Climate Change and Migration to South Africa: Exploring the Role of Climate- and Environment-Related Adversities in Mobility Decision-Making

by

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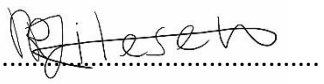
Declaration of originality

I, Robin P. Jilesen, hereby declare that:

1. This dissertation has not been submitted completely or partially for any degree or examination at any other university;
2. I understand what plagiarism is and am aware of the University's policy in this regard;
3. This dissertation is my own original work. Where other people's work has been used (either from printed source, internet, or any other source), this has been properly acknowledged and referenced in accordance with department requirements.

Signed and dated in Pretoria, South Africa, on 30 November 2020.



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Abstract

This dissertation examines the impacts of climate- and environment-related stress on migration from other sub-Saharan African countries to South Africa, which is a prominent destination for migrants. It describes the factors and processes that influenced migration decisions and provides insights into the experiences of these individuals before, during, and after migration.

Data was gathered through semi-structured interviews with migrants from several sub-Saharan African countries now residing in South Africa's Gauteng province, as well as key informants with expertise on migration, climate change, and environmental problems in Africa. Additional information was gathered from secondary material, such as reports, grey literature, and academic publications.

The principle finding is that, although climatic and environmental stresses are not the primary drivers for migration to South Africa, they play a clear contributing role, both directly and indirectly. The direct contributions included drought, land degradation, floods, and erratic rainfall. Such environmental drivers for migration did not occur in isolation, instead, they were found to frequently intersect with various economic, political, social, and demographic drivers. Indirect contributions were largely through negative impacts on economic and political factors that became direct drivers for migration.

Whether people respond to these adverse conditions by migrating depends on a number of factors that can be divided into three areas: intervening obstacles and facilitators of migration, personal and household characteristics, and expectations of the destination. Although some migrants in the research sample had experienced improvements in their quality of life since they had migrated to South Africa, the majority of migrants indicated that their lives were still characterised by insecurity, precariousness, and hopelessness.

1. 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

1.1 On the topic of the study

Climate change has become a major issue of concern among researchers and policy makers, and its relationship with migration in particular is a topic that has received widespread popular attention. Globally, the impacts of human-induced climate change on the environment are occurring at a rapid pace and both humans and natural systems are increasingly affected (Millennium Ecosystems Assessment, 2005; Srinivasan *et al.*, 2008; IPCC, 2013, 2014a). This could lead to people adopting a wide range of coping- and adaptation strategies, including migration (Tacoli, 2009; Piguet *et al.*, 2011). Around the world today, people are uprooted from their homes on a daily basis by a myriad of adverse conditions. However, human displacement and mobility are expected to increase further under projected climate change impacts (IPCC, 2014a). The developing world is particularly vulnerable to environmental change, and most environment-related migration is expected to take place in the Global South, both within and between countries (Foresight, 2011). Although cross-border movements can potentially provide opportunities for people affected by climate- and environment related adversities, it can entail a host of challenges in receiving areas as well, such as increased pressure on health systems, competition and conflict over scarce resources and heightened ethnic tension, especially if receiving areas experience environmental pressure as well (Reuveny, 2007; Marc *et al*., 2015; Schleussner *et al*., 2016; Watts *et al*., 2017; Kumari Rigaud *et al*., 2018; United Nations and The World Bank, 2018). Like the

Zimbabwean migrant quoted above, many migrants will therefore find themselves in places where they are viewed as intruders and treated with suspicion and contempt by locals.

Sub-Saharan Africa (henceforth referred to as SSA) stretches across a large area with an immense diversity in terms of its people, histories, climates, and environments (NASAC, 2015). Due to its level of diversity, the effects of climate change vary across the region (*ibid.*). Nonetheless, the IPCC[1] (2014b) has identified SSA as a whole as one of the world's regions most vulnerable to the impacts of climatic change. This can be attributed to a multitude of factors, such as a particularly high exposure to projected impacts (UNEP, 2013; IPCC, 2014b), limited adaptive capacity due to high levels of relative poverty (FAO, 2008) and the fact that its agricultural sector – which employs the majority of the SSA labour force and accounts for a large part of its Gross Domestic Product (GDP) – remains 95 percent rainfed, making it vulnerable to increasing weather volatility (World Bank, 2013). South Africa, being one of the main destination countries for regional migration in SSA (DHA, 2017), provides a useful context in which interactions between climate, environment and migration can be studied. It should be mentioned here that in August of 2020, at the time when I was conducting the research for this dissertation, the Department of Environment, Forestry and Fishery released an invitation to bid in which it called for researchers to submit proposals for a project in which the links between drought, land degradation, desertification, climate change and migration to South Africa would be studied. For the first time, the government of South Africa has therefore openly indicated to be aware of and interested in the links between climate, environment, and migration.

Demographer Frans Willekens (1985) pointed out that the effectiveness of population distribution policies will be enhanced by a better understanding of when and how migration decisions are made. However, even though climate change has become one of the defining features affecting development and

[1] Intergovernmental Panel on Climate Change. The IPCC is the United Nations body for assessing the science on climate change.

human well-being in today's world, close to no research exists on the role of climate- and environment-related adversities in migration decision-making among immigrants in South Africa. As the dissertation will show, most of the literature to date has viewed regional migration from other SSA countries into South Africa mainly through a social, economic, and political lens. Moreover, existing studies on the climate-environment-migration nexus in SSA tend to only examine internal migration and rarely even mention migration between countries. In order to make evidence-based predictions of the effects that projected climate change can have on future international and regional migration flows to destination countries like South Africa, we first need to understand to what extent (and in which ways) current climate- and environment-related adversities play a role in migration decision-making. Although it has been suggested in literature that the majority of current migration related to worldwide environmental changes and stresses takes place within borders and not between countries (e.g. Tacoli, 2009; McMichael *et al*., 2012; Kumari Rigaud *et al*., 2018), more research on the relation between environment, climate and regional/international migration is required if destination countries like South Africa are to create and maintain effective and just migration policies in the future. In this dissertation I therefore seek to provide empirical evidence that helps to fill these knowledge gaps.

1.2 Focus, aims and contributions

Following from the above, the main focus of the dissertation is on the climate-environment-migration nexus in the context of migration from the SSA region to South Africa. Specifically, I explore how and why regional migrants from other SSA countries residing in the urban centres of South Africa's Gauteng province have made the decision to leave their homes in search for a better life in another country. I thereby share insights into the role that climate- and environment-related motivations play in people's decision to migrate.

As such, the contributions of the dissertation are fivefold. Firstly, it provides empirical evidence regarding the interplay between migration decisions and climate- and environment-related stresses. As

was pointed out earlier, virtually no other literature on this topic currently exists in the context of South Africa. The dissertation therefore differs from existing literature on immigration to South Africa in that – while recognising the multicausality and complexity of migration decisions, involving both environmental and non-environmental factors – it places climate and environment at and centre in its approach. As one of the first of its kind in the context of South Africa, this study could be useful in informing the design of potential follow-up research.

Secondly, I present a comprehensive description of the migration decision-making process, which includes more than merely an analysis of whether climate and environment have influenced migration decisions. As set forth in Chapter 3, this means that it places migration in a wider context in which environmental- and non-environmental conditions are interlinked, and an individual's subsequent response to these conditions is mediated through intervening obstacles and facilitating factors, personal and household characteristics, and expectations of the destination. Such an understanding of the climate-environment-migration nexus requires an integrated assessment of both environmental and non-environmental factors on a personal and agential micro-level, as well as structural meso- and macro-levels. Moreover, a recognition of how such factors operate on these different levels means that I aimed to document the multi-level links between factors that are at play as well. In examining the migration decision-making process, I was guided by the conceptual framework laid out in Section 3.3.

Thirdly, I share insights into the lives and experiences of those who decide to leave their countries of origin and settle in South Africa. Behind the findings and lessons drawn from the research lie the stories of real people. By keeping these people in the foreground, the dissertation aimed to contribute to a general recognition of the human dimension in the climate-environment-migration discourse.

Fourthly, by examining the current links between climate, environment, and migration, I aimed to contribute to a more thorough understanding of the potential implications of projected climatic change and environmental degradation on future migration flows. Indeed, in order to make substantiated predictions regarding future migration scenarios under predicted conditions, a thorough understanding of how the climate-environment-migration nexus plays out in today's world is required.

This ties in with the fifth and last contribution of the study, which is that by creating a greater understanding of the potential impacts of climate- and environment-related stresses on migration, I attempt to encourage a debate on the future of migration policies in the face of predicted environmental adversities. This should be viewed in terms of South African migration policies, but in an international sense as well, including with regard to international treaties and policies in other countries.

1.3 Key questions

As is further discussed in Section 3.2 of the dissertation, drivers for migration are usually multifaceted and complex. This means that multiple factors are inseparably linked together and that migration can therefore usually not be attributed to one specific driver. As such, the research process was guided by the following key question:

What roles do climate- and environment-related stresses play in mobility decisions among sub-Saharan African immigrants now residing in South Africa's Gauteng province, and how do these environmental migration drivers relate to other, non-environmental drivers?

The above question was complemented by the following sub-questions:

1. Have migrants experienced climate- and environment-related stresses and challenges in their countries of origin?

2. What are the various environmental and non-environmental factors that have directly contributed to their migration decisions?
3. To what extent do migrants acknowledge that climate- and environment-related stresses have directly contributed to their migration decisions?
4. Which environmental and climatic conditions might have influenced their migration decisions indirectly by shaping and impacting non-environmental migration drivers?
5. What is the nature of the process by which migrants decide to leave their countries of origin and come to South Africa?
6. What are the experiences of migrants during and after their journey to South Africa?

The sixth and last sub-question was not originally included in this list, but was added during the research process. Among other things, the dissertation documents the ways in which people are affected by climatic and environmental stress. During the course of the research process, I came to the observation that, as climate- and environment-related adversities can be driving factors for migration, people's experiences during and after migration can be a result of such adversities as well. Therefore, a documentation of these experiences should be included in the dissertation. Additionally, it is important to emphasise that, as is mentioned in the previous section, one of the things the study aimed to do was to tell the narratives of real people who have migrated to South Africa. Although the migration drivers and the decision-making process constitute the main focus of this study, there is much more to the stories of migrants. I realised, as the research progressed, that in order to gain a full insight into the experiences of these individuals, the journey to South Africa and lives lived after arriving there should be studied as well.

1.4 A remark about the term 'climate- and environment-related migration'

As I show later in this work, the dissertation recognises the interplay between climate and environment on the one hand and migration on the other. It should be noted, though, that it does not assume a

deterministic and linear relation between these factors. In this dissertation, I refrain from insisting on such a strong association by avoiding terms such as 'climate change migration', 'climate-induced migration' and 'environmental migration'. Instead, I use the more neutral term 'climate- and environment-related migration', as first proposed by Martin (2016). This term allows for the observation of migration in the context of climatic and environmental adversities, while still recognising the multi-causal nature of migration decisions and the complexity of structural and agential factors that these decisions are shaped by. The reasoning behind this approach is further discussed in Chapter 3, where concepts and theories behind the topic of the study are laid out.

1.5 Structure of the dissertation

After this introduction (**Chapter 1**), the dissertation consists of six more chapters. In **Chapter 2**, I provide a background to the topic of the study. Here, I first define the concepts of atmosphere, weather and climate and delve into the basics of climate change; I then look into current impacts of climate change in the SSA region; followed by a section in which I discuss the links between climate- and environment related adversities and migration; and lastly I give a description of South Africa's role as a major destination country for regional migrants, providing a historical and contemporary perspective. In **Chapter 3**, I place the dissertation in a broader theoretical context. Here, I deal with historical perspectives on the links between climate, environment, and migration; I review relevant concepts and theories; and provide the conceptual framework used in the study. In **Chapter 4**, I describe the methodology applied in the study. In **Chapter 5**, I delve into the stories of some of the migrants who participated in the study, thereby highlighting their experiences before, during and after they migrated to South Africa. In **Chapter 6**, I present and discuss the empirical findings of the study, drawing lessons and conclusions from the information gathered in the research process. Lastly, in **Chapter 7**, I synthesise the key findings of the study, thereby concluding the dissertation.

2. Background of the study

2.1 Atmosphere, weather, climate, and climate change: the basics

The atmosphere is a thin layer of gasses held near the Earth by the planet's gravitational pull, covering its surface like a blanket (Rohli and Vega, 2018). Following the pattern of the temperature/altitude profile of the atmosphere, one can distinguish several main atmospheric zones. Going up from the surface level, these are the troposphere, followed by the stratosphere, the mesosphere, and the thermosphere (Linacre and Geerts, 1997; Hartman, 2016; Rohli and Vega, 2018). When studying and describing atmospheric conditions, distinctions should be drawn between *weather* and *climate*. *Weather* can be described as the instantaneous and short-term condition of the atmosphere at a particular place and time, generally viewed over a maximum period of a few days (Linacre and Geerts, 1997; Rohli and Vega, 2018). It is often described in terms of specific and tangible atmospheric properties, such as temperature, precipitation, pressure, humidity, wind direction, wind speed, cloud cover and cloud type; and the occurrence of special phenomena, such as thunderstorms, dust storms, tornados and others (Linacre and Geerts, 1997; IPCC, 2013; Hartman, 2016; Rohli and Vega, 2018). *Climate* involves the same atmospheric processes. In contrast to *weather*, however, it refers to the long-term patterns and trends of such short-term conditions at a given location or area, measured over periods ranging from months to thousands or millions of years (Linacre and Geerts, 1997; IPCC, 2013; Rohli and Vega, 2018). In understanding a location's climate, several properties of climatic data – based on long-term observations – should be taken into account. These include average weather conditions of the area, the maximum and minimum of atmospheric variables expected to occur, frequencies of incidence of particular weather phenomena at the location, and the persistence of such weather phenomena (IPCC, 2013; Rohli and Vega, 2018). A location's climate is usually defined based on the conditions at the surface of the Earth, in the troposphere (Hartman, 2016).

The Earth's climatic system is powered by radiation from the sun (IPCC, 2013). As this solar radiation hits the surface of the Earth, it is partially radiated back as thermal infrared radiation. Much of this infrared radiation is then absorbed or emitted back to the surface by atmospheric gases, thereby preventing its transmission back into space and trapping heat in the atmosphere. This process, known as the *greenhouse effect*, is responsible for keeping the Earth warmer than it would have been without an atmosphere, enabling life to exist (Hartman, 2016; Rohli and Vega, 2018). The most abundant greenhouse gases present in the Earth's atmosphere are water vapour, carbon dioxide, methane, and nitrous oxide (IPCC, 2013; Hartman, 2016; Rohli and Vega, 2018).

Geological records suggest that the Earth's climate has gone through some major changes during the course of its existence (Linacre and Geerts, 1997; Rohli and Vega, 2018). This constant change is caused by a multitude of forcing mechanisms. In fact, "any factor which alters radiation received from the sun or lost to space, or which alters the redistribution of energy within the atmosphere, and between the atmosphere, land and ocean, will affect climate." (IPCC, 1992:8). Examples of non-human induced forcing mechanisms that have shaped the planet's climate include, but are not limited to, variations in the Earth's orbit around the sun, variations in solar radiation, changes in ocean circulation, volcanic activity, plate tectonics, changes in the Earth's albedo (reflectiveness), and interactions between the atmosphere and biosphere (Manabe, 1969; Imbrie and Imbrie, 1980; Bartlein and Prentice, 1989; Forest *et al*., 1999; Miles, *et al*., 2004; Kopp *et al*., 2005; Caldeira, 2006; Hay, 2008; Speelman *et al*., 2009; IPCC, 2013; Rohli and Vega, 2018).

Since the beginning of the Industrial Revolution, human activities have caused atmospheric greenhouse gas concentrations to increase at unprecedented rates, and current carbon dioxide concentrations alone are at their highest in 3 million years (UN Climate Action Summit 2019 Science Advisory Group, 2019). This is caused by fossil fuels combustion and industrial processes in particular, but also through deforestation, cement production, and processes associated with agriculture, such as

production and application of synthetic fertiliser, loss of soil carbon due to continuous soil disturbance, destruction of *carbon sinks* like forests and wetlands, and the digestive processes of farm animals bred into existence for human consumption (Van der Werf *et al*., 2009; Hillier *et al*., 2011; O'Mara, 2011; Pan *et al*., 2011; IPCC, 2013, 2014c; Lawson, 2014; Petrescu *et al*., 2018; Rohli and Vega, 2018). Activities like these lead to an *enhanced greenhouse effect*, trapping more heat in the atmosphere, thereby rapidly changing climatic conditions around the globe (IPCC, 2013). Today, the average temperature of the atmosphere at surface level has already increased with approximately 1°C above pre-industrial levels (IPCC, 2018), although an average global temperature increase of over 5°C can be expected during the course of the 21st century under current trajectories (UNDP, 2007). This global warming has a myriad of implications for the Earth's climate system, but the main observed consequences include ocean warming, sea-level rise, variations in precipitation patterns, the shrinking of ice sheets and glaciers, loss of sea ice, increasing permafrost temperatures, changing snow cover, and changing global ocean cycles, ocean salinity and ocean acidity; as well as an increase in the occurrence of extreme events, such as heat waves, droughts, heavy precipitation events and flooding, extreme sea-levels (e.g. during storm surges), cyclones, and wildfires (IPCC, 2014c; UN Climate Action Summit 2019 Science Advisory Group, 2019). These trends increasingly impact ecosystems and human as well as non-human life (IPCC, 2014a). Increasing temperatures have also been found to set in motion several feedback mechanisms, leading to further surface warming. Examples of such feedback mechanisms include the release of previously trapped methane from thawing permafrost, higher atmospheric concentrations of water vapour – a powerful greenhouse gas – due to enhanced rates of evaporation, and an ever-decreasing albedo of the Earth's surface as ice caps melt away, exposing the darker and more solar radiation absorbing surfaces below (Bony *et al*., 2006; IPCC, 2013; Rohli and Vega, 2018).

2.2 The impacts of climate change in sub-Saharan Africa

There is strong evidence that a mean annual temperature increase has occurred in most parts of SSA over the last century as a result of human activities, which has been particularly visible since the 1970s (Collins, 2011; Nicholson *et al*., 2013; IPCC, 2014b; Davis-Reddy and Vincent, 2017). Moreover, the rate

of temperature increase over the African continent is occurring at twice the global average (Jones *et al*., 2012; Osborn and Jones, 2014). As the Network of African Science Academies (NASAC) points out, however, such temperature increases manifest differently across the region due to a high level of climatic, environmental, cultural, and historic diversity between sub-regions (NASAC, 2015). Both Southern and some parts of Eastern Africa, for example, have experienced a significant decline in seasonal rainfall during recent decades, in some cases even leading to severe droughts that threaten crop yields and drinking water availability and cause forest mortality (Hoerling *et al.*, 2006; New *et al.*, 2006; Funk *et al.*, 2008; Williams and Funk, 2011; Lyon and DeWitt, 2012; Williams *et al.*, 2012). Additionally, dry spells in Southern Africa have been found to continue for longer, while often being accompanied with fewer, but more intense rainfall events (New *et al*., 2005; Serdeczny *et al*., 2017), which can lead to increased soil erosion in the form of surface runoff (IPCC, 2014b). In the coming years, tropical Eastern and Western Africa are projected to experience strong increases in extreme rainfall events as well, of 30-70 and 50-100 percent respectively (Serdeczny *et al*., 2017). Some of the dry spells in Southern Africa have been linked to an intensification of the El Niño Southern Oscillation (ENSO) cycles, likely caused by climate change (Richard *et al*., 2000). Moreover, temperature increases across SSA have led to heat damage, which is mainly manifested as reducing soil moisture through increased evapotranspiration and is associated with declining agricultural outputs (Hotir, 2011; Matsoukas *et al*., 2011; Lobell *et al*., 2011; IPCC, 2014b). In general, occurrence of extreme heat events is expected to increase in the coming decades, particularly in Southern and coastal West Africa, and the conditions of drought seen in Southern and Eastern Africa today are projected to worsen as well (IPCC, 2014b; Henderson *et al*., 2017; Serdeczny *et al*., 2017). Since the majority of poor households in SSA are rural and depend on agricultural activities for their incomes, these drought and temperature-related yield declines can have serious economic impacts for societies in the region (Gbetibouo and Hassan, 2005; Dell *et al*., 2008; Deressa and Hasan, 2009; Nhemachena *et al*., 2010). Several studies have suggested that these trends have already put pressure on incomes and that they may even have contributed to the region's poor growth performance over the past 40 years (Reardon and Taylor, 1996; Reardon, 1997; Barrios

et al., 2010; Abidoye and Odusola, 2015). Furthermore, based on historical outcomes, it has been suggested that these conditions of drought, higher average temperatures and extreme heat are increasing the risk of violent conflict in the SSA region, due to associated agricultural yield declines, reduced economic performance and increased competition between different groups for access to dwindling resources (Hendrix and Glaser, 2006; Burke *et al*., 2009). In turn, conflicts are known to lead to further environmental degradation and higher levels of vulnerability to climatic and other environmental adversities among the population (Biggs *et al*., 2004; IPCC, 2014a).

Another example of observable environmental effects of climate change can be found in the fact that it has been linked to increased surface water temperatures in major lakes in the African rift valley, such as Lakes Kariba, Tanganyika, Malawi and Victoria, thereby negatively affecting fish stocks and, in turn, the food supply of populations depending on them (Marshall, *et al.*, 2009; Verburg and Hecky, 2009; Hecky *et al.*, 2010; Magadza, 2011). Marine ecosystems around the world are under pressure from climate change as well and there is evidence to suggest that Africa's coastal regions, too, are being affected. For example, sea surface temperature increases linked to ENSO cycles, which seem to have been intensified by climate change in recent decades, are associated with coral bleaching and -mortality events in Eastern and Southern Africa (Richard *et al.*, 2000; Celliers and Schleyer, 2002; McClanahan, 2002; Obura *et al*, 2002; Ateweberhan and McClanahan, 2010; Darling *et al*., 2010; Yee and Barron, 2010). Simultaneously, tropical fish species have been found to gradually extend their ranges into the subtropical and cooler waters around Southern Africa, in particular during warm summers, posing a threat to native species (Branch, 1984; Sorte *et al*., 2010; James, 2013). Additionally, changes in air pressure and wind fields have been shown to influence ocean currents and nutrient upwellings along Africa's south-western coast, thereby permitting the eruption of toxic and oxygen depleting algal blooms that can cause mass mortalities of fish and invertebrates (Clark, 2006). Even though relatively little research exists on the effects of climate change on fisheries in Western and Central Africa, these regions too have been identified as being particularly vulnerable (Allison *et al*., 2009; Cheung *et al*.,

2010). Since many coastal populations in SSA are highly dependent on fisheries for both food supply and employment (FAO, 2006; McClanahan, 2008; Allison *et al*, 2009; Lam *et al*., 2012), ongoing changes in the climate can potentially threaten the food security and general standards of living for millions of people. It should be noted, though, that the exact effect of climatic changes on fish stocks in lakes and coastal waters is not always clear, due to the extent to which other factors – such as overfishing, pollution and invasive species – also impact aquatic ecosystems (McClanahan, 2002; Clark, 2006; Marshall *et al.*, 2009; Darling *et al*., 2010; Hecky *et al.*, 2010).

Furthermore, the SSA region has experienced a dramatic increase in flood-related fatalities and associated economic losses over the past few decades (Douglas *et al.*, 2008; Amogu *et al*., 2010; Di Baldassare *et al*., 2010; Aich *et al*., 2014). Countries that have been hit the hardest in recent years include Burkina Faso, Senegal, Ghana, Niger, Uganda, Ethiopia, Sudan, Togo, Mali, and Mozambique (Di Baldassare *et al*., 2010). Of all the aforementioned countries, though, Mozambique in particular has increasingly suffered flooding events in the last number of decades (Osbahr *et al*., 2008; Artur and Hilhorst, 2012). Indeed, as recently as March and April of 2019, large swaths of the country were flooded after parts of south-eastern Africa were ravaged by the cyclones Idai and Kenneth, together killing more than 648 and forcing over 110,000 people into camps in Mozambique alone (OCHA, 2019a; The Guardian, 2019). Although the increased flood-related damage throughout SSA has been associated with climate change by some authors, who associate climate change with an increased occurrence and intensity of storms and extreme rainfall events (Usman and Reason, 2004; Douglas *et al*., 2008), others have expressed doubts, pointing at a general lack of data to support such claims (Conway, 2007; Karley, 2009). Nonetheless, a number of studies have shown that in many cases, flood conditions cannot be separated from human influences, such as greenhouse gas emissions, deforestation, land use, river engineering, lack of proper drainage and poor city planning due to rapid urbanisation (Kundzewicz *et al*., 2005; Douglas *et al*., 2008; Karley, 2009; Blöschl and Montanari, 2010; IPCC, 2013).

