

Climate Change and Human Mobility in the IGAD region

Prepared for the IGAD Secretariat

2018

Table of contents

List of figures.....	4
Executive summary.....	5
Glossary.....	7
Introduction.....	12
1. Linkages between climate change and human mobility.....	16
1. Climate monitoring and forecasting	16
2. Vulnerability of rural areas	17
3. Patterns of human mobility.....	19
4. Tensions and crises	21
5. Climate scenarios for the IGAD region.....	23
1. Rainfall evolution.....	24
2. Temperature evolution.....	26
3. The 4-degree scenario.....	33
6. National assessments.....	35
1. Djibouti.....	35
2. Ethiopia	42
3. Kenya.....	47
4. Somalia.....	52
5. South Sudan.....	61
6. Sudan.....	64
7. Uganda.....	67
7. Pastoralism.....	70
8. Bringing the data together: a regional perspective	75
2. Policies and practices	79
1. Climate change	79
Adaptation policies and programmes	81
2. Food and water security.....	84
Investment in rural communities.....	87
Reliability of livelihoods.....	89
Land rights	89
Cooperation to avoid conflicts.....	90
3. Disaster risk reduction	90
4. Migration management.....	93
Facilitating migration	98
Preventing displacement, and protecting the displaced.....	100
Remittances	101
Planned relocation.....	102
3. Policy recommendations.....	104
Strengthen cooperation.....	104
Improve the data on mobility	104
Address key research gaps.....	105
Engage local researchers	105
Address migration as adaptation in adaptation planning.....	106
Pay more attention to humanitarian situations	106
Create alternative livelihoods for people affected by climate change	106
Provide safety net programmes.....	107

Give more consideration to sea-level rise.....	107
Integrate human mobility into the policy discussions on agriculture and food security.....	107
Support pastoralism	108
Strengthen the inclusion of human mobility in disaster risk reduction.....	108
Use the Kampala Convention as a structural framework for the prevention of displacement and protection of affected populations	109
Pursue the development of instruments to facilitate the free movement of people	109
Conclusion.....	110
References	112
Appendix.....	120

List of figures

Figure 1 – Map of key climate impacts in Africa	13
Figure 2 – Correlation between temperature anomaly and the occurrence of civil wars in Africa. The curve shows that even a slight variation of temperature results in a higher incidence of civil wars in Africa	22
Figure 3 – Correlation between temperature anomalies and political & inter-group violence in East Africa, 1990-2009	23
Figure 4 – The three Representative Concentration Pathways (RCP) considered by ICPAC for the climate scenarios.	24
Figure 5 – Projected rainfall changes over the region by 2030s	25
Figure 6 – Projected rainfall changes over the region by 2050s	26
Figure 7 – Projected minimum temperature changes over GHA by 2030s	27
Figure 8 – Projected maximum temperature changes over GHA by 2030s	28
Figure 9 – Projected minimum temperature changes over GHA by 2050s	29
Figure 10 – Projected maximum temperature changes over GHA	30
Figure 11 – Evolution of mean surface air temperature since the 1970s in the Greater Horn of Africa region.	31
Figure 12 – Food security in the Greater Horn of Africa between 2008 and 2015	32
Figure 13 – Number of food insecure people (IPC phase 3 and above or in need of humanitarian assistance) in the Greater Horn of Africa	33
Figure 14 – Evolution of global greenhouse gas emissions, 1990-2017	34
Figure 15 – Average variation of rainfall and temperature in Djibouti City	35
Figure 16 – Rainfall evolution in Djibouti	37
Figure 17 – Evolution of rainfall in Djibouti City, 1980-2011	37
Figure 18 – Evolution of observed temperatures in Djibouti City, 1980-2011	38
Figure 19 – People in need of humanitarian assistance, Djibouti, 2017	40
Figure 20 – Evolution of the number of persons of concern in Djibouti	40
Figure 21- Mobility in and out of Djibouti, June-December 2017	42
Figure 22- Evolution of the number of persons of concern in Ethiopia	45
Figure 23 – IDPs identified in Ethiopia as of October 2017	46
Figure 24 – Projected numbers of climate migrants’ and internal migrants in Ethiopia	46
Figure 25 – Localisation of mobility patterns in Ethiopia under climate change	47
Figure 26 – Ecological zones of Kenya	48
Figure 27 – Evolution of Kenya’s Human Development Index	48
Figure 28 – Climate change and pastoralist migration in Kenya	51
Figure 29 – Evolution of the number of persons of concern in Kenya	52
Figure 30 – Clan distribution in Somalia	54
Figure 31 – Typical calendar of pastoralist and agropastoralist activities	56
Figure 32 – Normal migration patterns in Somalia	57
Figure 33 – People internally displaced in Somalia as of October 2017	59
Figure 34 – Livestock migration in December 2015	60
Figure 35 – Evolution of the number of persons of concern in Somalia	61
Figure 36 – Evolution of the number of persons of concern in South Sudan	63
Figure 37 – A ‘haboob’ advances towards the capital Khartoum	66
Figure 38 – Evolution of the number of persons of concern in Sudan	67
Figure 39 – Current precipitation variation in Uganda	68
Figure 40 – Evolution of the number of persons of concern in Uganda	70
Figure 41 – Projected numbers of ‘climate migrants’ in East Africa under three scenarios	76
Figure 42 - Hotspots projected to have high levels of climate in-migration and climate out-migration in East Africa	78
Figure 43 – Population density in urban areas of East Africa, 2010 and 2050 (projected)	78
Figure 44 – Countries whose NAPA mentions migration at least 20 times	82
Figure 45 – Adaptation projects ‘mainly related to agriculture’ in each of the 12 UNFCCC categories.	86
Figure 46 – Displacements associated with sudden-onset disasters and conflicts, 2016	91

Executive summary

Africa has long been recognised by the IPCC as the continent most vulnerable to the impacts of climate change. Climate impacts are already harshly felt in the Horn of Africa, a region that has long been marred by humanitarian situations compounded by drought, famine and displacement. The IGAD region is probably the world's region where humanitarian crises, environmental changes and ethnic violence are most profoundly compounded with each other. The region has experienced in recent years, and continues to experience today, significant migration and displacement associated with environmental degradations, in particular desertification, droughts and soil degradation. The displacement is both within countries and international, and the region is home to some of the countries producing and at the same time welcoming the most refugees and displaced persons. The environmental disruptions are consistently related with economic crises and ethnic or political tensions or conflicts, and climate change is expected to further exacerbate the situation.

This report addresses the linkages between climate change and human mobility in the region and the possible evolutions of these linkages. It is organised around three different sections. First it seeks to provide a detailed, state-of-the-art analysis of the linkages between climate change, climate variability and disaster displacement in the IGAD region, as well as their mutual influence on the political and economic drivers of displacement. These linkages are analysed at the regional and national levels, with a focus on three climate impacts in particular: rainfall variability, drought and sea-level rise, the latter being usually not enough considered in the region. The report reviews different evolution scenarios for climate change in the region, and seeks to delineate the specificities of each of the region's countries while outlining common regional patterns. A specific chapter, in particular, addresses common regional challenges for pastoralism.

The report then proceeds to review and analyse key initiatives, strategies, policies and practices, at the international, regional and national levels. The analysis seeks to identify policy and legal gaps, related protection concerns and evidence gaps, in line with the Nansen Initiative Protection Agenda. In doing so, it also points at policy challenges and opportunities regarding the management of migration and displacement associated with climate change impacts in the region. It reviews the key policy instruments and frameworks in four policy areas: adaptation to climate impacts, food security, disaster risk reduction and migration management. This review is conducted at the international, regional and national levels, with a view to outlining the best practices and opportunities contained in these policies and frameworks.

The report concludes with a series of policy recommendations in each of these four policy areas, which also seek to identify key research recommendations that would help inform better policies. The recommendations point at the need to increase regional cooperation on these issues, as well as at the possibilities of mainstreaming displacement and migration issues into climate adaptation planning, disaster risk reduction and development policies.

Glossary

Adaptation

“In human systems, the process of adjustment to actual or expected climate and its effects, which seeks to moderate harm or exploit beneficial opportunities.” (IPCC 2014). The Cancun Framework for Adaptation, adopted in 2010, recognised human mobility as an effective adaptation strategy. “Adaptation in this context of mobility is understood in broad terms, so as to include forced and voluntary migration, internal and cross-border migration, positive and negative impacts of environmental degradation and climate change on migration, displacement and planned relocation” (Melde et al. 2017)

Climate Change

“A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to other natural climate variability that has been observed over comparable time periods.” (UN Framework Convention on Climate Change, 1992. Article 1)

Climate Variability

Climatic variability can be described as the annual differences in values of particular climatic variables. As part of the new ‘normal’ climate - over both limited duration and long-lasting periods - current climate projections suggest that extreme weather events will become more frequent and unpredictable in sub-Saharan Africa (Cooper et al. 2008; Omondi et al. 2014).

Disaster

“A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.” (UNISDR 2009)

Disaster Risk Reduction

“Denotes both a policy goal or objective, and the strategic and instrumental measures employed for anticipating future disaster risk; reducing existing exposure, hazard, or vulnerability; and improving resilience.” (IPCC 2014)

Displacement

“The involuntary movement, individually or collectively, of persons from their country or community, notably for reasons of armed conflict, civil unrest, or natural or man-made disasters” (IOM, 2011). A displacement is considered as protracted when the people have been displaced for a number of years (typically

three to five) and there is no durable solution – such as repatriation, integration into host communities or resettlement – in sight.

Drought

“The naturally occurring phenomenon that exists when precipitation has been significantly below normal recorded levels, causing serious hydrological imbalances that adversely affect land resource production systems.” (UNCCD, 1994)

Environmental Change

Changes in the physical and biogeochemical environment, over a large scale, either caused naturally or influenced by human activities (including industrial accidents), either through fast on-set or slow-onset events. As ecosystem services and exposure to hazard are important drivers of migration, global environmental change will affect the risk calculations involved in moving and people’s decisions to stay or move from their settlements. Environmental change thus affects the environmental drivers of migration (Foresight, 2011). Environmental change includes both environmental degradation and climate change, which are often interlinked with each other.

Extreme weather events

An extreme weather event is usually defined as an event that has extreme values of certain important meteorological variables above or below given pre-existing high thresholds in each extreme of the standard range of the variable (IPCC 2012).

Famine

A famine is a state of generalised food shortage. According to the Integrated Food Security Phase Classification (IPC), a famine can be declared only when certain measures of mortality, malnutrition and hunger are met: at least 20 per cent of households in an area face extreme food shortages with a limited ability to cope; acute malnutrition rates exceed 30 per cent; and the death rate exceeds two persons per day per 10,000 persons.

Food security

“A state that prevails when people have secure access to sufficient amounts of safe and nutritious food for normal growth, development, and an active and healthy life.” (IPCC, 2014)

Flood

“The overflowing of the normal confines of a stream or other body of water, or the accumulation of water over areas not normally submerged. Floods include river (fluvial) floods, flash floods, urban floods, pluvial floods, sewer floods, coastal floods, and glacial lake outburst floods.” (IPCC, 2014)

Hazard

“A potentially damaging phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.” (UNISDR, 2009). A natural hazard is a “natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.” (UNISDR, 2009)

Livelihood

“Livelihoods comprise the capabilities, material and social assets, and activities required to sustain a means of living” (Chambers and Conway, 1991). Livelihood options depend on available human, social and financial capital and on the socio-economic, natural and political context in which people live. They determine how people occupy and use their environment; what options they are faced with in the face of hazards; what impacts they suffer from such hazards; and how effectively they recover. (Melde et al. 2017)

Migration

“The movement of a person or a group of persons, either across an international border, or within a State. It is a population movement, encompassing any kind of movement of people, whatever its length, composition and causes; it includes migration of refugees, displaced persons, economic migrants, and persons moving for other purposes, including family reunification” (IOM, 2011:62–63).

Mobility (Human mobility)

“Population mobility [in the context of environmental change] is probably best viewed as arranged along a continuum ranging from totally voluntary migration [...] to totally forced migration” (Hugo, 1996). In this paper, human mobility is used as an umbrella term to encompass all types of population movements: migration, displacement, and planned relocation.

Internally Displaced Persons (IDP)

“Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border.” (United Nations 1998).

Nomad

An individual, often a member of a group, who does not have a fixed place or residence and migrates from place to place, often searching for water, food, or grazing land. (IOM, 2011)

Pastoralism

“A livelihood strategy based on moving livestock to seasonal pastures primarily in order to convert grasses, forbs, tree-leaves, or crop residues into human food. The search for feed is however not the only reason for mobility; people and livestock may move to avoid various natural and/or social hazards, to avoid competition with others, or to seek more favourable conditions. Pastoralism can also be thought of as a strategy that is shaped by both social and ecological factors concerning uncertainty and variability of precipitation, and low and unpredictable productivity of terrestrial ecosystems.” (IPCC, 2014)

Refugee

According to the 1951 UN Refugee Convention and the 1967 Protocol, refugees are persons who have fled their country because of a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group, or political opinions. Regional refugee conventions, namely the 1969 Organisation of the African Unity Convention and the 1984 Cartagena Declaration also regard groups of people as refugees who flee because of external aggression, occupation, foreign domination or events seriously disturbing public order. Though the term ‘climate refugee’ is widely used in public and policy discourses, it has no grounding in international law, and is therefore not used in this report.

