC
COSTS OF CLIMATE ACTION
WILL BE HIGHER THAN
SHORT-TERM BENEFITS

Meanwhile, the 2018 Climate Change Bill has not been enacted. The 2021 NDC references the Climate Change Bill and says it ‘provides a legislative basis for the implementation of the NCCAS’ – even though it is not enacted. In the 2020 State of the Nation Address, President Ramaphosa promised that the bill would be finalised, but this has not yet happened. Similarly, the implementation of the NCCAS, which the NDC describes as ‘the key domestic policy instrument to guide implementation’ is still slow and ad hoc. Adaptation Reports were prepared in 2015 and 2016, but not since. These were good tools that looked comprehensively at adaptation and made strong calls to learn from successes and failures.

Given competing socio-economic pressures in South Africa, the costs and constraints of climate action appear high. The short-term economic costs will be higher than the short-term benefits. This is politically difficult to endorse at a time of high unemployment and uncertainty. As such, no true climate change champions have emerged. Any environmental sustainability plans must address fears related to possible job losses and economic costs, even if only short-term.

Notes

- 1 A Mbiyozo, Migration: a critical climate change resilience strategy, Institute for Security Studies Policy Brief, 8 Dec 2020, <https://issafrica.org/research/policy-brief/migration-a-critical-climate-change-resilience-strategy>.
- 2 K Rigaud *et al.*, Groundswell: Preparing for internal climate migration, The World Bank, 2018, www.unclearn.org/wp-content/uploads/library/wbg_climatechange_final.pdf.
- 3 J Campbell, Africa is the fastest urbanizing place on the planet, Council on Foreign Relations, 12 September 2018, www.cfr.org/blog/africa-fastest-urbanizing-place-planet.
- 4 Esri StoryMaps team, Urban Africa, ARCGIS, 14 May 2020, <https://storymaps.arcgis.com/stories/73a4b40120b44a3fb9d6935d53d49330>.
- 5 OECD/SWAC, Africa’s urbanisation dynamics 2020: Africapolis, Mapping a new urban geography, West African Studies, OECD Publishing, 2020, https://read.oecd-ilibrary.org/development/africa-s-urbanisation-dynamics-2020_b6bccb81-en#page6.
- 6 S Lall, Prerequisites to getting Africa’s urbanization ‘right’, Brookings Institute, 21 Jan 2020, www.brookings.edu/blog/africa-in-focus/2020/01/21/prerequisites-to-getting-africas-urbanization-right/.
- 7 The World Bank, United Nations population division, ‘Urban Population (% of total population)’, World Urbanization Prospects, 2018 revisions, <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS>.
- 8 J Teye, Urbanisation and migration in Africa, Expert Group Meeting, United Nations, 1–2 November 2018, www.un.org/en/development/desa/population/events/pdf/expert/28/EGM_Joseph_Teye_ppt.pdf.
- 9 P Madden and J Gutman, Urban economic growth in Africa: Analyzing constraints to agglomeration, Africa in Focus, Brookings Institute, 30 October 2020, www.brookings.edu/blog/africa-in-focus/2020/10/30/urban-economic-growth-in-africa-analyzing-constraints-to-agglomeration/.
- 10 R Goyal and A Sy, Mobilizing Africa’s rapid urbanization for sustainable climate change, Brookings Institute, 2 December 2015, www.brookings.edu/blog/africa-in-focus/2015/12/02/mobilizing-africas-rapid-urbanization-for-sustainable-climate-change/.
- 11 P Madden and J Gutman, Urban economic growth in Africa: Analyzing constraints to agglomeration, Africa in Focus, Brookings Institute, 30 October 2020, www.brookings.edu/blog/africa-in-focus/2020/10/30/urban-economic-growth-in-africa-analyzing-constraints-to-agglomeration/.
- 12 H Ritchie and M Roser, CO₂ and Greenhouse Gas Emissions, Global Change Data Lab, 2020, Oxford University, <https://ourworldindata.org/co2-emissions>.
- 13 J Opoku Gakpo, Oxfam: The world’s poor suffer disproportionately from carbon emissions generated by the rich, Cornell Alliance for Science, 25 September 2020, <https://allianceforscience.cornell.edu/blog/2020/09/oxfam-the-worlds-poor-suffer-disproportionately-from-carbon-emissions-generated-by-the-rich/>.
- 14 Global Carbon Atlas, Fondation PNB Paribas, 2019, www.globalcarbonatlas.org/en/CO2-emissions.
- 15 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa’s First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 16 D Simon *et al.*, Responding to climate change in small and intermediate cities: comparative policy perspectives from India and South Africa, *Sustainability*, 2021, 13, 2382. <https://doi.org/10.3390/su13042382>.
- 17 A AVerchenkova *et al.*, Governance of climate change policy: A case study of South Africa, London School of Economics and Political Sciences, Grantham Research Institute on Climate Change and the Environment, June 2019, www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/06/GRI_Governance-of-climate-change-policy_SA-case-study_policy-report_40pp.pdf.
- 18 R Goyal and A Sy, Mobilizing Africa’s rapid urbanization for sustainable climate change, Brookings Institute, 2 December 2015, www.brookings.edu/blog/africa-in-focus/2015/12/02/mobilizing-africas-rapid-urbanization-for-sustainable-climate-change/.
- 19 The World Bank, United Nations Population Division, Urban Population (% of total population) South Africa, World Urbanization Prospects, 2018 revisions, <https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=ZA>.
- 20 A Le Roux *et al.*, South Africa’s urban future growth projections for 2050, Green Book, Council for Scientific and Industrial Research, 2019, <https://pta-gis-2-web1.csir.co.za/portal/apps/GBCascade/index.html?appid=5180459a765c4e63bfb3fa527c7302b3>.
- 21 D Simon *et al.*, Responding to Climate change in small and intermediate cities: comparative policy perspectives from India and South Africa, *Sustainability*, 2021, 13, 2382. <https://doi.org/10.3390/su13042382>.
- 22 I Turok, Rural migrants better off in cities, *Mail & Guardian*, 26 April 2018, <https://mg.co.za/article/2018-04-26-00-rural-migrants-better-off-in-cities/>.
- 23 Ibid.
- 24 AN Mbiyozo, Aligning South Africa’s migration policies with its African vision, Institute for Security Studies Policy Brief, 25 October 2018, <https://issafrica.s3.amazonaws.com/site/uploads/pb117.pdf>.
- 25 G Mulaudzi *et al.*, Busting South Africa’s xenophobic myths starts at grassroots, *ISS Today*, Institute for Security Studies, 12 April 2021, <https://issafrica.org/iss-today/busting-south-africas-xenophobic-myths-starts-at-grassroots>.
- 26 Department of Cooperative Governance and Traditional Affairs, Republic of South Africa, Integrated Urban development Framework, 2016, www.africancentreforcities.net/wp-content/uploads/2017/05/UDF-2016_WEB-min.pdf.