The literature commonly agrees that climate change and climate variability can have a direct influence on the rise and spread of infectious diseases as well. For example, it is widely recognised that flooding events in the SSA region frequently cause the outbreak of waterborne diseases, such as cholera, typhoid, diarrhoea, dysentery and gastric problems due to overflowing sewers and contamination of wells, and can even lead to upsurges of vector-borne diseases like malaria and river blindness (Pascual *et al*., 2000; Lincoln, 2005; Sidley, 2008; Karley, 2009; Ramin and McMichael, 2009; Adelekan, 2010). In the wake of floods, groups of people particularly susceptible to such diseases include the immunocompromised, infants, the elderly and pregnant women (Lincoln, 2005). Rising temperatures associated with climate change and variability can also lead vector-borne diseases like malaria, dengue fever, yellow fever, West Nile fever and several tick-borne diseases to extend their range into areas where these previously did not occur, such as high-altitude areas and regions at further distances from the equator (Hunter, 2003; Lincoln, 2005; Reisen *et al*., 2006; Ogden *et al*., 2008). In the East African highlands, for example, rising temperatures have been associated with an altitudinal increase of malaria since the late 1970s, which has now become a serious health hazard for local populations (Shanks *et al*., 2002; Zhou *et al*., 2004; Pascual *et al*., 2006; Chaves and Koenraadt, 2010; Siraj *et al*., 2014). Furthermore, increased rainfall caused by climate shifts has been associated with an uptick in vector-borne diseases as well. For example, with increased rains in Rwanda in 1984 and 1988 there was a 266 percent increase in reported malaria cases (Patz *et al*., 1996).

Lastly, climate change, along with other environmental adversities, can help facilitate emerging infectious diseases (EIDs) as well, of which the majority is of zoonotic (nonhuman animal) origin (Taylor, 2001; Jones, 2008; Allen *et al*., 2017). For example, it has been suggested that as climate change reduces food availability for wild animals, their susceptibility to infectious diseases may be exacerbated due to nutritional stress (Chapman *et al*., 2005). Additionally, loss of biodiversity caused by climate change and habitat destruction can lead to a higher density of viral hosts, removing potential barriers for the spread of pathogens, known as the *dilution effect* (Wolfe *et al*., 2005; Khalil *et al*., 2016; Rogalski

et al., 2017). Such conditions can become particularly problematic for humans when they and their domesticated animals are brought into contact with these wild animals. This can happen, for example, when climate change and habitat destruction force wild animals into new areas, or when deforestation and the invasion of wild landscapes lead humans deeper into natural habitats (Wolfe *et al*., 2005; Hoberg and Brooks, 2015; Wallace *et al*., 2015; Rogalski *et al*., 2017). When these conditions enable pathogens to switch from nonhuman to human hosts, zoonotic diseases can emerge, and once these pathogens can be transmitted between humans, the potential for an epidemic occurs (Wolfe *et al*., 2005).

Notable examples of zoonotic infectious diseases which have erupted in SSA in recent decades, displaying a clear link with ecological perturbation, include HIV/AIDS, originating from nonhuman primates who were likely hunted and eaten as *bush meat* in Cameroon; and Ebola, having its likely origin in the Democratic Republic of the Congo (DRC) and what is now South Sudan after contact between humans and African fruit bats and possibly with nonhuman apes and duikers (Leroy *et al*., 2004; Chapman *et al*., 2005; Wolfe *et al*., 2005; Pépin, 2013; Centre for Disease Control and Prevention, 2014; WHO, 2020). Besides the immediate health hazards for individual persons caused by the spread of infectious diseases, widespread conditions of poor health can pose a significant threat to economic performance in affected areas (Egbendewe-Mondzozo *et al*., 2011). Across the African continent, malaria alone has been estimated to cost some 12 billion USD annually in terms of lost productivity (World Malaria Report, 2009). This estimate, however, is likely to be low, as it does not incorporate the costs of treatment, loss of life and lifelong disabilities (Egbendewe-Mondzozo *et al*., 2011). Due to its enormous scope, the full economic cost of a disease like HIV/AIDS on the SSA region is hard to map. It seems clear, however, that its impacts are far reaching can be observed on many different levels, ranging from individual wages and household incomes to food production, labour supply and productivity, health expenditure, trade, tax revenues, markets and investment (Dixon *et al*., 2002; Puku, 2004; Kabajulizi and Ncube, 2015; Dauda, 2018). However, as Puku (2004) has argued, the real impact of HIV/AIDS

should be examined against a backdrop of social and economic problems already experienced on the continent, such as poverty; famine and food shortages; inadequate sanitation, healthcare and nutrition standards; the subordination of women; and fiscal policies that do not allocate sufficient resources to the social sectors (Puku, 2004). It is reasonable to believe that this argument can be extended to the impacts of other infectious diseases in the region as well.

2.3 Linking climate- and environment-related adversities to migration

2.3.1 Contemporary examples from sub-Saharan Africa

Though relatively limited in numbers, a handful of empirical works have focussed on the impacts of climatic and environmental conditions on migration decision-making in SSA. For instance, it has been demonstrated that a drop of precipitation and soil moisture levels increasingly motivates populations dependent on subsistence agriculture and pastoralism to find alternative livelihoods in urban centres, thereby increasing urbanisation rates (Cour, 2001; Barrios, 2006; Hein *et al*., 2009; Brückner, 2012; Mastrorillo *et al*., 2016; Henderson, 2017). An example of this can be found in Senegal, where increasingly dry conditions are forcing pastoralists to sell off their livestock and move to the cities (Hein *et al*., 2009). Other studies have established links between climate- and environment-related conditions – including drought and soil erosion – and migration between different rural areas in several parts of SSA (e.g. Henry *et al*., 2004; Doevenspeck, 2011; Gray, 2011; Gray and Mueller, 2012; Wegerif, 2017). For an example we can look at Tanzania, where Wegerif (2017) found that small-scale farmers use internal migration as a strategy to cope with the serious problems arising from drought and loss of soil fertility.

Studies have not only linked climate- and environment-related migration to slow onset hazardous events, but to rapid onset disasters like (tropical) storms and flooding of river deltas and coastal regions as well. Displacement of large numbers of people as a result of such events has occurred in several instances in SSA in recent years, mostly in West and Southern Africa (Sidley, 2008; Tschakert, 2010; Stal, 2011; Arnall, 2014; Uzobo and Ayinmoro, 2014). For example, it is argued that in Nigeria the

numbers of people internally displaced has become a national concern, and that floods play a significant role in this (Uzobo and Ayinmoro, 2014). This could be witnessed in 2012, when millions of people were displaced in the Niger delta and other parts of southern Nigeria, following heavy rains (*ibid.*).

Although most studies have looked at the impact of climatic and environmental shocks on internal migration, some have pointed towards possible links with cross-border migration as well. Davies (2008), for example, shows a correlations between Malawian households experiencing floods and drought and remittances received from distant areas, including other countries. The author suggests that this finding can be explained by the fact that distant areas are less likely to be affected by the same shocks, meaning that remittances from these areas are more likely to ease the impacts of these shocks at home. Furthermore, based on findings about cross-border migration from Zimbabwe to South Africa, Funke *et al*. (2020) argue that, although in most cases it is impossible to attribute migration into South Africa solely to environmental pressures, the increasing impact of such stresses on people's livelihood means that their role in migration decisions should not be ignored.

In line with the findings by Funke *et al*. (2020), it is important to point out that links between environment and migration are often nonlinear and complex. It is not always easy to differentiate between migrants who are driven by environmental problems and those who are motivated by other factors (Black *et al*., 2001; Myers, 2001; Warner *et al*., 2010; Black *et al*., 2011a; Black *et al*., 2011b; Foresight, 2011; Kniveton *et al*., 2011; Renaud *et al*., 2011; Martin *et al*., 2014; Beine and Parsons, 2015). Additionally, studies have found differing migration outcomes under similar conditions of environmental stress, revealing intersections between environmental and non-environmental dimensions. For instance, areas in SSA with relatively high levels of urban industrialisation and manufacturing tend to see increasing rural-to-urban migration under drier conditions, while these conditions have little impact on urbanisation rates in non-industrialised districts (Henderson *et al*., 2017). Similarly, it has been suggested that, during the past few decades, a positive link between rainfall shortages and urbanisation

rates in SSA has been reinforced by the lifting of colonial legislation preventing free internal mobility in the region and that the absence of such legislation in other parts of the developing world could help explain the lack of evidence for such a link existing in many of those regions (Barrios, 2006). Poverty levels, too, can play a role in the migration outcomes of environmental adversities. In Kenya, cool temperatures, particularly when combined with high precipitation, have been found to drive internal labour migration of men, suggesting that households take advantage of beneficial agricultural conditions to invest in internal migration by men as a 'household investment strategy'; while in neighbouring Uganda, higher poverty levels and elevated 'barriers to entry' make it harder for households to do the same (Gray and Wise, 2016). Another study discovered that low soil quality can be associated with increased levels of migration in Kenya, whereas migration rates generally went down under similar conditions in poorer Uganda (Gray, 2011). The aforementioned examples from Kenya and Uganda, as well as examples from Ethiopia, demonstrate that besides poverty levels, established livelihood strategies and gender dynamics can intersect with environmental conditions as well, sometimes simultaneously. For instance, whereas the communities studied in Kenya take advantage of beneficial agricultural conditions to invest in internal labour migration by men, communities in the Ethiopian highlands were found to rather use male labour migration as a coping mechanism following declining agricultural yields caused by drought (Gray and Mueller, 2012; Gray and Wise, 2016; Mersha and Van Laerhoven, 2016). Also, rates of female marriage-related migration in Ethiopia are cut in half in times of drought, reflecting an inability for households to finance wedding expenses and new household costs in times of poor agricultural conditions; whereas female non-labour mobility in Uganda consistently goes up under these conditions, suggesting a pattern in which households send female non-labour migrants, likely for marriage, to cope with lower agricultural yields (Ezra and Kiros, 2001; Gray and Mueller, 2012; Gray and Wise, 2016; Hermans and Garbe, 2019). Additionally, it was found that black and low-income migrants in post-Apartheid South Africa are influenced by environmental conditions at much higher rates than white and high-income migrants (Mastrorillo *et al.*, 2016), revealing intersections between environmental adversities and systemic inequalities relating to race and class.

It should be noted that the intersection of environmental and non-environmental factors takes place at and between different levels, on the micro-level, the meso-level, and macro-level. Section 3.3 of this dissertation, in which the conceptual framework is laid out, delves deeper into these different levels.

2.3.2 Several dimensions of climate- and environment related mobility

The examples provided above tie into discussions regarding different types of migration occurring in the face of climate- and environment related adversities. As such, three main dimensions of climate- and environment related mobility are laid out here. The first dimension relates to whether movement happens on a forced or voluntary basis. The second dimension concerns the degree to which mobility is sudden or planned in advance. The third dimension that requires consideration is the degree to which mobility is temporary or more permanent. These dimensions gain in clarity and application once we separate and define the terms *resettlement*, *displacement*, and *migration*.

Resettlement (or *planned resettlement/relocation*) can be defined as a deliberate and often pre-emptive movement, often supervised and carried out with state support, to reduce people's exposure to climatic or environmental impacts (McMichael *et al*., 2012; Advisory Group on Climate Change and Human Mobility, 2014; Kumari Rigaud, 2018). It likely involves the movement of large populations – such as whole communities – within countries and can be both temporary and permanent (McMichael *et al*., 2012; Advisory Group on Climate Change and Human Mobility, 2014).

Displacement (or *forced displacement*) can be understood as an often involuntary or forced movement in response to extreme and often rapid-onset environmental conditions that threaten safety, security and livelihood and inhibit people's ability to remain in their places of residence (Renaud *et al*., 2007; Black *et al*., 2011a; McMichael, 2012; McLeman *et al*., 2016; Kumari Rigaud *et al*., 2018). Due to it often taking place in response to or in anticipation of rapid-onset environmental hazards, displacement

generally has a sudden and unplanned character and is usually temporary, as people typically return to rebuild their houses and resume their livelihoods after the hazard has passed. It can, however, happen in response to slow-onset trends as well and can therefore, in some cases, be more planned and permanent (Castles, 2002; Kälin, 2010; Black *et al*., 2011a; Johnson and Krishnamurthy, 2010; Advisory Group on Climate Change and Human Mobility, 2014; Brzoska and Fröhlich, 2015).

Migration in the face of climatic or environmental problems should generally be viewed as a planned move for adaptation (Martin *et al*., 2014). The term is also associated with more long-term or permanent change of place of residence, and is perceived as more voluntary (Hugo, 1996; Renaud *et al*., 2007; McMichael *et al*., 2012; McLeman *et al*., 2016; Kumari Rigaud *et al*., 2018). Yet, it is important to emphasise here that even those who are characterised as 'forced migrants' usually still possess some degree of agency and destination choice (Speare, 1974a; Hugo, 1996; De Haas, 2009). Likewise, it has been argued that many of those individuals generally referred to as *voluntary migrants*, may in reality have few to no alternative options (Amin, 1974). Due to this overlap between voluntary and involuntary migration, it could be argued that instead of being divided into rigid categories, movement of people occurs along a continuum ranging from completely voluntary to completely forced mobility (Hugo, 1996; Kumari Rigaud *et al*., 2018).

Since the above has relevance for understanding the drivers and outcomes of mobility, the specific contexts in which mobility decision-making happens are emphasised in this dissertation. For the sake of practicality, however, I refer to all individuals who have left their habitual homes and have changed their place of residence – whether voluntarily or forced, temporary or permanent, or planned or sudden – as *migrants*. All aforementioned dimensions of mobility are referred to as *migration* in the context of this study, unless it is relevant to a case to specify the nature of their mobility.

2.4 South Africa as a destination for regional migration

The country selected for the field study for this work was South Africa, a country located at the southern tip of the African continent. Many millennia before the idea of a South African nation state could even be conceived, people from around the African continent chose to settle there (Barbieri *et al*., 2014; Kim *et al*., 2014; Schlebush *et al*., 2017). Today, the country continues to attract large numbers of people from around the SSA region (DHAS, 2017). Given SSA's high level of vulnerability to climate change, South Africa's position as a destination country in the region makes it an ideal place to investigate links between climate, environment, and regional migration. In light of this observation, this section is aimed at providing a context in which to understand the regional migration flows from other SSA countries into South Africa, both from a historic and contemporary perspective. Furthermore, the section delves into the conditions that shape foreign migrants' decisions to move to South Africa, as portrayed in existing literature.

2.4.1 A historical perspective on South Africa as a destination for migration

The area which is now South Africa has been the scene of population movement for thousands of years, and throughout this period many people from around SSA have made it their home. For most of human demographic history, the area has been populated by the Khoe-Sān peoples. Genetic evidence suggests that the ancestors of today's Khoe-Sān peoples were the first modern humans to expand into Southern Africa when they split off from other early modern human populations around 100 – 150 thousand years ago, or possibly as early as 260 – 350 thousand years ago (Kim *et al*., 2014; Schlebush *et al*., 2017). Much later in time, remains of pastoralists and Iron Age agriculturalists begin to appear in the archaeological record throughout Southern Africa, including 2000-year-old pottery and the remains of domesticated animals (Barbieri *et al*., 2014). Conflicting explanations regarding the origins of this culture exist, but one hypothesis proposes that it was introduced by herders immigrating from east Africa, where signs of domesticated species have been found dating back 4000 years (Deacon and Deacon, 1999; Mitchell, 2002; Phillipson, 2005; Pleurdeau *et al*., 2012).

Today, the majority of South Africa's inhabitants belong to the Bantu speaking peoples. Originating in what is now Cameroon and eastern Nigeria (Diamond and Bellwood, 2003; Phillipson, 2005; Kostoen, 2018), the Bantu speaking peoples are believed to have started spreading out over much of SSA around 3 – 5 thousand years ago (Vanisa, 1995; Holden, 2002). By the first millennium AD, some of the descendants of these early Bantu pioneers arrived in South Africa, reaching the Fish River in what is now the Eastern Cape province by 400 AD and establishing small farming communities there (Phillipson, 2005; Killick, 2009; Kostoen, 2018). In the following centuries – particularly during the second millennium AD – further Bantu expansion into South Africa took place (Ehret and Posnansky, 1982; Phillipson, 2005). During the eleventh century AD, these developments eventually led to the establishment of the first known major state in Southern Africa at Mapungubwe in the Limpopo river valley at South Africa's most northern edge (Maggs, 2000; Phillipson, 2005). Later, other parts of South Africa's northern regions, as well as its fertile eastern coastal plains and its interior plateau continued to see an intensification of Bantu settlement (Diamond, 1999; Phillipson, 2005). Meanwhile, indigenous Khoe-Sān populations were largely assimilated or driven out of these areas (Diamond, 1999; Hall and Smith, 2000; Diamond and Bellwood, 2003).

The origins of South Africa's contemporary position as a destination country for regional SSA migration can be traced back to the colonial period. Already in the 1840s, many decades before South Africa existed as a unified entity, African people from areas surrounding the Cape Colony, Natal and the Orange Free State migrated there to work as agricultural labourers (Harries, 1994; Wentzel and Tlabela, 2006). Most of these early migrant workers came to earn money to buy agricultural tools to expand agriculture at home, to buy rifles for defence against rival peoples and colonial powers in the region, and to finance *lobola*, or bride-wealth (Delius, 1983; Turrell, 1987; Harries, 1994). In the 1870s, the opening of the diamond fields in Kimberley sparked a huge demand for male unskilled labour. Van der Horst (1942) wrote that by 1874, ten thousand African workers were employed in the mines, the

majority of whom where temporary migrant workers from beyond the northern borders of the Zuid Afrikaansche Repuliek (ZAR). When gold was discovered on the Witwatersrand in the 1880s, a migrant-labour system of an even larger scale was established, and major recruitment campaigns were deployed to ensure a stable supply of labour (Van der Horst, 1942). Most of the foreign labourers came from neighbouring colonies (*ibid.*), but some came from areas as far away as Central Africa (Crush, 2000). There were various reasons for these migrants to make the journey to South Africa's mines, from macro-level drivers such as colonial taxation, dispossession of land and the destruction of peasant agriculture at home, to personal micro-level reasons, like earning cash for *lobola*, investment in agriculture back home and to purchase consumer goods (Beinart, 1982; Crush, 1987; Eldredge, 1993; Harries, 1994).

The extensive cross-border migrant-labour systems that were established in the formative decades of the 19th century continued to grow in size during the 20th century, as the overall demand for labour kept increasing among South Africa's mining corporations (Crush, 2000; Wentzel and Tlabela, 2006). According to Crush (1997a), three types of supplying countries can be identified during the 1920 – 1990 period. These were 'long-standing supply countries', which include Mozambique, Botswana, Lesotho and Swaziland; 'episodic supply countries', such as Malawi and Zimbabwe; and 'occasional supply countries', like Zambia, Tanzania and Angola (Crush, 1997a). During the Apartheid era, permanent legal immigration was almost entirely limited to people deemed by the regime to be white, including some 'honorary whites' from Asia and elsewhere (Handmaker, 2009; DHA, 2017). Typical for the migrant-labour system was that up until 1986, it legally denied workers from other African countries the rights to settle permanently and did not allow them to bring their spouses and families with them (Pose, 2004; Wentzel and Tlabela, 2006). In this way, South African labour policy enforced that foreign African workers would return to their countries of origin the moment their contracts were completed (*ibid.*). The resulting oscillating migration system worked to benefit the interests of both the white minority-ruled South African state, wishing to prevent African people from taking up residence in urban areas;

the foreign supply states, who did not want to lose the migrants permanently; and South African capital, as it could exploit the system to keep wages low (Crush, 2000; Wentzel and Tlabela, 2006).

It is, however, important to point out that in reality, the borders generally presented no real obstacle for migrants wanting to cross. Most migrants who had entered South Africa without obtaining official permission tried to find work in the country's urban centres, though some also managed to find employment on commercial farms (Wentzel and Tlabela, 2006). Initially, farm workers were formally recruited and were employed in South Africa on contract basis, but in the 1980s and 1990s this became largely unnecessary due to an increasing availability of undocumented labour, following a growing movement of undocumented migrants from neighbouring countries and the large-scale displacement of refugees from Mozambique (Crush, 1997b). Because of the high demand for agricultural labour, the Apartheid government turned a blind eye to undocumented migrants wishing to work on commercial farms (*ibid.*). Those fleeing the Mozambican civil war, which the Apartheid government was also fomenting (Sumich and Honwana, 2007; Lunstrum, 2009), were denied refugee status and deprived of associated rights and protections (Crush, 1997b; Polzer, 2004; Steinberg, 2005). Refugees, who were formally defined as 'illegal aliens', risked arrest and deportation whenever they left designated areas, and a lack of refugee relief effectively forced significant numbers of desperate Mozambicans into accepting employment on farms (Hough and Minnaar, 1996; Crush, 1997b; Polzer, 2004; Steinberg, 2005; Wentzel and Tlabela, 2006).

Crush (2000) shows that over the course of the 20th century, hundreds of thousands of male foreign migrants were contracted to the mines of South Africa. The numbers of contracted foreign nationals peaked in the early 1970s at over 260,000, or some 80 percent of the mine workforce; while by the end of the century, in the year 2000, 50 percent of miners were still of foreign origin (Crush, 2000). Six years earlier, in 1994, when democracy had finally been instituted, the newly elected government had inherited a cross-border migration system rooted in racist policies and the exploitation of foreign

workers. Therefore, efforts were made in 1996 to offer permanent residence to foreign long-time miners (De Vletter, 1998; Crush, 1999). However, due to confusion and a lack of understanding about the eligibility criteria, and mainly because a large proportion of migrant workers did not want to permanently move to South Africa, many did not apply for this option (De Vletter, 1998).

Although the vast majority of migrant workers in South Africa were historically male, and official recruitment of women was not allowed, some women from neighbouring countries managed to migrate to South Africa as well (Crush, 2000; Pose, 2004; Wentzel and Tlabela, 2006). During most of the 20th century, foreign black women working in South Africa were considered 'clandestine workers' (Wentzel and Tlabela, 2006). The only formal job that many of them could do was domestic work in the houses of whites. Many others, though, turned to 'illegal' occupations, such as informal trading, sex work and the production of liquor, which brought them into constant conflict with the authorities (Crush and Ambler, 1993). In the 1990s, a shift in the gender compositions of foreign migrant workers in the country started to occur (Pose, 2004), and the share of women and children migrating to South Africa has been gradually increasing to this day (DHA, 2017).

2.4.2 Contemporary immigration from sub-Saharan Africa

South Africa's reintegration into the global economy and the regional community during its democratisation in 1994 brought an end to the country's isolation. This contributed to an increase in both documented and undocumented immigration from the SSA region (Crush, 1999; Wentzel and Tlabela, 2006). Although the exact number of undocumented immigrants in the country is hard to determine, what is certain is that in the first few years after Apartheid the number of undocumented immigrants being deported dramatically increased, from some 90,000 in 1994 to around 200,000 in the year 2000 (Murray, 2003). It should be noted, though, that this largely seems to be linked to a heightened activity of the police and immigration enforcement during these years (Landau and Segatti, 2009). The majority of undocumented migrants entering South Africa are from neighbouring countries, as it is relatively

easy to cross the often porous and unpoliced borders (Oucho, 2006). Undocumented migration is generally viewed as the most controversial form of migration. Wild and often unsubstantiated claims regarding the number of undocumented immigrants present are regularly thrown around, contributing to xenophobic sentiments and regular eruptions of violence against foreign nationals in the country (Murray, 2003; Oucho, 2006; Crush and Ramachandran, 2010).