Relocation (and Planned relocation)

“A process whereby a community’s housing, assets, and public infrastructure are rebuilt in another location. Relocation is sometimes perceived to be the best option after a disaster for one or more of the following reasons: (1) people have already been displaced by the disaster; (2) their current location is judged to be uninhabitable; or (3) relocation is considered to be the best option to reduce vulnerability to the risk of future disasters. In fact, relocation may be appropriate when the disaster is the result of site-specific vulnerabilities.” (World Bank, 2010) Relocation can be planned in areas that are expected to become uninhabitable to avoid a crisis situation and to ensure sustainability (Melde et al. 2017).

Risk

“The potential for consequences where something of human value (including humans themselves) is at stake and where the outcome is uncertain. Risk is often represented as probability of occurrence of hazardous events or trends multiplied by the consequences if these events occur.” (IPCC 2014)

Vulnerability

“The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.” (IPCC 2014)

Introduction

The Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report, deemed the African continent one of the most vulnerable in the world to the impacts of climate change (Boko *et al.*, 2007). African regions are expected to be the most affected by climate changes and climate vulnerability such as hotter and drier conditions, rainfall variability, extreme events, as well as progressive environmental changes such as sea-level rise, land degradation and desertification. As the Draft African Union Strategy on Climate Change (2014)¹ points out, “Africa is the most vulnerable continent to climate variability and change, a situation that is aggravated by the interaction of ‘multiple stresses’, including high dependence on rain-fed agriculture, widespread poverty and weak adaptive capacity.” These climate change impacts are thus aggravated by the interaction of climate change with existing development challenges that differ across sub-regions and countries but broadly include poverty, conflict and humanitarian crises, weak infrastructure, governance failures, limited access to various forms of capital, livelihood fragility, and deteriorating food security (Rain *et al.*, 2011).

Even if broken down into sub-regions, climate-related drivers of human mobility, patterns and impacts are spectacularly heterogeneous in African areas, both rural and urban (Zickgraf *et al.*, 2016). Thus, rather than falsely projecting a singular image of this relationship on the African continent, one needs to highlight the continent’s ability to demonstrate the aforementioned complexity and diversity that is inherent in the climate change-mobility nexus. Countries of the IGAD region encapsulate the variety of impacts that will affect the African continent, as shown in the map below.

¹http://www.un.org/en/africa/osaa/pdf/au/cap_draft_aclimatestrategy_2015.pdf

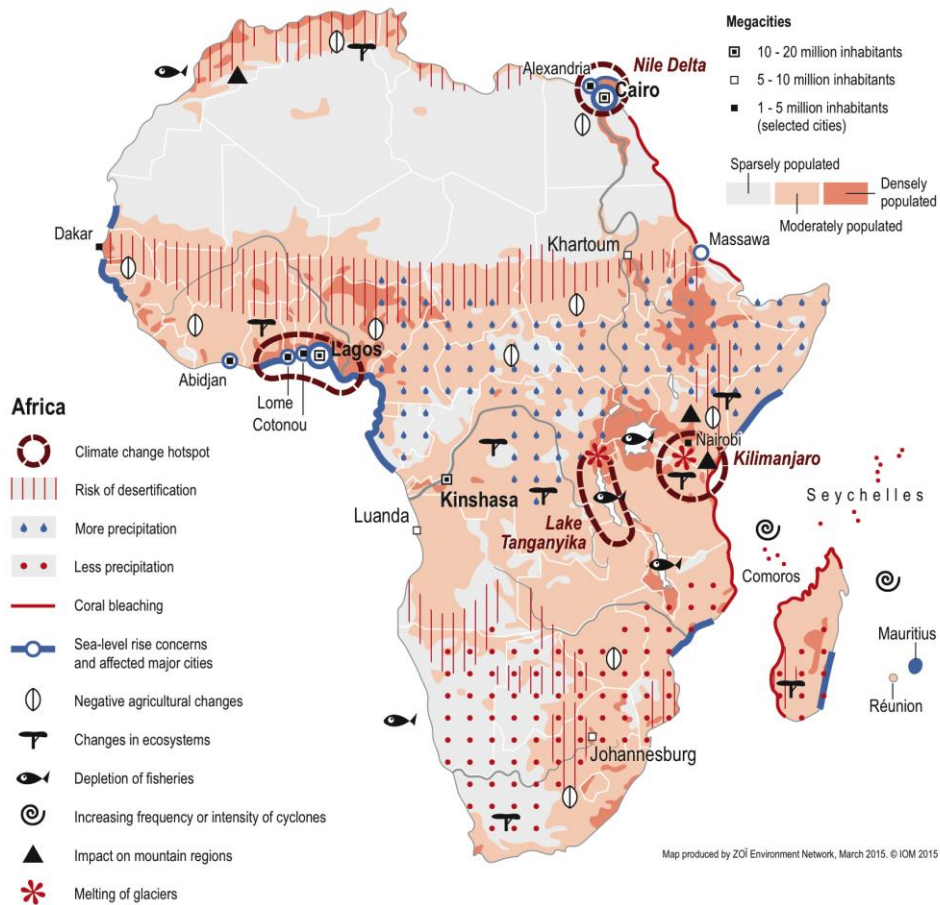


Figure 1 – Map of key climate impacts in Africa. Source: MECLEP project.

At the time of writing this report, the IGAD region was marred by a humanitarian situation compounded by drought, famine and displacement. South Sudan, Somalia and Eritrea are the countries most affected by the crisis. Millions of South Sudanese have been displaced by the crisis, both internally and across borders, as well as hundreds of thousands Somalis. Half of the population of Somalia are in need of humanitarian assistance, while intense fighting in the Lower and Middle Shabelle regions of the country continues to draw people towards the already overcrowded camps of Mogadishu.

Yet such a crisis is hardly the first one to hit the IGAD region, which is probably the world’s region where humanitarian crises, environmental changes and conflicts are most profoundly compounded with each other. This report addresses the linkages between climate change and mobility in the region and the possible evolutions of these linkages. It reviews the policies and practices addressing these linkages and

provides recommendations to foster the implementation of the Nansen Initiative Protection Agenda.

The region has experienced in recent years, and continues to experience today, significant human mobility associated with environmental changes, in particular desertification, droughts and soil degradation. These environmental changes are often interlinked with economic crises and tensions or conflicts, as the current humanitarian situation in the Horn of Africa and Yemen shows. In the future, climate change is expected to considerably reduce the availability of natural resources in the region, leading not only to direct mobility, but also exacerbating other forms of mobility through indirect pathways.

Therefore, this paper pursues the following objectives:

- **Improve the understanding of the linkages between climate change and human mobility in the IGAD region.**

In order to achieve this objective, the paper seeks to relate the climate data produced by IGAD Climate Prediction and Application Centre (ICPAC) to disaster-related displacement data produced by the International Organisation for Migration (IOM), Internal Displacement Monitoring Centre (IDMC), the Platform on Disaster Displacement (PDD) and other organisations and agencies. Other scholarly studies and key expert interviews are also mobilised to pursue this objective. It should be noted, however, that no fieldwork was performed in the region.

- **Assess existing policies and practices, at the regional and national levels,** which seek to manage displacement risks and respond to human mobility, including to disaster-induced displacement across borders.

In order to achieve this objective, the paper reviews different policy initiatives and strategies pertinent to climate change and mobility in each of the countries of the IGAD region, as well as at the regional level. This assessment informs the formulation of recommendations for the implementation of the Nansen Initiative Protection Agenda in the region.

A specificity of the report lies in its regional approach: while countries of the IGAD region have diverse governance regimes and economic structures, they often face similar environmental threats. This is why the report adopts a regional approach that seeks to underline key regional challenges and solutions, beyond national specificities. Building on national assessments, the report seeks to go beyond a collection of individual case-studies to address joint concerns and the possibilities of mutual learning.

The report is divided into **three major sections**. The first section reviews the existing evidence on the linkages between climate change and human mobility in the IGAD region. This review seeks to connect ICPAC climate data with data on human mobility (and disaster-induced displacement in particular) produced by different agencies and organisations. Specific attention is paid to pastoralist communities, as they are often on the frontline dealing with climate impacts, and their mobility patterns can induce tensions for resources.

The second section describes the different policy initiatives and strategies that have been developed at the national and regional levels to address the interactions between climate change and human mobility. A specific attention is paid to the best practices implemented by IGAD member-states, and to the possibilities of their replication across the region. The policies reviewed in this section include human rights safeguards, migration and policies and disaster risk reduction, but also measures pertaining to agriculture and food security. These measures are thematically ordered, contrary to the first section, which is organised by country.

The third section delineates a number of policy recommendations, with a view to facilitate the implementation of the Nansen Initiative Protection Agenda in the region. This section is informed by the review of existing policies and practices in the region, and suggests avenues for further regional and international cooperation.

1. Linkages between climate change and human mobility

Although about two thirds of the IGAD region are arid or semi-arid, the region also comprises large areas of forests and savannah, as well as a coastal and island region. The impacts of climate change will therefore manifest themselves very differently, in a region that is home to more than 230 million people, with many ethnic groups and families spanning over different countries (Nansen Initiative Secretariat 2015).

In recent years, the region has experienced very diverse patterns of human mobility. While millions were displaced as a result of humanitarian crises, migration remained a key component of many adaptation strategies to climate impacts and other environmental changes – either through nomadic pastoralism or rural-urban migration, or other forms of mobility.

At the same time, large numbers of migrants from the Horn of Europe were seeking asylum in Europe, often in very perilous conditions. In 2016 and 2017, Somalia and Sudan were the main countries of origin from the IGAD region, with figures varying between 10,000 and 15,000 applications per country and per year (Eurostat). The journey from the Horn of Africa to Europe was often made in very perilous conditions: according to the International Organisation for Migration, 1,678 migrants from Africa perished during their journey in 2017. The figure is however likely to be much higher, as the origin of more than 3,000 deceased migrants could not be formally established. Furthermore, the data are not disaggregated per region², making it impossible to estimate the number of migrants from IGAD countries who perished during their journey.

While this migration is often characterised as economic migration, its environmental rootcauses cannot be ignored : in a recent paper, Missirian and Schlenker (2017) found out that asylum applications in Europe respond to temperature fluctuations in a non-linear fashion. By the end of this century, they predicted that asylum applications to Europe could increase by 28% under RCP scenario 4.5 (i.e a global temperature increase of about 2°C by 2100) and 188% under RCP scenario 8.5 (i.e. a global temperature increase of about 4°C by 2100).

1. Climate monitoring and forecasting

² Full data are available at <https://missingmigrants.iom.int/>

While studies on the climate-mobility nexus in the region as a whole remain scarce, the availability of data on climate variables is far higher than in other regions of the world, thanks to the work of ICPAC, IGAD Climate Prediction and Application Centre, which was established in 2003. ICPAC produces continuous climate monitoring and forecasting, thanks to regular climate and weather bulletins, prediction and early warning. It has developed programmes with regard to data management, remote-sensing and GIS; disaster risk management, climate monitoring and prediction, climate applications and food security. Therefore, ICPAC is in the position to play a pivotal role in the prevention and early warning of major environmental disruptions such as droughts and floods. ICPAC features an extensive geo-portal of web-based maps and applications that constitute an integrated regional early warning system. This is a key asset for the region, which is essential for drought hazard and flood hazard monitoring in particular. Such features can be essential components of the updating of the ICPAC/WFP Climate risk and Food Security atlas. The atlas seeks to serve as a reference document for policy-makers and natural resources managers, assembling data on climate change and food security. ‘It maps past climate trends, identify geographic patterns of vulnerability, previous climate shocks and stressors align with trends in food security and underscores the extent to which different sources of livelihoods are sensitive to climate variables at regional, national and some low administrative levels’ (ICPAC/WFP 2017).

The role of ICPAC however is not confined to climate monitoring, but it is also developing activities with regard to climate predictions for the region. The development of climate scenarios for the region as a whole, but also for each individual country, needs to become a key element of policy-making when addressing the climate-mobility nexus and its diverse ramifications. Indeed, predictions derived from global models, as those used in the IPCC reports, are often of limited interest for regional and national policy-makers, as it is difficult to identify national or local impacts from such models. ICPAC could therefore play an essential role in downscaling such models to the regional and national levels, providing relevant, context-specific climate information that would be of direct use to policy-makers. This can be a key asset of the region, not just in the prevention of humanitarian crises, but also in the management of migration flows related to climate impacts.

