

# Climate, Environment, and Migration: Experiences of Migrants in South Africa

## Abstract

This article examines the impacts of climate- and environment-related adversities on migration from other sub-Saharan African countries to the prominent migration destination of South Africa. It describes factors and processes influencing migration decisions and identifies migration policy implications. Information was gathered through in-depth qualitative research conducted with 20 migrants now residing in South Africa's Gauteng province, as well as interviews with key informants with expertise on migration and climate change, and a review of existing literature.

The principal finding is that, although climatic and environmental stresses are not the primary drivers of migration, they play important direct and indirect contributing roles, often intersecting with economic, political, social, and demographic drivers. Whether people respond to adverse conditions by migrating depends on the obstacles and facilitating factors, personal and household characteristics, and expectations of the destination. National and international migration policies need to more comprehensively address these increasingly important determinants of migration.

**Keywords:** Migration; Climate change; Environment; Migration drivers; Decision-making

## Introduction

*By that time, the sun was heating. It was too hot at that time. We were not receiving enough rain, like before. So, how can you manage yourself to live on that side? If you try to farm, you can't get enough. We can't even get jobs. Do we just have to die in South Africa now? They want to kill us here.*

– A Zimbabwean migrant in South Africa

Climate change is a major concern among researchers and policy makers. Its relationship with migration has received widespread popular attention, but is not yet adequately addressed in migration policy. Globally, the impacts of anthropogenic climate change on humans and natural systems are occurring at a rapid pace (IPCC, 2021), leading people to adopt a wide range of coping and adaptation strategies, including migration (Cattaneo *et al.*, 2019; IPCC, 2022). Human displacement and mobility are expected to increase under projected climate change impacts, especially in the Global South (Cattaneo *et al.*, 2019; IPCC, 2022). Although cross-border movements can provide opportunities, they can also entail a host of challenges in receiving countries, such as conflict over scarce resources and heightened ethnic or xenophobic tension (Freeman, 2017; Kumari Rigaud *et al.*, 2018;).

Sub-Saharan Africa (SSA) stretches across a large area with an immense diversity in terms of people, histories, and environments (NASAC, 2015). Nonetheless, the IPCC<sup>1</sup> (2014b) has identified SSA as a whole as one of the world's regions most vulnerable to climate change impacts. This is attributed to multiple factors, such as high exposure to projected changes (UNEP, 2013), limited adaptive capacity (FAO, 2008), and a high dependence on rainfed agriculture (World Bank, 2013). South Africa, being one of SSA's main destination countries for migration (DHA,

2017), therefore provides a useful context within which to study the interaction between climate, environment and migration.

As such, a thorough understanding of the underlying causes, outcomes, and scale of climate- and environment-related migration in SSA, and to South Africa in particular, is of significant importance to human well-being and development in the region. This article contributes new empirical information and insights for migration and development debates in the region and beyond.

Despite the prominence of climate change debates, based on having reviewed all the South African immigration and climate change policies and searched (using commonly available search engines and the University of Pretoria library) for academic literature on climate change, migration and South Africa, it appears that little research and no explicit policies exist on climate- and environment-related adversities and migration to South Africa. Mastrorillo *et al.* (2016), carried out a study of the influence of climate variability on internal migration in South Africa. They found that indeed climate factors, in particular increased heat and less rainfall, were contributing to out-migration from parts of South Africa. They did not, however, look at external migration from outside South Africa. In 2020 – as the research for this article was underway – the South African Department of Environment, Forestry and Fisheries started a process to examine the links between climate, environment, and migration to South Africa. It is notable that the department responsible for migration policy (Home Affairs) is not involved in this process and that current South African migration policy documents make no mention of policies addressing climate- and environment-related migration. Also in 2020, the Southern African Development Community (SADC) initiated the development of a “SADC Regional Migration Policy Framework”. Unfortunately, the terms of reference for this process make only a single brief mention of the environment and say nothing on climate change.

Greater awareness of climatic and environmental impacts on migration is expressed in the African Union’s (AU’s) *Revised Migration Policy Framework for Africa and Plan of Action (2018-2027)*. It references the role of environmental factors in causing migration and the environmental impacts of migration, articulates the need to incorporate environmental considerations into national and regional migration policies, and calls for more international collaboration to this end, including with regard to strengthening research needed for effective implementation (AU, 2018). Recent reports, like the *Africa Migration Report* by the International Organisation for Migration (IOM) and the African Union (IOM and AU, 2020) and the *IOM Continental Strategy for Africa 2020-2024* (IOM, 2020) build and elaborate on these themes that still need to be better incorporated into national policies.

We focus on the climate-environment-migration nexus; specifically, we explore how and why migrants from other SSA countries made the decision to leave their homes for South Africa’s Gauteng province. We provide empirical evidence, of at least some migrant experiences, focussed on actual migrants’ experiences, to explore the human dimension of the interplay between climate- and environment-related stresses and migration decision-making. As such, the article aims to contribute to a deeper understanding of the implications of projected climate change and environmental degradation on future migration and, through this, to contribute to debates and work on reshaping national and international migration policy.

After this introduction, this article consists of six more sections. First, in the section below, we provide a brief overview of the academic debates on the links between climate, environment and migration since the 1980s and give a justification for our use of the term ‘climate- and

environment-related migration'. The section thereafter gives a summary of the methodology for the research that informs this article. This is followed by a presentation of the conceptual framework applied in the study. We then describe the migration drivers experienced by migrants participating in the study. This is followed by a section in which we focus on the migration decision-making process migrant-participants went through before making the journey to South Africa, as well as insights into their experiences during and after migration. In the final section of the article, we synthesise the findings of the study and draw conclusions.