Most migrants from neighbouring countries residing in South Africa remain unskilled and semi-skilled workers (Wentzel *et al*., 2006) who can only work for the mines, farms and other companies under a temporary Corporate Work Visa that has its roots in the migrant labour system (DHA, 2017). However, immigration from around SSA is not limited to low-skilled labour, as Ellis and Segatti (2011) point out. They argue that the share of skilled African immigration – particularly from Zimbabwe – has been on the rise and is likely to have surpassed the proportion of skilled labour coming from Europe, which was historically the main source of skilled labour migration (Ellis and Segatti, 2011).

Refugees account for a relatively small share of the total number of migrants in Southern Africa, at 2.1 percent, which is the lowest of all African sub-regions (Segatti and Landau, 2011). However, South Africa leads the world in the number of pending asylum seekers (UNHCR, 2010). According to the United Nations High Commissioner for Refugees (UNHCR), the majority of refugees in South Africa originate from Somalia, the Democratic Republic of the Congo, Ethiopia, Zimbabwe, Cote D'Ivoire, Burundi and Rwanda, in this order (UNHCR, 2015).

Prominent drivers for contemporary regional migration mentioned in literature are mostly of a political and economic nature, such as declining GDPs per capita, economic inequality, failure of economic reform programmes and declining human development resulting from structural adjustment programmes and political conditionality tied to foreign aid (Murray, 2003; Oucho, 2006). Other mentioned

reasons for migration to South Africa include employment-related problems back home, as well as security issues (Wentzel *et al*., 2006; Stats SA, 2019).

3. Theories on the interactions between migration and the environment

3.1 A brief history of the climate-environment-migration debate

The idea that adverse climatic conditions can lead to migration is not new and predates our current understanding of anthropogenic climate change. In the 19th century, Ravenstein (1889), who laid the foundations for our modern perspectives on human migration, already described the "unattractive climate" as one of the main factors contributing to human population movement. Furthermore, Semple argued in 1911 that "the search for better land, milder climate, and easier conditions of living starts many a movement of peoples which, in view of their purpose, necessarily leads them into an environment sharply contrasted to their original habitat" (Semple, 1911:143). One event in particular that received a great deal of attention in terms of its effect on human migration took place in the first half of the 1930s in the USA, during what came to be colloquially known as the Dust Bowl phenomenon.

At the time, the existence of a direct and linear relationship between this environmental catastrophe and large-scale population movement was widely accepted, and much of the later literature on the topic adopted this interpretation. For many years, the prevailing view was, therefore, that a combination of intensive agriculture and droughts affecting large parts of the country led to soil erosion and devastating dust storms, triggering mass migration from the Great Plains to the Pacific Coast. Neuberger (1939), for example, described those who had left their homes and settled in California as "victims of natural catastrophe", "nomads from the Dust Bowl" and "Dust Bowl refugees", and argued that "indiscriminate grazing that took away the buffalo grass which anchored the topsoil" (Neuberger, 1939:35) was at the very core of the problem. According to Taylor and Vasey (1935), the great dust storms and drought, combined with economic hardship caused by the Great Depression, drove large numbers of "drought refugees" out of their homes. In the influential work of environmental historian Daniel Worster (1979), it was argued that the soil erosion that produced the enormous dust storms

resulted from a great influx of new farmers and a general focus on productivity maximisation (known as the *Great Plow-up*), which should therefore be identified as the ultimate causes of the large-scale migrations of the 1930s.

The Dust Bowl migration constitutes a particularly useful case, because it provides a historical and well-researched example of the often-complex and nonlinear relations between environment and migration. Later studies have illustrated that the story of out-migration as the direct outcome of adverse environmental conditions, as presented in many of the contemporary analyses, was a rather simplistic one. One such a study was conducted by McLeman *et al*. (2014), drawing on work of Malin (1946), who suggested that longer established farmers were more adapted to and experienced with local conditions and took better care of the land than many of the new farmers who came into the area during the 1920s. McLeman *et al*. argue that areas with higher rates of such recent arrivals suffered far more soil erosion and saw higher rates of out-migration. Another interpretation is demonstrated by Fishback *et al*. (2006), using economic datasets of federal New Deal expenditures and internal migration. The authors found that counties in the USA that received more government spending on public works, relief, infrastructure and agricultural support were less likely to experience out-migration and more likely to attract migrants, thereby illuminating the importance of economic conditions to migration trends. Similar conclusions are drawn by McLeman *et al*. (2008), suggesting that out-migration from eastern Oklahoma – which had been particularly heavily affected by drought and extreme rainfall and experienced significant out-migration – would have been much higher if the area had not been supported with government relief programmes.

Even though the Dust Bowl received a great deal of attention, overall recognition of the environment as a driving force for migration remained relatively low during much of the 20th century (Hunter, 2005). With some notable exceptions (e.g. Wolpert, 1966), most literature on human migration barely discussed environmental factors, as can be observed in influential works like Stouffer's approach to

intervening opportunities (Stouffer, 1940), Zelinksky's hypothesis of *mobility transition* (Zelinksky, 1971) and Speare's concept of *residential satisfaction* (Speare, 1974b). Several reasons for this general lack of attention to the environment in migration discourse can be identified. For example, a widely held belief was that technological innovation was bound to decrease the impact of nature on human societies, which was in line with the modernisation paradigm that was dominant at the time. Peterson (1958) therefore argued that migration resulting from ecological stresses should be considered a 'primitive' form of migration, which was "related to man's inability to cope with natural forces" (Peterson, 1958:259). Moreover, migration was increasingly viewed through an economic lens. This was particularly reflected in neoclassical approaches to migration, which mainly viewed migration as a rational response to spatial income variations and differences in supply and demand of labour (e.g. Lewis, 1954; Harris and Todaro, 1970; Todaro, 1969; 1976; 1980). In neo-Marxist thinking, which occupied an important position in the debate on migration as well, migration was viewed predominantly as a response to economic disruptions and inequality caused by capitalist accumulation and imperialist exploitation, as well as the (often foreign) recruitment of labour (e.g. Amin, 1974; Meillassoux, 1975; Gonzalez and Fernandez, 1979).

With an increasing awareness of environmental degradation and the effects of climate change, the 1980s and 1990s saw a rise in publications focusing on the relation between environment and migration. In particular, the debate was sparked by Essam El-Hinnawi (1985) and Jodi L. Jacobson (1988) who popularised the term *environmental refugees*, which El-Hinnawi defined as "those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life" (El-Hinnawi, 1985:4). Jacobson argued that some 10 million people could be considered environmental refugees in 1988, stating that these made up the largest group of refugees in the world (Jacobson, 1988). In 1990 the IPCC warned in their first Assessment Report that the most severe impacts of climate change may be those on human migration, by causing

the displacement of millions of people (IPCC, 1990). Myers (1993) predicted that the number of environmental refugees created by climate change would be some 150 million by the year 2050. In 1995 he claimed that "there are at least 25 million environmental refugees today, a total to be compared with 22 million refugees of the traditional kind [...] The total may well double by the year 2010 if not before, as increasing numbers of impoverished people press even harder on over-loaded environments" (Myers, 1995:1). In 1996 he estimated that the worldwide number of people having to flee sea-level rise alone would be 200 million (Myers, 1996). A year later, an IPCC report on the regional impacts of climate change suggested that sea-level rise and coastal sinking could displace tens of millions of people in coastal regions (IPCC, 1997). The narrative furthered in these publications was taken up by many developmental and aid organisations. Christian Aid, for example, estimated that unless strong preventative action is taken, at least 1 billion people globally 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).

The aforementioned alarmist notions – also referred to as the 'maximalist' narrative – posit a rather deterministic representation of the links between climate change and migration. As such, it has been the subject of critique. This critique, which mostly came from migration researchers, led to a long-standing debate between natural and social scientists (Piguet *et al*., 2014). The following section delves further into the arguments that have been levelled against this narrative.

3.2 Millions on the move? Critiquing the maximalist narrative and the 'environmental refugee'

Looking at the magnitude of the problems associated with anthropogenic climate change, one can understand the sense of urgency on the side of the maximalists. It should also be remembered that the bulk of people suffering under adverse environments are located in countries that have contributed relatively little to the underlying causes of these adversities. The notion of 'environmental

refugees', as Neuteleers (2011) explains, establishes a clear relationship between environmental degradation and human suffering, and therefore urges industrialised countries to take up responsibility towards the victims and to take on the causes of environmental problems. This, the author goes on, could partly explain the popularity of the 'environmental refugee' notion (Neuteleers, 2011). Neuteleers' observation seems to be confirmed by Norman Myers (1995:13) when he writes 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."

Counter to the maximalist school, we can find a body of work written from what has been called the 'minimalist' perspective (Suhrke, 1993; Morrissey, 2009). The main minimalist critiques of the alarmist narrative are threefold. Firstly, it is argued that it is difficult to establish a clear, causal relationship between climate change and migration and that, in reality, these links are generally complex and non-linear. According to Suhrke (1993:6), the maximalists "tend to extract the environmental variable from a cluster of causes and proclaim the associated outmigration as a direct result of environmental degradation". However, migration decisions are usually multicausal and individual drivers for migration rarely act in isolation. In fact, different factors (e.g. economic, political, social, demographic, environmental) tend to be inextricably bound up and it can therefore be difficult to meaningfully separate them (Bilsborrow, 1990; Black, 2001; Wood, 2001; Castles, 2002; Renaud *et al*, 2007; Morrissey, 2009; Warner *et al*., 2010; Black *et al*., 2011a, 2011b; Foresight, 2011; Kniveton *et al*., 2011; Neuteleers, 2011; Renaud *et al*., 2011; Kniveton, 2012; Martin *et al*., 2014; Beine and Parsons, 2015). For an example we can look at Henry *et al*. (2004), whose study on the links between changing rainfall patterns and internal migration in Burkina Faso was cited in Section 2.3. Although the researchers did find evidence for the existence of an environmental migration link, it was also found that a household's socio-economic circumstances, education levels and applied livelihood strategies had implications for migration outcomes as well. Additionally, environmental stress can be felt indirectly, meaning that it is expressed

through non-environmental conditions, as has already been demonstrated in Section 2.2. All of this means that it is not always clear which factors are driving migration, and in what ways they are doing so. This is what Castles (2002) calls 'conceptual fuzziness', meaning that it can be difficult to determine the exact extent to which the environment has contributed to a migration decision. This, of course, does not mean that environmental factors are irrelevant to migration outcomes. One can, however, question why the environmental factor should be favoured over others when it comes to labelling migrants (Neuteleers, 2011).

Secondly, it has been argued that the maximalist predictions of future migration patterns largely ignore people's agency and gloss over essential social, cultural, political, and economic dynamics in communities and societies at risk. The implicit assumption made by many maximalist authors has been that an identification of populations at risk of climate change-related adversities equals a prediction of future climate change migration. To demonstrate this point, we can look again at Myers, who in his earlier works mainly wrote about biodiversity (Neuteleers, 2011), and is counted among the most influential among the maximalist authors (Castles, 2002; Morrissey, 2009; Black *et al*, 2011a; Foresight, 2011). His predictions on 'environmental refugees' are largely based on three major sources: population growth, sea-level rise and an increase in extreme weather events (Morrissey, 2009). As such, he draws an image of an increasingly large population suffering under increasingly pressing environmental conditions, while experiencing ever-narrowing resource availability. In his works, Myers primarily looks at the impacts of flooding and the salination of soils, caused by sea-level rise, extreme weather events and land subsidence (mainly through withdrawal of ground water) in coastal areas and river deltas in China, Egypt, India and Bangladesh, and argues that the tens of millions of people affected by these conditions will be forcibly displaced from each of these regions (Myers, 1993; Myers and Kent, 1995; Myers, 1996; Myers, 1997; Myers, 2001; Myers 2002). Besides the fact that predictions like those made by Myers have been criticised for being rooted in Malthusian notions of poor and rapidly growing populations putting increasing pressure on dwindling resource pools, infused with theories of

environmental change (Hendrix and Glaser, 2007; Morrissey, 2009), one also requires a much broader understanding of people's behaviour and socio-economic realities in order to make predictions regarding the effects of climate change on migration patterns (Martin *et al*., 2014). Many authors have therefore pointed out that those impacted by climatic and environmental stress have agency and usually have access to a range of potential adaptation measures, of which migration is only one (Hampshire and Randall, 1999; Meze-Hausken, 2000; McLeman, 2009; Mortreux and Barnett, 2009; Penning-Rowsell *et al*., 2013). In fact, several studies have found that due to cultural, spiritual, familial, historical and subsistence ties to the land, migration is frequently viewed as a last resort strategy (Hampshire and Randall, 1999; McLeman, 2009; Mortreux and Barnett, 2009; Penning-Rowsell *et al*., 2013). In addition to agency, structural factors should be considered as well, as these play a major role in facilitating and preventing migration. Out-migration is not an option for everyone, and many authors have noted that that the very poorest and most vulnerable groups of people may often not have access to the resources, whether material, economic, political, or social, required for migration (Palloni *et al*., 2001; Curran, 2002; Foresight, 2011; Kniveton *et al*., 2013; IOM, 2009; Czaika and Haas, 2013; Nawrotski *et al*., 2013; Nawrotski and Bukhtsiyarava, 2017; Hammond, 2018). Additionally, people experiencing environmental pressures may face numerous external barriers to migration, including institutional and bureaucratic barriers (such as entry requirements or loss of property rights in destination areas), natural geographic features (such as rivers and mountains), physical obstacles (such as fences) or dangers associated with leaving (such as the risk of starvation due to lost livelihoods) (Kniveton *et al*., 2012; Czaika and Haas, 2013; Waldinger, 2015;

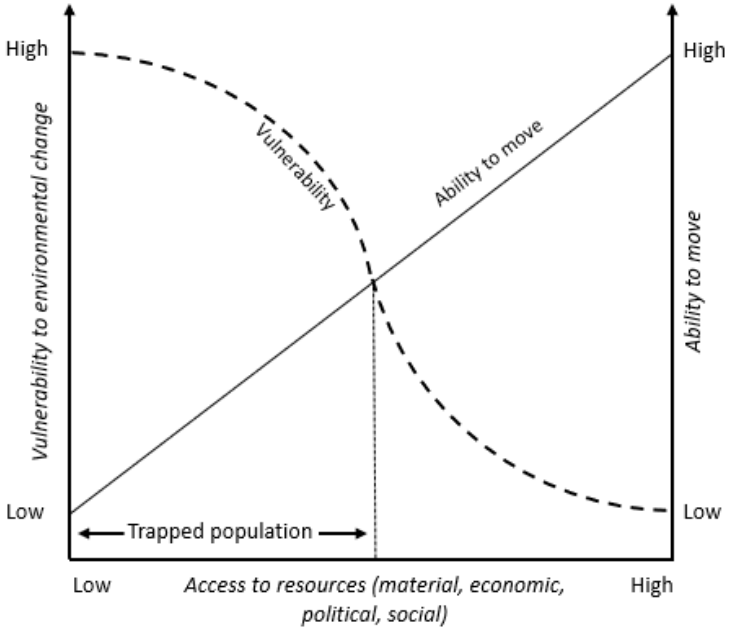

Figure 1 | Schematic representation of 'trapped populations' [adapted from Foresight (2011) by author]

Hammond, 2018). To demonstrate these points, we can look again at an example from Burkina Faso, where it was found that under conditions of higher temperatures and increased drought, both internal and external migration actually decreased, suggesting a negative correlation between the occurrence of environmental stress and people's ability to move (Nawrotski *et al*., 2013; Gray and Wise, 2016; Nawrotski and Bukhtsiyarava, 2017). This relationship between environmental change and people's structural context can culminate into so-called 'trapped populations', as represented in figure 1. Taking structural and agential factors into consideration also allows one to appreciate the different ways in which potential migration drivers can manifest themselves, depending on local context (Black *et al*., 2011a).

The third and last main critique expressed by the minimalists relates to the legal implications that the notion of the 'environmental refugee' has for our obligations towards them. The term *refugee* has a specific meaning under international law. The most commonly used definition is the one created under the 1951 United Nations Convention Relating to the Status of Refugees, usually referred to as the Geneva Protocol, which defines refugees as any person who:

"*Owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, unwilling to return to it*." (UNHCR, 2010).

As can be seen from this definition, *refugeehood*, as it is generally defined, refers specifically to the state of being outside of one's country of origin or former residence due to fear of persecution. According to Neuteleers (2011), the notion of 'environmental refugees' blurs the distinction made between *migrant* and *refugee*, as it refers to people who are not persecuted, but have not migrated

voluntarily either. Some have argued that the environment can be used as a tool for intentional harm (Conisbee and Simms, 2003, as cited in Neuteleers, 2011). From this point of view, one could argue, for instance, that contributing to climate change can be viewed as causing intentional harm. According to Conisbee and Simms (2003), this means that the condition for persecution has been fulfilled. However, as was addressed in Section 2.3 of this dissertation, distinctions between voluntary and forced migration can be hard to make. As such, if 'involuntariness' is enough to legally regard someone a refugee, this would mean that many migrants who may not have directly migrated due to environmental adversities should deserve the refugee label as well. One can ask, for example, whether the journey made by someone attempting to escape hunger caused by economic crisis is more 'voluntary' than the one made by someone facing similar conditions caused by drought. In other words, it is not just the notion of 'environmental refugees' that has the potential of blurring the lines between migrant and refugee. If we accept the equation of concepts like 'involuntariness' and even 'intentional harm' with 'persecution', the legal migrant-refugee binary, as it currently exists under international law, becomes difficult to sustain, with some potentially negative consequences. In the early days of the debate, several minimalist authors were already aware of this problem as well. They pointed out that a broader definition of *refugeehood* can potentially be used by countries as an excuse to introduce stricter refugee policies and to equate those currently classified as 'political refugees' to those viewed as 'economic migrants', thereby reducing their efforts to protect and support (McGregor, 1993; Kibreab, 1997, Castles, 2002). Perhaps it is therefore relevant to not be fixated on the term *persecution* in the Geneva Protocol definition, but also notice what it is followed up with: "...*for reasons of race, religion, nationality, membership of a particular social group or political opinion*". It should also be reiterated here that, as discussed above, different migration drivers – like economic crisis and drought – can be deeply tied up with one another and can therefore be difficult to separate. Statements emphasising a monocausal link between environment and migration, while drawing sharp distinctions between 'environmental refugees' and, say, 'economic migrants' on the basis of the principle of 'involuntariness' should therefore be approached with caution.

3.3 Conceptual framework

The dissertation approaches climate- and environment-related related migration through a conceptual framework derived from frameworks presented by Foresight (2011) and Kniveton *et al*. (2011). These frameworks both show how environmental change can influence a variety of drivers for migration, leading to the conditions in which an individual has to decide whether to migrate, or to stay. According to Foresight, such behaviour decisions are influenced by personal and household characteristics on the one hand, and larger-scale obstacles and facilitators on the other hand. This is shown in figure 2.

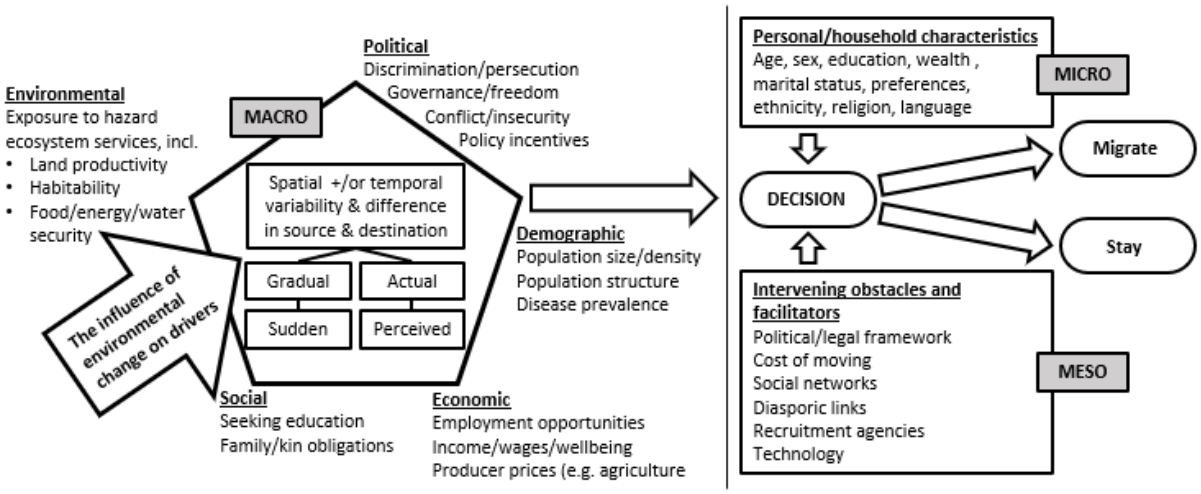

Figure 2 | Conceptual framework created by Foresight (2011)

Five broad categories of migration drivers have been identified by the authors on the left side of the diagram. It is important to note that even without the influence of environmental change, migration is already happening as a result of these drivers (Foresight, 2011). However, environmental change can induce and influence migration flows by impacting these drivers of migration. This can happen by directly affecting environmental hazardousness in a given location, or indirectly by creating and aggravating problems in the economic, political, social, and demographic spheres. An important feature of the diagram is that it shows that migration drivers do not automatically lead to migration (*ibid.*). Whether someone decides to migrate or stay is dependent on a variety of dynamics taking place on a personal micro-level and a larger meso-level, as shown on the right side of the diagram.

However, the framework created by Foresight falls short in a number of ways, all relating to the right side of the model (micro and meso level), representing the factors influencing the decision making-process. For example, it does not consider the influence of prior migration experiences on people's attitude towards migration, and the effect of personal perceptions and expectations of a migration destination on the decision-making process is not recognised either. Furthermore, the model does not include a consideration of one's adaptive capacity. Indeed, it is important to recognise migration as one strategy among a variety of existing adaptation and coping options (Kniveton *et al*., 2008). As was addressed in Section 3.2, many people might prefer to stay if an option other than migration is available. Foresight's analysis does not explicitly recognise the impact that relatives can have on people's migration decisions either. Some authors have found that expectations from family are frequently at the centre of migration decision-making, which means that an understanding of migration decisions requires an appreciation of family characteristics and power dynamics within the family or household (e.g. Stark and Bloom, 1985; Gubhaju and De Jong, 2009). Last, as migrants can usually choose between more than one destination to travel to, the diagram could be more explicit about this as well.

Similar to Foresight, Kniveton *et al*. (2011) describe how rainfall variability and -change can influence a set of migration drivers, which can then lead an individual having to consider the option of migration, as illustrated in figure 3. According to the authors, each individual makes their decision according to three considerations: their attitude towards migration, the expectations of others, and one's adaptive

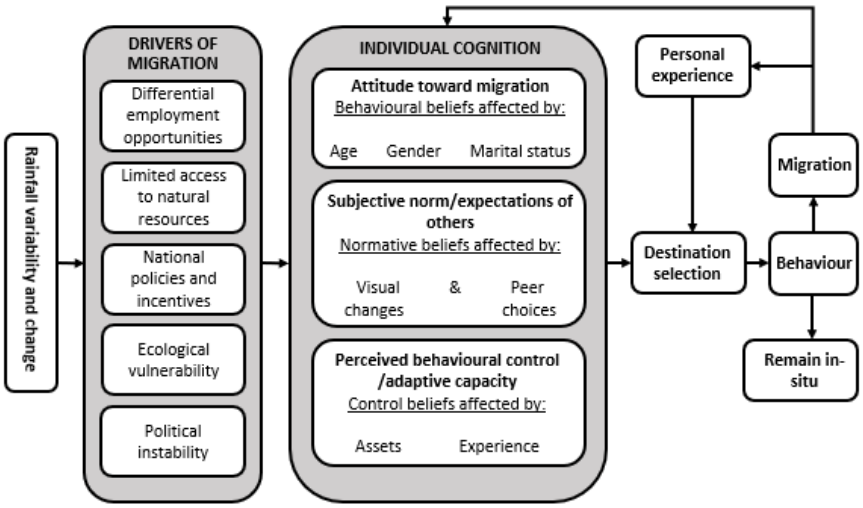

Figure 3 | Conceptual framework created by Kniveton *et al*. (2011)

capacity. The model additionally shows that the experience of having migrated before can have an impact on the decision-making process as well.