2. Vulnerability of rural areas

In terms of agriculture, the IPCC stated with high confidence that “climate change will interact with non-climate drivers and stressors to exacerbate vulnerability of agricultural systems, particularly in semi-arid areas” of Africa (Niang *et al.*, 2014: 1202). Across a range of scenarios, the impacts of climate change on the agricultural

sector in Africa, dominated by smallholder farming and largely rainfed, are considered to be very significant to economies and livelihoods. According to NEPAD (2013), the agricultural population in Africa stands at 530 million people, and is expected to exceed 580 million by 2020. The population relying on agriculture accounts for 70% of the total population in East Africa. Climate change therefore has the potential to dramatically influence the size and characteristics of human settlement and economic dynamics in the whole region.

Increased warming also means that the Indian Ocean dipole, which interacts with more frequent El Niño events, is more extreme (Cai et al. 2014). The 1997/98, 2002/03, 2009/10, 2006/07 and 2015/16 El Niño events brought enhanced rainfall to parts of East Africa, followed by warmer sea surface temperature conditions in the Western Indo-Pacific (NOAA 2015). Excessive rains and flooding contributed to soil erosion, a difficult harvest, and ultimately to drying soils. The same warm, wet air masses change the prevailing winds to a warm, dry wind blowing eastwards from Africa across the Indian Ocean. This is devastating for communities in the Horn of Africa who rely on moisture from the Indian Ocean to generate the short rains that run from October to December and the long rains from March to June. Erratic and below average rains in East Africa were experienced in 1999, 2000, 2001, 2004, 2008, 2009, 2011 and 2017. The 2016 short rains were a month late in many areas of the East and Horn of Africa or failed entirely.

Drought is perhaps the first image that comes to mind when thinking of climate hazards in the IGAD countries. The most affected areas typically include southern Somalia, northeastern Kenya, and southeastern Ethiopia (Nansen Initiative Secretariat 2015). A recent FAO report found that between 1980 and 2014, droughts affected over 363 million people in Sub-Saharan Africa, of whom 203 million were in Eastern Africa (FAO 2016). A mere five countries accounted for nearly half of all drought-affected populations, with the leading two countries – Ethiopia and Kenya – being located in the IGAD region. As much as 84% of the economic impact of drought falls on agriculture, an enormous figure considering the proportion of the population dependent on the sector. Droughts in Kenya (2008–2011), Djibouti (2008–2011) and Uganda (2010–2011) cost a total of USD 11.4 billion in loss and damage to the countries' agriculture sectors and a total of USD 13.6 billion to all sectors combined (FAO 2016).

Humanitarian agencies have long been concerned with the displacements related to recurring droughts, especially those displaced in the Horn of Africa. Since the majority of rural agriculture in Africa is rain fed, it makes sense that deteriorations in environmental conditions (e.g. rainfall variability and land degradation) will affect livelihoods and other socio-economic conditions negatively, which can in turn induce out-migration from rural areas (Henry *et al.*, 2004). However intuitive as this may seem, the little evidence that we have examining this link between

migration and drought in Africa is contradictory at best: there is well-known documentation of rural displacement attributed to droughts in Africa, particularly in the Sahel and Ethiopia (c.f. Ginnetti and Franck, 2014). But studies in Africa have also challenged the causal link between drought and migration – or at least called for a more nuanced assessment (Kniveton *et al.*, 2008). More recently, a study conducted by Akumu and Frouws, for the Regional Mixed Migration Secretariat of East Africa and Yemen (RMMS), concluded that droughts in the region contributed to **increased internal and regional migration, but limited international migration** (Akumu and Frouws 2017). The study was however conducted in relation to the humanitarian crisis of 2017, and would need to be confirmed with studies addressing a longer timeframe.

Migration, especially long-distance migration, requires some degree of **social capital** (e.g. social networks). As Jónsson (2010) pointed out, based on a review of African case studies, a community, household or individual that lacks facilitating networks may be less able to migrate during drought periods.

Alongside drought, flooding and heavy rainfall are major drivers of migration in Africa. Flooding affected approximately 44 million people from 2000 to 2015 (CRED 2016). Seasonal flooding is often interrelated with drought, ‘with flooding often occurring in areas previously affected by drought due to severe land degradation and erratic fluctuations in rainfall’ (Nansen Initiative Secretariat 2015).

Intertwined with flooding is the impact of sea-level rise as its mobility impacts are often inseparable in rural coastal areas. Due to the permanent nature of sea-level rise, it is more likely to induce permanent migration. However, we still have very few studies specifically examining migratory responses to sea level rise, especially from rural areas. It is important to note that current sea level rise and coastal flooding are already driving displacement alongside more voluntary forms of migration, where local livelihoods are increasingly difficult to sustain due to soil salinization, for example (Zickgraf *et al.*, 2016; Zickgraf and Gemenne 2015).

Planned relocation has also occurred in response to or in anticipation of droughts, and is usually conducted within a relatively short distances. Such planned relocation processes have taken place in Ethiopia, Somalia, Sudan and South Sudan, and were conducted either by the authorities or by clans and local bodies (Nansen Initiative Secretariat 2015).

3. Patterns of human mobility

The majority of migration flows observed in response to environmental change are within country boundaries (Jäger *et al.*, 2009; Tacoli, 2009; Afifi *et al.*, 2016), but studies have also shown that African rural communities affected by drought as well

as other slow-onset events also cross international borders especially where borders are more permeable such as the Sahel (Seck, 1996; Findley, 1994), and in borderland areas where international migration means a short-distance movement. This is the case for all types of mobility, from migration to displacement: while most displaced are internally-displaced, droughts have also induced cross-border displacements – that was the case for the 2010 drought in Somalia, for example. Naudé (2009), using a dynamic panel data model, found that disasters linked to natural hazards do have a positive correlation with international migration from Sub-Saharan Africa.

Human Mobility is a very common and diversified phenomenon in the IGAD region. Outside of the region, common destinations include South Africa, Yemen and Saudi Arabia (via Djibouti) and Europe. Migration routes from East Africa to Europe typically go through the hubs of Addis Ababa in Ethiopia and Khartoum in Sudan. The combination of different drivers of human mobility along the way makes it difficult to disentangle them from each other. This poses a very significant policy challenge, as the environmental drivers of migration are mixed with other drivers, making it difficult to single out ‘disaster displaced persons’, ‘environmental migrants’, and ‘economic migrants’, for example.

The threat to agricultural production posed by climate change, particularly in terms of precipitation, has been identified as potentially increasing mobility out of rural areas towards urban areas considering the relative importance of rural, agricultural livelihoods in sub-Saharan Africa (c.f. Barrios *et al.*, 2006). Africa has witnessed massive amounts of urban growth in the past decades, but currently rural dwellers represented nearly 60% of the total population, of which more than 50% were agriculture-based (FAOSTAT, 2015; UN DESA, 2013). Cities like Nairobi, Addis Ababa and Kampala have experienced very significant demographic growth in the past few years (UN Habitat 2014). Despite the importance of rural–urban mobility, case studies from Africa have also demonstrated the importance of rural–rural mobility (Tacoli, 2009).

Therefore, rather than assuming *a priori* urbanization linked to climate change, we must also investigate the conditions that lead to rural–rural mobility. Similar findings were observed for pastoralist communities in East Africa, in the Karamoja cluster, the Maasai cluster and the Mandera-Somali cluster. IGAD has conducted a mapping of such transhumance movements in the Karamoja cluster.

As far as the impacts of such mobility patterns on rural communities in Eastern Africa are concerned, the evidence – much like the migration–development debate – is mixed. Case studies in East African countries connecting migration specifically to its impacts on rural adaptive capacity to climate change are lacking. However, there is evidence that migration, whatever the drivers, has the potential to build resilience in communities of origin and to support adaptation and mitigation efforts

there. Remittances have demonstrated their potential in financing innovation and intensification of farming in Africa (Tacoli, 2009; Tiffen, 2003); however, most migrant-generated remittances will be prioritized for meeting basic household needs such as food, clothing, and shelter. In many countries of East Africa, remittances are first and foremost used to keep the lifeline open. A report by Oxfam America has shown the pivotal role that remittances have played during the food crisis of 2011 in Somalia (Orozco and Yansura n.d.), and media reports indicate that remittances provided a lifeline for many Somalis affected by the famine of 2017.

Remittances are a critical component of food security for migrant-sending households, as this money is often spent on food items (Melde et al. 2017).

Aside from the previously given examples of precarious and dangerous mobility from rural areas to urban African megacities, a specific threat to certain populations is the competition over natural resources that climate change can incite partially through human mobility. A typical example relates to the Darfur conflict, which marred the IGAD region for years and has been linked to environmental changes, as nomadic pastoralists from the North left their habitual area as a result of soil degradation, which led to conflict with the sedentary farmers living in the South of the region.

A study from the Security in Mobility initiative (2010) had called for a regional normative framework to facilitate and protect pastoralists' mobility, through an integrated approach promoting climate change adaptation. Following a mapping of transhumance movements in the Karamoja cluster, IGAD is currently working on a transhumance protocol that shall respond to this call.

4. Tensions and crises

Climate change impacts – be they incremental or brutal – will further weaken a number of fragile or failed states, and fuel competition for resources. They will also affect areas already degraded. Studies show significant correlations between temperature changes and the occurrence of civil wars in Africa, for example, as shown in the graph below (Hsiang et al. 2013, Gemenne et al. 2014).

National (Africa): Civil war incidence

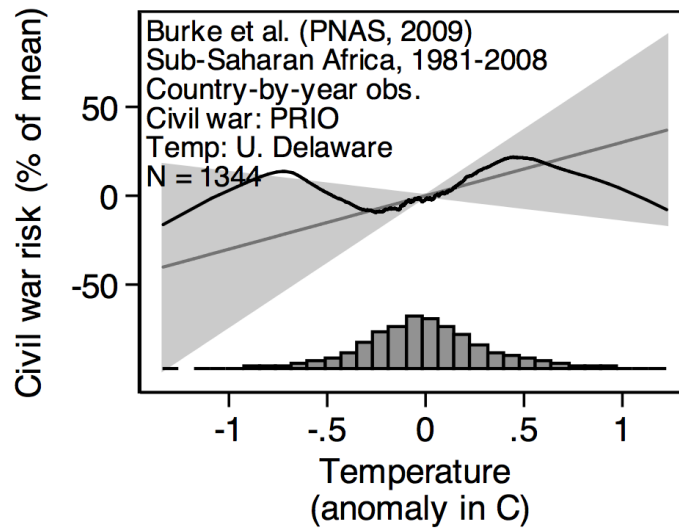


Figure 2 – Correlation between temperature anomaly and the occurrence of civil wars in Africa. The curve shows that even a slight variation of temperature results in a higher incidence of civil wars in Africa. Source: Hsiang et al. 2013.

It is essential to realise that environmental changes also weigh on other drivers of migration, such as economic hardships or political tensions. Thus environmental disruptions should not be considered only as direct drivers of migration, but also as factors weighing on other drivers that lead to flows of refugees and migrants: environmental disruptions also affect the economic and political conditions that lead to migration and displacement. Indeed, changes in temperature or rainfall will usually have a very significant impact on the economic resources of rural populations, for example. Therefore, in most cases the policy challenge will often be to identify the role of environmental drivers in migration dynamics rather than singling out a specific migration category.

In recent years, the IGAD region has been marred by a number of humanitarian crises, political tensions, and famines. Though such crises cannot be labelled as ‘climatic crises’ as such, the role of environmental disruptions in the triggering of such crises cannot be ignored. For example, recent conflicts in the Equatoria region of South Sudan are linked to the pastoralists’ migration from Bahar el Gazel, because of food shortages (FAO 2016). As stated in the ICAPC/WFP Atlas of Climate risks and Food security, ‘conflict and food insecurity are inextricably linked, each triggering and reinforcing the other (...) Some conflicts occur because member of one ethnic group cause friction with another over grazing land or water for animals. Such conflicts usually arise and result in violence among pastoral communities, where there is competition for scarce resources. Cattle raiding is a normal way of restocking during drought, spread disease and marriage

arrangements. Resource conflicts are exacerbated because of dwindling of resources, population pressure, change in livelihood strategies of communities and also changes in political structures and processes within the country intensify environmental conflicts.’ (ICPAC/WFP 2017).

In the Horn of Africa, studies show that conflict occurrence is positively correlated with temperature anomalies, but not with precipitation anomalies. Temperatures colder than usual decrease the risks of conflict, while a temperature higher than normal by 1°C increases the risk of conflict by 29.6% (O’Loughlin et al. 2012).

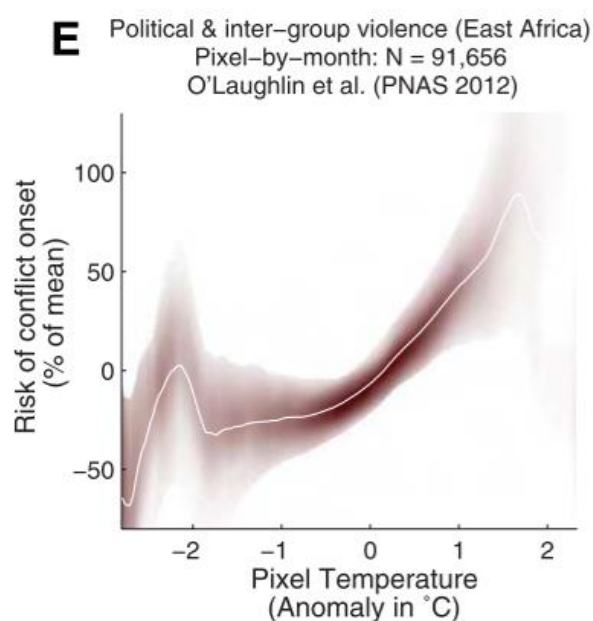


Figure 3 – Correlation between temperature anomalies and political & inter-group violence in East Africa, 1990-2009.
Source: O’Loughlin et al. 2012.