## Critiquing the 'maximalist' narrative

With a growing awareness of anthropogenic climate change, the 1980s and 1990s saw a rise in publications focussing on the relation between environment and migration. In particular, the debate was sparked by El-Hinnawi (1985) and Jacobson (1988) who popularised the term *environmental refugees*. In 1990 the IPCC warned in their first Assessment Report that the most severe impacts of climate change may be on human migration, by causing the displacement of millions of people (IPCC, 1990). Myers (1993) predicted the number of environmental refugees created by climate change would be 150 million by 2050, and then, in 1996, he estimated the number of people fleeing sea-level rise alone would be 200 million (Myers, 1996). A year later, an IPCC report suggested that sea-level rise and coastal sinking could displace tens of millions (IPCC, 1997). This narrative was taken up by development, aid, and environmental organisations. Christian Aid, for example, estimated that without strong action, one billion people could be displaced by climate change before 2050 (Christian Aid, 2007). Similar claims were made by the International Federation of Red Cross and Red Crescent Societies, Friends of the Earth, and Greenpeace (IFRC, 2002; FOE Australia, 2007; Greenpeace Germany, 2007). Myers (1995:13) wrote that for developed countries the prospect will increasingly become one of two options: "export the wherewithal for sustainable development for communities at risk – or import growing numbers of environmental refugees."

This 'maximalist' narrative has, however, been critiqued by migration researchers (Piguet *et al.*, 2011), with works from the 'minimalist' perspective (Suhrke, 1993; Morrissey, 2009) making three main arguments. Firstly, clear causal relationships between climate change and migration are difficult to establish; migration decisions are usually multicausal and their links with climate change are complex and nonlinear (Castles, 2002; Morrissey, 2009; Black *et al.*, 2011; Foresight, 2011, Kniveton *et al.*, 2013; Freeman, 2017). Secondly, as many studies have suggested, the maximalist predictions largely ignore people's agency and gloss over social, cultural, political, and economic dynamics preventing migration or providing alternative adaptation strategies (Mortreux and Barnett, 2009; Foresight, 2011; Kniveton *et al.*, 2013; Penning-Rowsel *et al.*, 2013; Freeman, 2017; Nawrotski and Bukhtsiyarava, 2017; Hammond, 2018). The third objection is based on concerns about the legal implications of using the term 'refugee', given its specific meaning under international law and the risk of blurring distinctions between 'migrants' and 'refugees', with potentially negative consequences for those politically persecuted (McGregor, 1993; Kibreab, 1994; Castles, 2002).

Aware of these debates, we recognise the complexity of the interplay between climate, environment, and migration. We use the term 'climate- and environment-related migration', first proposed by Martin (2016), as it allows for the observation of migration in the context of climatic and environmental adversities, while still recognising the multicausality of migration decisions and the complexity of structural and agential factors shaping them.

## Methodology

This article is based on qualitative research capturing in-depth personal experiences and perspectives of migrants and wider information from experts and literature. Literature was gathered using academic online search engines and the University of Pretoria library. Migration policy documents from South Africa, SADC and the AU, which are all available online, were gathered and studied as well. While having a particular interest in environmental factors, we explored the full range of migration drivers experienced by research participants. These participants included immigrants and key informants, for which specific eligibility criteria were applied. In the case of the migrant-participants, we selected for adults from other SSA countries residing in South Africa's Gauteng province. With key informants, we specifically approached experts from academia, NGOs and multilateral organisations with experience in working on migration, climate change and environment. Whereas conducting interviews with migrants allowed us to zoom into their personal experiences, speaking with key informants enabled us to gain better insight into broader processes and conditions underlying people's migration behaviour, which migrants themselves may not always be aware of. Although interviews with key informants are not explicitly referenced later in this article, they did provide essential context to the individual stories of migrants.

Information from the research participants, including the key informants, was gathered through semi-structured interviews and were conducted from March to September of 2020. The semi-structured character of the interviews meant that, though interview guides with preformulated, open-ended questions were used, interviews held with several research participants were not confined to the themes in the interview guides and further probing into themes discussed could – and did – take place. Repeat visits and follow up discussions were held with a number of the research participants who were still available and could be found again. We attempted to find research participants with a range of migration experiences. Given the complexity and variation of experiences it would be presumptuous to say that we reached a point of complete saturation, though we hold that a good range of information was gathered, especially under the circumstances of the Covid-19 pandemic and given the time and resource limitations of the study.

Questions asked focussed on uncovering the conditions that drive migration to South Africa, as well as the migration decision-making process migrants go through before leaving, and their experiences during and after the journey. Gauteng was chosen for the study, as it is the most urbanised and populated province in South Africa with the largest number of immigrants. Purposive sampling was used in the selection of migrants, starting with the authors' networks, followed by a snowballing approach to identify participants. The purposive approach to sampling aimed at getting a cross section of different migrants in terms of age, gender and length of time in South Africa. A particular informal settlement was selected for repeat visits to gather information from migrants, who make up the majority of residents there.