Although the diagram created by Kniveton *et al*. does address some of the factors missing in Foresight's analysis, this model has some weaknesses too. For example, like Foresight it does not recognise the importance of personal perceptions and expectations of a migration destination, and although the model does reference to the influence of other individuals, the authors do not specifically address the central role often played by the family. Furthermore, adaptive capacity is mentioned, but here the authors are specifically referring to one's ability to migrate, not one's ability to engage in other adaptive practises instead (Kniveton *et al*., 2011). Last, even though the diagram does consider the effect of personal migration experience on one's migration behaviour, it overlooks the importance of personal experience of previous environmental hazards for decision-making.

Taking the above into consideration, a new conceptual framework is proposed, taking some parts of each of the above diagrams and adding missing factors. The framework was used to guide the field study, as is further discussed in the following chapter, which provides an insight into the methodology applied in the study. The framework is shown in figure 4.

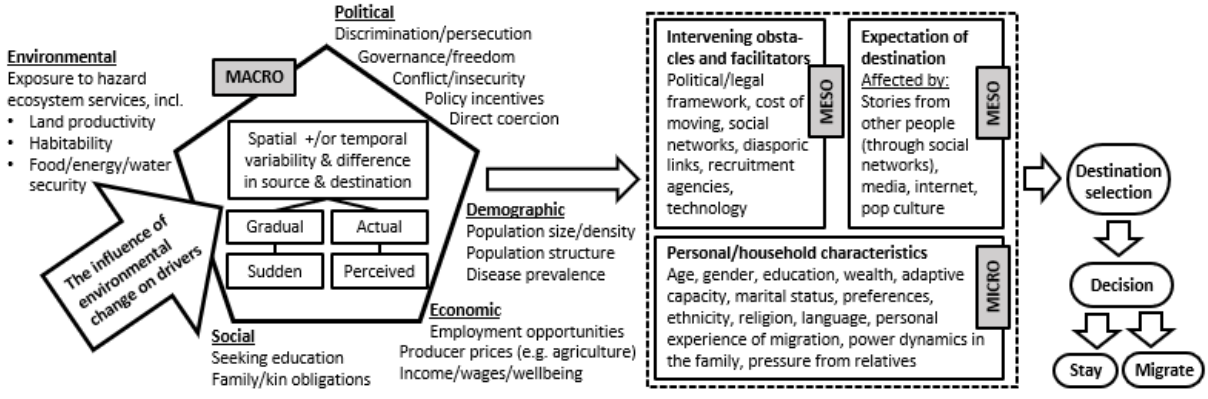

Figure 4 | Conceptual framework used in this dissertation, showing migration drivers and the subsequent migration decision-making process [adapted from Foresight (2011) and Kniveton *et al*. (2011) by author]

In the same way as it was laid out by Foresight, this framework shows that migration decisions are impacted by a multitude of factors playing out at the micro-level and meso-level. Firstly, migration

decisions are influenced by personal and household characteristics. This happens in a number of ways. For example, these factors can influence the degree to which someone is disproportionally affected by climate- and environment-related adversities, and therefore on their perception of whether migration constitutes an option worthwhile. Personal and household characteristics can also play a role in whether migration is considered a culturally acceptable option for a particular individual, whether there are other ways in which one can adapt to adverse conditions, what expectations relatives may have regarding migration; and whether migration is even practically possible. Furthermore, attitudes towards migration are impacted by prior experiences of migration as well. Secondly, one's migration decision is further affected by personal expectations of a destination. This can be influenced by a variety of factors, such as stories from other people, media, internet, and pop culture. Thirdly, one's ability to migrate depends on a multitude of obstacles and facilitating factors, such as inter alia political and legal frameworks, costs of moving and social networks, among others.

Perhaps some clarification is required regarding the reason that social networks are mentioned twice in the diagram, both under 'intervening obstacles and facilitators', as well as under 'expectation of destination'. Social networks play more than one role in the process of migration decision-making. As a source of practical information required for successfully making the journey to and settling in the destination country, social networks can be a factor facilitating migration. One can think, for example, of information about how and where to cross the border and where one can find residence and employment after arrival, as well as information about how and where to apply for immigration permits or asylum. Individuals in migrants' social networks can also provide information based on which migrants will form expectations about what they will find in the destination country, which are likely to influence migration decisions as well. One can think here of stories about work opportunities, incomes, and general life standards.

4 Methodology

4.1 On qualitative research

The methodology section provides insight into the process of data collection and -analysis applied in the context of the study. The methods used for this were of a qualitative nature. According to Rubin and Babbie (2009:627), qualitative research is defined as "research methods that emphasize depth of understanding and the deeper meanings of human experience, and that aim to generate theoretically richer, albeit more tentative, observations". This means that rather than providing numerical data, as quantitative studies do, qualitative research methods are aimed at conducting in-depth analyses of particular phenomena. There are several reasons for applying a qualitative research method. As Mills (1959) pointed out, important details can be overlooked when human experiences are reduced to the statistical. Since the study specifically focussed on documenting personal experiences and perspectives of immigrants, a quantitative research method would not have sufficed. A qualitative approach, on the other hand, allows researchers to be reflexive and address the research problem in depth (Crouch and McKenzie, 2006), and is therefore thought to be more suitable. Furthermore, since the role of climate and environment in migration decision-making has barely been studied in the South African context, the study adopted a definite exploratory angle. Mack *et al*. (2005) argue that qualitative methods have some significant advantages for exploratory research. For example, they point out that the use of open-ended questions in qualitative data collection methods allows participants to respond to questions in their own words, rather than having to choose between preconceived answers, as is often the case in quantitative studies (Mack *et al*., 2005). Furthermore, the authors argue, a qualitative method permits the researcher to probe and engage with participants in ways that are not possible in quantitative research (*ibid.*). Since it explored a topic that is not yet well understood, the study focussed on the *how* and *why*, rather than *how much*. For this, a qualitative method is considered more effective.

4.2 Research design: the grounded theory approach

The study was conducted according to principles of the grounded theory approach. Grounded theory differs from some other qualitative strategies in that it offers a very systematic method of collection and coding of data (Strauss and Corbin, 1994). When following this approach, researchers ideally enter the process with an open mind and without any fixed and rigid assertions that could narrow their perspective. The reason for this is that it is a method dedicated to theory development and building, rather than validation of existing theories (Glaser, 1978; Strauss and Corbin, 1994; Denscombe, 2010), though it can be applied to elaborate on and modify existing theories as well (Strauss, 1987). This does not mean that one starts out from an uninformed position and that the study is in no way influenced by existing knowledge and concepts, but rather that these are treated as provisional and open to question (Charmaz, 2006; Denscombe, 2010). Goulding (2002) notes that the grounded theory approach is usually adopted to build a theory from the ground up when the subject in question is relatively ignored in literature. However, the author argues, nobody starts with a blank sheet and a researcher's disciplinary background will provide perspectives from which the study is conducted (Goulding, 2002).

In a grounded theory context, a theory can be best defined as "the best comprehensive, coherent and simplest model for linking diverse and unrelated facts in a useful and pragmatic way" (Morse, 1994:25). As such, grounded theory researchers are concerned with revealing patterns of action and interaction between and among different types of actors, as well as discovering processes of changes in such patterns, and how these processes and patterns are influenced by changes of conditions (Strauss and Corbin, 1994). It is important to emphasise again that, although several models focusing on such patterns and processes in the context of the climate-environment-migration nexus have been generated (e.g. by Foresight, 2011, and Kniveton *et al*., 2011, as discussed in Section 3.3), South Africa and SSA in general are heavily underrepresented in literature on this topic.

4.3 Selection of participants

Two types of research participants were selected for the study. Firstly, there were migrants. Basic requirements for participation by migrants in the study were 1) being over 18 years old, 2) being a migrant in South Africa's Gauteng province, 3) being of non-South African origin, and 4) originating from a SSA country. The second group involved key informants, who were selected based on their experience and expertise related to the topics of migration, climate change and environmental problems in Africa. Key informants included academic experts at universities and research- and development organisations, as well as employees of nongovernmental organisations active in the fields of development and migration. Whereas conducting interviews with migrants allowed me to zoom into the personal experiences of those who had left their countries of origin and moved to South Africa, speaking with key informants enabled me to gain insight into the broader processes and conditions that underlie people's migration behaviour, which migrants themselves may not always be aware of. In qualitative research, this method of drawing information from different sources is called *triangulation* (Guion *et al*., 2011), which is further discussed in Section 4.5.

The original strategy for identification and selection of initial migrant-participants was to visit a migrant shelter in Johannesburg. Unfortunately, my request to interview migrants at this location was declined by the board of the shelter. Thereafter, I came into contact with an organisation based in Pretoria which runs another migrant shelter and carries out a number of other projects in the city to assist several disadvantaged groups, including migrants and refugees. I received permission from the organisation to interview migrants at several of their locations and to join one of their social workers on a visit to a neighbourhood in Pretoria where large numbers of migrants live. Unfortunately, as I was about to start my research here, the COVID-19 pandemic arrived in South Africa and a nationwide lockdown was enforced by the government. My plans for field research were cancelled and my interviews with migrants had to be postponed until I was allowed to leave my house again. In Section 4.6,

where I discuss data collection and analysis, I further explain how the COVID-19 pandemic affected the research process.

Following the developments described above, I decided to identify initial research participants through my own social network. In particular, participants were found through fellow students, friends, my supervisor, and other contacts at the University of Pretoria and other universities. In addition, key informants were also found through their reputation in the field and through organisations working on development and migration issues. Once selected into the research, migrants and key informants were interviewed. Data analysis and interpretation was carried out simultaneously with data collection. An elaboration on this process is provided in Section 4.6. Social networks of both migrant- and key informant-participants were used for the identification of additional cases. This technique has been termed *snowball sampling* (Saumure and Given, 2008). In this way, several key informants were able to link me up to others with knowledge and expertise about the topic of the study, which was very helpful. The same happened with migrants as well. One migrant, in particular, offered to bring me into contact with others who lived in and around the informal settlement where he stayed, named Mooiplaas. I ended up visiting the informal settlement a total of five times and he helped me setting up interviews with many other migrants. An elaboration on my visits to Mooiplaas is provided below.

Throughout the research process, selection criteria also changed at times, as the interviews led to new insights and needs for the study. This process is referred to as *theoretical sampling* (Glaser and Strauss, 1967; Glaser, 1998; Tracy, 2013), which is further discussed in Section 4.6 as well. An example of a case in which this sampling technique was applied was as follows: early on in the data collection phase, it became apparent that drought-related conditions had been a major issue to several Zimbabwean migrant-participants and others in their home communities. Following this insight, I decided to approach more Zimbabwean migrants to find out whether these experiences were shared by them as well, and

in doing so, to test and possibly confirm or refute the emerging theory about the drought-migration link in the context of Zimbabwe.

Since the study did not aim to quantify the impact of climate- and environment-related adversities on migration, but rather to provide greater insight into the nature of these impacts, the exact number of intended participants was not identified before commencement of the study. Instead, the selection of new individuals went on until the point of *theoretical saturation* was reached (Glaser, 1965; Glaser and Strauss, 1967). This concept, too, is further discussed in 4.6. At the end, a total of 29 individuals were interviewed, nine of which were key informants and 20 of which were migrants. Key informants I have spoken with as part of the study worked for the International Organisation for Migration (IOM), Oxfam, the International Water Management Institute (IWMI), the Council for Scientific and Industrial Research (CSIR), the University of Pretoria, the University of South Africa (UNISA), and the University of Johannesburg. Among migrants, eight came from Zimbabwe, six from Malawi, three from Nigeria, one from the DRC, one from Ghana and one from Mozambique. The majority of migrants were low-skilled or semi-skilled and came from poor socio-economic backgrounds, although five interviewed migrants had university degrees and/or were currently studying at a university, two of whom were working skilled jobs. The majority of selected migrant-participants were male, with 17 men compared to three women. In terms of ages, two claimed to be 18 years old, one was 22 years old, one was 26, two were 30, two were 32, one was 33, four were 35, two were 37, one was 39, one was 40, one was 41, one was 45 and one was 58. Most migrants who were interviewed originated from rural areas or small towns, with a total of 14, whereas six indicated they had lived in cities before coming to South Africa. Lastly, 14 migrant-participants were staying in South Africa as undocumented migrants, and six possessed documentation in the form of visas or, in two cases, South African passports. An overview of these numbers has been provided in appendix I of this dissertation.

As indicated above, the majority of migrant-participants were male. As gender is often an important dimension influencing people's experiences, it is appropriate to clarify why the gender imbalance identified above occurred. When I found at one point that the majority of migrant-participants were male, I attempted to gain access to more female migrant respondents. However, although I managed to interview a few more female migrants, due to several factors I did not manage to reach the balanced gender composition I had hoped for. Two likely reasons can be given here for why this was the case. Firstly, because *snowball sampling* constituted an important technique for the selection of research participants, I was largely dependent on the contacts provided to me by other migrants. One can imagine that when interviewing male migrant-participants, a researcher is more likely to be linked up with other men. As a result, the researcher might end up being brought into contact with more men than women. Secondly, it is not unthinkable that, as a male researcher, many female migrants might be somewhat hesitant to be interviewed by me. This could have made it slightly more difficult to find women who were willing to speak to me, compared to men. Nonetheless, although the ratio of female to male migrant-participants was relatively low, I did not get a strong impression that the experiences of those women had been substantially different from those of male participants. It should not be assumed, however, that this applies to female migrants in South Africa more generally.

4.4 Study sites

The research was carried out in the metropolitan areas of Tshwane – which includes the city of Pretoria and surrounding areas – and Johannesburg. Both are located in South Africa's Gauteng province. Gauteng – meaning "Place of Gold" in the Sotho-Tswana languages, named after the vast amounts of gold discovered in the area – is roughly located in South Africa's north-east, on the Highveld plateau (see figure 5). Despite it being South Africa's smallest province, covering 18,178 square km, or only 1.5 percent of the country's total land surface (Stats SA, 2009), it is also the most urbanised and populous province, being home to approximately 15.2 million people, or 26 percent of the total population (Stats SA, 2020). Being South Africa's economic heart, Gauteng is also its main destination for migrants. The

province is estimated to attract a domestic net immigration of just under one million migrants between 2016 and 2021 (*ibid.*). Additionally, over the same period the province is estimated to attract approximately 395,145 international migrants, accounting for 47.5 percent of international migration into the country (*ibid*.). As the destination for the majority of immigrants into South Africa, Gauteng provided a suitable context in which to study migration from other SSA countries into South Africa.

Before moving on, I would like to dwell on the Mooiplaas informal settlement for a moment. The majority of migrants who participated in the study, 12 individuals, lived in and around this location, meaning that it played a particularly prominent role in the research. Mooiplaas is located near the town of Centurion, just southwest of Pretoria (see figure 6). It is estimated to be home to over 40,000 residents, most of whom are unemployed or work 'piece-jobs', which are temporary jobs of one to several days at a time (Eyewitness News, 2020). As mentioned several times before, Mooiplaas is an informal settlement. There is no single standard definition of the term informal settlement applied in South Africa,

Figure 5 | Map of north-eastern South Africa and neighbouring countries, locating Gauteng province [adapted from Google Maps by author]

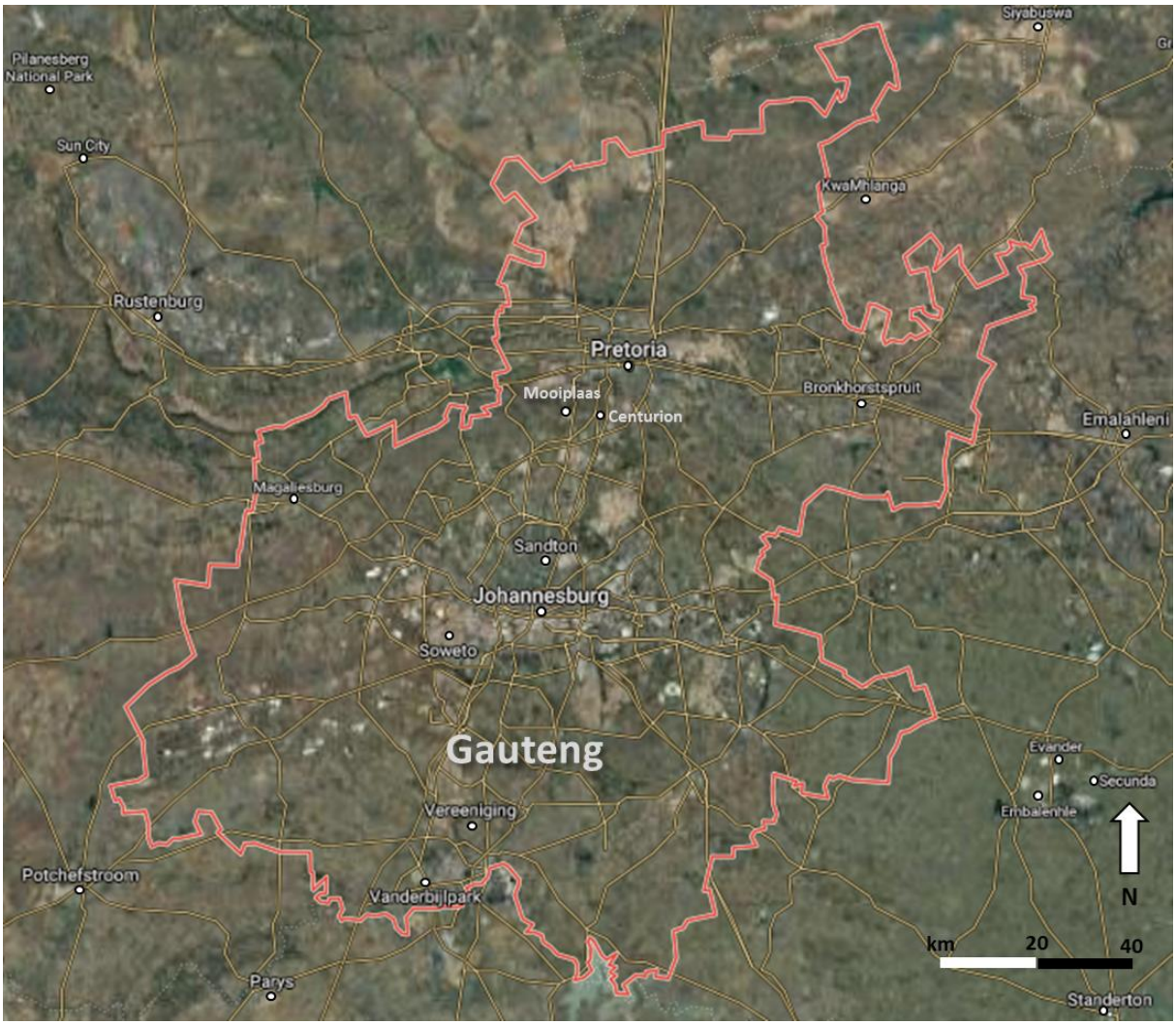

Figure 6 | Gauteng province, depicting the locations of Johannesburg, Pretoria and Mooiplaas, among others [adapted from Google Maps by author]

but many definitions make reference to the settlement consisting of makeshift dwellings and the illegal or not officially sanctioned or documented status of the land it is built on (HDA, 2013). Additionally, specific reference may be made to a lack of municipal services, geographic dimensions (e.g. different definitions may exist for rural and urban areas), and minimum size (*ibid.*). As an informal settlement, Mooiplaas represents a type of location where a large portion of migrants in South Africa end up in. As such, it has a large migrant population, being home to people from all over the African continent. This means that it was a particularly useful location to find migrants from other SSA countries. The foremost thing that struck me when first visiting Mooiplaas was the poverty most of its residents live in. Children were playing in its unpaved, dusty tracks, which were littered with empty bottles, plastic bags, discarded clothes, and more. The occasional pile of garbage attracted flies and spread a pervasive

smell through much of the area. People were living in improvised, single room shacks made of corrugated iron and plywood. Its lack of any municipal services – apart from a weekly supply of drinking water, using water tanker trucks – meant that there was no electricity, no running water, no sewage system, and no streetlights. However, despite these harsh living conditions, I also found a lively community, where people were trying to make ends meet and just live their lives. I saw people selling second-hand clothes next to their shacks. I came across improvised barbershops, as well as places where people were selling food and bottles of cooldrink, repairing mobile phones, braiding hair, and providing cross-border money transfer services. Some of those who had access to a solar panel offered mobile phone charging services, for seven rand at a time. I heard singing and clapping from several large shacks that functioned as churches. There were shebeens where people were drinking, playing pool, dancing to loud kwaito and gqom music and watching soccer. And in the middle of the settlement there was a large open space where a daily market was held. Here people were selling everything from shoes to phone batteries, computer parts and household items. Between the droves of people were chickens scurrying around, as well as dogs and an occasional goat. Despite the many problems the residents of Mooiplaas face on a daily basis, the general atmosphere struck me as remarkably friendly. This was confirmed by multiple residents I spoke with. I was told that the settlement has a tight community and that due to high levels of social control, crime rates are lower here than in surrounding areas. The same goes for xenophobia, a massive problem in South Africa, with foreign nationals regularly suffering under outbursts of anti-immigrant violence. In Mooiplaas, however, South Africans, Zimbabweans, Malawians, Mozambicans, as well as Central, West, and East Africans were living together in relative peace; and I was told by several migrants living there that, in contrast to surrounding areas, xenophobic violence is a rarity in Mooiplaas. After several visits, I got to know some of its residents personally, and some of them were keen to show me around the community and to give me an insight into how they lived.

4.5 Collecting and analysing the data

Data was predominantly collected by utilising semi-structured interviews, carried out following interview guides that focus on migrants (appendix II) and key informants (appendix III). Questions were formulated in accordance with the conceptual framework laid out in Section 3.3 of the dissertation and provided a general direction for conversations held with respondents. Since interviews held were semi-structured, I could deviate from the interview guides and delve deeper into certain topics whenever deemed necessary. Additionally, in order to assure the validity of the research, triangulation was applied. In qualitative research, triangulation is a method to check and establish the validity of data by analysing the research question from multiple perspectives (Guion *et al*., 2011). In the context of this study, this meant two things. Firstly, as has been discussed above, interviews were conducted with both migrants and key informants. Secondly, the data gathered through interviews was compared and supplemented with information drawn from secondary material, such as reports, grey literature, and academic publications.

My initial plan was to only conduct face-to-face interviews. However, due to the COVID-19 pandemic and subsequent nationwide lockdown, I made the choice to interview the key informants online, using the platforms Skype and Zoom. Although I managed to conduct five online interviews with migrants as well, the majority of migrants – coming from relatively poor socio-economic backgrounds – did not have access to Wi-Fi networks. In order to interview them, I therefore had to visit them and speak with them in person. As was discussed in the previous section, the interviews with these migrants were carried out at various locations in Tshwane and Johannesburg. These interviews were to have been conducted in the form of one-on-one conversations. During data collection, however, two opportunities arose to interview multiple people simultaneously, in the form of small focus-group discussions. Hoping that this setting might spark more open discussions about the topics in question, I decided to take the opportunities. Both these small focus-group discussions were held in front of the homes of migrants who were part of the discussion. As always, I would ask questions to participants in order to

get conversations started, after which conversations would often flow quite naturally. As I hoped to find out, this setting generally allowed the participants to respond to- and expand on things said by others. It should be noted, though that as I noticed that some individuals were more likely to speak up than others, I quickly became aware of the need to direct questions to specific individuals, particularly those who were less outspoken. This helped to get a better insight into the stories of all migrant-participants.

An important feature of the grounded theory approach that was applied in the study is the constant comparative method, which entails a continuous interplay between analysis and data collection (Glaser, 1965; Glaser and Strauss, 1967; Stern, 2008), thereby allowing a theory to evolve during the research process. This method involves the analysis of data through three stages of coding. These include *open coding*, during which data is compared and related cases are grouped into categories; *axial coding*, which is a process of identifying interconnections between categories; and *selective coding*, which encompasses the integration of these groups of categories into an overarching core category that systematically relates to all other categories (Strauss and Corbin, 1990; Kolb, 2010). Throughout this process, data is constantly compared, arranged, and categorised. This goes on until the point of *theoretical saturation*, at which cases have been coded for the same category multiple times and further interviews are adding nothing new to the relevant category and the larger theory (Glaser, 1965; Glaser and Strauss, 1967). Meanwhile, as patterns start to take shape, additional participants are selected based on their theoretical relevance, through a process of *theoretical sampling* (Glaser and Strauss, 1967; Glaser, 1998; Tracy, 2013). Theoretical sampling allows the researcher to be guided by the ongoing process of coding in the selection of new cases, thereby elaborating and refining the theory (Glaser and Strauss, 1967; Charmaz, 2006). In this way, data gathering and analysis take place simultaneously in an iterative manner. As the theory develops, the researcher might be forced into new directions, while interviews and research sites might evolve as well (Stern, 2008; Van den Hoonaard, 2008). This cycle continues until all categories are saturated and a complete theory has emerged. Figure 7 provides

a visualisation of the research process according to the constant comparative method as it was followed in the study.