Furthermore, the use of environmental resources can also be a trigger for tensions, leading to further migration and displacement. The cutting of trees for firewood, for example, can cause tensions between refugees and host communities. As noted by UNHCR and The World Bank (2015), ‘since the locals themselves depend on wood-based fuels for cooking, and since the refugee hosting areas often are rain-deficient and have historically faced environmental degradation, the presence of a large number of refugees has tremendously exacerbated the environmental problem’.

5. Climate scenarios for the IGAD region

Projected scenarios for the region point towards warmer temperatures across the region, while long rains (from March to September) are expected to decrease, and short rains (October-December) are expected to increase. An ICPAC report from March 2016 explored the projected rainfall and temperature changes for the region

under three climate scenarios (Endris 2016). The three scenarios consider three different levels of greenhouse gas emissions (representative concentration pathways, or RCP): namely, low- (RCP2.6) and mid- (RCP4.5) and high-level (RCP8.5) emission and concentration scenarios.

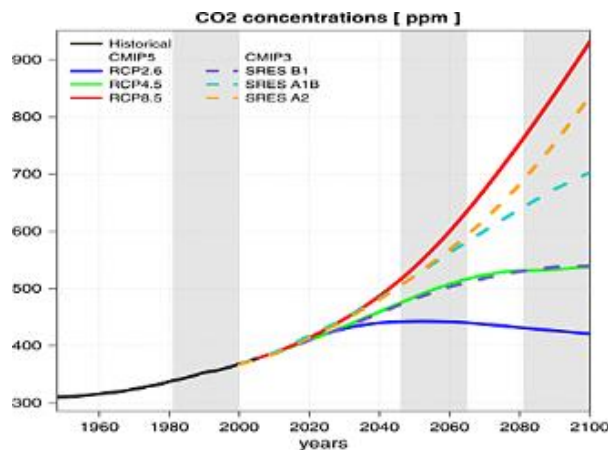


Figure 4 - The three Representative Concentration Pathways (RCP) considered by ICPAC for the climate scenarios.

1. Rainfall evolution

The three scenarios considered did not yield major differences when it came to rainfall changes across the region: 'the projected changes in the annual rainfall component under each of the three different scenarios and time windows show relatively little change compared to the projected changes in the seasonal rainfall components' (Endris 2016: 4). The short rains, from October to December, are expected to increase by over 50% in most parts of the IGAD region. By contrast, the long rains, from March to September, are expected to decrease by 10 to 70% over most parts of the region, except in the Southeastern part of the Lake Victoria basin, where rainfall could increase between 10 and 25% between March and May.

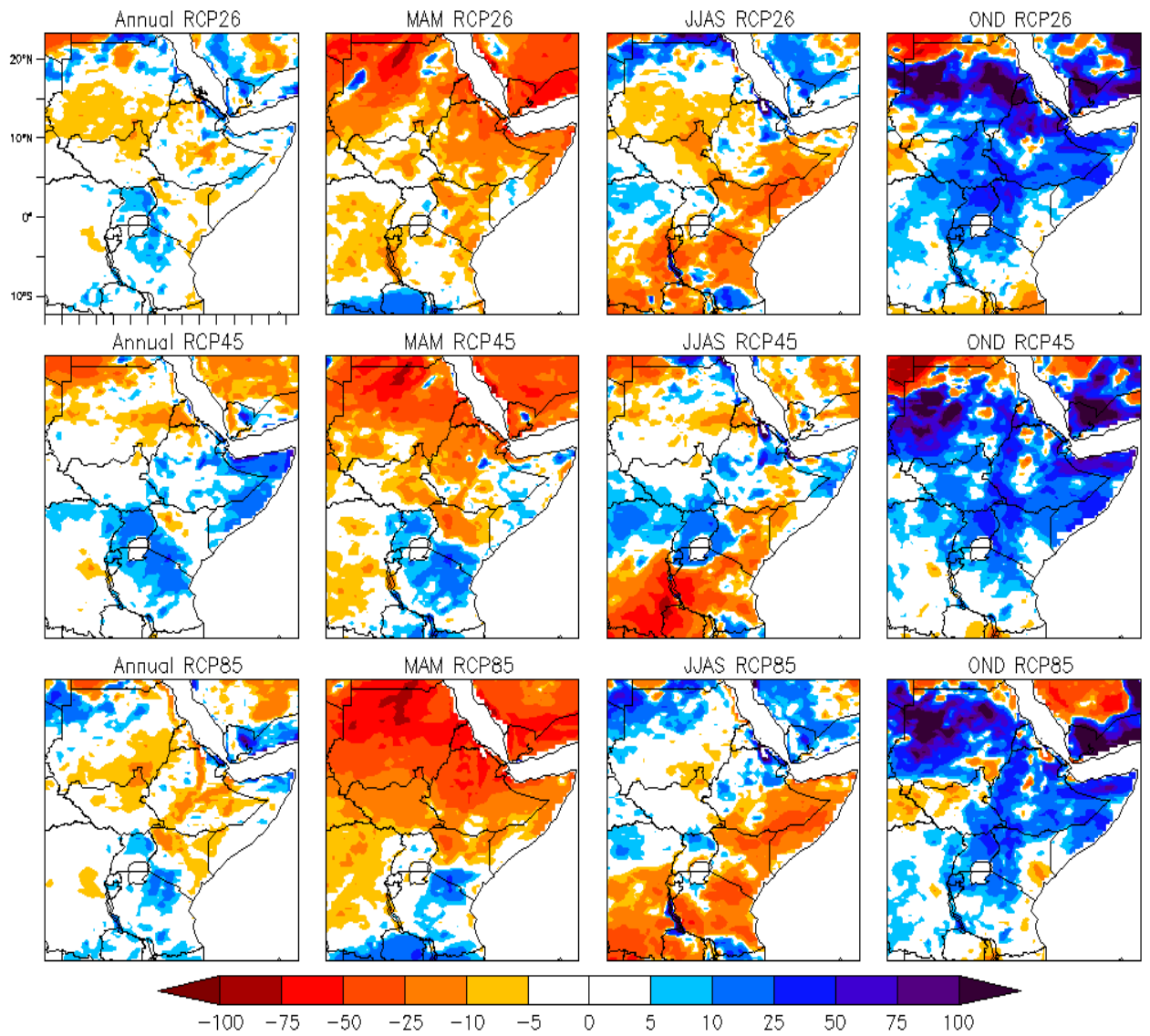


Figure 5 – Projected rainfall changes over the region by 2030s in annual (1st column), March-May (2nd column), June-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC

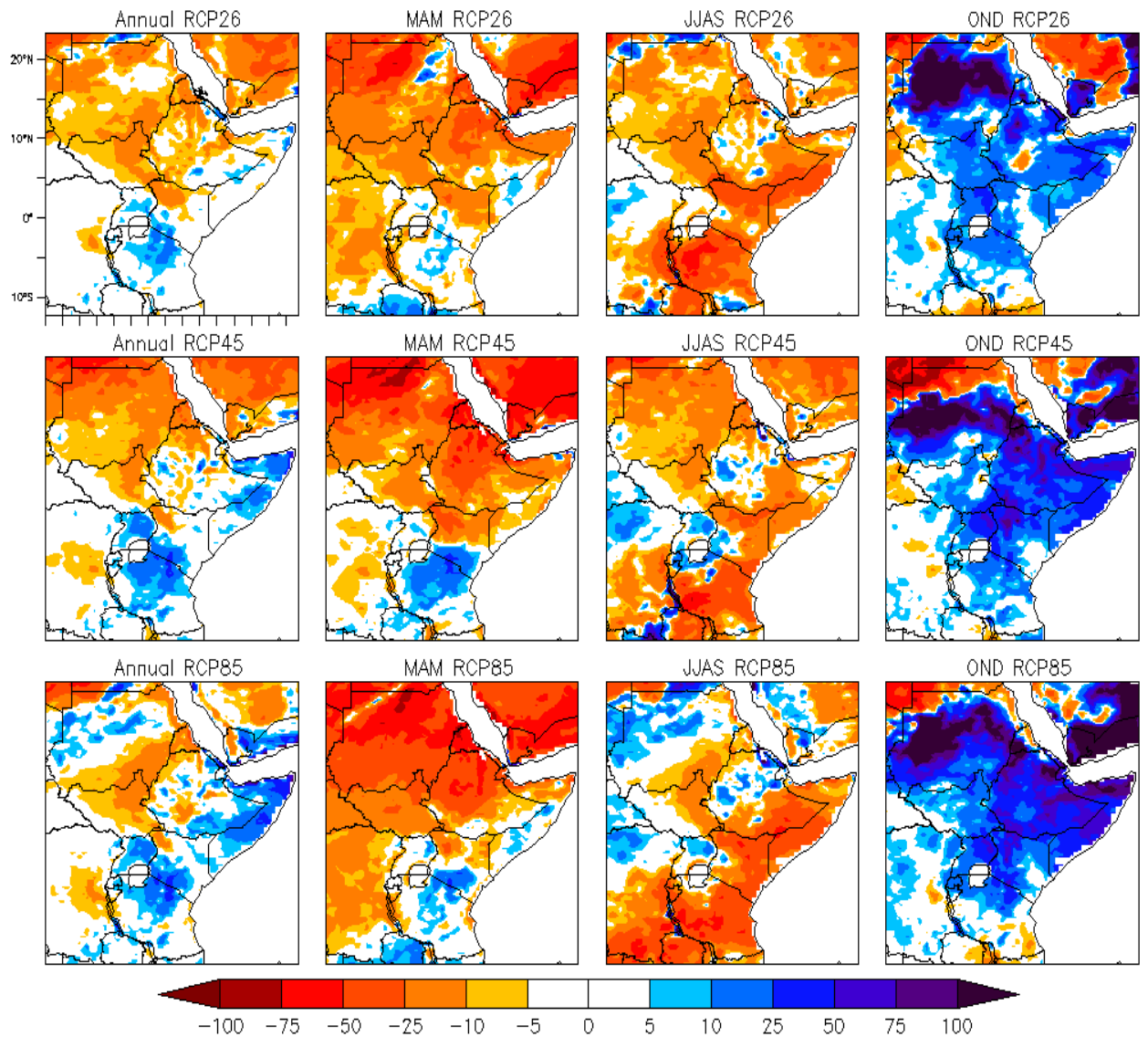


Figure 6 – Projected rainfall changes over the region by 2050s in annual (1st column), March-May (2nd column), June-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC

2. Temperature evolution

Contrary to rainfall, the three scenarios show ample differences in temperature evolutions – both according to scenarios and time windows. All areas of the IGAD region will get warmer in the future, and the warming will be more significant between March and September than between October and December. The greater increase will be felt in minimum temperatures: ‘by 2030 and 2050, almost all the (...) region will likely be 1.0 to 3.0°C warmer than the base period’ (1970-2000). Maximum temperatures, on the other hand, are likely to increase by 1.0°C to 2.5°C across most of the region by 2030, though there will be spatial variations.