Data was analysed using post-coding that was done across all the conducted interviews and was not limited to the themes in the semi-structured questionnaire. The coding involved three stages: *open coding*, during which data was compared and related cases were grouped into categories; *axial coding*, i.e. the identification of interconnections between categories; and *selective coding*, encompassing the integration of these groups of categories into an overarching core category that systematically relates to all other categories (Strauss and Corbin, 1990). In designing, implementing and then analysing information and reaching conclusions in this study, we have been conscious as researchers of the potential impact of our own positions in relation to migrants and the topic. As development scholars we start out with empathy for migrants who are

among the more vulnerable in our society. However, neither of us is currently or recently involved in direct work with migrants and we have attempted to be open to all the views of migrants and key informants interviewed. We have also consciously sought to capture and share the main points that arose, in particular from the migrants themselves.

Nine key informants and twenty immigrants were involved in the research. Table 1 and table 2 below provide insight into the profiles of research participants.

Number of persons	Affiliation
1	International organisation for migration (IOM)
1	Council for Scientific and Industrial Research
1	International Water Management Institute
1	Oxfam
2	University of Pretoria (UP)
1	University of South Africa (UNISA)
2	University of Johannesburg (UJ)

**Table 1.** Overview of numbers and affiliations of key-informants

Country of origin	Gender	Age	Skill level	Area of origin type	Immigration status
Zimbabwe	Male	35	Low-skilled <sup>3</sup>	Rural	Undocumented
Zimbabwe	Female	58	Skilled <sup>4</sup>	Large city	Visa
Zimbabwe	Male	39	Low-skilled	Rural	Undocumented
Zimbabwe	Male	26	Low-skilled	Rural	Undocumented
Zimbabwe	Male	33	Low-skilled	Rural	Undocumented
Zimbabwe	Male	40	Semi-skilled <sup>5</sup>	Rural	Undocumented
Zimbabwe	Female	37	Semi-skilled	Small/medium-sized town	Visa
Malawi	Male	32	Low-skilled	Small/medium-sized town	Undocumented
Malawi	Male	32	Low-skilled	Rural	Undocumented
Malawi	Male	35	Low-skilled	Rural	Undocumented
Malawi	Female	22	Low-skilled	Rural	Undocumented
Malawi	Male	39	Low-skilled	Rural	Undocumented
Malawi	Male	37	Low-skilled	Rural	Undocumented
Malawi	Male	30	Low-skilled	Rural	Undocumented
Nigeria	Male	18	Undergrad. student	Large city	Citizenship
Nigeria	Male	18	Undergrad. student	Large city	Citizenship
Nigeria	Male	41	Postgrad. student	Large city	Visa
Ghana	Male	35	Semi-skilled	Rural	Undocumented
DRC	Male	45	Skilled	Large city	Visa
Mozambique	Male	35	Low-skilled	Rural	Undocumented

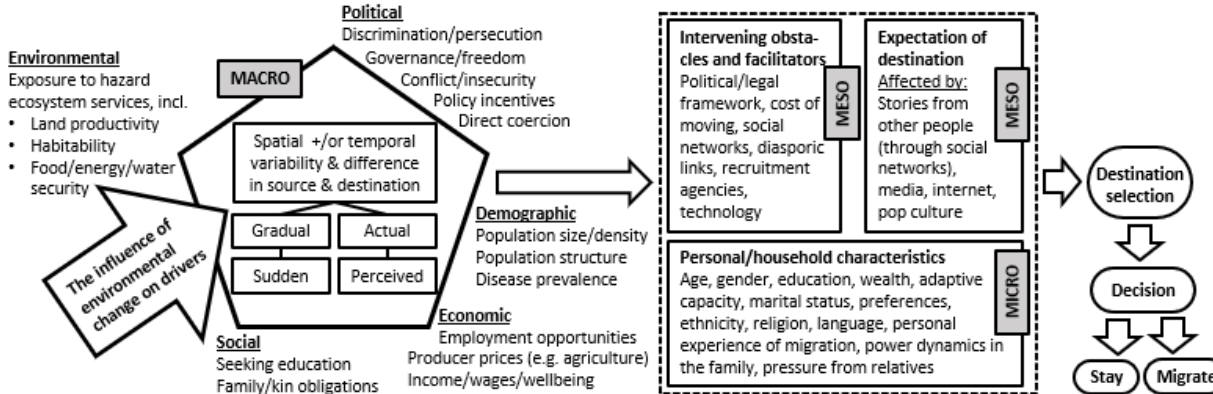
**Table 2.** Overview of details of migrant-participants

As gender is often an important dimension influencing people's experiences, it is appropriate to clarify why this gender imbalance occurred in selection of migrant-participants. Three likely reasons can be given for this. Firstly, it has been found that more men than women are migrating in response to environmental drivers (Borderon, 2019) and there are more men than women among the Zimbabwean migrants making up the largest number of migrants in South Africa (Crush *et al.*, 2017). Secondly, because *snowball sampling* constituted an important technique

for the selection of research participants, we were largely dependent on the contacts provided by other migrants. These men linked us up mostly with other men, resulting in being brought into contact with more men than women. Thirdly, it is not unthinkable that, as male researchers, many female migrants might be somewhat hesitant to be interviewed by us. This could have made it slightly more difficult to find women willing to participate, compared to men. Overall, we do not claim the sample to be representative for migrants from SSA migrants in South Africa, but believe the insights from the in-depth look at these migrants’ experiences are valuable in understanding migration dynamics.

## Conceptual Framework

We approach climate- and environment-related migration through a conceptual framework (Figure 1) derived from models by Foresight (2011) and Kniveton *et al.* (2011), who argue that environmental change can influence various migration drivers, leading to the conditions under which individuals decide whether to migrate or to stay. Our framework addresses gaps relating to the impact on migration decisions of personal expectations of a migration destination, the central role of family, migrants’ adaptive capacity at home, and the importance of prior experiences of migration and environmental hazards.