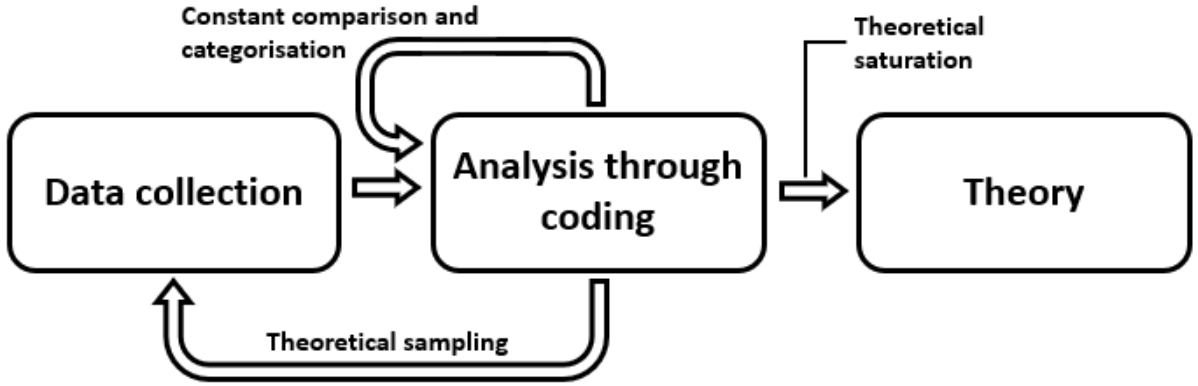

Figure 7 | Visualisation of the constant comparative method that was applied in the study, created by author, and drawn from Glaser (1965, 1998), Glaser and Strauss (1967), and Charmaz (2006)

In line with post-positivist thinking, the study took as a starting point that no researcher can be truly objective and unbiased in the interpretation of generated data, especially in the context of qualitative research (Denscombe, 2010). In order to maximise objectivity during the process of data analysis, the possible effects of preconceived ideas, attitudes and biases therefore had to be carefully taken into account. In order to allow the voices of participants to be expressed with as little interpretation from me as possible, the following chapters, which lay out stories of some of the migrant-participants and delve into the findings and lessons drawn from the research, support the theories that have emerged with extracts from the interviews.

4.6 Ethical considerations

When delving into the private social lives of other human beings, social researchers are expected to carefully consider ethical issues in order to protect the interests of the participants and avoid causing harm (Denscome, 2010). Additionally, researchers have an obligation towards their scholarly colleagues to keep ethical considerations in mind during their research, since a violation of research ethics can scare off participants from taking part in any future studies (Berg, 2001).

A very important principle in ethical research is the dogma of *informed consent*. The term informed consent implies that those who are studied should have the right to know that they are being studied and for what purpose, should have actively given their consent, should be able to exercise free power of choice, and should have sufficient knowledge and comprehension regarding the subject matter of the study (Bulmer, 2001). Therefore, participants were adequately informed about the nature of the research and what the collected data would be used for. They were also told that participation in the interview was entirely voluntary and that they were therefore free to decline and would not receive any kind of payment for their assistance. Those who decided to partake were reminded that they were not obliged to answer questions if they did not wish to discuss the topic concerned, and that they had the right to end the conversation at any time, without having to give a reason. Before each interview, I went through a consent form with the participants (appendix IV for migrants and appendix V for key informants), thereby confirming that informed consent was granted by the participants before the start of each interview. In the case of face-to-face interviews with migrants, two copies of the consent form were signed. One was kept by me and the other was kept by the participant. In the case of online interviews, informed consent was provided orally and captured in the interview recording.

As a researcher, I also had a duty towards the participants to protect their identities, meaning that data was handled in such a way that it cannot be used to identify them. This is important, since failing to do so can potentially place them at risk of criminal or civil liability, or cause damage to their financial standing, employability, or reputation (Berg, 2001). Since many of the participants in this study were undocumented immigrants and could therefore be at risk of arrest and deportation if identified as such by authorities, this was of particular significance. Therefore, I had to ensure *anonymity* and *confidentiality* towards participants. Anonymity was honoured by replacing participants' real names with pseudonyms. In order to guarantee confidentiality, any information that might indicate subjects' identities – such as names of persons and specific physical characteristics of individuals – had to be treated with the utmost discretion. This meant that such sensitive information has not been explicitly disclosed in

the dissertation, was stored in a password secured device, and was not shared with third parties or persons. This was particularly important in the case of migrant-participants, as they were asked to share private information with the researcher.

The final ethical issue that had to be considered in the context of the study related to the fact that fieldwork was carried out during the COVID-19 pandemic. As was discussed earlier, I was able to conduct interviews with key informants and some migrants online. However, for the majority of migrants this was not an option and I had to meet them in person. This meant that I had to take measures in order to protect both my own, as well as the participants' health. I therefore ensured that both I and the participants wore protective face masks during interviews and that, as much as possible, social distancing of at least 1.5 meters was maintained.

As the research followed the ethical requirements of the University of Pretoria, ethical clearance was provided by the university's Research Ethics Committee, and is presented in appendix VI.

4.7 Limitations of the study

Three limitations to the approach adopted in this study have been identified. Firstly, it should be noted that the dissertation aims to highlight the personal experiences of immigrants from other SSA countries currently residing in South Africa. Therefore, the results of the study are based on semi-structured interviews using a qualitative research method, involving in-depth interviews with a relatively small number of participants. The results of the study – though providing valuable insights through the documented experiences – may therefore not be used to directly generalise to a wider South African or SSA context. Follow-up studies, possibly involving greater numbers of migrants, are necessary to create a more complete and comprehensive picture of the role that climate- and environment-related stresses play in migration decision-making among immigrants in South Africa.

Secondly, as was discussed in Section 3.2, the dissertation recognises that under the same conditions, people may make different decisions regarding migration, and that the very the poorest people – who are generally also the most vulnerable to environmental problems – may often not even have the option to migrate due to lack of access to the necessary resources. As the study specifically focuses on those who have already migrated, the perspectives of those left behind, some of whom might be most affected by climate- and environment-related stresses, are not represented in the results. Follow-up studies in source areas should therefore be conducted to fill this knowledge gap. An additional benefit of this approach would be that it may allow researchers to have conversations with left-behind friends and relatives, thereby acquiring a more detailed understanding of their role in migration decision-making.

The third and final limitation to the study is that, for reasons discussed in Section 4.4, the majority of migrant-participants were male. As there may be some disparities between the experiences of men and women, there is a chance that this could have influenced the results of the study to some extent. It is, therefore, recommended that potential follow-up studies take the importance of a more equal gender balance into account, so that possible women-specific experiences can be highlighted.

5 Highlighting migrants' experiences

Across the SSA region, millions of people are experiencing the consequences of economic crises, political instability and repression, lack of government support and environmental adversities. Each day, these conditions lead to countless individuals making the difficult decision to leave their countries of birth in search of opportunities elsewhere. With South Africa's economy being the second largest on the African continent (IMF, 2019), this means that many decide to cross its borders – whether legally or illegally – in an attempt to start a new life there. In this chapter, I present the stories of four of the migrants I met with, as these exemplify the kinds of narratives I came across while conducting the research. Below, I provide descriptions of the lives they lived before coming to South Africa, which difficulties they experienced, what eventually drove them to pack up their belongings and leave, how they travelled to South Africa, how they managed to settle there after arrival, and the lives they have lived since. Although the next chapter delves deeper into the broader findings and lessons that can be derived from the conversations I had with migrants and key informants, in this chapter I provide a glimpse into the lives of some of the people behind the conclusions proposed in this dissertation.

It is important to note that the names used in this chapter are not the real names of migrants. In order to protect research participants' identities, pseudonyms are used when making reference to specific individuals.

5.1 Steven

Steven is a man in his mid-thirties from Zimbabwe. I received his phone number from a fellow student and after having been in contact with him for a while and explaining my intentions, he agrees to share his story with me. Several days later we meet in a parking lot somewhere in Pretoria. After a few minutes of walking, we find a quiet spot where we can talk without being disturbed. Upon sitting down, he tells me that he originates from a rural area in Zimbabwe's Masvingo province and that he arrived

in South Africa as a teenager in the early 2000s. When he was growing up, he had little to worry about. Although in his early years Steven already started to notice that life in Zimbabwe was getting harder for most people, compared to the situation today life was much better in the past, he tells me. Steven's personal life was relatively untroubled as well. He did well in school and his parents were taking care of him. All of this changed when, in his early teenage years, his father suddenly fell ill and passed away, followed by his mother shortly after that. To this day, Steven does not know what made his parents sick, but he was suddenly orphaned and without anyone who could take him in, he was forced to take care of himself:

> *After my father died, the situation got tough. It was because I was on my own, because I had no brothers. It was even tough to get any clothing or just to feed myself. [...] My father passed away on this Monday. Then I lived three to four months with my mother and then she passed away. So, the challenges hit me very hard.*

Steven explains that he would go for days without food. In order to sustain himself, he tells me, he had to start working as a cattle herder, one of the only jobs available to him in the area where he lived. He managed to finish primary school, but a lack of funds meant that he could not register for secondary school. Even though his grades were good, he was unable to continue his education. He continued his work as a cattle herder. Besides taking care of cows, he was also expected to work in the home of his employer, collect firewood and work in the fields. He says that it was a tough existence. He was still young, but had to work hard and barely had time to rest.

Steven tells me that at this time, the country was starting to suffer under increasing political repression. People around him were starting to get targeted by the government. He explains: "People were beaten. If you are not supporting the ruling party, they were coming during the night in groups and once they find you, they beat you until either you die, or tomorrow you are just missing." Additionally, Steven explains, the economic situation in Zimbabwe had noticeably worsened as well. People were struggling to find jobs and make ends meet, prices for foodstuffs went up and many could no longer

afford to support their families. On top of the economic and political crises the country was being plunged in, many were experiencing the impacts of increasingly challenging weather conditions, he tells me. He explains that those living in the rural areas normally supplement food from retail stores with their own produce and food bought from other small-scale farmers in the locality, but that, starting in the early 2000s, this strategy was now becoming difficult to sustain. He noticed that the weather started changing. It was getting hotter, there was a shortage of rainfall, and many people were struggling to farm. Steven explains that due to the economic crisis and increasing environmental pressures, many became dependent on money and goods being sent home by friends and relatives in South Africa, as well as support from NGOs. When we talk a bit longer about the issues Steven and others experienced in his home community, he tells me:

> *In the rural areas, even now, we are struggling to even use a car, because there is too much erosion. There are no roads. And then, the government doesn't take care of us. [...] Back in 2000 we had floods, and then the roads were swept away. And then the government didn't come to sort out those things [out]. Three years back, we received a lot of rain [again]. That was floods. And then the government didn't help people. So, people were struggling.*

Like many others, Steven received some help from NGOs. When he was still in school, they provided him with school uniforms and shoes. They also gave him a cow. His cow got pregnant several times, until, over time, Steven managed to end up with a small herd of ten or eleven cows. In many Southern African societies, cattle traditionally serve as an insurance against future adversities (Hall, 1986). About this, Steven explains: "If you see the situation is getting difficult, you just take one cow to sell it to somebody."

Despite this, he was still struggling and he decided to leave Zimbabwe to try his luck in South Africa. "By this time, I was fifteen years [old] when I decided to leave. I said: 'people are beaten day and night in this country. Now, the situation is down, the economy is down, down, down, so let us leave this

country'", he tells me. Shortly after, he left with three other young men towards the southern border, using taxis[2]. Because they did not have identification documents, they crossed the South African border illegally. Upon asking him how he did this, Steven responds:

> *We decided to jump the river into South Africa, across the Limpopo. You just go during the day, or at night, but by that time it was easier for us to go during the night. Because at daytime, the soldiers and police were taking people back again to Zimbabwe. And then at night, there were too many risks, because the tsotsis [criminals], they know that these people are crossing the border. They have money to take the taxis to Pretoria or somewhere else. They were patrolling the river and if they see you... They have weapons to attack you. So, they are going to attack you and then take everything from you.*

Luckily, he managed to get into South Africa without any major complications (when he returned to Zimbabwe sometime later to apply for a passport, however, he was robbed and all his belongings were taken from him, though he could continue his journey unharmed). Once he was in South Africa, they walked for a long distance until they got on a taxi minibus to Pretoria. In Pretoria, however, he was stopped by the police. Because he was unable to show them any documentation, he was arrested and taken back to Zimbabwe. "You don't even have ten rand to go back home, so you have to walk until you are back in South Africa", Steven tells me. When he got back into South Africa, he had to find work in the border region to finance the rest of his trip back to Pretoria. He worked several short-term jobs, around one to 1.5 months at the time, continuing his journey each time he got paid.

When he finally returned to Pretoria, he wandered the streets, looking for work. Occasionally, people would offer him shelter, food and a temporary job. Steven describes how "everyone was helping me by that time, because I was still young. Because they were feeling sorry for me." People would see him and give him a place to stay for the night. He says: "It's like the elderly, they would say that. And then,

[2] This refers to minibus taxis widely used for transport in the region, normally carrying around 15 people.

when I would get there, early in the morning I would start looking for a job." Upon asking if he had a specific plan for the future when he first came to South Africa, Steven explains that his plan was to save enough money to apply for a passport in Zimbabwe, so that he could then get his truck driver's license and find work as a truck driver. Because he had friends who were staying in Rustenburg, he went and got a job there for a while, but since the pay for this job was too low he soon returned to Pretoria. "As from there until now, I am still looking for green pastures in Pretoria. I didn't go anywhere else. In Pretoria I ended up painting, tiling, planting, gardening, marketing, something like that", he explains. He emphasises, however, that today it is more difficult to find work than when he first arrived in South Africa, both for immigrants and for South African citizens. This, he thinks, has also led to xenophobic sentiments among many South Africans. Steven did eventually manage to return to Zimbabwe and get his truck driver's licence, but xenophobic violence and fear of the COVID-19 virus prevent him from finding work as a truck driver: "I am scared to go to that industry", he says, "because they are burning people, and COVID. So, we are now desperate in this county and we also don't have the choice to go back [to our countries of origin]."

5.2 Tafadzwa

Tafadzwa is a man in his early 40s who came to South Africa in 2010, leaving behind his wife and three children. Like Steven, he originates from Zimbabwe's Masvingo province. I meet Tafadzwa on a Saturday afternoon in Mooiplaas, where he is waiting for me on a couch in front of his friend's shack. He is drinking traditional sorghum beer from a jug. He explains to me that normally, he prefers to drink regular beer on days off, but since the government has temporarily banned alcohol sales following the COVID-19 pandemic, home-brewed traditional beer will have to do. I take a seat on a stool and we start our conversation. I get the impression that Tafadzwa is a talkative man who is happy to share his story with me. He tells me that he is from a small town in Masvingo's rural areas, but that he has travelled to many places to find 'greener pastures', as he puts it. In 1997 he went to Zambia to work as a photographer in national parks and in 2000 he worked in Botswana. Both times he did not earn

enough to survive, forcing him to return to Zimbabwe. He tells me that like most people in Zimbabwe's rural areas, he was dependent on agriculture to acquire most of his food, and that much of what he did not cultivate himself, he bought from others in his community. Since he has been out of the country, his family has continued to work their plot of land. "It is very difficult to buy food, so each and every person grows their own crops. Those who have got money can sell it, but most of us, we just grow for family consumption", he tells me. Over the years, however, he has noticed that it has become increasingly difficult to get food in these ways. Tafadzwa elaborates:

> *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. Then, we could sell that food to those who are too lazy to plough, and we could go and buy something in the shops. [...] It [the weather] is now worse. A hundred percent. While I was young, it was better than now.*

The dry conditions, Tafadzwa says, force people to find ways to irrigate the land. Ideally, one digs a well and uses a pump to get the water required for irrigation, but for those without the funds for such an investment, alternatives have to be found. He elaborates:

> *If you don't get your own pump, just getting land for planting is very difficult. You must go to those who have land, those at the apex level, to give you the land. If you don't do that, it means you're going to be in trouble. It's politics. Some of those guys are just milking people. They can grab the land illegally. They give you a permit to work the land. Otherwise you cannot do it.*

A moment later, Tafadzwa explains that due to lack of proper irrigation techniques, many people water their land manually, often using buckets. Another strategy that is used, he tells me, is riverbank cultivation, allowing people to plant near a water source. There is another reason for deploying this strategy. He tells me that overcultivation, grazing cattle and rainfall deficiencies have led to soil erosion becoming a serious hazard for many in the area. "The land is now not fertile", Tafadzwa explains, "so

people do riverbank cultivation, because there is a little bit of water and fertile soil." Upon asking what he has done to cope with the dry conditions experienced in his home area, he answers: "I bought my own pump, but the situation is forcing us to do it as a group. It is like an irrigation project. So, maybe you can just use your pump with ten households." Due to the high costs of pumps in Zimbabwe, he explains, those who have the opportunity will usually buy them in neighbouring counties. With the money he made working in South Africa, Tafadzwa therefore bought a pump and sent it to Zimbabwe.

Besides farming, Tafadzwa worked many 'piece-jobs' while still in Zimbabwe. These 'piece-jobs, as he and other migrants I met call them, are short-term jobs of one to several days. He did, however, complete training as a mason. To get the training he wanted, he went to a vocational training centre in Bulawayo. When he got there, however, he quickly noticed that the education he received there was about more than learning a trade:

> *You are forced to be under the ruling party, that's the problem. You are instructed by the ruling party [...] It was just politics. So, I ran from there. I went to Plumtree, to go to another vocational centre, to learn. I knew they were going to kill me if they would find me [in Bulawayo], just because I ran.*

Despite having received training in Zimbabwe, Tafadzwa says that he was unable to find any work as a mason there. "If I work as a mason in Zimbabwe, no one can afford to pay me", he tells me. Meanwhile, prices for food and other essentials were skyrocketing and hyperinflation had made money practically worthless. Having heard from others about opportunities in South Africa, he decided to try his luck. In 2010, he crossed the border with South Africa and found work in the border town Musina. About his journey to South Africa, he remembers:

> *Everyone is just walking for hundreds of kilometres. Sleeping in the bush, no eating whatsoever. No money, you just walk. The situation is going to force you. [...] You sleep with*

the animals. You can look around and say: "Okay, there's no lion there. There are some animals, but they are not dangerous."

Tafadzwa explains that he walked for most of the journey. Because he did not have a passport, he crossed the South African border illegally, by swimming across the Limpopo river. He points out that this was a dangerous thing to do, as the Limpopo river is home to both crocodiles and hippos. For four years, he travelled back and forth between Zimbabwe and South Africa in this manner, each time working for several months in Musina as a mason. In 2014, he decided to move to Pretoria, where he has stayed since. Upon arrival in Pretoria he could receive some help from friends who were already staying there, as well as from people he met after arrival. This allowed him to settle and get started. After a while, he managed to obtain a passport, meaning that in the past few years he has been able to cross the border using the official border crossing at Beitbridge. He still makes yearly visits to his family in Zimbabwe, although he tells me that the COVID-19 pandemic has made this nearly impossible due to the travel restrictions put in place by the South African government, and a reduction in job opportunities following the nationwide lockdown, which has substantially reduced his income. Despite now owning a passport, Tafadzwa does not have a visa to stay in South Africa. Because I am wondering how he travels to Zimbabwe and back through the border post without the proper documentation, he explains: "Now that I have a passport, it's better, because you can just do bribing. You can go to the border post and give fifty rand to an officer."

Although his life is generally better for him now that he stays in South Africa and he is able to send some money and food home to his family, he still struggles. Without a South African citizenship, he tells me, it is difficult to find any employment other than short-term piece-jobs. Like so many others I met during my research, Tafadzwa lives day by day, every time having to find something new to do. He says:

I am experienced, I am a professional builder. But you can't eat buildings. So, [I take] anything I can get. "Okay, I need someone who can offload my truck." "How much do I get?

Thirty rand? It's okay." "Tomorrow, I need someone for my garden." "Okay." At the end of the month I can buy something and send it home, so that my family is going to be better.

Tafadzwa would like to return to his home country when the situation has stabilised there, but the precarious situations in both Zimbabwe and South Africa prevent him from making any long-term plans. He explains: "This one [points at shack] is not permanent. Here we are just living, you see? It's a temporary shelter. We are not here permanently." And a moment later: "I want to live in Zimbabwe, my mother's land. I don't want to stay in South Africa, but problems forced us to come here. No one wants to stay in this shack, but we are now."

5.3 Abioye

Abioye is a university student originating from Nigeria. Unlike most migrants who take part in my research, he has a stable internet connection, so we agree to talk on Skype. He tells me that he arrived with his family in South Africa at a young age and that most of what he knows about his country of origin he has heard from speaking about it with his parents or from what he saw when he visited the country again a few years ago. Besides South Africa and Nigeria, he has family in other parts of the world as well, including the United States, Canada, and the United Kingdom. Both his parents, he tells me, were educated in Nigeria and lived in the capital Lagos. His father graduated as a doctor. Because there was a demand for healthcare professionals, he could get a job fairly easily. His mother, who was trained as an accountant, on the other hand, struggled to find work in her professional field. She therefore opened a shop, selling clothes, but she did not have many customers. There were many other challenges they and others in their community dealt with. The provision of utilities like running water and electricity from the grid, in particular, was very unreliable in many parts of the county, Abioye tells me. This meant that without solar panels or a generator, life was very difficult in Nigeria. He explains that when his father was young he had to go to a well to get water, but that "everywhere there was pollution, the rivers are polluted, everywhere it is hard to get pure water. All these things he experienced in his life growing up, he didn't want his kids to experience." It was not just the lack of utilities,

though, that drove Abioye's parents to make the decision to leave Nigeria. Economic problems, a weak currency, and an exceptionally high crime rate were daily challenges, Abioye tells me. In addition, many roads in Nigeria were underdeveloped and his father would frequently be stuck in traffic for to 5 hours, sometimes preventing him from getting to work. "The community is always dirty" he continues, "and it barely rains in Nigeria, it is always hot, 24/7. And if you don't have the money to buy air conditioning, if you cannot afford to buy food or water or machines to even cook the food, your life is difficult." Especially the education system in Nigeria became a topic of concern for his parents once their children were born, Abioye emphasises. Additionally, his father wanted to be able to financially support his parents, which was difficult with the income he received in Nigeria. He concludes: "My father wanted an easier life [on] this side, and a better education system than what they had to go through in Nigeria, to make sure that we have what we have now."

Due to the situation in their home country, Abioye's father decided to try and find work overseas. He had a Nigerian friend who had moved to South Africa and worked there as a doctor in a hospital. He recommended Abioye's father to come to South Africa as well, which he did. He booked a flight, and after he had arrived, he received help from his friend to get settled. He managed to get a job in the same hospital as his friend, he got a house and a car, and when he was ready a few months later, he brought Abioye, his siblings and his mother over as well. Over time, Abioye's father managed to set up his own surgery clinic, and they are now living a relatively comfortable life. His mother never found work as an accountant. She started her own business in South Africa, selling clothes and jewellery, which, according to Abioye, has become quite successful. Because his father is the only one of his siblings who is making enough money to support his family, he still regularly sends money and goods to Nigeria. Abioye explains that his father has bought products like household appliances and a generator in South Africa to send to his mother in Nigeria, as she could not afford to buy these products there. Abioye says that although the economic situation in South Africa has worsened over the years

and his father urges him and his siblings to start thinking about moving abroad in a few years' time, their lives are much better in South Africa than they would have been had they remained in Nigeria.