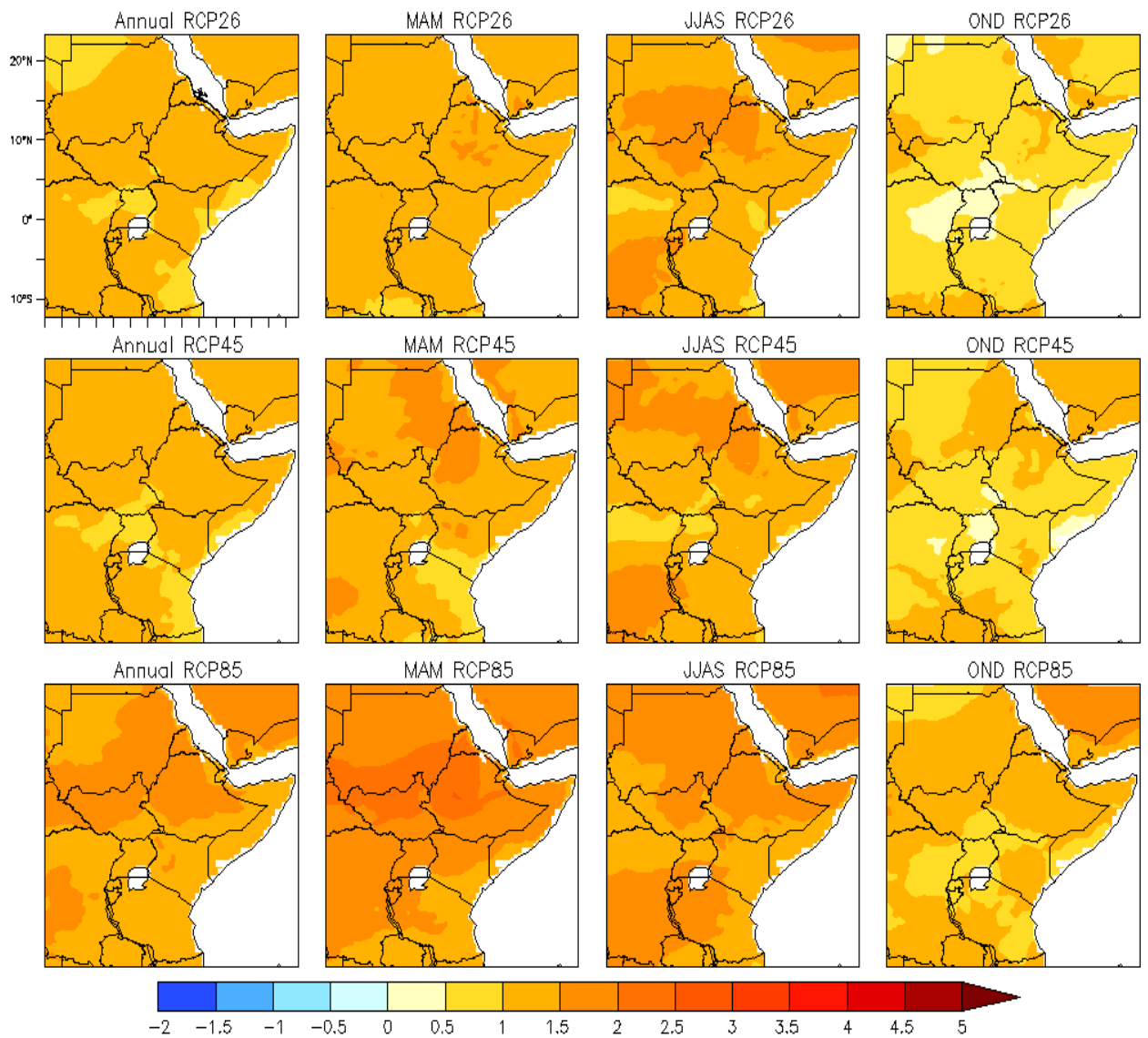


Figure 7 - Projected minimum temperature changes over GHA by 2030s in annual (1st column), March-May (2nd column), July-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC.

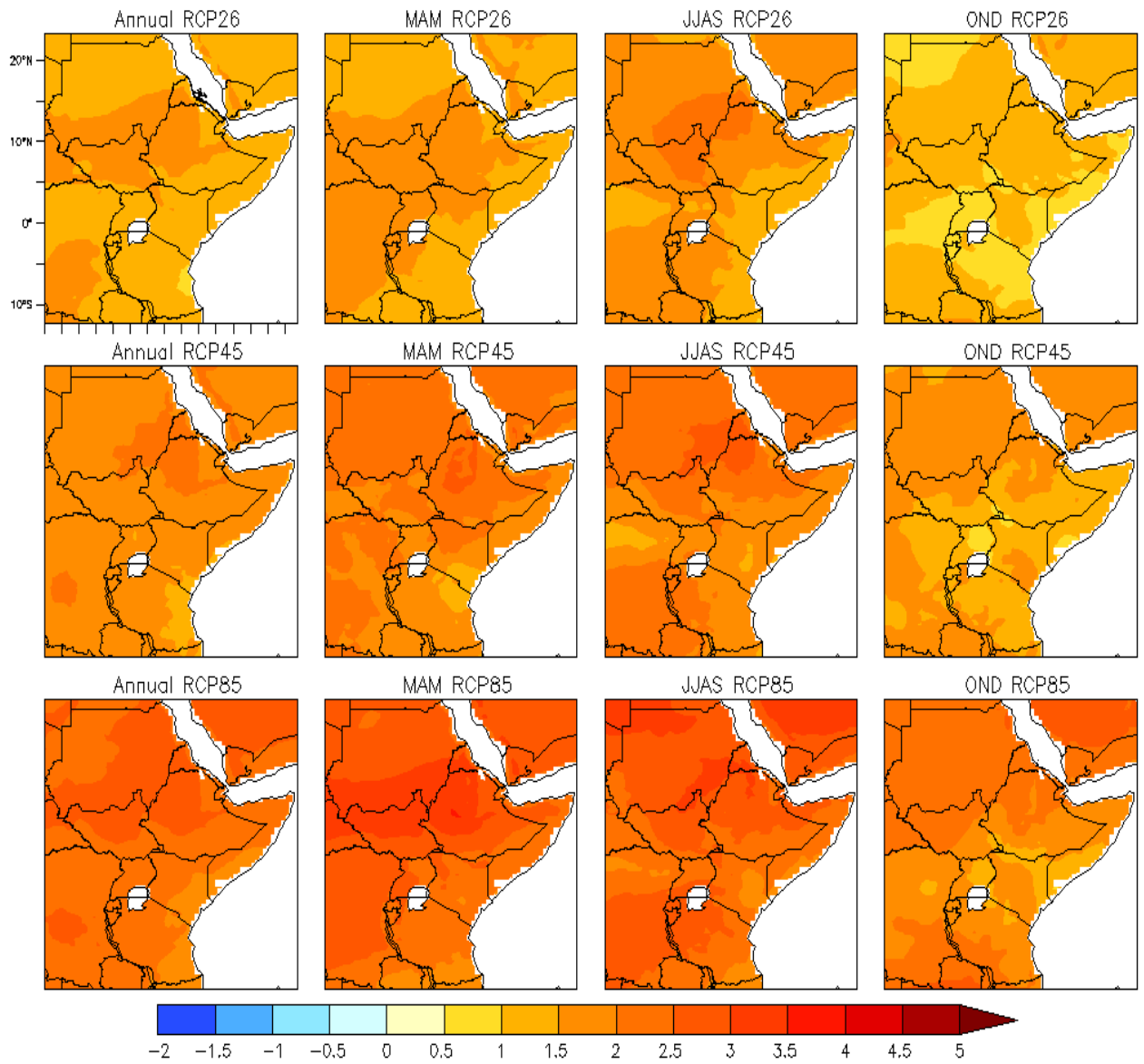


Figure 8 – Projected maximum temperature changes over GHA by 2030s in annual (1st column), March-May (2nd column), July-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC.

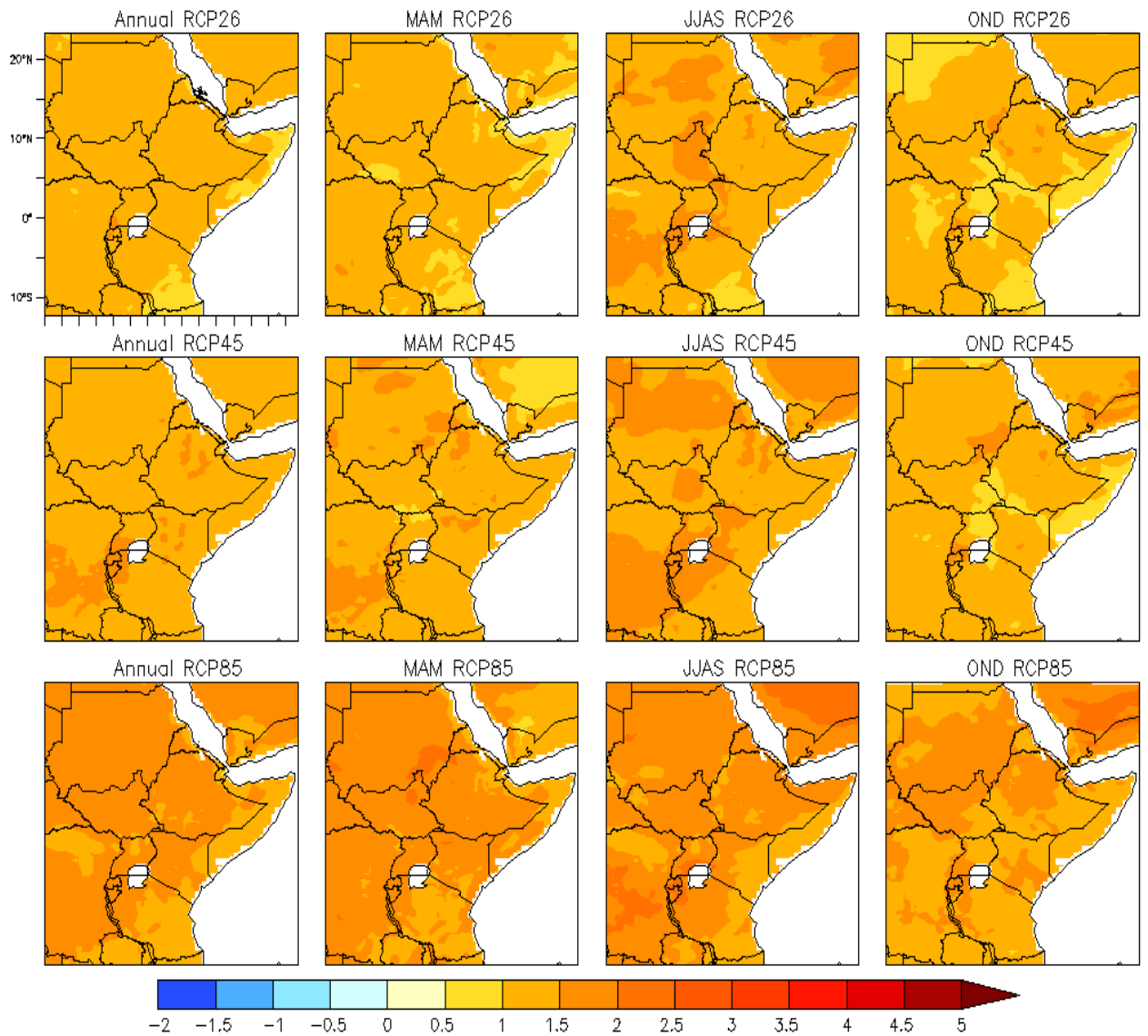


Figure 9 – Projected minimum temperature changes over GHA by 2050s in annual (1st column), March-May (2nd column), July-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC

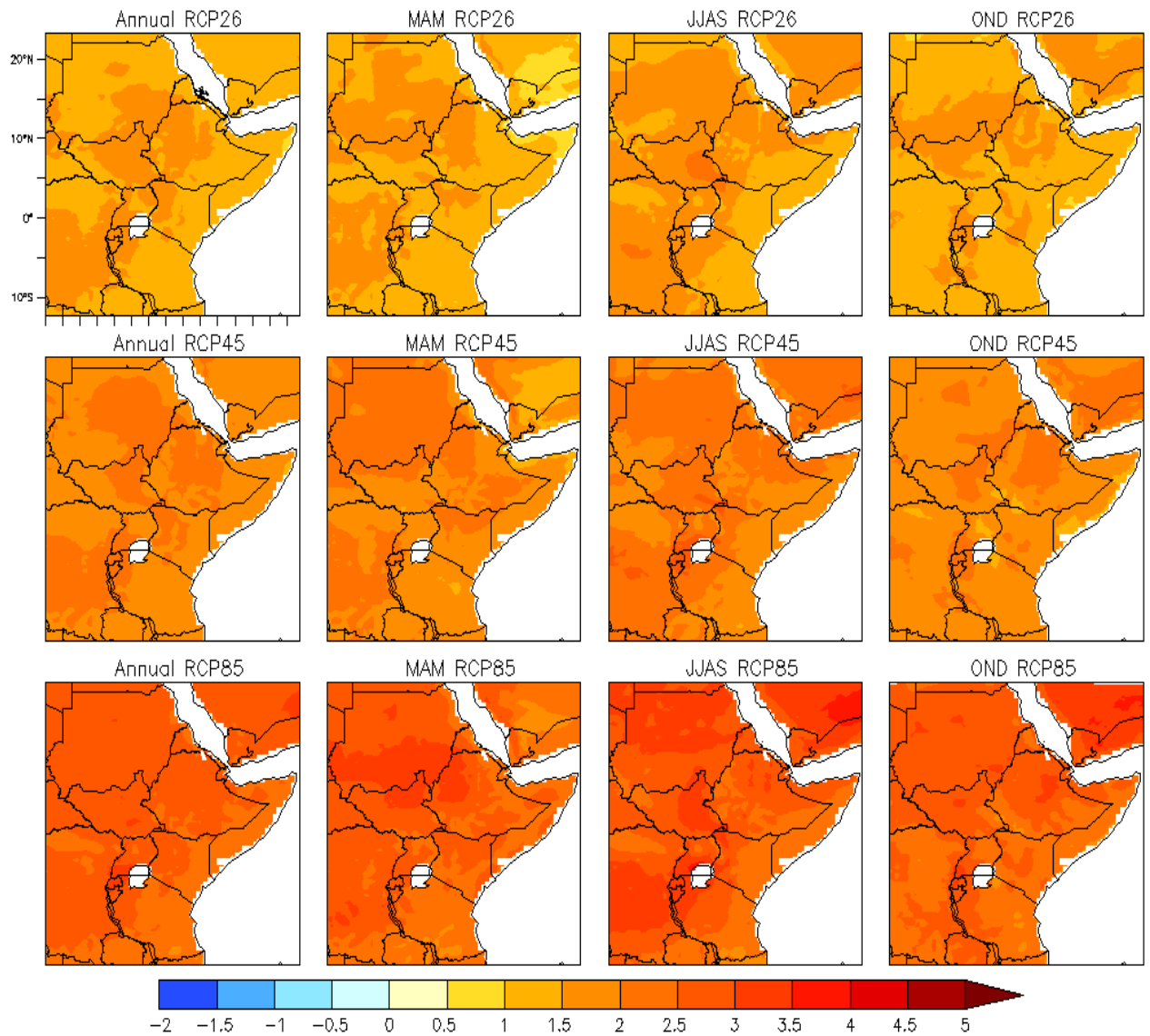


Figure 10 – Projected maximum temperature changes over GHA by 2050s in annual (1st column), March-May (2nd column), July-September (3rd column), October-December (4th column). Each row corresponds to emission scenarios: RCP2.6 (1st row), RCP4.5 (2nd row) and RCP8.5 (3rd row). Source: ICPAC

ICPAC/WFP data show that mean surface air temperature in the Horn of Africa have increased by over 1°C since the 1970s, and have also become more variable (ICPAC/WFP 2017).