**Figure 1.** Conceptual Framework, showing migration drivers and the subsequent migration decision-making process – adapted by the authors from Foresight (2011) and Kniveton *et al.* (2011)

Five categories of migration drivers are shown on the left side of framework: environmental, economic, political, social, and demographic. Migration takes place even without the influence of environmental change. However, it can induce and influence migration directly through environmental hazards, as well as indirectly by impacting the other drivers of migration (Foresight, 2011).

A recent review of studies on the subject concluded that “migration flows vary as a function of both the severity of the event and the ability of the household to migrate, among other factors” (Kaczan and Orgill-Meyer, 2019: 281). Important to take away from this quote is that the presence of migration drivers does not automatically lead to migration. As such, the right side of the diagram (figure 1) shows that, besides the presence of migration drivers, migration decisions are also dependent on a variety of other factors and dynamics. Personal and household characteristics can influence the degree to which someone is affected by climate- and environment-related adversities, attitudes towards migration, the availability of alternative adaptation options, and whether migration is practically possible. One’s ability to migrate also depends on a multitude of obstacles and facilitating factors, like legal frameworks, costs of moving, and

social networks. Furthermore, attitudes towards migration are impacted by personal expectations of a destination.

## Drivers of Migration

Many similarities exist between migrant-participants' narratives about the experiences leading to their migration decisions. Poor economic performance, lacking government services, and unfavourable environmental conditions have condemned many participants to a life of poverty, insecurity, and hopelessness. Information was gathered on the full range of migration drivers, but we mainly focus here on climate- and environment-related experiences and their links with non-environmental factors. Since most migrant-participants originated from Zimbabwe and Malawi, separate sections are dedicated to these countries. A third section focusses on insights from other countries.

### *Zimbabwe*

Since the early 2000s, a descent into political crisis and near economic collapse in their home country have left millions of Zimbabweans feeling they have no option but to leave the country of their birth and look for opportunities elsewhere (Crush *et al.*, 2017). Zimbabweans form the largest immigrant group in South Africa, with around half a million documented and several million undocumented Zimbabweans currently living there (*ibid.*). The three groups of migration drivers that came out strongly for Zimbabweans in our study are economic, political, and environmental. While social and demographic drivers undoubtedly exist, these did not appear strongly in this study.

The majority (68%) of Zimbabwe's population live in rural areas (FSIN, 2019) and 90% of rural households rely primarily on agriculture for their livelihood (USAID, 2020). The main adversities experienced in Zimbabwe include low purchasing power due to spiralling inflation and shortages of the local currency; constrained access to food for low-income households due to high prices of cereal products; reduced access to food imports due to low foreign currency supplies; inflated medication prices; disease outbreaks; lack of healthcare; as well as political repression, persecution, and human rights violations (Howard-Hassmann, 2010; Chiumbu and Musemwa, 2012; Crush *et al.*, 2017; Stoeffler *et al.*, 2015; FSIN, 2019; World Bank, 2020a). By 2019, around 40% of Zimbabweans lived in extreme poverty (World Bank, 2020a) and devastation caused by Cyclone Idai in March 2019, along with the worst drought in decades, had pushed half the population into food insecurity (FSIN, 2019; World Bank, 2020a).

Climatic and environmental stress factors include severe drought, increasing drought occurrences, below-average rains, less rainy days, and damage caused by Cyclone Idai (Brown *et al.*, 2012; Lotz-Sisitka and Urquhart, 2014; FSIN, 2019; World Bank, 2020a). Evidence regarding past and long-term rainfall decline in Zimbabwe has been contested by work based on records from 1941 to 2000 (Mazvimavi, 2010; Mapurisa and Chikodzi, 2014), although 'normal' rates of rainfall only occurred in two of the five most recent growing seasons (FSIN, 2019). Additionally, strong evidence exists for average and maximum temperature increases in Southern Africa, including Zimbabwe, over the past half century (Brown *et al.*, 2012; Niang *et al.*, 2014; Davis-Reddy and Vincent, 2017; Sibanda *et al.*, 2017), resulting in increased evapotranspiration, with important implications for water stress (Matsoukas *et al.*, 2011).

We heard from migrants that, as pointed out by McGregor *et al.* (2011), environmental stress can disproportionately affect and be perceived as more extreme by those experiencing adverse economic and political conditions in Zimbabwe. When asked about their reasons for migrating,

Zimbabwean participants did not initially mention climate or environment-related adversities. However, in discussions about challenges experienced before migrating, it became apparent that the environment played a prominent role. Particularly drought was often mentioned as a serious problem, along with soil erosion and occasional floods. Most Zimbabwean participants originated from rural areas and explained that, due to the economic crisis, they had depended more on smallholder agriculture for their food needs. This had, however, become less viable. One Zimbabwean immigrant explained: “Now, there is no rain... Before, we were living a little bit better. We were not just looking for money. Because it was just raining. We were growing crops, eating. Everyone. We got our own food.”, and another said: “I quit farming because I just saw I am doing nothing. Because you spend the whole time in the field. At the end of the day there is no rainfall. I tried it, and I could not find any profit.” For these and other migrants, there are few alternative livelihood opportunities in this vicious cycle of economic crisis and environmental pressures.