5.4 Funsani

Funsani is a man in his early 30s who originates from Malawi. I meet him on a farm just outside Pretoria, where he works on the construction of a new building. We sit down next to one of the farm's sheds, where he has placed chairs for us. Funsani tells me that, when he came to South Africa a few years ago, it was his first time making a journey like this. In his own country, he has been to six out of ten districts, but never before did he travel abroad. He grew up in the city of Blantyre. He tells me: "I grew up with my parents. They were poor, but at least they were able to manage themselves. I was going to school and did my education up until form 4 [last year of secondary school in Malawi]. Suddenly my father died. I didn't finish my school." After his father passed away, his mother had to take care of him on her own. She moved to South Africa for a few years to find work. After she had returned, she would tell him about life in South Africa, saying that he may have to go to there himself one day. Funsani tells me that this helped him later in life when he left Malawi to settle in South Africa.

After he left school, it was difficult to establish a stable life for himself. About the situation he and many others faced in Malawi, he says: "Life is a little hard there [...] Most of the people, they don't depend on government. They depend on themselves. Like, a lot of things that we see here [in South Africa], you cannot find there commonly." To get water, for example, people in his community have go to a stream nearby: "We travel long distances to find something to eat, sometimes something to wear. Even if you go to the market, you find yourself walking a long distance to reach the market." A little later, he adds: "A lot of people in Malawi, especially youngsters nowadays, we really don't have anything to do. Most of the youngsters, what they really need is work. [...] Work is a problem. Today, I'll be at work, tomorrow I am not working. So, it's difficult."

Because of the lack of opportunities, many people in Malawi struggle daily to have their basic needs met, Funsani explains to me. In times of increased adversity, like during periods of drought, it becomes even harder for people to sustain themselves. He recalls the famine of 2002. At this time, a combination of factors, including drought, affected the food supply of the majority of Malawians and the country went into a state of emergency (Devereux, 2002; Menon, 2007). About circumstances like those experienced during this time, he says: "Rich people were reserving food. So, when the time of that hunger came [famine of 2002], those people were selling to people who had money. That's where many people get food sometimes. We are buying it on a higher price."

Amidst the uncertainties Funsani experienced in Malawi, he met people who had been in South Africa. He explains:

> *I used to see other young people who were able to come here. [...] And they would say: "South Africa is very good, there is more opportunity there." [...] It's a country, they will say, where there is milk and honey. That, when you are there, you are going to find everything easily, without knowing that you'll have to work, that you have to sweat.*

His mother, however, had told him that life in South Africa was not easy, and that he would have to work hard to survive. When, in 2013, he decided to leave Malawi and go to South Africa, she gave him money so he could make the journey. He travelled through Mozambique and Zimbabwe into South Africa. Many others, he explains, travel from Malawi to South Africa by hitchhiking with trucks, but he made the journey by taking busses. He tells me that the journey took him three days. Since he had a passport, he could cross the border legally. He tells me that when he crossed the border, he had to prove to the border officials that he had enough money coming into the country by showing them that he had at least 3000 rand in his pocket. Since he did not have this much money, he had to borrow it from someone else and give it back once he had crossed the border. He explains that when you come into South Africa without having applied for a visa, you receive a visitor's permit, which is valid for a

period of 30 days. Upon asking what he did after these 30 days had passed, he tells me that he over-stayed his visa and that it has now long expired.

When he arrived in South Africa, he experienced first-hand that many of the stories he had heard from others who had gone before him did not portray the full reality. He tells me:

> *When we come here, we see that the life that we see is not what we thought when we were back there. [...] You can't just come from Malawi, come here without seeing work, without somebody supporting you. No, you have to find work, find work for you to survive.*

When I ask him what kinds of challenges he faces in South Africa, he explains to me that most of the jobs he can find do not pay very well, and most of his income has to be spent on food, rent, or to be sent home as remittances. He explains: "I have responsibilities. Not just towards my direct family, but others as well. [...] When the call comes from home, you are expected to take those savings and give it to them. Then you will find yourself still being without money." At the end, there is usually nothing left. As a result, he tells me, he is always bankrupt. Unfortunately, not everyone back home is aware of the hardships he and many other migrants face in South Africa. He continues:

> *We used to tell the people at home what life is really like, but they don't believe us. But the ones who have been here will say: "Life [on] that side is difficult." Without that, people will think we are just playing with the money, or we don't want to send them something.*

Since he lacks the funds, he has not had the opportunity to visit his home in the seven years since he has been in South Africa, even though his family keeps asking him to come back. Despite this, he keeps trying to make his life better, always being on the lookout for new job opportunities, knowing that life will be even harder for him were he to return to Malawi. "I still need to help them", he tells me. "I can't just go there [to Malawi]. What are they going to get from me when I go there, just to see me? Will that be fine for them?" Like for many others, however, the COVID-19 pandemic and subsequent lock-down have exacerbated many of the challenges he was already experiencing. He concludes: "I don't

feel like we're going to be okay. Because this thing is everywhere. This thing that is happening now, the lockdown. Nobody expected it. It has pushed down more people. More people will get disturbed because of this thing. I already have fear for myself."

6 Findings and lessons derived from the research

In this chapter, the findings and lessons drawn from the research are presented. In the first section of this chapter, I provide an introduction to the migrant-sending countries that were covered during the field research and present the different factors found to drive migration from these countries to South Africa. In line with the conceptual framework, presented and explained in Section 3.3, the first section covers the left side of the diagram (figure 4). In line with the framework, five areas of migration drivers are discussed here, which are economic, political, social, demographic, and environmental drivers. The second section of this chapter covers the right side of the diagram, representing other contextual factors and processes influencing individuals' decisions regarding whether migration should be pursued as a response to the aforementioned drivers. Additionally, the dissertation aimed to provide insights into the experiences of migrants during and after their journeys to South Africa. Woven into the two sections making up this chapter are therefore descriptions of the methods used by migrants to travel from their places of origin to their destinations in South Africa, as well as insights into how they get settled once they have arrived and the lives they live after migration.

6.1 Understanding drivers for migration

Many similarities exist regarding migrant-participants' narratives about the experiences that led to their migration decisions. Economic instability, low economic performance, lack of government services, unfavourable environmental conditions and general underdevelopment have condemned many of the migrants participating in the study to a life of poverty, insecurity, hopelessness, and anxiety. In the following subsections I lay out migration drivers for the different countries that were covered during the study. Since the bulk of migrants in the sample originated from Zimbabwe and Malawi, separate subsections have been dedicated to these two countries. A third subsection discusses drivers for migration from other migrant-sending countries that migrant-participants were from.

6.1.1 Zimbabwe

Since the early 2000s, a descent into political crisis and near economic collapse in their home country have left millions of Zimbabweans feeling that they have no other option but to leave the country of their birth and look for opportunities elsewhere (De Jager and Musuva, 2015; Crush *et al*., 2017). As such, Zimbabweans form the largest immigrant group in South Africa, with around half a million documented Zimbabwean migrants, as well as several million undocumented Zimbabweans currently living there (Crush *et al*., 2017).

At 68 percent, the majority of the country's population lives in rural areas, compared to 32 percent residing in urban areas (FSIN, 2019). Agriculture is of primary importance in Zimbabwe, as more than 90 percent of the country's rural households rely on agriculture as their primary livelihood (USAID, 2020). The main adversities experienced in Zimbabwe that are mentioned in literature 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; Zimbabwe's reduced access to food imports due to low foreign currency supplies; inflated prices for medication; outbreaks of diseases; political repression, persecution, and human rights violations (Bratton and Masunugure, 2005; Howard-Hassmann, 2010; Chiumbu and Musemwa, 2012; Makwerere *et al*. 2012; Stoeffler *et al*., 2015; Crush *et al*., 2017; FSIN, 2019; Mutekwe, 2019; World Bank, 2020a).

Poverty levels in Zimbabwe have significantly increased in recent years, with 40 percent of Zimbabweans living in extreme poverty in 2019, up from 33.4 percent in 2017 and double the level that existed in 2011 (World Bank, 2020a). Following years of economic crisis, as well as the devastation caused by Cyclone Idai and the worst drought in decades taking place since 2019, half the population has been pushed into food insecurity (FSIN, 2019; World Bank, 2020a). Additionally, 3.6 percent of the country's children under the age of five are currently acutely malnourished, and 24 percent of under-fives are stunted (FSIN, 2019).

Various climatic and environmental stress factors are mentioned as adversities with significant impact in Zimbabwe as well, including severe drought and below-average rains, as well as damage caused by Cyclone Idai in March of 2019 (Crush *et al*., 2017; FSIN, 2019; World Bank, 2020a). In terms of environmental change occurring in Zimbabwe, literature mainly discusses the increasing occurrence of drought events. It has been suggested that a trend towards reduced rainfall or heavy rainfall and drought happening in the same season has existed from the 1970s onward in Zimbabwe (Brown *et al*., 2012). Simultaneously, several works have shown that recent decades have seen an increase in the frequency, length, and intensity of dry spells, while the frequency of rainy days has declined (Mutasa, 2008; Unganai, 2009; Lotz-Sisitka and Urquhart, 2014). It should be mentioned, though, that the evidence regarding long-term rainfall decline in Zimbabwe is not entirely uncontested. Using weather station records ranging from 1941 to 2000, Mazvimavi (2010) and Mapurisa and Chikodzi (2014), for example, did not find a significant trend in terms of long-term rainfall reduction. Nonetheless, Zimbabwe has only experienced normal rates of rainfall in two out of the five most recent growing seasons (FSIN, 2019). Additionally, there is strong evidence that average temperatures have increased in Southern Africa over the past half century, and average, minimum, and maximum temperature increases have been recorded in Zimbabwe over this period as well (Aguilhar *et al*., 2009, as cited in McGregor *et al*., 2011; Brown *et al*., 2012; Niang *et al.*, 2014; Davis-Reddy and Vincent, 2017; Sibanda *et al*., 2017). Associated with these temperature increases are increases in evapotranspiration, which has important implications for water stress (Matsoukas *et al*., 2011).

Many of the aforementioned adverse conditions were echoed in the interviews conducted for this study and emerged as factors driving migration from Zimbabwe. Three areas of migration drivers, in particular, came out strongly. These were environmental, economic, and political migration drivers. Table 1 below provides an overview of the numbers of Zimbabwean migrants whose migration decisions were influenced by these drivers. While social and demographic drivers undoubtedly exist for

other migrants from Zimbabwe, these did not appear in this study. It should also be emphasised that, although none of the Zimbabwean migrant-participants expected the situation in their country to stabilise in the near future, most of them stated that they would like to return if they had the chance. If it were not for the multiple and overlapping crises ravaging their home country, they would have never left.

It is pointed out by McGregor *et al*. (2011) that under the conditions of economic and political crisis experienced in Zimbabwe, environmental stress can be perceived as more extreme. Additionally, the authors argue that environmental adversities can disproportionately affect those experiencing adverse economic and political conditions (McGregor *et al*., 2011). This was clearly observed in this study. The paragraphs below contain several examples of these phenomena, thereby demonstrating how environmental, economic, and political adversities can intersect, interact, and amplify each other, creating situations markedly different from a scenario in which such issues had existed in isolation. They also indicate that people's vulnerability to climate- and environment-related adversities can vary widely depending on the social, political, and economic context in a given area, country, or region. Lastly, they provide an impression of the ways in which climate- and environment-related stresses contribute to out-migration from Zimbabwe by exacerbating the effects of existing political and economic crises in Zimbabwe as well, as was also noted by Foresight (2011) and Crush *et al*. (2017).

Immigration from Zimbabwe constitutes an interesting case, as it became very clear early on in the field research that environmental adversities play a relatively prominent and direct role as drivers for migration from this country. Most Zimbabweans who participated in the study, when asked about their reasons for coming to South Africa, would not initially mention adversities related to the climate or the environment. However, after probing and asking more questions about challenges experienced before migrating, it became apparent that in many instances, the environment played a more prominent role in migration decisions than migrants might have even realised themselves. In line with the

literature discussed above, conditions of drought, in particular, were often mentioned as a problem with significant impacts, along with soil erosion and occasional floods. Most Zimbabwean participants originated from the country's rural areas. I was told by several migrants that, due to the state of the economy – with high prices and constrained availability of food, a general lack of jobs, and low wages – many in Zimbabwe's rural areas depend on smallholder agriculture to meet their food requirements. This was also mentioned by the migrants Steven and Tafadzwa in Chapter 5. However, it became clear that due to conditions of drought, it has become a serious challenge for many to sustain themselves in this manner. As another Zimbabwean migrant put it: "I quit farming because I just saw [that] 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." In turn, the general lack of job opportunities means that, for those who struggle to make a living by farming, there are few alternative livelihood opportunities in Zimbabwe. In this way, economic crisis and environmental pressures create a vicious cycle of precariousness.

These conditions associated with economic crisis in Zimbabwe are particularly relevant, as their role of migration-driving factors was mentioned by all Zimbabwean migrants participating in the study. Economic problems that were raised during the interviews included inflation, high food prices, constrained availability of food and other essentials, low job prospects, and low wages. Other factors driving migration from Zimbabwe mentioned several times were problems associated with low access to healthcare, mainly caused by high prices for treatment and medication. Both migrants and key informants spoke about these conditions forcing significant numbers of Zimbabweans to cross the South African border in order to receive treatment for (chronic) diseases or, in many cases, to give birth in South African public hospitals, where treatment is free of cost. It is important to emphasise that, as is touched on above, economic problems do not exist in a vacuum. From the interviews I conducted with various migrants, it became clear that economic adversities and environmental stresses are strongly interrelated in Zimbabwe. For example, as is discussed in Chapter 5, the migrant Tafadzwa mentioned that due to the high prices for water pumps and irrigation systems such items are unavailable to many

in Zimbabwe, meaning that large numbers of people struggle to cope with conditions of drought. Similar issues were expressed by others regarding access to fertiliser. One migrant said: "[Before], they could go and buy fertiliser to put on the field. And there was a good yield. Now, you can't buy a 50 kg bag of fertiliser. It is very expensive. [...] That's why the ground is no longer profitable."

With so few employment opportunities in Zimbabwe, the prospect of finding jobs appeared as the predominant factor contributing to the participants' decision to make the journey to South Africa. In this context, the role of remittances in the migration decisions of Zimbabweans should be highlighted as well. Money sent home was found to be mainly used as a substitute for wages and, as such, plays an essential role in the incomes of migrant-households, which is reflected in literature (e.g. Maphosa, 2007; Ratha *et al*., 2015; Crush *et al*., 2017). However, migrant-participants were found to not just send money to Zimbabwe, but goods as well. One migrant told me that because of inflated prices for essentials at home, he prefers to send food items to his family, rather than just money.

It was also found in the study that several Zimbabwean migrants and their families used remittances to purchase items essential for agriculture. This is often done to cope with conditions of environmental stress, suggesting that migration does not merely constitute an escape from adverse environmental conditions, but is deployed as part of agricultural adaptation strategies as well. This is in line with Martin's (2014) notion that migration in the face of climatic and environmental stress should generally be viewed as a planned undertaking for adaptation, as was discussed in Subsection 2.3.2 of this dissertation. For an example of this phenomenon, we can look again at the migrant Tafadzwa. As is discussed in Chapter 5, he explained that in order to deal with water-scarcity at home, he bought a water pump in South Africa and sent it to Zimbabwe, where the costs for such an investment are too high. Apart from potentially improving the ability of migrants and their families to afford day-to-day expenses and cover immediate needs, incomes made through employment in South Africa were found to serve longer-term objectives of improving livelihoods in Zimbabwe as well. Many Zimbabwean migrants

spoke about how they hoped that employment opportunities in South Africa would enable them to build enough capital to one day start small businesses in Zimbabwe, should they get the chance to return, and several individuals stated that they tried to save up money in order to have an income in the last years of their lives, when they would no longer be able to work.

Political issues constitute the final key area of drivers for migration from Zimbabwe that emerged from the interviews. Firstly, a handful of Zimbabwean migrants indicated to have been affected by political repression and persecution. Narratives ranged from a participant having lost her job and two having been forced to move provinces due to alleged political allegiances, to one migrant having had friends having been disappeared in the night by government forces. The occurrence of such events, as well as widespread state violation of human rights, have been widely reported (e.g. Bratton and Masunugure, 2005; Howard-Hassmann, 2010; Makwerere *et al*. 2012; Mutekwe, 2019).

Something else that came up regularly in the interviews with Zimbabwean migrants, as well as key informants, was people's frustration with the inability, or unwillingness, of the country's government to assist its citizens and alleviate or solve their problems. Additionally, some migrants complained about the long-term rule of the governing party ZANU-PF, and connected this to several of the country's problems. One Zimbabwean migrant said: "[Many] things are caused by politics. The country is not stable, because politics causes a lot of things. Drought, disease, there is no employment. It is just politics. They [ZANU-PF] have been ruling until now. The same party. It has caused us to get in trouble."

Like economic problems, however, political migration drivers do not occur in isolation either. For example, from interviews with a number of Zimbabwean migrant-participants it was found that the lack of government assistance, paired with the various conditions of economic crisis discussed above, substantially reduces people's capacity to adapt to and cope with environmental shocks. This can be observed in the case of the migrant Steven, who described how a failure of the government to respond

to floods and soil erosion destroying roads in his home area meant that the impacts of these conditions were exacerbated and people suffered long-term consequences. Furthermore, Tafadzwa explained that when environmental adversities impede on people's ability to cultivate their crops, many have to turn towards larger landowners in the hopes of gaining access to fertile land and equipment, thereby forcing them into a state of dependency and opening up the possibility for exploitation. In addition to providing an example of intersections with economic inequality, this situation demonstrates clearly how, when attempting to understand the ways in which people are affected by climate- and environment-related adversities, existing power dynamics have to be taken into account as well.

There are indications that, apart from contributing to people's migration decisions in a direct manner, climate- and environment-related adversities contribute to other, non-environmental conditions driving migration from Zimbabwe as well. This can mainly be observed in terms of the impacts of environmental stress on Zimbabwe's economic performance, due to its negative impacts on the country's agricultural sector. Agriculture is estimated to account for roughly 8-17 percent of Zimbabwe's GDP, provides employment and income to 60-70 percent of the country's population, supplies 60 percent of the raw materials required by the country's industrial sector, and contributes 40 percent of total export earnings (World Bank, 2019a; FAO, 2020). In 2015 and 2016, the drought caused by El-Niño that impacted much of Southern Africa was responsible for a significant reduction in agricultural productivity and has been mentioned as one of the leading factors contributing to a new economic downturn in Zimbabwe around this period, which in turn is associated with increased political instability and serious fiscal challenges (Crush, 2017; FAO-GIEWS, 2019).

After a brief period of higher agricultural yields, the 2018/2019 cropping season was characterised again by extreme rainfall deficits, as well as the effects of cyclone Idai in March 2019 (FAO-GIEWS, 2019). These events led to a sharp drop in cereal production, with maize production dropping to 780,000 tonnes – more than 40 percent below Zimbabwe's previous five-year average – which was

estimated to satisfy only 50 percent of the country's national consumption, compared with meeting about 80 percent of the national demand in previous cropping seasons (*ibid.*). Compounded by the hampering effects of Zimbabwe's 2019 fuel crisis on farmers' ability to access fuel for their irrigation projects, as well as the country's diminished import capacity resulting from its economic difficulties, it should not come as a surprise that prices for food items have dramatically increased in recent years (Crush *et al*., 2017; Chronicle, 2019; FAO-GIEWS, 2019). Between September 2018 and January 2019, maize prices went up by 50 to 200 percent, while prices for sugar, wheat flour and bread rose between 35 and 100 percent, and cooking oil by over 300 percent over the same period (FAO-GIEWS, 2019; FEWS NET, 2019). We can see here that, along with other factors, adverse environmental and climatic conditions have affected economic conditions in Zimbabwe in recent years, including high retail prices for food, low food availability, and general economic contraction. Given that these factors emerged consistently as major contributing factors to the migration decisions of Zimbabweans in South Africa, it is reasonable to conclude that environmental stress contributes to migration from Zimbabwe in an indirect manner as well.

6.1.2 Malawi

The exact number of Malawians in South Africa is somewhat contested, but the latest figure, which can be found in South Africa's Community Survey, is 78,796 (Stats SA, 2016). This includes both documented and undocumented migrants.

Malawi is an overwhelmingly rural country, with 83 percent of its population living in rural areas, while 17 percent resides in urban areas (FSIN, 2019). Although exact statistics are contested, most of the country's inhabitants are involved in predominantly rainfed agriculture, and the overwhelming majority of Malawi's agricultural sector consist of smallholder farmers (Hardwick, 2009; Pauw *et al*., 2010; Phiri *et al*., 2019; FSIN, 2019). It is generally a peaceful country that has had stable governments since its independence in 1964 and has had multi-party presidential and parliamentary elections since 1993

(World Bank, 2020b). However, Malawi's inequality levels remain high and with a poverty rate of 52 percent and an extreme poverty rate of 20.1 percent it is one of the poorest countries in the world, with a higher occurrence of poverty in the country's southern regions (NSO, 2019; World Bank, 2020b). Chronic malnutrition constitutes a significant threat to a sizable portion of the country, with 37.1 percent of children under the age of five being stunted, and an average child-wasting level of 2.7 percent in the same age group (Conrad, 2014; Stewart and Bell, 2015; FSIN, 2019). Malnutrition in Malawi is also linked to low birth weight, poor maternal nutrition, low levels of education among mothers, child illness, lack of sanitation, lack of dietary diversity in under-fives, and poor access to healthcare (FSIN, 2019).

Other important adversities experienced in Malawi that are mentioned in literature 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 in March of 2019, which affected 922,000 people and displaced nearly 87,000 people (Davies, 2008; Pauw *et al*., 2010; GFDRR, 2011; Kirui, 2015; GSP, 2018; Pauw *et al*., 2018; FSIN, 2019; IFPRI, 2019; IOM, 2019; OCHA, 2019b).

Most of the aforementioned adversities were reflected in the interviews with Malawian migrants and were found to contribute to the migration decisions of Malawian migrants. The drivers for migration from Malawi that emerged from this study can roughly be divided into environmental, economic, and, to some extent, demographic areas. Here, too, it should be emphasised that most Malawian migrants participating in the study perceived their stay in South Africa purely as something temporary and wished to eventually return to their country of origin, should the conditions allow them to.

Although inter-annual precipitation patterns in Malawi are highly variable, causing frequent floods and droughts, studies have found no consistent evidence from rainfall records of recent changes in total rainfall, total rainy seasons, the duration of rainy seasons, or the duration of dry and wet spells (McSweeney *et al*., 2010; 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, most rapidly in the mid-summer months of December-February (GFDRR, 2011; Vincent *et al.*, 2014; Warnatzsch and Reay, 2019). As is mentioned in the previous subsection, the increased levels of evapotranspiration caused by such temperature increases are generally associated with elevated levels of water stress (Matsoukas *et al*., 2011). Regarding other environmental changes that have been recorded in Malawi, two main trends are discussed in the literature. These are growing rates of deforestation and increasing occurrences of land degradation. In terms of deforestation, it is estimated that forest cover in the country reduced from 47 percent to 36 percent between 1975 and 2005, which is the fourth highest deforestation rate in the world, the second highest in Africa, and the highest in the SADC (Muambeta *et al*., 2010; Wilson, 2018). These losses of forest cover are associated with loss of biodiversity and ecosystem services, as well as disturbance of various biochemical, hydrological, and ecological cycles (Ngwira and Watanabe, 2019). The village Kiliyati near the city of Blantyre provides a striking illustration of the rates of deforestation observed in some parts of Malawi. Here, the walking distance to the nearest forest increased from a few minutes in the early 20th century, to an hour in 1990, to seven hours in 2008 (Oxfam, 2009). Deforestation in Malawi is mainly caused by agricultural expansion and excessive use of biomass, such as wood, charcoal, and agricultural residues mostly used for cooking and heating (Gowela and Masamba, 2002; Oxfam, 2009). Apart from deforestation, several studies have pointed towards an increasing trend of land degradation in the form of soil and nutrient loss over the years, which is described as a major impediment to agricultural productivity in Malawi (Kirui, 2015; GSP, 2018). Land degradation has historically affected the country, but in recent decades the combined effects of high population growth, rapid

deforestation, overgrazing and ploughing, as well as temperature increases associated with climate change have worsened the situation (Kalipeni, 1992; Conrad, 2014; GSP, 2018).