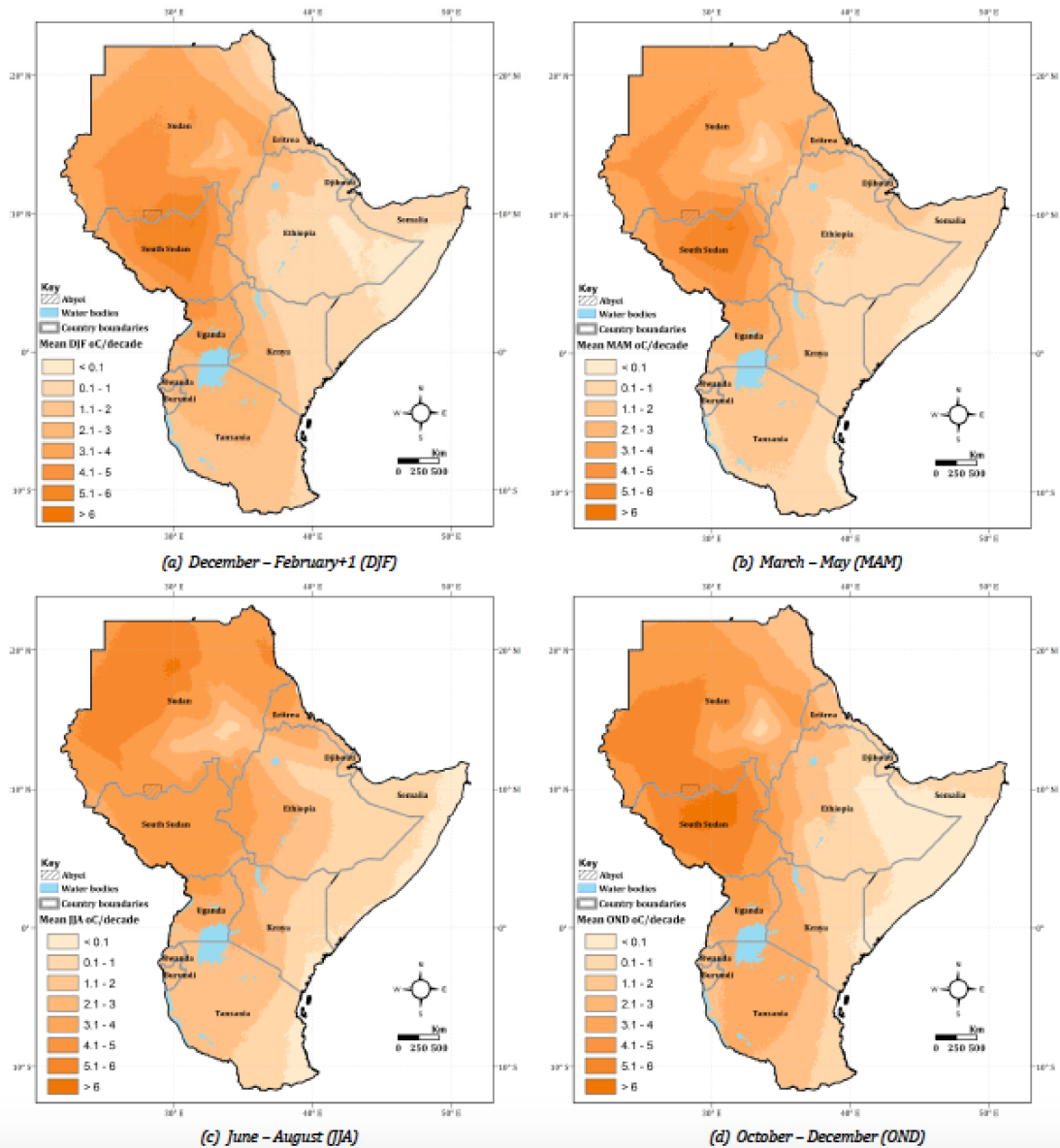


Figure 11 – Evolution of mean surface air temperature since the 1970s in the Greater Horn of Africa region. Souce: ICPAC/WFP.

These temperature variations have a significant impact on food security, as they adversely impact the yielding in the region through a more frequent association with climate hazards such as droughts and dry spells (IPCC 2014). ICPAC/WFP data provide essential insights into the evolution of the food security in the region over the past few years.

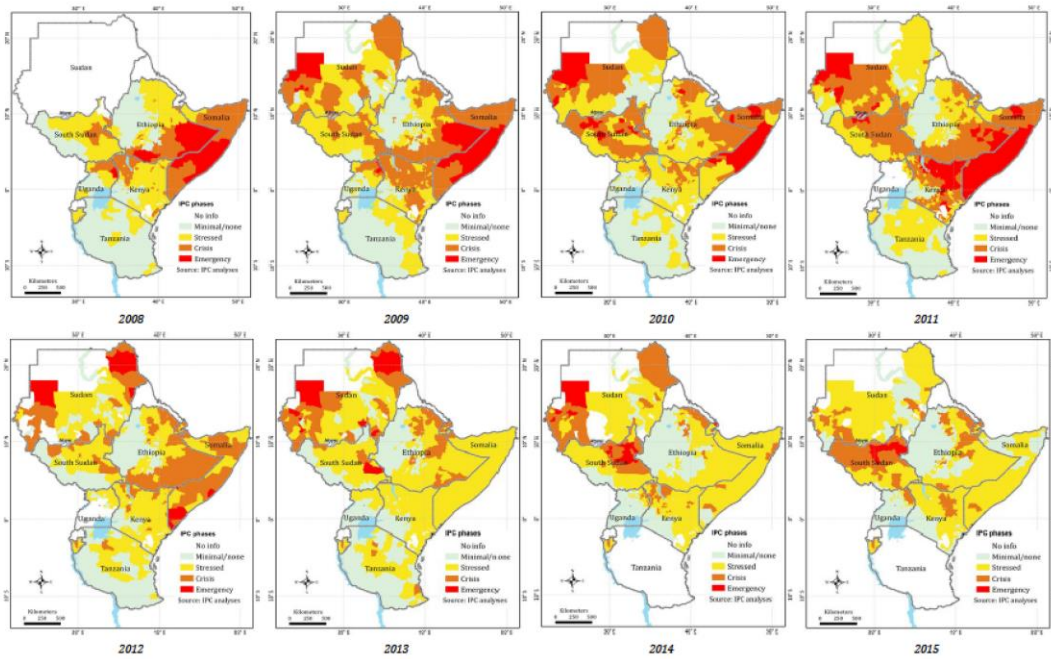


Figure 12 – Food security in the Greater Horn of Africa between 2008 and 2015. Source: ICPAC/WFP 2017.

As a result, the number of people in the region who suffer from food insecurity has risen considerably since 2011: they are now close to 28 million people who are food insecure in the Greater Horn of Africa region. This means that mobility is expected to become a more frequent response to food insecurity – either in the form of direct displacement, migration as adaptation or displacement triggered by tensions and conflicts over resources. The nature of displacement will depend considerably on the policy responses to food insecurity.

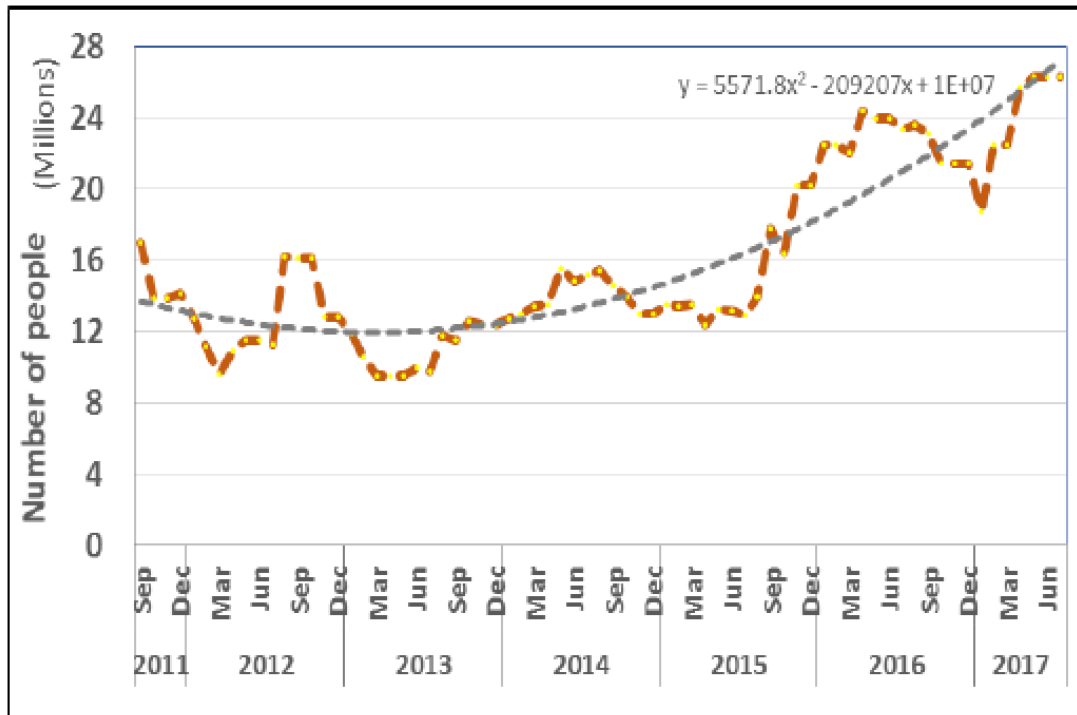


Figure 13 - Number of food insecure people (IPC phase 3 and above or in need of humanitarian assistance) in the Greater Horn of Africa. Source: ICPAC/WFP 2017.

3. The 4-degree scenario

In the climate scenarios set out for the Greater Horn of Africa region, ICPAC selected the RCP 8.5 scenario as the most extreme for the region. Under this scenario, temperatures for the region were expected to increase between 1°C and 2.5°C by 2030, and between 1.5°C and 3.5°C by 2020, as shown in the figures above.

While the Paris Agreement, concluded at COP21 in Paris, officially set the objective of 2°C as the maximum temperature increase that should be reached by 2100. The latest data on greenhouse gas emissions, however, indicate that the current emissions' trajectory is putting the climate on the path of a temperature increase of at least 3°C by 2100. The 2017 Global Carbon Budget reveals that global greenhouse gas emissions are up again by 2%, after a period of stabilisation of three years between 2014 and 2016 (Le Quéré et al. 2017).