Economic conditions, mentioned by all Zimbabwean research participants, are interrelated with environmental stresses and – beyond the lack of alternative economic opportunities – also hamper people’s ability to adapt. For example, one migrant revealed that the unavailability and high prices of water pumps and irrigation systems in Zimbabwe made it even harder for farmers to cope with the more frequent droughts. Another lamented that “the ground is no longer profitable” due to high fertiliser prices.

Being able to send remittances home is a key benefit of migration from countries facing economic crisis, as Zimbabwe does (Maphosa, 2007; Crush *et al.*, 2017). Remittances from migrants in South Africa not only take a cash form, but, due to the inflation and scarcity of items in Zimbabwe, also involve sending goods. Zimbabweans were found to send remittances and goods to support agriculture at home, thus assisting those at home to cope with environmental stress. For example, one migrant explained that he bought a water pump and sent it to Zimbabwe to deal with water-scarcity at home. In line with Martin (2014), this suggests that migration in the face of climatic stress is not merely an escape from adverse environmental conditions, but is deployed as part of agricultural adaptation strategies.

Zimbabwe’s political crisis also contributes to environmental factors becoming migration drivers. The government’s failure to respond effectively to the drought or to assist in adapting to environmental crises was a regular complaint from migrants. They claimed that the government’s failure to respond to floods and soil erosion, including the destruction of roads, exacerbated people’s suffering. Existing power inequalities, often linked to politics, are also exacerbated. For example, a migrant explained that when environmental adversities impeded their ability to cultivate crops, they had to turn to larger landowners for access to fertile land and equipment, putting them into a state of dependency.

In addition to these direct climate- and environment-related contributions to migration, there are indirect contributions through impacts on non-environmental factors found in this study to drive migration. This can mainly be observed in terms of negative environmental impacts on Zimbabwe’s agricultural sector affecting the country’s economic performance. Agriculture accounts for 8-17% of Zimbabwe’s GDP, provides employment and incomes to 60-70% of the country’s population, supplies 60% of the raw materials required by industry, and contributes 40% of export earnings (World Bank, 2019a; FAO, 2020). In 2015 and 2016, the drought caused by El-Niño was responsible for a significant reduction in agricultural productivity and was one of the leading contributors to a new economic downturn in Zimbabwe around this



period, which in turn is associated with increased political instability and fiscal challenges (Crush *et al.*, 2017; FAO-GIEWS, 2019).

## ***Malawi***

The real number of Malawians in South Africa is contested, but the latest official figures say 78,796, including both documented and undocumented migrants (Stats SA, 2016). We divide the main drivers for migration from Malawi that emerged from this study into economic, environmental, and demographic.

Malawi is an overwhelmingly rural country, with 83% of its population living in rural areas (FSIN, 2019). Most of the country's inhabitants are involved in smallholder and predominantly rainfed agriculture (Pauw *et al.*, 2010; Phiri *et al.*, 2019; FSIN, 2019). Though generally a stable and peaceful country (World Bank, 2020b), Malawi's inequality levels remain high and with a 52% poverty rate and 20.1% of people in extreme poverty, it is one of the poorest countries in the world (NSO, 2019; World Bank, 2020b).

Important adversities experienced in Malawi include low purchasing power due to lack of income; constrained access to food due to high food prices, especially for low-income and rural households; as well as climate- and environment-related stress, including drought, floods, rainfall variability, deforestation, land degradation, and the destruction caused by Cyclone Idai, which affected 922,000 and displaced nearly 87,000 people (Pauw *et al.*, 2010; GFDRR, 2011; GSP, 2018; FSIN, 2019; IOM, 2019).

Although rainfall patterns in Malawi are highly variable, causing floods and droughts, studies have found no consistent evidence of recent changes in total rainfall, the duration of rainy seasons, or the duration of dry and wet spells (GFDRR, 2011; Vincent *et al.*, 2014; Sutcliffe *et al.*, 2016). However, evidence shows that mean and average temperatures, as well as the average number of 'hot' days and nights in Malawi have increased since the 1960s (GFDRR, 2011; Vincent *et al.*, 2014). Even if rainfall is unchanged, the increased levels of evapotranspiration caused by such temperature increases result in elevated levels of water stress (Matsoukas *et al.*, 2011).

Other important environmental trends in Malawi are growing rates of deforestation and increasing occurrences of land degradation. It is estimated that the country's forest cover reduced from 47% to 36% between 1975 and 2005; the fourth highest deforestation rate in the world and the second highest in Africa (Muambeta *et al.*, 2010; Wilson, 2018). The loss of forest cover is associated with a loss of biodiversity and ecosystem services, as well as disturbance of various biochemical, hydrological, and ecological cycles (Ngwira and Watanabe, 2019). Apart from deforestation, studies point towards increasing land degradation in the form of soil and nutrient loss over the years, which is described as a major impediment to agricultural productivity (GSP, 2018). Land degradation has historically affected Malawi, but the combined effects of high population growth, rapid deforestation, overgrazing, overploughing, and temperature increases associated with climate change have worsened the situation (Conrad, 2014; GSP, 2018).