Several Malawian migrant-participants spoke about adversities related to the climate and environment affecting them and others in their country of origin. These included droughts, floods, erratic rain, land degradation, and deforestation. Multiple Malawian migrants told me that droughts and floods have serious implications for rural populations in their country, and some of them had personally experienced problems related to these conditions. I was told about instances where fields were swept away in floods and crops did not grow due to lack of rainfall. Erratic rainfall, too, is a problem that directly affected Malawian migrants in the research sample. One Malawian migrant and smallholder farmer told me about excessive rain destroying his crops, forcing him to purchase food instead, even though the prices of food had increased under those conditions.

Land degradation, too, directly affected Malawian research participants. Specifically, the increasing trends of soil and nutrient loss in Malawi that are discussed above are reflected in some of the interviews I had with Malawian migrants. One person explained that in his parents' and grandparents' time, people did not experience as many problems related to floods and land degradation. However, due to an increase in Malawi's population, he told me, more people have settled in areas that are prone to these conditions, thereby increasing their exposure to environmental stress. It should be noted that an example is provided here of intersections between environmental and demographic stress factors. Others told me that that in the past, those involved in smallholder agriculture did not need products like fertiliser and pesticides to produce adequate yields, whereas today, the use of such products has become a prerequisite, which is borne out in literature (GSP, 2018). Participants explained to me, however, that extensive use of such chemicals further deteriorates the environment, leading to ever decreasing soil fertility. Another Malawian migrant told me that his family used to own several fields outside the town where he lived, where they mainly grew fruit trees. He explained how ended up

losing this 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.” His family decided to sell their land, after which he came to South Africa in the hope of finding employment there. These contributions of deforestation to land degradation were mentioned by several other Malawian migrants as well. The major role attributed to charcoal production to deforestation, as mentioned above, was also borne out in the interviews. One migrant, in particular, told me that the only source of income available to him before migrating was cutting down and burning trees, after which he could sell the charcoal on the market.

As a result of poor economic conditions and high poverty levels experienced in their country of origin, all Malawian migrants participating in the study spoke about economic problems as their primary reasons for coming to South Africa. These problems included low employment prospects, low wages, high prices for food and other essentials, and low purchasing power. Therefore, these migrants primarily expressed the need to find employment in South Africa in order to support themselves and their loved ones. It was found that the need to send remittances home plays an important role in the migrants’ desire to find employment in South Africa, which is confirmed in literature (e.g. Davies, 2008; Kangmennaang *et al*., 2017; Chidoba Banda, 2019). I was told that, due to the difficulties of finding employment in Malawi, remittances sent home are predominantly used 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, migration to South Africa might in part be deployed to support agricultural adaptation strategies back home in Malawi. There is another indicator that points in this direction as well. Even though the need for fertiliser has increased over time, I was told by migrants that in recent decades the costs for purchasing fertiliser has dramatically increased in Malawi. About this, Chidoba Banda (2019) writes that in the early 1990s the price for a bag of fertiliser was MK2,000, but that by 1995 it had increased to MK5,000, and that today a

rural family in Malawi has to spend MK22,000. As such, declining soil fertility is happening against a backdrop of constantly increasing prices of fertiliser. Again, we can see here that adverse economic conditions tend to intersect with and intensify the impacts of climate- and environment-related stress, and vice versa. Both Chidoba Banda (2019) and Malawian research participants point out that in order to finance the high fertiliser expenses, finding employment in another country is for many the only option.

Another example from the research that demonstrates the ways in which economic and environmental stresses intersect and intensify each other in Malawi is the finding that, at times of food shortages following environmental shocks, some of those with the resources to stock up food products will sell them at higher prices. This was also explained by the migrant Funsani in Chapter 5. Here, again, we see examples of how economic disparities have to be taken into account when attempting to understand the human impacts of environmental problems. Simultaneously, it demonstrates how environmental stress can amplify existing economic inequalities in Malawi as well.

In the case of Malawi, too, there are indications of indirect links between climate- and environment-related stresses and migration to South Africa. Small and medium-scale farmers, who are mostly reliant on maize production, are worst affected by climate- and environmental-related adversities, which is reflected in relatively large poverty increases among these farmers compared to large-scale farmers during such events (Pauw *et al*., 2010). However, nonfarm households face challenges in times of environmental stress as well, given the strong production and price linkages between agriculture and the economy, leading to higher prices for commodities and lower levels of welfare (*ibid*.). This can be clearly witnessed with regard to the links between food prices, food insecurity, and drought events in recent years. As was discussed in Section 5.4 of this dissertation, the Malawian famine of 2002, which was mentioned by the migrant Funsani, has been partially attributed to drought (Devereux, 2002; Menon, 2007). More recently, following reduced rains in 2018, cereal yields fell well below average

production, with maize production dropping and prices increasing by 20 percent compared to 2017 (FAO-GIEWS, 2018). Such increases of food prices in times of scarcity can partly be explained using basic supply and demand economics. However, declining agricultural exports in times of environmental stress in Malawi have also been linked to price inflation caused by currency devaluation (Pauw *et al*., 2010).

In addition, there are some clear signs that climate- and environment-related stress affects economic performance in Malawi as well, thereby influencing out-migration from the country in an indirect manner. This can mainly be observed in terms of the effects of environmental stress on agricultural productivity and the knock-on effect this has on the whole economy, given that agriculture is the economic backbone of Malawi. Agriculture is estimated to contribute some 25-30 percent to of the country's GDP, and the country's main exports are tobacco, tea, and sugar, accounting for roughly 85 percent of its exports (African Development Bank, 2014, as cited in Phiri *et al*., 2019; NSO, 2017; World Bank, 2019b). To provide a demonstration of the potential impact of environmental shocks on Malawi's economy, Pauw *et al*. (2010) show that an RP5[3] drought can cause a 0.53 percent real GDP decline, and that a RP10 drought can lead to a 3.48 percent decline, whereas under a more severe RP25 drought event, real GDP is expected to reduce by as much as 10.42 percent. Land degradation has been shown to have significant macro-economic implications for Malawi as well. The GSP (2018) predicts that with an intensification of current average nutrient loss conditions at a national level for nitrogen, phosphorus and potassium, a GDP reduction of up to 1.6 percent could occur. All this means that Malawi's food security, employment and the wider economy are highly sensitive to climatic and environmental shocks (Pauw *et al*., 2010; Saka *et al*., 2013; GSP, 2018; FSIN, 2019). It seems clear, therefore, that climatic and environmental stresses contribute to the economic problems – such as low job prospects, low wages, high prices of food and other essentials, as well as low purchasing power – that constitute

[3] RP stands for return period. The RP is 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).

some of the foremost migration drivers in the narratives of the Malawian migrants participating in the study.

6.1.3 Other countries

Besides migrants from Zimbabwe and Malawi, I spoke with a handful of migrant-participants from Nigeria, Mozambique, Ghana, and the DRC. Drivers for migration from these countries that emerged during the interviews can be divided into economic, political, and social areas. Economic problems comprised the main drivers that were identified. These included lack of employment opportunities, low wages, general economic malaise, and a lack of prospects for progress and development. Being unable to afford adequate food, though only being mentioned by one person from Mozambique, constituted another economy-related driver. Other migration drivers included political problems, such as a lack of government support structures (in the case of Mozambique), political instability and unrest (in the case of the DRC), as well as poor infrastructure and public services (in the case of Nigeria and the DRC); social reasons, like the need for better education (in the case of migrants from Nigeria), as well as more personal, other social reasons: a Congolese migrant told me that some of the reasons he left the DRC was because he wished to escape his demanding relatives and discover new places, and a migrant from Ghana left his country of origin in part to prevent his community from appointing him as the village chief.

During my conversations with key informants, a number of additional migration drivers were raised that are worth noting here. For example, mention was made of young people from around the SSA region attempting to reach South Africa in search of free education, which is a social migration driver. Additionally, political drivers such as violent conflicts and the collapse of governance and the rule of law were mentioned as prominent factors, predominantly in the case of refugees coming from war-torn countries, such as the DRC and Burundi. Lastly, one key informant had observed people from eastern DRC having left their country due to intersecting circumstances associated with Ebola

outbreaks – a demographic driver – and violent conflict – a political driver. This is particularly relevant in the context of this study, as there are clear links between the initial outbreaks of this infectious disease and environmental destruction, as was discussed in Section 2.2 of this dissertation.

During my conversations with the migrants from Nigeria, Mozambique, Ghana, and the DRC, some mention was made of environmental stress factors affecting people in their countries of origin as well. Abioye, whose story was told in Section 5.3 of this dissertation, made mention of extreme heat and pollution impacting people's lives in Nigeria, which was also raised by another Nigerian migrant. Pollution and extreme heat events were mentioned by a migrant from the DRC as well, particularly in the context of his experience of living in the country's capital, Kinshasa. When I spoke with a migrant from Mozambique, the occurrence of drought and flood events, as well as tropical cyclones was mentioned, though he emphasised that he had not been personally affected by these conditions in a direct manner. In the cases of the individuals from Nigeria and the DRC who mentioned climatic and environmental stresses, these did not appear as prominent direct migration drivers either.

In light of this observation more important insights can be gained from looking at possible indirect links between climate- and environment-related adversities and out-migration from these countries. This can specifically be seen in terms of the impacts of climatic and environmental adversities on economic performance. Since adverse economic conditions were mentioned as the main migration drivers by the migrants from these countries, the impacts of climatic and environmental adversities on economic performance seem the most relevant to explore. Among the countries discussed here, such links between the environment and the economy appear most clearly in literature about Nigeria and Mozambique, although climatic and environmental adversities affect the other two countries as well (IPCC, 2014b).

In Nigeria, Ogbuabor and Egwuchukwu (2017) found a negative correlation between climate change – captured in terms of annual rainfall, carbon emissions and forest depletion – and economic growth over the period 1981-2014. Based on their results, the authors suggest that both in the short and long run, climate change affects economic growth in Nigeria adversely (Ogbuabor and Egwuchukwu 2017). This can in large part be explained by its effect on Nigerian agriculture, which, along with forestry and fishery, comprises 21.9 percent of the country's GDP (World Bank, 2019c) and provides livelihoods to over 80 percent of Nigeria's population (Ebele and Emodi, 2016). As early as 1994, warming trends had already been found to cause a 20 percent loss of growing days compared to earlier periods in some parts of Nigeria (Mendelsohn *et al*., 1994). More recent studies have found that temperature increases, drought, desert encroachment, floods, and soil erosion have all negatively affected agricultural outputs in Nigeria (Ladan, 2014; Mbah *et al*., 2016; Akpodiogaga-a and Odjugo, 2017; Ayinde *et al*., 2017; Akukwe *et al*., 2020; Eze *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 in this Chapter so far. Although slow-onset events like droughts do occur, specifically in the country's southern and central regions, these parts of the country are frequently exposed to rapid-onset events like floods as well, while its coastal regions regularly experience storms, flash floods, and tropical cyclones (*ibid*.). For an impression of the impact of these tropical cyclones, we can look again at Cyclone Idai of March 2019, which 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, 2019a). Around 64 percent of Mozambique's population live in rural areas (FSIN, 2019). Agriculture accounts for 24 percent of the country's GDP and is largely organised in small units of land (CGAP, 2016; World Bank, 2019d). In areas impacted by the Cyclones Idai and Kenneth, over 80 percent of the population is dependent on agriculture as a primary source of income (OCHA, 2019a). Taking this into account, it becomes apparent that, apart from the immediate damage caused

by climatic and environmental shocks, such events are likely to have longer-term consequences for Mozambique's economy and employment availability as well. Indeed, following the impact of these cyclones, economic growth forecasts for Mozambique were revised downwards (WFP, 2020b).

6.2 "Let us go to South Africa": how migration decisions are made and implemented

Looking at the conceptual framework used in this study (figure 4), we can see that the various factors affecting the decision-making process (at the right side of the diagram) can be roughly divided into three categories: intervening obstacles and facilitators, personal/household characteristics, and expectations of the migration destination. The subsections below delve into each of these categories and discuss the various factors found to have influenced the migration decisions of the migrants participating in the study.

6.2.1 Intervening obstacles and facilitators

Two main factors facilitating the migration of research participants were found in the interviews. These were access to social networks and South Africa's porous borders. Two obstacles to migration arose during the interviews as well, which were the high costs of migrating to South Africa, as well as the various dangers and hardships associated with the journey. It should be emphasised, however, that since the focus of the study was on those who have already migrated, the perspectives of those left behind are not included in the study. This was also identified as one of the limitations of the study, as is discussed in Section 4.7 of this dissertation. The migrants who participated in the study have all made the journey to South Africa and managed to overcome whatever obstacles they may have faced. As such, factors forming obstacles to migration, that may have prevented others from migrating at all, are likely to have remained underexposed.

Through the interviews it was confirmed that for most migrants participating in the study, having access to social networks was essential in order to successfully travel to and settle in South Africa. It was

found that before the journey to South Africa was made, cross-border contacts, as well as contacts with people who had lived in South Africa before, provided valuable information and advice regarding border-crossing, accommodation, and employment opportunities. Additionally, social contacts 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 those who had recently arrived in South Africa, thereby allowing newcomers to get settled before they were able to fend for themselves. Such social contacts were found to usually be with friends or relatives, like brothers, cousins or, in some cases, parents. One Zimbabwean migrant told me: "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 the provision of funds necessary to travel to South Africa. For those migrant-participants who travelled to South Africa using busses, bus tickets had to be purchased. Additionally, participants explained to me that even those who hitch-hike are often expected to pay the drivers. I was told during the interviews with migrants that, once at the border, paying bribes to border officials to be granted access to the country was often another expense that had to be made. All this means that for many of the migrants participating in the study, making the journey required a significant financial investment, which can be an obstacle to many of those wishing to migrate to South Africa. Those who were unable to finance this themselves therefore often relied on financial support from others. About this, 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." Considering all these fundamental functions that social contacts fulfil for future and newly arriving migrants, it is evident that they played an important role in shaping the migration decisions of the migrants in the research sample.

As the second largest economy on the African continent (IMF, 2019), South Africa is one of the main destination countries for regional migration (DHA,2017). Nonetheless, it is not the only country in Southern Africa experiencing economic prosperity. Botswana, for example, has experienced significant economic growth and development since its independence in 1966 (Cook and Sarkin, 2010). Today, it is classified as an upper-middle income country, and has a higher GDP per capita and lower levels of income inequality compared to South Africa (IMF, 2020; World Bank, 2020c; World Bank 2020d). However, South Africa's porous borders were found to be factors contributing greatly to the country's status as a preferred destination country among migrants taking part in this study. A 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." Since he did not have a work permit, this migrant, like many others, entered South Africa by jumping the border.

Border jumping is not the only strategy deployed by those without work permits. For those who own passports, a visitor's permit can be granted, which is valid for 30 days. Many of the migrant-participants who owned passports indicated to have legally entered the country in this way, after which they overstayed their permits. In order to leave or re-enter the country afterwards, border officials have to be bribed. This is what the migrant quoted above was referring to when emphasising the facilitating role of corruption in undocumented migration to South Africa. This strategy was also used by the migrants Steven, Tafadzwa and Funsani, as described in Chapter 5. Taking the above into account, the relative ease by which migrants were found to enter South Africa using the aforementioned strategies clearly constitutes another migration facilitating factor that emerged during the study.

Besides the high costs of migration, the dangers and hardships associated with making the journey to South Africa were other obstacles that arose during the interviews. Those who lacked the funds for airplane tickets or bus rides and were therefore forced to make the journey on foot or by hitchhiking,

the distances that had to be covered formed a serious challenge. For some, it took several weeks to reach the South African border, and multiple migrants spoke about how they barely had money to afford food over the course of their journey. Once at the border, those who did not own passports had to cross the border illegally, often by swimming across the Limpopo river. As was mentioned by Tafadzwa in Section 5.2, this river is home to hippos and crocodiles, which makes crossing it a dangerous undertaking. Additionally, as was also mentioned by Steven in Section 5.1, criminals are active in the border region, and robbery are the order of the day for migrants attempting to cross the border. Even though the migrants in the research sample managed to overcome these obstacles, it is likely that to many people considering migration to South Africa, knowledge of such conditions may prevent them from deciding to pursue the idea. Additionally, even those who do decide to leave may be hindered in their attempts to reach their destination.

6.2.2 Personal/household characteristics

In terms of personal and household characteristics that were found to influence the migration decisions of the migrants in the study, several factors emerged. These were wealth, education, age, and adaptive capacity.

As is laid out in Section 6.1, most of the migrant-participants indicated during the interviews that they had suffered adversities related to poverty and economic malaise in their countries of origin, including unemployment, malnutrition, lack of access to healthcare, as well as an inability to effectively adapt to and cope with climatic and environmental stress. It was found, however, that not all migrant-participants equally experienced such adversities. Those who came from poorer economic backgrounds were disproportionately affected. The desire to find employment in South Africa in order to afford basic and immediate necessities was, therefore, of particular importance to these poorer individuals.

Although the majority of migrants in the study were poor, a handful of interviewed migrants came from slightly wealthier economic backgrounds. Rather than being driven by adverse conditions that threatened their very survival, as was generally the case for poorer migrants, these individuals were to a larger extent driven by a desire to improve their own and their families' quality of life. Such migrants sought – among others – better education, access to good infrastructure, and public services. Sometimes, these reasons were combined with as well as migrating for personal and social reasons, like wishing to escape the grip of demanding relatives and community members, and the desire to explore other countries. Additionally, as they had wished to settle in a country with generally higher standards of living, these individuals did not leave their home countries with the intent to return and had, in most cases, decided to leave for good. There are two likely reasons for this. Firstly, wealthier migrants generally had funds and education levels allowing them to build more stable lives for themselves and their families in South Africa. Secondly, since they were less motivated by factors threatening their immediate survival and more by seeking higher standards of life in their new country of residence, they made well-informed choices to move and had few incentives returning to their countries of origin. All of this means that wealth (or lack thereof) played an important role in determining which factors drove migration. Furthermore, it should be mentioned that even though the conditions associated with poverty can be a barrier to migration, those same characteristics were also decisive in leading the majority of those in this study to migrate.

Additionally, it was found that the better economic standing of some of the migrants allowed them to travel to South Africa using airplanes, rather than using busses, hitchhiking, or traveling by foot, as most migrants in the research sample did. These wealthier individuals all originated from countries at greater distances from South Africa, specifically Ghana, Nigeria, and the DRC. It is worth noting, however, that there are migrants traveling over long distances to South Africa using more laborious methods – like walking, taking busses, hitchhiking with trucks, and being transported by human traffickers – from, for example, the Horn of Africa and the Great Lakes regions (UNHCR and IOM, 2010; BBC,

2012). Nonetheless, it seems clear that the fact that the higher wealth of some migrants in the sample enabled them to travel by airplane greatly enhanced their ability to come to South Africa and should likely be considered as a factor influencing their decision to migrate there.

An inability to affectively adapt to climatic and environmental stresses in one's country of origin constitutes another likely personal or household-level factor contributing to the migration decision-making process of migrants in the study. As is discussed in Section 6.1, it was discovered that remittances sent home by migrant-participants are often used to invest in agricultural necessities, in part to cope with and adapt to environmental stress, suggesting that migration might be deployed as part of agricultural adaptation strategies. It was also established that low adaptive capacity is generally linked to macro-level stress factors, such as economic problems – which also links it to personal wealth – and a lack of government assistance. For those migrants who indicated they had been affected by climatic and environmental adversities, it is therefore possible that migration might not have been a necessary strategy had their adaptive capacity at home not been impacted by these factors.

The last personal factor found to play a role in the migration decision-making processes of migrant-participants is their age. All migrants in the sample were of working age, although the youngest two participants – who were 18 years old – arrived in South Africa as young children. For those who arrived as adults, however, the youngest was 19 years old at the time of arrival (now 26) and the oldest was 46 years old when reaching South Africa (now 58). As was discussed in Section 6.1 of this dissertation, for the majority of the migrants in the study, seeking employment was the primary reason for coming to South Africa. Taking these factors into account, it is likely that being of working age increased the likelihood of making the journey to South Africa for most of the migrant-participants. A migrant from Zimbabwe told me: "Now, I am in an active age group, so I must do planning for my family's life, my kids. [...] I must plan more than ten or fifteen years [ahead], so that when I am old I can just sit at home."

Apart from the aforementioned personal and household characteristics, there are undoubtedly other such factors that inform the migration decisions of migrants coming to South Africa that were not found in the interviews. Two of these factors, in particular, require some attention here, as their potential impact on migration decision-making is highlighted in literature and emphasised in Section 3.3 of this dissertation, where the conceptual framework is laid out. These are prior migration experiences (Kniveton *et al*., 2011) and the role of expectations from family in migration decision-making (Stark and Bloom, 1985; Gubhaju and De Jong, 2009). Although a handful of migrants in the study had visited other parts of their home countries, the majority of migrant-participants had little to no experience of traveling far beyond their places of residence before coming to South Africa. Five of the interviewed migrants, however, indicated to have stayed abroad for extended periods of time before coming to South Africa. One can imagine that this might have equipped them with useful experience and knowledge about migration. However, none of the migrants in the study specifically indicated that they had been influenced by any such prior experiences when deciding to move to South Africa. Additionally, even though several works of literature have pointed out that migration decisions are frequently made at the family level, meaning that family dynamics and the role of expectations of relatives in the decision-making process have to be considered (Stark and Bloom, 1985; Gubhaju and De Jong, 2009), this was not found to be the case for the migrants participating in this study. This, of course, does not mean that family played no role in their migration decisions. As is demonstrated by the importance of remittances in the migration decisions of participants, the well-being of their families was an important factor influencing their migration-decisions. However, although some indicated that they had consulted others before deciding to leave for South Africa – including family members – all migrants in the sample were clear about having come to their final decision by themselves and claimed they did not leave due to pressure from relatives.

6.2.3 Expectations of the destination

The third main factor influencing the migration decisions of the migrants in the study relates to their expectations about South Africa before making their journey. Three things are discussed in the paragraphs below. These are the specific expectations migrants had about South Africa, how these expectations compared to the reality of their lives after migrating, and the sources of information that shaped their expectations.

It was confirmed from the interviews that for the migrants who were part of the research, their prior expectations about South Africa constituted a fundamental factor influencing their decision to leave. The majority of migrants – particularly those who came from poorer economic backgrounds and had suffered the most under the impacts of economy-related problems – stated that prior to making the journey, their main expectation was that they would be able to find employment in South Africa and earn an income, allowing them to meet their basic needs and send some money home as remittances. This is in line with the finding that economic problems and the subsequent desire of finding work constitute the main area of migration drivers for the migrants in this study, as described in Section 6.1. 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."

Apart from expecting to earn enough money to sustain themselves and their families, most of the poorer migrants declared that they had anticipated building up savings, allowing them to return to their countries of origin within no more than a few years. Therefore, as is also discussed in Section 6.1, they overwhelmingly indicated that before migrating, they had viewed their move to South Africa mainly as a temporary strategy to cope with the various adversities at home. It was clear that the promise of being able to find employment in South Africa and fulfilling their own and their families' immediate needs hugely influenced their migration decisions. For the handful of migrants in the research sample who came from somewhat wealthier economic backgrounds, expectations prior to

migration revolved to a larger extent around finding better education, infrastructure, and public services. As is discussed in the previous subsection, this meant that these individuals generally did not leave their home countries with the intent to return and had expected to leave for good. The prospect of a stronger economy and higher levels of political stability in South Africa made these migrants believe that they could reach the higher living standards they were seeking in South Africa, and was therefore one of the main factors shaping their decision to migrate there.

It was also found during the interviews that, although some migrants had had relatively nuanced and realistic expectations of what they could encounter in South Africa, others indicated they had not been aware of the many difficulties they would experience. Contrary to expectations, these migrants found themselves still living precarious lives after arrival. In Section 5.4 of this dissertation, Funsani spoke about how, when he was still in Malawi, he noticed that some migrants would return from South Africa and portray it as a country of "milk and honey", a place where one could easily receive whatever one needed, without having to do much work. Likewise, a migrant from Zimbabwe living in the informal settlement Mooiplaas told me: "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 though most migrants in the study did not describe their image of South Africa prior to migration in such rosy terms, several indicated that their previous ideas about the country did not entirely align with what they encountered once they got there. Another Zimbabwean, who arrived only weeks before South Africa went into a nationwide lockdown following the COVID-19 pandemic, said: "I was just expecting that if I would be coming to South Africa, I could just get a job. Then I [would] work for my family. Any type of job". Unfortunately, this was not what he found after he had arrived: "By the time I came here, all wasn't fine. I did not find anything. Even a place to stay, food to eat, everything. It's not well." This sentiment was echoed by several other migrants who had arrived around this time. A

migrant from Malawi told me that in the months since she had arrived, she had been unable to find any work outside of occasional and low-paying cleaning jobs for other residents of Mooiplaas, where she now lived. Barely making any income, she had become entirely dependent on support from her cousin, who provided her with shelter and some money for food. Another migrant from Malawi explained to me that even though life in his home country had been a constant struggle, as least he had the possibility of planting some crops to eat and sell. This was not an option in the crowded, urban setting he resided in now. He had to find work to survive, but since the pandemic had started, he had not succeeded in this. He also told me that he wanted to return to Malawi, but that he did not have money for the journey back.