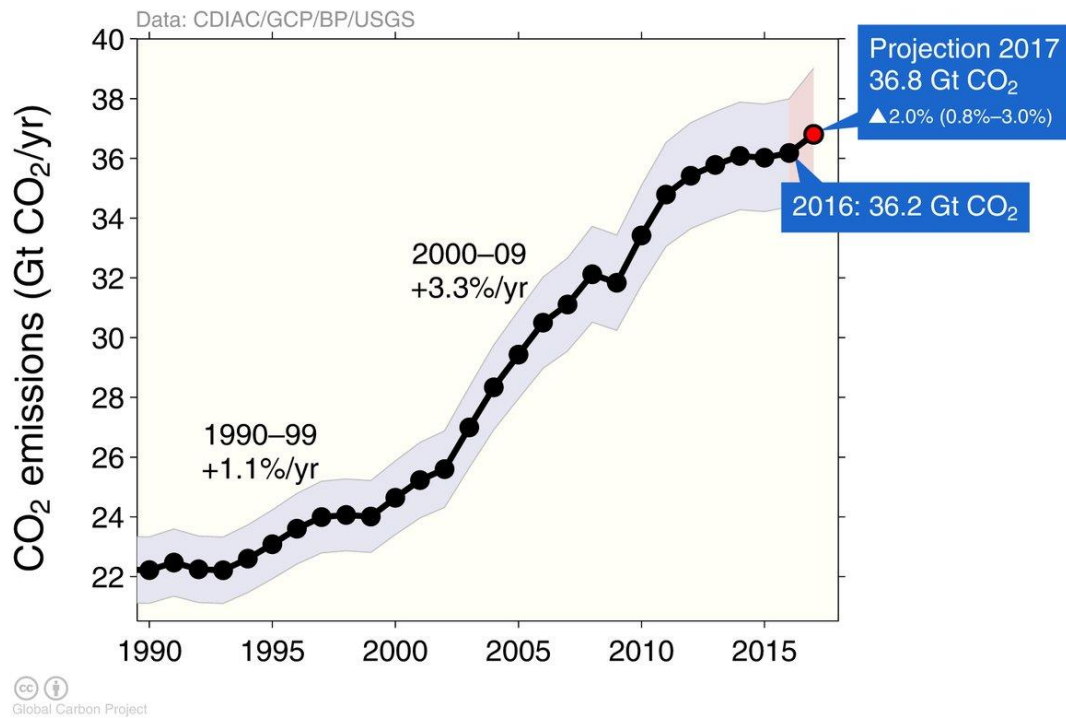


Figure 14 – Evolution of global greenhouse gas emissions, 1990-2017. Source: Global Carbon Budget 2017.

As a result of this continuous, unabated growth in global greenhouse gas emissions, the possibility of a global warming that would top or exceed 4°C by the end of the century can no longer be ruled out. This means that the scenario RCP 8.5, considered as the most extreme by ICPAC, could soon become a median scenario, if global greenhouse emissions continue to progress at the same pace. Such a temperature increase would not affect the magnitude of migration in the IGAD region, but also the patterns of migration, as the latter would become less of a choice (Gemenne 2010).

6. National assessments

While many climate impacts will affect indistinctively the countries of the region, each of them has specific economic, demographic and political patterns that will shape differently the climate-mobility nexus. Furthermore, the amount of data available for each country is very disparate: while some countries, such as Ethiopia and Kenya, have been studied through different research projects, others – such as South Sudan or Djibouti – remain understudied when it comes to assessing climate impacts and their linkages with migration. Though every effort has been made in this report to gather the best available data, obvious research efforts remain needed in different countries of the region.

1. Djibouti

Djibouti lies in a very arid region, with monthly average temperatures from 25.4°C in January to 36.8°C in July. Rainfall is very scarce all year round: monthly total precipitation varies between below 10 mm from May to August and between 10 and 28 mm from August to May.

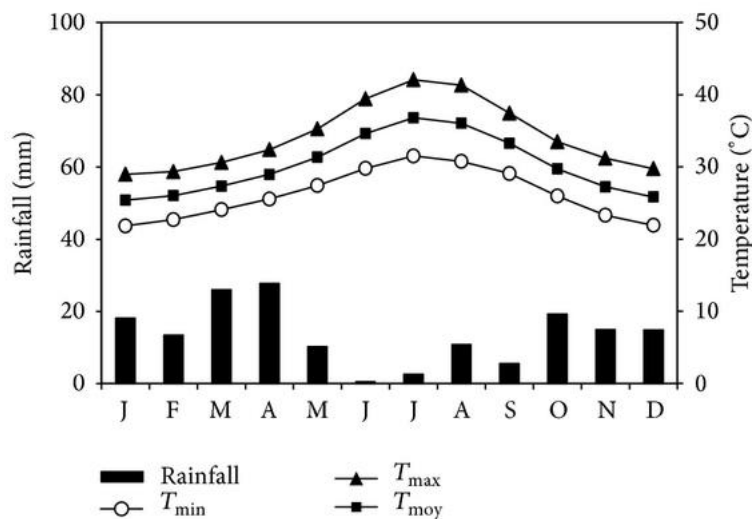


Figure 15 – Average variation of rainfall and temperature in Djibouti City. Source: Ozer and Mahamoud 2013.

The prime environmental stressor in Djibouti is related to water. As there are no rivers in the country, water resources are located in groundwater reservoirs, which are evaluated at 30 million cubic metres per year (République de Djibouti 2013). The capital city absorbs about 12-13 million cubic metres annually, while it is estimated that 20-25% of local water production is lost because of pipeline leaks. Access to freshwater is difficult in rural regions, as local populations often need to travel long distances to access water. Such water stress will be exacerbated under the influence of climate change and rising temperatures.

However, a joint water project between Ethiopia and Djibouti went operational in the Fall of 2017, in order to address the issue of water stress in the country. The project comprises water wells, reservoirs, as well as a 102-km long pipeline to transport the water from Ethiopia to the towns of Ali-Sabieh, Dikhil, Arta and Djibouti city. The project, which has been funded since 2015 by the Export-Import Bank of China (Chexim) at a cost of US\$ 329 million, is expected to provide free drinking water to about 700,000 Djibouti nationals, with about 100,000 cubic meters of water daily. With more than 35 million cubic meters of water annually, this will more than double the quantity of water available for public consumption and should address the water needs of the country for the next twenty years.

1. Climate impacts

The management of water resources in Djibouti is heavily compounded by climate change. Water stress and desertification are the key climate impacts in the region, as noted by the IPCC in its Fifth Assessment Report (Niang et al. 2014) and as recognised by the government in its second communication to the UNFCCC (République de Djibouti 2013).

In recent decades, Djibouti has suffered from a long and slow rainfall deterioration: from 2007 to 2011, Djibouti city has registered a deficit of 73% of annual rainfall compared to the 30-year (1981-2010) average, as shown on the graph below, which is a reconstruction of rainfall series for Djibouti City from 1901 to 2013.

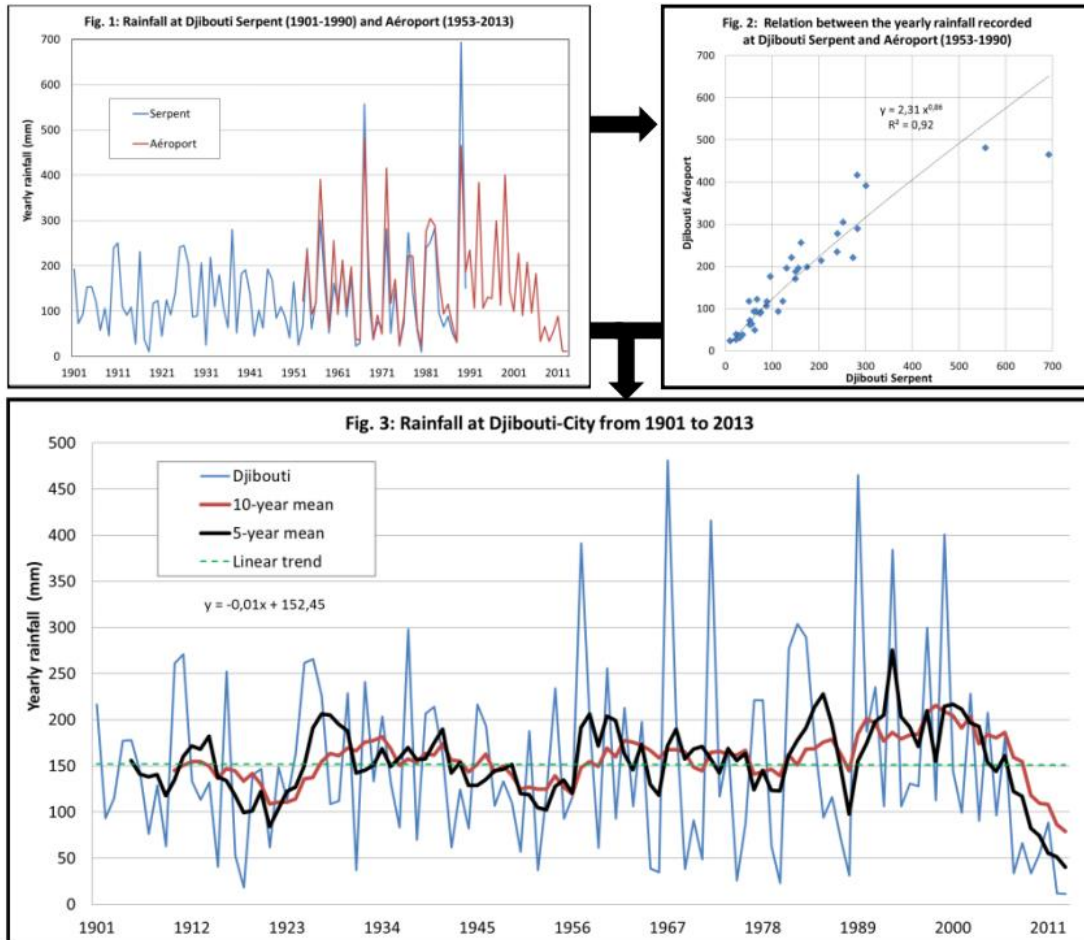


Figure 16 – Rainfall evolution in Djibouti (Ozer and Mahamoud 2013)

The following graphs illustrate this continuous decline in rainfall, though rainfall remains irregular in desert regions such as Djibouti (city). This decline in the rainfall can be associated to the continuous increase of temperatures.

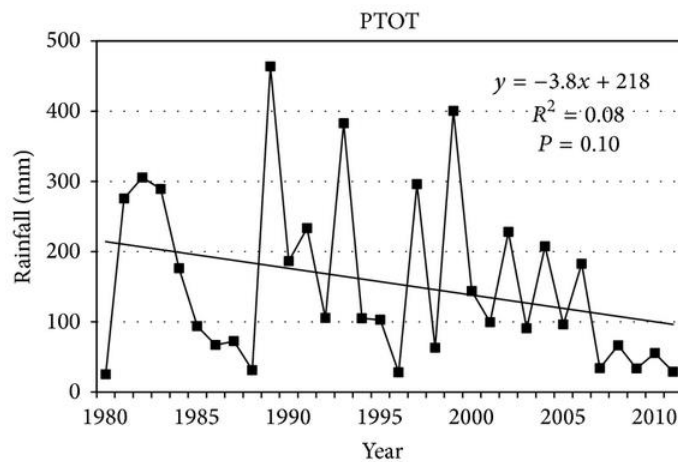


Figure 17 – Evolution of rainfall in Djibouti City, 1980-2011. Source: Ozer and Mahamoud, 2013.

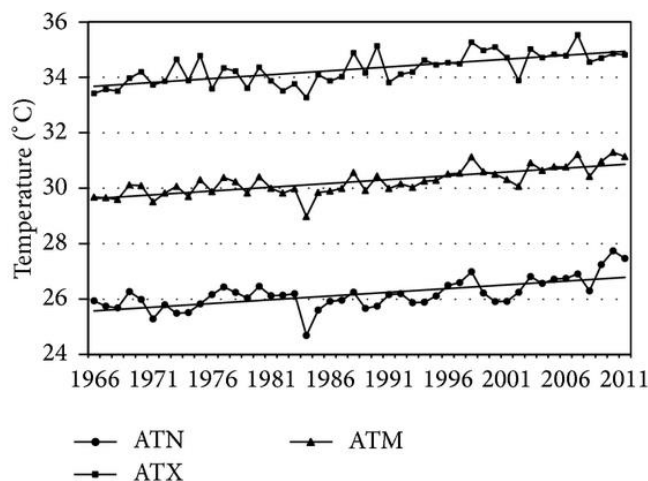


Figure 18 – Evolution of observed temperatures in Djibouti City, 1980-2011. Source: Ozer and Mahamoud, 2013.

This evolution of rainfall takes place within a larger framework of desertification, which is directly related to climate variability and a higher frequency of droughts. Overgrazing, agricultural techniques and rural poverty add up to reinforce this trend. Desertification leads to a decrease of available land and a degradation of ecosystems. This affects primarily rural populations, not only through a decrease of available land, but also of possible cattle itineraries. This is a key factor of rural exodus in the country.

The country is regularly affected by droughts. Amongst recent droughts, the one that affected the country from 2007 onwards was amongst the most devastating, affecting about 50% of people from rural regions, more than 120,000 people in total (République de Djibouti 2011). Since then, Djibouti has been struck by on-going yearly droughts, which have led to cumulative effects, including a drop in the availability of freshwater in groundwater reservoirs and traditional wells. With less than 1,000 km² of arable land, Djibouti is highly vulnerable to food insecurity, and is dependent upon food imports.

Djibouti's coastal zone is also very heavily affected by climate change. Local ecosystems are subjected to numerous anthropogenic pressures (tourism, haven, and pollution). Sea-level rise is another major concern: in a pessimistic scenario (RCP 8.5), almost 45% of the population and 50% of infrastructure would be affected by 2050, which would induce significant population displacement (République de Djibouti 2013).