- 27 D Simon *et al.*, Responding to Climate change in small and intermediate cities: comparative policy perspectives from India and South Africa, *Sustainability*, 2021, 13, 2382. <https://doi.org/10.3390/su13042382>.
- 28 R Goyal and A Sy, Mobilizing Africa's rapid urbanization for sustainable climate change, Brookings Institute, 2 December 2015, www.brookings.edu/blog/africa-in-focus/2015/12/02/mobilizing-africas-rapid-urbanization-for-sustainable-climate-change/.
- 29 C40 Cities, Cities, accessed 10 July 2021, www.c40.org/cities.
- 30 D Simon *et al.*, Responding to climate change in small and intermediate cities: comparative policy perspectives from India and South Africa, *Sustainability*, 2021, 13, 2382. <https://doi.org/10.3390/su13042382>.
- 31 B Kareem *et al.*, Pathways for resilience to climate change in African cities, *Environmental Research Letter* 15 073002, 2020, <https://iopscience.iop.org/article/10.1088/1748-9326/ab7951>.
- 32 The World Bank, Urban Development, 20 April 2020, www.worldbank.org/en/topic/urbandevelopment/overview.
- 33 D Simon *et al.*, Responding to climate change in small and intermediate cities: comparative policy perspectives from India and South Africa, *Sustainability*, 2021, 13, 2382. <https://doi.org/10.3390/su13042382>.
- 34 Ibid.
- 35 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Full technical report on climate trends and scenarios for South Africa, 2013, www.environment.gov.za/sites/default/files/docs/climate_trends_scenarios.pdf.
- 36 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 37 Ibid.
- 38 A Le Roux, Urban South Africa is ill-prepared for the coming climate change storm, *ISS Today*, Institute for Security Studies, 4 June 2021, <https://issafrica.org/iss-today/urban-south-africa-is-ill-prepared-for-the-coming-climate-change-storm>.
- 39 N Ngepah *et al.*, The impact of climate change on economic production and growth, Green Book, Council for Scientific and Industrial Research, 2019, <https://pta-gis-2-web1.csir.co.za/portal/apps/GBCascade/index.html?appid=d566b75b27f544839a100edb1526ce31>.
- 40 Department of Planning, Monitoring and Evaluation, Republic of South Africa, Socio-economic Impact Assessment System, Final Impact Assessment (Phase 2), Climate Change Bill, December 2017, www.environment.gov.za/sites/default/files/docs/seia_climatebill.pdf.
- 41 Ibid.
- 42 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 43 A AVerchenkova *et al.*, Governance of climate change policy: A case study of South Africa, the London School of Economics and Political Sciences, Grantham Research Institute on Climate Change and the Environment, June 2019, www.lse.ac.uk/granthaminstitute/wp-content/uploads/2019/06/GRI_Governance-of-climate-change-policy_SA-case-study_policy-report_40pp.pdf.
- 44 Department of Planning, Monitoring and Evaluation, Republic of South Africa, Socio-economic Impact Assessment System, Final Impact Assessment (Phase 2), Climate Change Bill, December 2017, www.environment.gov.za/sites/default/files/docs/seia_climatebill.pdf.
- 45 M Chersich and C Wright, Climate change adaptation in South Africa: a case study on the role of the health sector, *Global Health*, 15, 22, 2019, <https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-019-0466-x>.
- 46 Department of Forestry, Fisheries and the Environment, Republic of South Africa, South Africa's 4th Biennial Update Report to the United Nations Framework Convention on Climate Change, March 2020, www.environment.gov.za/sites/default/files/reports/biennialupdatereport04tounfccc_zeroorderdraft.pdf.
- 47 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 48 M Chersich and C Wright, Climate change adaptation in South Africa: a case study on the role of the health sector, *Global Health*, 15, 22, 2019, <https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-019-0466-x>.
- 49 Department of Forestry, Fisheries and the Environment, Republic of South Africa, National Climate Change Response White Paper, 2011, www.environment.gov.za/sites/default/files/legislations/national_climatechange_response_whitepaper_0.pdf.
- 50 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 51 Department of Forestry, Fisheries and the Environment, Republic of South Africa, National Climate Change Adaptation Strategy, Version UE10, 13 November 2019, www.environment.gov.za/sites/default/files/docs/nationalclimatechange_adaptationstrategy_ue10november2019.pdf.
- 52 Republic of South Africa, Climate Change Bill 2018 (B-2018), www.environment.gov.za/sites/default/files/legislations/climatechangebill2018_gn41689.pdf.
- 53 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 54 Department of Forestry, Fisheries and the Environment, Republic of South Africa, South Africa's Second Annual Climate Change Report, 2016, www.environment.gov.za/sites/default/files/reports/southafrica_secondnational_climatechnage_report2017.pdf.
- 55 Department of Forestry, Fisheries and the Environment, Republic of South Africa, National Climate Change Adaptation Strategy, Version UE10, 13 November 2019, www.environment.gov.za/sites/default/files/docs/nationalclimatechange_adaptationstrategy_ue10november2019.pdf.
- 56 Department of Forestry, Fisheries and the Environment, Republic of South Africa, Proposed updated Nationally Determined Contribution, South Africa's First Nationally Determined Contribution under the Paris Agreement, 30 March 2021, www.environment.gov.za/mediarelease/creecy_indc2021draftlaunch_climatechangecop26.
- 57 Remarks by President Cyril Ramaphosa at the virtual Leaders' Summit on Climate, 22 April 2021, www.thepresidency.gov.za/speeches/remarks-president-cyril-ramaphosa-virtual-leaders%27-summit-climate.