Many of the poorer, unskilled, and semi-skilled migrants who had arrived in the years before the start of the pandemic indicated that their initial expectations had not been met either. Even though most of these migrants indicated that their and their families' lives were slightly better than they would have been had they remained in their own countries, the general mood among these individuals was that their lives in South Africa were a constant uphill battle, and not what they had initially hoped for. As a migrant from Zimbabwe told me: "I didn't think that I would still be in South Africa [by now]. 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* [Zimbabwe] and start a business. But unfortunately, life didn't go that way." In some ways, he told me, his living conditions were worse today than they had been before, when he was still in Zimbabwe. He explained that even though people were poor in the rural area where he was from, no one lived in shacks in crowded informal settlements, like he did now.

Many of the unskilled and semi-skilled migrants in the study struggled to find stable and long-term employment, even before the start of the COVID-19 pandemic. I was told by two migrants who came to South Africa in the early 2010s, that when they first arrived, it was much easier to find work. They explained that over time, however, employment opportunities have decreased a lot. Many of those

who did manage to find work often worked low-paid and short-term 'piece-jobs'. These – normally secured on a day-to-day basis – could entail anything from once-off cleaning jobs, to painting or construction work, and loading parcels onto trucks at local factories or warehouses. These individuals – who made up the bulk of migrants in the research sample – were constantly on the lookout for jobs, never able to work anywhere for long, and frequently going through periods with little to no income.

Three of the unskilled and semi-skilled migrants, however, had managed to obtain permanent jobs. One had found employment as a domestic worker and two others as gardeners for families in Pretoria. These individuals had visibly higher living standards than those who were dependent on piece-jobs. They lived in larger shacks with glass windows, owned relatively comfortable furniture, and, in one case, had access to a gas stove and electricity, supplied by a solar panel on the roof. Most migrants in the sample resided in windowless, dark, and small shacks, with little furniture and no access to electricity; their cooking done on open wood fires. Additionally, all three individuals with permanent jobs indicated to me that they were able to send remittances to their families every month, something that many others were unable to do. The few skilled and wealthier migrants in the research sample seemed to live relatively comfortable lives as well. In most cases they had been able to find well-paying, permanent work, or, in three cases, they were studying for university degrees, receiving bursaries and financial support from their families.

Unlike those who had expected an easy life in South Africa, some had had different ideas about what they would find after migrating. For example, as was discussed in Section 5.4, Funsani was told by his mother – who had worked in South Africa herself – that living conditions would be hard for him after he would make the journey. Similarly, another migrant from Malawi explained: "My uncle said: 'You can come here [to South Africa]. But don't listen to other people, you must understand what I am going to say. Life here is difficult. In Malawi you can farm, you can plant something and get some food. But here, to get anything, you must find work.'"

The points above demonstrate that besides being a source of information, advice, and funds necessary for successfully traveling to and settling in South Africa, social networks were also found to play a fundamental role in shaping the expectations the migrant-participants had of their stay in South Africa. Social contacts, specifically with those who were already in South Africa and with those who had returned from there, constituted the predominant source of information based on which such expectations were formed. Nearly all migrants in the sample indicated they had based their expectations mainly on information derived from social networks. Only one other source of such information was mentioned during the interviews, as a migrant from the DRC mentioned that his image about South Africa had in part been influenced by what he had read in newspapers.

7 Conclusion

The findings presented in this work have been derived from interviews with migrants and key informants, as well as from secondary material – such as reports, grey literature, and academic publications – and can be divided into three areas of focus. Firstly, I have laid out the various factors that were found to drive migration from the SSA region to South Africa. Secondly, I have provided insights into the migration decision-making process and demonstrated how and why migration decisions are made and implemented. Thirdly, I have offered descriptions of the experiences of migrants during and after their journeys to South Africa.

In this dissertation, drivers for migration are roughly divided into economic, political, social, demographic, and environmental areas. Economic adversities in migrant-sending countries were found to be the foremost group of factors driving migration to South Africa. These economic factors include general economic malaise and precarious living standards; inflation; high prices and constrained access to food and other essentials; low employment prospects; low wages; and low access to healthcare, predominantly due to inflated prices for treatment and medication.

Political issues constituted another prominent group of migration drivers in the study. Of particular significance were a lack of government assistance; political repression and persecution; poor infrastructure and public services; as well as political instability, unrest, and violent conflict.

Social and demographic conditions were also found to drive migration to South Africa, though to a lesser extent. It is important to emphasise, however, that the lower prominence of social and demographic migration drivers found in this study is not necessarily indicative of an overall insignificance of such drivers for migration to South Africa. Social migration drivers that emerged included poor education, as well as more personal reasons, such as seeking to discover new places and a wish to escape

from demanding relatives and community members at home. Demographic migration drivers that were uncovered included population growth and the spread of infectious diseases.

Climatic and environmental adversities have had significant impacts on many of the migrants in this study and – whether people explicitly state it or not – it is clear that such factors impact migration flows to South Africa. This holds true particularly for drought and land degradation, although conditions associated with floods, deforestation, and erratic rainfall emerged as environmental other factors with significant impacts and a likely contribution to migration as well.

The complexity and multicausality of migration are central themes in this work, and one of the key arguments I have presented is that migration is typically a function of several migration drivers working in tandem. These drivers tend to be highly intertwined and cannot be meaningfully understood in isolation from one another. I have shown in this study that environmental drivers for migration frequently intersect with other, non-environmental migration drivers. For people who are impacted by economic crisis and political repression, it has been found that an adverse environment can push them over the edge, resulting in migration. Simultaneously, low economic performance and the lack of government support, observed in many SSA countries, mean that for many of those experiencing environmental pressures, it is an even greater challenge to cope with and adapt to environmental stress at home. As such, these aggregated adversities leave many with few other options but to leave their homes and search for a better life elsewhere. This was particularly – though not exclusively – observed in those who were reliant on agriculture as a means of livelihood in their home countries.

In addition, it is evident that climate- and environment-related stresses contribute to migration to South Africa in an indirect manner through their impacts on non-environmental drivers. I have shown that climatic and environmental adversities are likely to have contributed to most of the primary drivers for migration from the various countries covered in this study, such as high food prices, constrained

food availability, reduced economic output and economic crisis, as well as associated political unrest. Environmental stress factors found to contribute to these adversities included drought, soil erosion, floods, temperature increases, deforestation, and desert encroachment, as well as destruction caused by rapid-onset events, such as tropical cyclones and flash floods.

Thus, it can be stated with confidence that, although climate- and environment-related stresses may not be the primary reason for migration to South Africa, they cannot be ignored when analysing its drivers.

Due to its relevance for the knowledge base on climate- and environment-related migration, one specific finding presented in this work should be highlighted here. This relates to the role of remittances in migration decision-making, particularly among Zimbabwean and Malawian research participants. Besides the importance of remittances as a substitute for wages and source of income for basic needs in migrant-households in these countries – which has been widely reported in literature (Maphosa, 2007; Davies, 2008; Ratha *et al*., 2015; Crush *et al*., 2017; Kangmennaang *et al*., 2017; Chidoba Banda, 2019) – it was found that remittances sent home by Zimbabwean and Malawian migrants were frequently used to invest in agricultural necessities at home, such as water pumps and irrigation systems, fertiliser, pesticides, and seeds. This often happens under conditions of climatic and environmental stress, suggesting that migration does not merely constitute a flight from adverse environmental conditions, but is deployed as part of agricultural adaptation strategies in home countries as well.

The presence of potential drivers for migration does not necessitate that migration will take place. Whether someone decides to migrate or stay is dependent on a variety of factors present in the personal lives of those affected by adverse conditions, as well as in the broader contexts in which they live. In this work, these factors are divided into three areas: intervening obstacles and facilitators, personal and household characteristics, and expectations of the destination.

The main factors facilitating migration to South Africa that appeared during the interviews were access to social networks and South Africa's porous borders. In addition, two obstacles to migration were found as well. These were the high costs of migrating to South Africa, as well as dangers and hardships associated with the journey, including traveling across long distances, lacking food during the journey, risking robbery by criminals active in the border region, and swimming across the Limpopo river, which is home to hippos and crocodiles. In terms of personal and household characteristics influencing the migration decisions of migrants in the sample, wealth, education, age, and adaptive capacity were found to be of significant importance. Lastly, it was revealed that for the migrants participating in the research, their expectations of South Africa prior to migration had a major influence on their decision to leave. The main expectations of research participants prior to migration, uncovered in the study, related to finding employment, being able to send home remittances and meet basic needs for themselves and their families, building up savings to start small businesses or to have an income after retirement, as well as improving general living standards, including with regard to better education, infrastructure, and public services. Social contacts with people already living in South Africa, as well as with those who had returned from there, were found to be of particular importance in providing a source of information from which expectations about life in South Africa were derived.

Migrant-participants from slightly wealthier economic backgrounds generally indicated that they had found the higher living standards they had sought in South Africa. A handful of poorer, unskilled, and semi-skilled migrants had managed to obtain permanent employment and had managed to improve their own and their families' lives as well. Nonetheless, although other poor, unskilled, and semi-skilled migrants generally indicated that their own and their families' lives were slightly better than they would have been had they remained in their home countries, their lives were still characterised by insecure and low-paid employment, precarious living conditions, and little hope for any significant improvement.

The findings presented in this work have shown clearly that climatic and environmental adversities contribute to migration to South Africa. Given the projected severe impacts of climate change in SSA, as well as South Africa's position as a prominent migration destination country – which already leads to regular outbursts of xenophobic violence in the country today – it is of considerable significance that both current and future impacts of environmental pressure on migration to South Africa are effectively understood and managed. As such, two recommendations are provided here. Firstly, further research is required to gain an understanding of the scale of climate- and environment-related migration to South Africa. The conceptual framework (figure 4) presented in this study has been found to be useful in analysing drivers and processes of migration and can be used to guide further research on this topic. In turn, the framework can be further developed through such additional studies. Secondly, policies should be drafted that take account of and respond to the complex, but very real ways in which the climate and wider environment contribute to migration to South Africa. For example, coordination and collaboration efforts focussed on ensuring a successful adaptation to climatic and environmental change should be initiated between South Africa and migrant-sending countries in the SSA region. Furthermore, South African policy makers should consider reshaping migration policies as to improve the conditions for migrants in the country, many of whom may be left with few other options for their survival than to come to South Africa in the coming decades.

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Appendix I: Overview details research participants

Migrants

Country of origin	Gender	Age	Skill level	Area of origin type	Immigration status
Zimbabwe	Male	35	Low-skilled	Rural	Undocumented
Zimbabwe	Female	58	Skilled	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	Rural	Undocumented
Zimbabwe	Female	37	Semi-skilled	Town	Visa
Malawi	Male	32	Low-skilled	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	Undergraduate student	City	Citizenship
Nigeria	Male	18	Undergraduate student	City	Citizenship
Nigeria	Male	41	Postgraduate student	City	Visa
Ghana	Male	35	Semi-skilled	Rural	Undocumented
DRC	Male	45	Skilled	City	Visa
Mozambique	Male	35	Low-skilled	Rural	Undocumented

Key Informants

Organisations

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

Appendix II: Semi-structured questionnaire (migrants)

Initial identification of potential participants:

1. Are you a migrant (yes/no)?
2. Are you non-South African (yes/no)?
3. Did you come from a sub-Saharan African country (yes/no)?

Follow-up questions, when someone has been identified as a suitable participant:

1. **Gender?**
2. **Age?**
3. **Highest attained level of education?**
4. **Where are you originally from?**
5. **Do you have a spouse and/or dependents?**
   I. If so, did they come with you to South Africa or did they stay behind?
   II. If they stayed behind, are they planning on coming to South Africa too?
6. **Do you have any other relatives?**
   I. If so, where do they live?
   II. If they stayed behind, are they planning on coming to South Africa too?
7. **Have you stayed in contact with people back home?**
   I. If so, do you send them money or goods? Do they you send money or goods?
   II. Do you ever visit them?
   III. If so, how often?
8. **In which place(s) did you live before you came to South Africa?**
   I. Did you like your life in this/these place(s)?
   II. In case you have moved around before you came to South Africa, did this experience affect your general perception of migration? If so, in what way?

III. In case you have moved around before you came to South Africa, did this experience influence your decision to come to South Africa? If so, in what way?

9. What did you do to provide for yourself in the place(s) where you were living before you came to South Africa?

I. Did you support other people while doing this? If so, who?

10. Have you faced any notable challenges in the place(s) you have lived before coming to South Africa?

I. If so, why was this, you think?

II. When did these problems start? Did they get worse over time, did they stay the same, or did things improve?

III. Have you tried to solve or alleviate (some of) these problems you were facing? If so, how?

IV. Have you received outside support to cope with any problems you might have experienced?

11. When did you decide to leave?

I. Can you give me an idea of what was going on in your country in the 2-3 years before you decided to leave?

II. What was happening in your own life around this time?

III. Did some of the things that were happening in your country at this time have an effect on your personal life? If so, how?

12. What were your reasons for deciding to leave?

I. Was it your own decision to leave, or were other people involved in the decision?

II. Did other people provide information or advice that influenced your decision to leave?

III. If other individuals were involved or provided information and advice, what was your relationship to these individuals and what role did they play in your decision?

IV. How did you feel about leaving? Was it a difficult decision?

V. What kind of planning and preparation did you have to do before you left?

VI. For how long were you initially planning on staying away from home?

13. Why did you decide to come to South Africa specifically?

I. What expectations did you have of South Africa before you came to here (job, living standard, etc.)?

II. Where did you get your information about how it would be in South Africa?

14. Did you already know people living in South Africa before you came here?

I. Have you received necessary support of information from these individuals, both before and after you migrated to South Africa?

II. If so, what kind of support of information?

15. Can you describe the journey to me?

I. What modes of transport did you use?

II. What route did you take?

III. Did you travel to South Africa in one go, or did you stop at places on your way? How long did you stay in these places?

IV. If you made stops on your way here, what did you do while staying in those places?

16. When did you arrive in South Africa?

17. How have you supported yourself in South Africa since you have arrived here?

18. Would you say that you are happy in South Africa?

I. Do you feel like your life here is better or worse than your life back home? Why?

II. Do you feel like your expectations have been met? Why yes/no?

III. Have you experienced problems since arriving here? If so, what were these problems?

IV. Do you feel today that you made the right decision to leave your country and coming here?

19. Are you planning to eventually return to your country of origin?

I. If so, when would you return?

20. Would you consider going somewhere else (either within South Africa or abroad)?

I. If so, do you have an idea where you would go?

II. What would it take for you to move somewhere else?

Appendix III: Semi-structured questionnaire (key informants)

1. **Name?**
2. **Organisation?**
3. **Function?**
4. **As a result of South Africa's migrant labour system, the majority is immigrants in the country was historically male. Would you say that a shift in gender composition has occurred in recent years?**
   I. If so, how significant has this shift been?
5. **In your experience, do migrants from other SSA countries usually come to South Africa alone, or is it common to bring family members (e.g. spouses, children, and other relatives) and dependents with them?**
   I. When they come alone, is it common for these immigrants to bring over family members and/or dependents to South Africa at a later moment?
   II. How common is it for immigrants to regularly send remittances back to their countries of origin?
   III. Is it common for immigrants to travel back home regularly, or do most of them stay in South Africa once they are here?
6. **Can you describe what, in your experience, are common reasons for immigrants to leave their countries of origin?**
   I. Have there been significant changes in migration-driving factors in recent decades, or possibly an aggravation of some existing factors?
   II. If so, what has caused these changes, in your view?
   III. To your knowledge, do climate- and environment related problems play a role in people's decision to leave their countries of origin?
   IV. If so, how common do you suspect this to be?
   V. Would you say that there have been changes in recent decades in the effect of climate- and environment related issues on migrant flows to South Africa? If so, in what way?

7. **Can you discuss common reasons for immigrants to come to South Africa specifically?**
    I. Have there been changes in recent decades in this regard?
8. **Is it common for migrants to end up in South Africa after having travelled to other places first (in their countries of origin and to other countries), or do most immigrants come to South Africa directly?**
    I. How common is it for immigrants to migrate to other countries after having stayed in South Africa? Does South Africa usually constitute a final destination?
9. **Is it common for immigrants to already have contacts in South Africa (e.g. relatives, friends or acquaintances) before making the journey?**
    I. If so, what role do such social networks play in people's decision to come here?
    II. To what extent do immigrants depend on support and information provided through social networks before and after people have migrated to South Africa?
10. **To your knowledge, is the decision to migrate usually a personal decision for immigrants or do other people commonly play a role in this decision-making?**
    I. If other people play a role, who are these individuals usually?
    II. What role do these individuals generally play? For example, is it common that migration decisions are made on a family level or is it mostly an individual decision?
11. **Can you say something about the duration of the time period most immigrants reside in South Africa? Does the majority permanently settle here, or is it common for people to move back when conditions in their countries of origin have improved?**
    I. How common is circular migration between South Africa and other SSA countries, in your experience?
12. **How easy or difficult is it for immigrants, both documented and undocumented, to find work after arrival in South Africa?**
    I. In which sectors do immigrants, both documented and undocumented, often find work after arrival in South Africa?

13. What are common problems faced by immigrants after arrival in South Africa?

Appendix IV: Participants' informed consent document (migrants)

Name researcher: Robin Jilesen

Supervisor: Dr. Marc Wegerif

Institution: University of Pretoria

Study site: _____

My name is Robin. I am a student at the University of Pretoria pursuing a master's degree in Development Studies. I am conducting research for my dissertation, which is titled ***'Climate change and migration to South Africa: exploring the role of environment-related adversities in mobility decision-making'***. In my research, I try to gain insight into why migrants decide to leave their countries of origin, how they make the decision to leave, and if problems related to climate and environment play a role in their decision. I am using interviews to gather the information that I need for this.

This document gives information about the interview to help you decide if you would like to participate. I therefore want to ask you to carefully read the information below. If you have any questions, please feel free to ask me.

Should you decide to participate, you will receive a signed copy of this informed consent agreement.

1. Voluntary participation

The decision to take part in the interview is yours and yours alone. You do not have to take part if you do not want to. You can stop the interview at any time without having to give a reason. Should you decide to take part, you do not have to answer every question if you do not want to. If you refuse to take part in the interview, this will not affect you in any way.

2. Procedures

If you agree to participate, we will be doing a one-on-one interview between the two of us, which will take about 45 minutes to an hour. During the interview I will ask you several questions about your personal situation and experiences before, during and after you left your country of origin. With your permission, I would like to record the interview on a recording device to ensure that no information is missed.

In case you decide to participate, you have the right to access your data. Should you wish to view your data, you can contact me on the following email-address: u18264469@tuks.up.za.

3. Anonymity

To ensure that it will not be possible for people to know that you were part of this study, your name will not be revealed anywhere, including in the report that will be drawn up. In case I have to refer to you in the report, I will use a pseudonym (another name).

4. Confidentiality

To make sure that information cannot be traced back to you, it will be regarded as confidential. Sensitive information, such as names of persons and specific physical characteristics of people (including yourself), will therefore not be explicitly disclosed in the report. If there are specific details that you regard as particularly sensitive, please feel free to let me know. All information that you give to me will be saved in a password secured device, and will not be shared with others.

5. Affirmation of informed consent

I, the undersigned participant, _____, confirm that the person requesting my consent to take part in this study has told me about the nature of the research, and that I have received, read and understood the above written information. I have had enough time to ask questions and I have no objections to participate in this study. I am participating willingly.

_____ _____

Participant's signature Date

_____ _____

Researcher's signature Date

6. Affirmation of informed consent in case document cannot be read by participant

I, the undersigned researcher, _____, have read and have explained fully to the person named, _____, the participant informed consent document, which describes the nature of the research in which I have asked the person to participate. The person indicated that they understand all the above written information and they have had enough time to ask questions. I hereby certify that the person has no objections to participate in this study and is participating willingly.

_____	_____
Participant's signature or thumbprint	Date
_____	_____
Researcher's signature	Date
_____	_____
Name of witness	Date
_____	_____
Signature of the witness	Date

Appendix V: Participants' informed consent document (key informants)

Name researcher: Robin Jilesen

Supervisor: Dr. Marc Wegerif

Institution: University of Pretoria

Study site: _____

My name is Robin. I am a student at the University of Pretoria pursuing a master's degree in Development Studies. I am conducting research for my dissertation, which is titled ***'Climate change and migration to South Africa: exploring the role of environment-related adversities in mobility decision-making'***. In my research, I try to gain insight into why migrants decide to leave their countries of origin, how they make the decision to leave, and if problems related to climate and environment play a role in their decision. I am using interviews to gather the information that I need for this.

This document gives information about the interview to help you decide if you would like to participate. I therefore want to ask you to carefully read the information below. If you have any questions, please feel free to ask me.

Should you decide to participate, you will receive a signed copy of this informed consent agreement.

1. Voluntary participation

The decision to take part in the interview is yours and yours alone. You do not have to take part if you do not want to. You can stop the interview at any time without having to give a reason. Should you decide to take part, you do not have to answer every question if you do not want to. If you refuse to take part in the interview, this will not affect you in any way.

2. Procedures

If you agree to participate, we will be doing a one-on-one interview between the two of us, which will take about 45 minutes to an hour. During the interview I will ask you questions focusing on your knowledge and expertise in the field of migration and/or environment. With your permission, I would like to record the interview on a recording device to ensure that no information is missed.

In case you decide to participate, you have the right to access your data. Should you wish to view your data, you can contact me on the following email-address: u18264469@tuks.up.za.

3. Anonymity

To ensure that it will not be possible for people to know that you were part of this study, your name will not be revealed anywhere, including in the report that will be drawn up. In case I have to refer to you in the report, I will use a pseudonym (another name).

4. Confidentiality

To make sure that information cannot be traced back to you, it will be regarded as confidential. Sensitive information, such as names of persons and specific physical characteristics of people (including yourself), will therefore not be explicitly disclosed in the report. If there are specific details that you regard as particularly sensitive, please feel free to let me know. All information that you give to me will be saved in a password secured device, and will not be shared with others. If you do not want to discuss certain sensitive topics at the location where we are right now, we can meet at a later moment at another location.

5. Affirmation of informed consent

Affirmation of consent is provided orally and captured on recording.

Appendix VI: Ethical clearance

Faculty of Humanities
Fakulteit Geesteswetenskappe
Lefapha la Bomotho

5 August 2020

Dear Mr RP Jilesen

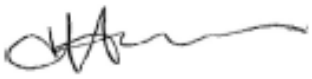
Project Title:	Climate change and migration to South Africa: exploring the role of environment-related adversities in mobility decision-making.
Researcher:	Mr RP Jilesen
Supervisor(s):	Dr MCA Wegerif
Department:	Anthropology and Archaeology
Reference number:	18264469 (HUM025/1119)
Degree:	Masters

I have pleasure in informing you that the above application was **approved** by the Research Ethics Committee on 5 August 2020. Data collection may therefore commence.

Please note that this approval is based on the assumption that the research will be carried out along the lines laid out in the proposal. Should the actual research depart significantly from the proposed research, it will be necessary to apply for a new research approval and ethical clearance.

We wish you success with the project.

Sincerely,



Prof Karen Harris
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Research Ethics Committee Members: Prof I Pikirayi (Deputy Dean); Prof KL Harris; Mr A Bizos; Dr A-M de Beer; Dr A dos Santos; Ms KT Govinder Andrew; Dr P Gutura; Dr E Johnson; Prof D Maree; Mr A Mohamed; Dr I Noomé; Dr C Buttergill; Prof D Reyburn; Prof M Sun; Prof E Tolland; Prof V Thebe; Ms B Tsebe; Ms D Mokalapa