Several Malawian migrant-participants had experienced adversities related to the climate and environment, including droughts, floods, erratic rainfall, land degradation, and deforestation. One Malawian spoke of fields swept away by floods and crops not growing due to rainfall deficits. Another, former smallholder farmer, told us about excessive rain destroying his crops, forcing him to purchase food instead, even though food prices had increased under those conditions. Demographic pressures were highlighted in stories of population growth leading to

more people settling in areas prone to floods and erosion. Others said that in the past, smallholder farmers did not need fertiliser and pesticides to produce adequate yields, whereas today the use of such products is essential, which is borne out by other studies (GSP, 2018). Another Malawian migrant told us how his family used to own several fields, where they mainly grew fruit trees. He came to South Africa seeking employment after they sold the land: “Our yields were just going down, because of soil erosion. It is because of climate change, and deforestation. They are cutting down trees in the area. Things were easier before”, he explained. Due to limited employment opportunities in Malawi, remittances sent home predominantly serve to substitute wages for every-day needs, but also to invest in agricultural necessities like seeds, fertiliser, and pesticides, or to acquire building materials. Considering the widespread occurrence of land degradation in Malawi, the use of remittances to invest in products like fertiliser suggests that, as in Zimbabwe, out-migration is in part an agricultural adaptation strategy. This happens against a backdrop of sharply increasing fertiliser prices in Malawi (Banda, 2019), again showing the intersection of economic and environmental stresses.

Indirect links between climate- and environment-related stresses and migration from Malawi are mostly found in the impact on agriculture, especially smallholder farmers. Large increases in poverty occurred during droughts and floods, and strong links between agriculture, the wider economy and food prices mean that nonfarm households are also affected (Pauw *et al.*, 2010). The Malawian famine of 2002, which directly affected a Malawian migrant in our research, has been partially attributed to drought (Devereux, 2002; Menon, 2007). More recently, low rainfall in 2018 caused reduced cereal yields and a 20% increase in the prices of maize compared to 2017 (FAO-GIEWS, 2018). Reduced agricultural exports following environmental stress have also been linked to currency devaluations and inflation (Pauw *et al.*, 2010). Such impacts are not surprising as agriculture accounts for 25-30% of the country’s GDP and 85% of exports (Phiri *et al.*, 2019; NSO, 2017; World Bank, 2019b). Pauw *et al.* (2010) calculate that an RP5<sup>2</sup> drought can cause a 0.53% real GDP decline, and RP10 and RP25 droughts can lead to 3.48 and 10.42% declines respectively. The GSP (2018) also predicts that a continuation of the average soil nutrient losses could lead to a 1.6% GDP reduction. All this means that Malawi’s food security, employment, and the wider economy – which all emerged as migration drivers – are highly sensitive to climatic and environmental shocks (Pauw *et al.*, 2010; GSP, 2018; FSIN, 2019).

### ***Insights from other Countries***

Migration drivers identified by participants from Nigeria, Mozambique, Ghana, and the DRC can be divided into economic, political, and social. Economic problems – comprising the main drivers found in this study – include lack of employment, low wages, general economic malaise, an inability to afford adequate food, and a lack of prospects for progress and development. Other migration drivers included political problems, such as absent government support structures (in the case of Mozambique), political instability and unrest (in the case of the DRC), and poor infrastructure and public services (in the case of Nigeria and the DRC); social reasons, like the need for better education; and more personal reasons, such as escaping demanding relatives and avoiding being appointed as the village chief. Environmental stresses mentioned included extreme heat and pollution experienced in Nigeria and DRC. Additionally, a migrant from Mozambique talked of droughts, floods, and tropical cyclones, although these had not directly affected him.

More important appear to be the indirect links between climate and environment and out-migration from these countries, especially relating to their economic impacts. Links between climate- and environment-related stress and restricted economic performance – the main driver

for migration identified – are found in all these countries, but particularly in Nigeria and Mozambique. In Nigeria, Ogbuabor and Egwuchukwu (2017) found that climate change negatively impacted economic growth over the period 1981-2014. This can largely be explained by its effect on Nigerian agriculture, which, along with forestry and fishery, comprises 21.9% of the country's GDP (World Bank, 2019c) and provides livelihoods to over 80% of Nigeria's population (Ebele and Emodi, 2016). As early as 1994, warming trends had already been found to cause a 20% loss of growing days compared to earlier periods in some parts of Nigeria (Mendelsohn *et al.*, 1994). More recent studies found that temperature increases, drought, desertification, floods, and soil erosion have all negatively affected agricultural outputs (Ladan, 2014; Akukwe *et al.*, 2020).

As one of the most disaster-prone countries in the world (WFP, 2020a), Mozambique is somewhat distinct from the other countries discussed so far. Although slow-onset events like droughts do occur, the country is more affected by frequent rapid-onset events like floods and tropical cyclones, especially in its southern and coastal regions (*ibid.*). Cyclone Idai, for example, destroyed more than 716,000 hectares of crops, while six weeks later Cyclone Kenneth affected nearly 55,000 hectares, uprooted 100,000 cashew and coconut trees, and caused the widespread loss of livelihoods, including fishing and aquaculture (OCHA, 2019). In the areas impacted by these cyclones, over 80% of the population is dependent on agriculture as a primary income source (*ibid.*) and agriculture accounts for 24% of the country's GDP (CGAP, 2016; World Bank, 2019d). In addition to the immediate damage caused by environmental shocks, such events clearly have longer-term consequences for Mozambique's economy, jobs and livelihoods. Indeed, following these cyclones, economic growth forecasts for Mozambique were revised downwards (WFP, 2020b).

## Migration Decision-Making

The presentation of the main findings on migration decision-making are presented below under headings that correspond to the right-hand side of the conceptual framework (Figure 1). The findings generally confirmed the usefulness of the framework and also highlight areas that could be given more prominence in the framework, such as the importance of social support networks that can assist on arrival in the destination country.