About the author

Aimée-Noël Mbiyozo is a Senior Research Consultant at the Institute for Security Studies. She is a migration expert whose research covers a broad range of intersecting issues, including climate change, gender, refugee rights, violent extremism and citizenship in high-flow regions such as Africa, the Middle East and Asia.

About ISS Policy Briefs

Policy Briefs provide concise analysis to inform current debates and decision making. Key findings or recommendations are listed on the inside cover page, and infographics allow busy readers to quickly grasp the main points.

About the ISS

The Institute for Security Studies (ISS) partners to build knowledge and skills that secure Africa's future. The ISS is an African non-profit with offices in South Africa, Kenya, Ethiopia and Senegal. Using its networks and influence, the ISS provides timely and credible policy research, practical training and technical assistance to governments and civil society.

Development partners



This policy brief is funded by the Hanns Seidel Foundation. The ISS is also grateful for support from the members of the ISS Partnership Forum: the Hanns Seidel Foundation, the European Union, the Open Society Foundations and the governments of Canada, Denmark, Finland, Ireland, the Netherlands, Norway, Sweden and the USA.

© 2021, Institute for Security Studies

Copyright in the volume as a whole is vested in the Institute for Security Studies and the authors, and no part may be reproduced in whole or in part without the express permission, in writing, of both the author and the publishers.

The opinions expressed do not necessarily reflect those of the ISS, its trustees, members of the Advisory Council or donors. Authors contribute to ISS publications in their personal capacity.

Cover image: Amelia Broodryk/ISS