### *Obstacles and Facilitators*

Social networks were, for most migrants, found to be essential for successfully traveling to and settling in South Africa. Before making the journey to South Africa, contacts with people who had lived or were living there provided valuable information and advice regarding border-crossing, accommodation, and employment opportunities. Additionally, social contacts, usually friends and relatives, were found to be a source of support – such as through the provision of food, clothing, temporary accommodation, or money for initial rent payments – to newcomers in South Africa, thereby allowing them to get settled before being able to fend for themselves. One Zimbabwean migrant told us: “When it was my first time coming to South Africa, I had my friend. Then, he just gave me accommodation, food, and a job. Before you get anything, before you see anything, they can help you.”

Another important role that social contacts were found to fulfil was providing funds for the journey, including for bus tickets or payments to drivers when hitchhiking, food on the road, and bribes for border officials. Those unable to finance this themselves relied on financial support from others. A Malawian migrant explained: “To come here, it means you need money for transport. So, my family donated money and then I could find the transport.”

Compared to other countries in the region experiencing relative prosperity (e.g. Botswana), migrants expressed that South Africa's porous borders and corruption – allowing migrants to enter and stay in the country with relative ease – contributed to the country being a preferred destination for migrants in this study. An undocumented migrant from Zimbabwe explained: “Botswana is better than South Africa. The currency is stronger. But the conditions are hard there, because you cannot jump the border. Also, there in Botswana, they don't do bribing. In South Africa there is corruption. The police, they need money. But not in Botswana”.

For those with passports, being able to go through any border post and being granted a visitor's permit valid for 30 days also facilitates migration. Migrant-participants who owned passports indicated having legally entered the country in this way, after which they overstayed their permits. To leave or re-enter the country afterwards, border officials have to be bribed. Migrants from wealthier families could acquire travel documents and bus or airplane tickets, making it a relatively painless journey.

Others explained how the dangers and hardships associated with the journey were serious obstacles. Those who lacked funds travelled on foot or by hitchhiking. For some, it took weeks to reach South Africa, and multiple migrants spoke about barely having had money for food during the journey. At the border, those without passports crossed illegally, often by swimming across the Limpopo River, home to hippos and crocodiles. Additionally, migrants spoke of robbery and criminals active in the border region.

### ***Personal/Household Characteristics***

Personal and household characteristics – particularly wealth and education level – were found to influence migration decisions as well. While most of the migrants indicated they had suffered adversities in their countries of origin, these adversities affected their migration decisions differently. For those from poorer economic backgrounds, being able to survive and afford basic necessities was of particular importance. Wealthier migrants were not so much migrating for survival as seeking to improve their own and their families' quality of life, and even to simply explore other countries. Such individuals sought, among others, access to better education, good infrastructure, and public services. While the poorer migrants were all committed to returning to their home countries, the wealthier had decided to leave home for good, possibly due to being better positioned to make informed choices before migrating and also being better able to build stable lives in South Africa.

Adaptive capacity in one's country of origin – which depends on macro-level factors like government assistance and the micro-level of people's individual and household assets and abilities – also influenced migration decisions. For those with limited adaptive capacity at home, migrating became the best option, not only to find a livelihood elsewhere, but also to contribute to adaptation at home through remittances.

### ***Expectations and Realities of the Destination***

Interviews with migrants confirmed that their prior expectations about South Africa constituted a fundamental factor influencing their decision to leave. These expectations were largely shaped by information from social networks, with some reference being made to the media and online sources.

Most migrants – particularly those from poorer backgrounds – stated they had mainly expected to find employment in South Africa, allowing them to meet their basic needs and send

remittances home. For example, one migrant from Zimbabwe said: “We expected to support our families. Your life is going to be different. It is going to be better than it was.” Most of the poorer migrants also said they had anticipated building up savings, allowing them to return to their countries of origin within no more than a few years. For the few migrants from somewhat wealthier backgrounds, expectations had revolved around finding better education, infrastructure, and public services. The prospect of a stronger economy and political stability in South Africa also made these migrants believe they could achieve the higher living standards they were aspiring.

While some migrants claimed to have had relatively realistic expectations about South Africa, others had not been aware of the many difficulties they would experience. Most found themselves still living precarious lives after arrival. A Malawian migrant shared how he had met others returning from South Africa who portrayed it as a country of “milk and honey”, where one could easily receive everything one needed without having to do much work, but he found it very different. Likewise, a Zimbabwean migrant living in an informal settlement told us: “I didn’t expect to come here. This is a squatter camp. I thought that the whole of South Africa was nice. I thought that everything would be easier, that everything would be free.” Even those without such a rosy picture of South Africa prior to migration were generally finding life tougher than expected. Even though most thought their lives were slightly better after migrating than before, and they were voting with their feet by staying in South Africa, the general mood was that life was still a constant uphill battle. As a migrant from Zimbabwe explained: “I didn’t think that I would still be in South Africa. I was just thinking that when I got here, I was going to earn a little bit of money and then go back to *Zim* and start a business. But unfortunately, life didn’t go that way.” In addition, we should note that, although most migrants already struggled before COVID-19, their misfortunes were clearly exacerbated by the pandemic and related lockdowns.

Most migrant-participants survived on low-paid and short-term ‘piece-jobs’ – normally secured on a day-to-day basis, involving anything from once-off cleaning jobs, to gardening, painting, loading trucks, or construction work. These individuals were constantly on the lookout for jobs, frequently going through periods without income. Three of the low-skilled and semi-skilled migrants, however, had obtained permanent jobs, one as a domestic worker and two as gardeners. These individuals had visibly higher living standards than the others, living in larger shacks with glass windows, furniture, and, in one case, access to a gas stove and electricity supplied by a solar panel on the roof. Most migrants in the sample resided in small, windowless, dark shacks with little furniture, had no running water, used shared and rudimentary sanitation facilities, and lacked access to electricity; their cooking done on open wood fires. The few skilled and wealthier migrants interviewed seemed to live fairly comfortable lives, either studying with support from family or in relatively well-paid permanent employment.

## Conclusions

The most prominent migration drivers were found to be economic adversities, followed by political issues in migrants’ home countries. Economic factors include precarious livelihoods, high prices, limited access to food and other essentials, low employment prospects, low wages, and limited access to healthcare. Political issues include poor public services, no support in crisis situations, political persecution, poor infrastructure, as well as instability and violent conflict. Other social (including personal) and demographic conditions were less prominent, but were also found to drive migration to South Africa.

Though not the first factor identified by participants, climate- and environment-related adversities have had significant impacts – directly and indirectly – on many of the migrants in this study, and likely on migration flows to South Africa. Direct impacts have been from droughts, floods, erratic rainfall, land degradation, and deforestation. Indirect impacts have taken place through exacerbation of other, primarily economic, drivers of migration. Climate- and environment-related adversities have contributed to high food prices, constrained food availability, reduced economic growth and associated political unrest in migrants' countries of origin.

The complexity and multicausality of migration are central themes in this work. We have shown in this article how, for at least some migrants, climate- and environment-related adversities intersect with economic crises and political repression, pushing people affected to a point where they choose to migrate. Simultaneously, poor economic performance and ineffective government support, observed in many SSA countries, make it even harder to adapt to and cope with environmental stresses, thereby contributing to migration. This was particularly – though not exclusively – observed for those who were reliant on agriculture for their livelihoods before migrating.

Remittances were found being used, not only to meet immediate needs of migrant-participants' families at home, but also to invest in agricultural inputs and equipment, often under conditions of climatic and environmental stress. This suggests that migration was, for them, not merely an escape from adverse environmental conditions, but was deployed as part of agricultural adaptation strategies in home countries as well.

The presence of drivers of migration does not always lead to migration. Decisions to migrate or stay also depend on various factors in people's personal lives and the contexts in which they live. We divide these factors into three areas: intervening obstacles and facilitators, personal and household characteristics, and expectations of the destination. The main facilitators of migration to South Africa are social networks, porous borders, and corruption. The main obstacles are high migration costs and the dangers and hardships involved in the journey. Important personal and household characteristics are individual and household wealth and abilities, which determine adaptation capacity at home, modes of migration, and living standards in South Africa. Expectations migrants had of South Africa before departing were largely shaped by social networks and revolved around being able to find work after arrival. Migrant-participants from wealthier backgrounds generally indicated they had found the higher living standards they sought. Conversely, the expectations of most poorer migrant-participants were not met. They still found themselves living precarious lives in squalid conditions with little hope for the future, yet they still felt they were slightly better off than they would have been had they stayed home.

We argue that, although climate- and environment-related stresses were not the primary reasons for migration of the migrants participating in the study, their role as migration drivers should not be ignored. Given projections of severe climate change impacts in SSA, this phenomenon – with its clear implications for human well-being and development in the region – should therefore be properly understood and managed. Further research is required on the scale and nature of climate- and environment-related migration to South Africa and other destination countries. The conceptual framework (Figure 1) presented in this study has proven useful in analysing migration and can guide further research and be further developed in the process, specifically as we think more attention can be given to the importance of social support networks in destination countries.

Coordinated migration policies are needed at national, regional and international levels to respond to the complex, but very real ways in which climate- and environment-related adversities contribute to migration. Current policy processes tend not to involve departments responsible for migration (as in South Africa), or make only limited reference to the environment (as in SADC). It is essential that future migration policy-making foregrounds climate- and environment-related factors in analysis and solutions, is led by departments responsible for migration (Department of Home Affairs in South Africa), and involves inter-departmental collaboration to deal with the multicausality of the issue. Despite the dangerous journey, xenophobic violence, and the extremely poor living conditions many migrants find themselves in, those we interviewed still feel they are improving their lives by migrating. This reflects the desperate conditions many come from and indicates that attempting to physically block migration is not feasible and just. Systemic approaches are needed, including collaborative efforts between destination and migrant-sending countries in the region, with a focus on ensuring successful adaptation to climatic and environmental change. Furthermore, policy makers need to consider ways to improve the conditions for migrants in destination countries. The reality is that, even with much improved adaptation efforts, increasing climate change impacts over the coming decades will leave many people with few options for their survival other than migration.

## Endnotes

1. Intergovernmental Panel on Climate Change. The IPCC is the United Nations body established to assess the science on climate change.
2. Return period: the expected length of time between recurrence of two events of similar severity. Events with a higher RP are more severe and less likely to occur than events with a lower RP. Thus, a RP5 (once in five years) event is less severe than a RP25 (once in 25 years) event (Pauw *et al.*, 2010).
3. We assign 'low-skilled' to those with primary or no formal education (Brunello *et al.*, 2017).
4. We assign 'skilled' to those with tertiary education (Docquir and Marfouk, 2006).
5. We assign 'semi-skilled' to those who do not meet our definitions of either 'low-skilled' or 'skilled', but who did have a secondary education or some form of basic professional training.

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