2. Human mobility

Droughts are currently displacing a large number of families from rural zones (from Djibouti, Ethiopia and Somalia) towards the city of Djibouti. This increase in displacement from the rural zones of the country to its capital is directly correlated with climate change (UNICEF 2017). As a result, new neighbourhoods have appeared, such as Buldhuqo, an area that was erected after 2009. The latest arrivals settle in the streambed of the Wadi which is currently dry, but which was flooded in 2004 and 2009 due to short but intense rain. New settlements continue to be built, in the south and west of the city, often in high-risk areas. As stated by Ozer and Mahamoud (2013), ‘uncontrolled urbanization process may turn into catastrophic hazard in case of heavy rainfall as it has been seen elsewhere in arid zones of Africa’.

At the next extreme rainfall, the exposure of these precarious populations to hydrological risk will be extremely high (Ozer and Mahamoud 2013). This means, as states by the authors of that study, that ‘local authorities have now to challenge two rainfall related hazards: the current drought impact and the effects of future exceptional rainfalls with probable large damages in recent settlements.’

Since 2015, Djibouti is facing a humanitarian situation compounded by famine and food insecurity. More than 250,000 people are affected, especially in the pastoralist areas of Dikhil, North Obock and Ali-Sabieh regions (see Fig 9). As shown in the map below, Djibouti also hosts a very important number of refugees (about 28,000) and migrants (about 35,000), originating mostly from Somalia and Ethiopia, as the border with these two countries is particularly porous. Pastoralist migration from neighbouring countries is very common in the lan season (June to September), but puts additional pressure on scarce resources and may further aggravate the food insecurity of the local populations.

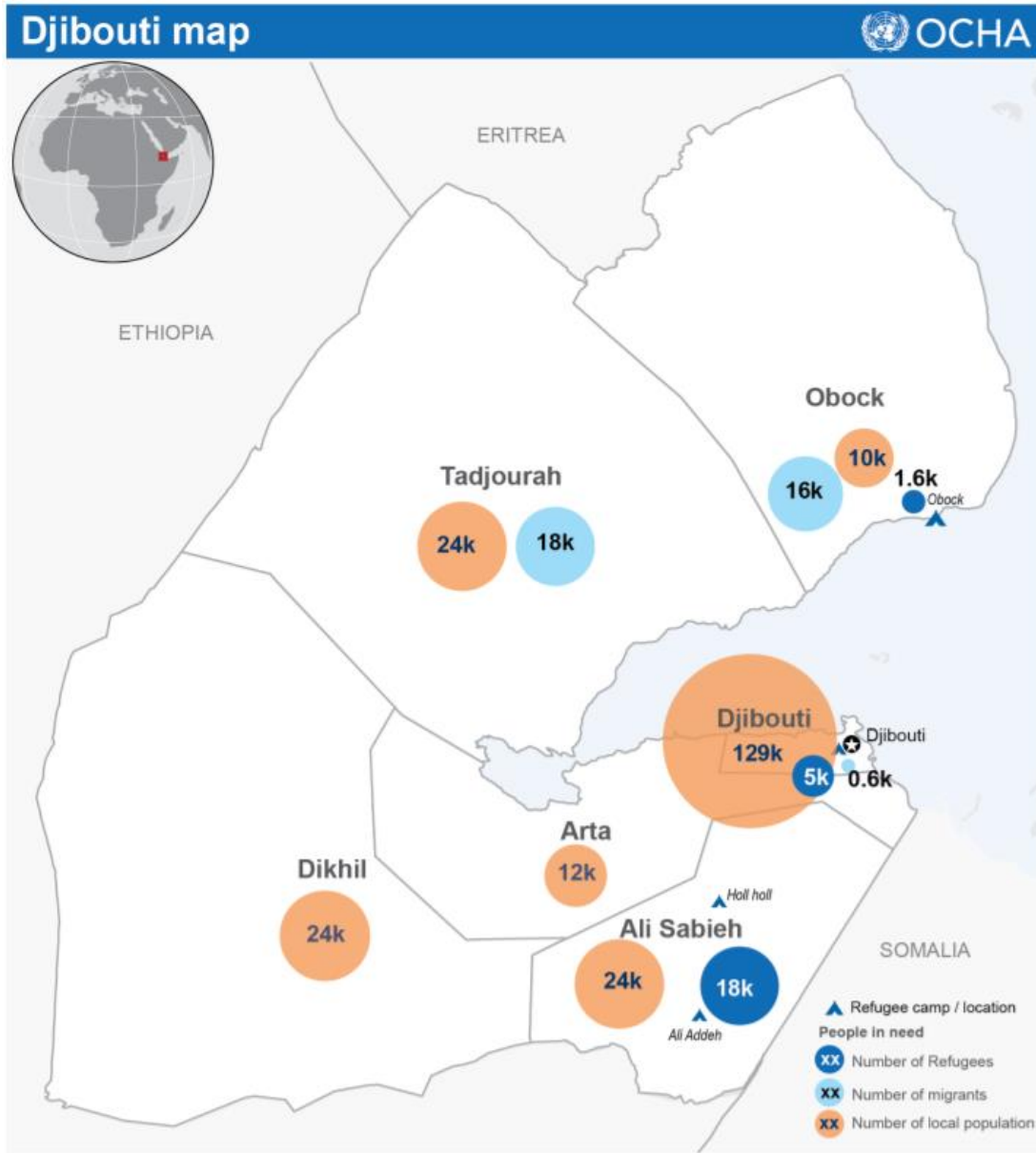


Figure 19 – People in need of humanitarian assistance, Djibouti, 2017. Source: OCHA

At the end of 2016, as per UNHCR data, there were 25,862 persons of concern in Djibouti: this includes 17,683 refugees and 8,061 asylum-seekers. The graph below represents the evolution of this population over time. As shown in the map above, the number of refugees in Djibouti has steadily increased in 2017.

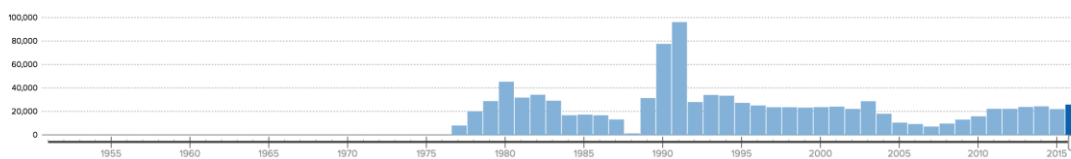


Figure 20 – Evolution of the number of persons of concern in Djibouti. Source: UNHCR.

The Internal Displacement Monitoring Centre (IDMC) does not provide data on internal displacement in Djibouti.

In April 2017, the International Organisation for Migration (IOM) launched a Displacement Tracking Matrix Flow Monitoring exercise. Data remain limited at the moment, but should improve considerably in the years to come. In the second half of 2017 (June-December), 21,248 migrants were tracked in Djibouti. Most of them were Ethiopians, and most of them intended to move further (to Saudi Arabia and Yemen primarily), using Djibouti as a point of transit. 96% declared to be migrating for economic reasons, 3.4% due to natural disaster and less than 1% due to conflict. The map below shows the mobility patterns in and out of Djibouti between June and December 2017.

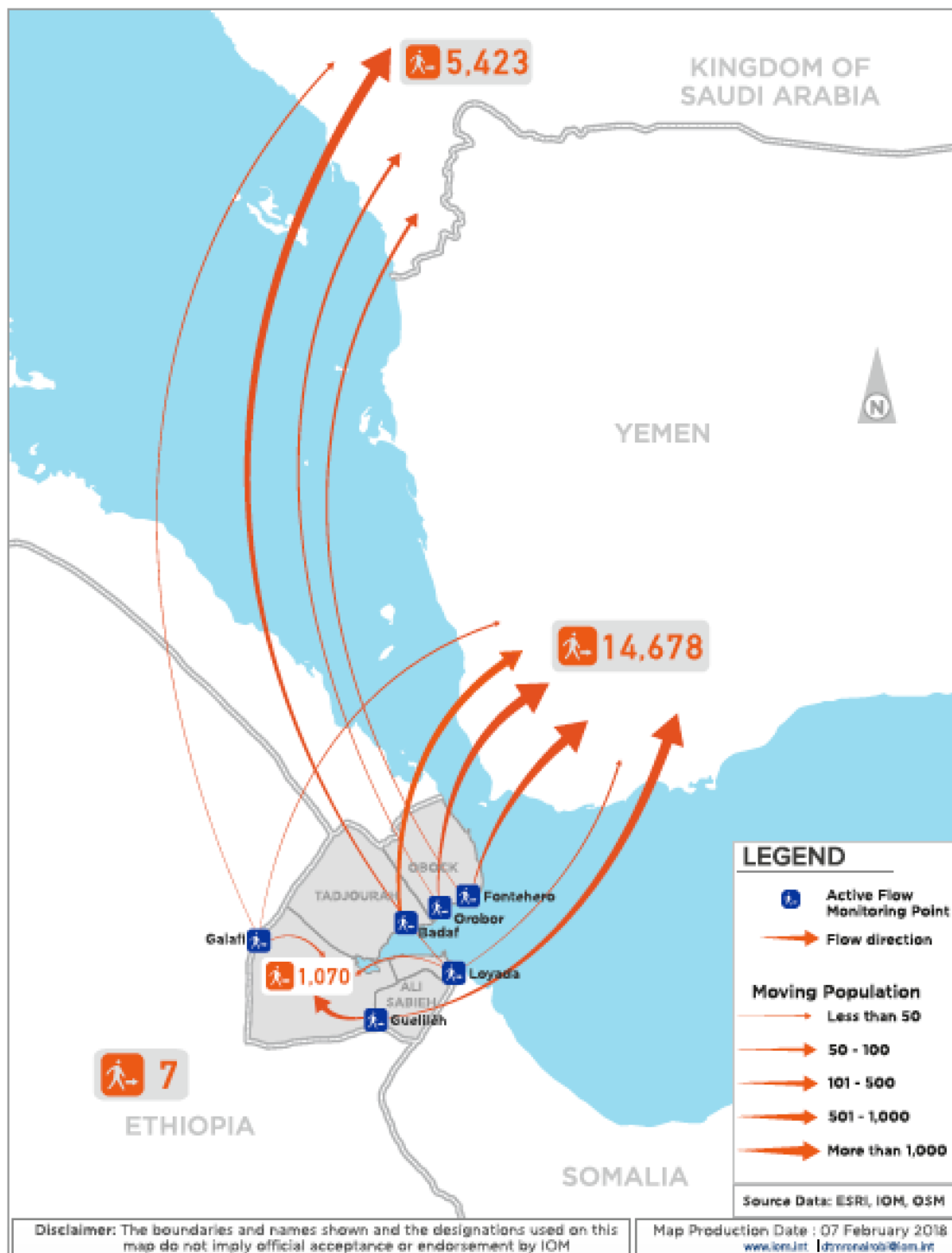


Figure 21- Mobility in and out of Djibouti, June-December 2017. Source: IOM.

2. Ethiopia

With 102 million inhabitants, Ethiopia is the second most-populated country in Africa and the most populated land-locked country in the world. Over the past decade, its population has grown by a third, from 73 million recorded in the 2007 census. The country has a complex topography, with the mountainous highlands

across the central and northern parts, including a high central plateau, which are diagonally divided by the Great African Rift Valley, and the flatter rangelands in the northeast and southeast. The highlands are the most populous and home to the major cities.

Most of Ethiopia is dependent on two yearly rainy seasons: the *belg* (short rains, in most regions from February/March to through May/June) and *kiremt* (long rains, from June/July to September). If either one fails, is delayed or is unevenly distributed, the result is usually a commensurate shortage of staple food (sorghum, maize, teff, barley and wheat) which threatens the food security of a large part of the population. The *belg* rains, in particular, are important for the planting of long-duration cereals (maize and sorghum) and for preparing the ground for *meher* (main growing season) staples like teff. While the timing of these two rainy seasons differs slightly across the country, the period March through September (*meher*) is when 90–95% of the nation's total cereal grains are grown. The annual rainfall in Ethiopia varies from less than 100 mm/year to as much as 2500 mm/year and is highly variable. The two rain seasons have variable effects on food security, as different regions of Ethiopia have different production and consumption patterns.

1. *Climate impacts*

Ethiopia is a 'hotspot' for climate variability and environmental changes. Climate model projections indicate an increase in rainfall over the majority of the country, with increasing magnitude progressively. There is more uncertainty in the climate model projections for changes in rainfall over the 'dry' climate zone where the majority of the pastoral regions are located. In general, the rainfall projections over the northeast region are mixed, with most models indicating little change over the *karan* season and potential reductions in rainfall over *dirac*. This results in an overall relatively large increase in vulnerability across regions as a result of heat stress impacts on livestock and pasture availability and quality. Rainfall is projected to increase over the *gu* and *deyr* seasons in the southeast, and although there are still likely to be heat stress impacts associated with the higher temperatures, increases in vulnerability are projected. Rainfall in the country is very diversified, with regions receiving less than 100 mm of rainfall annually, while others receive more than 2500 mm annually.

Projections suggest that extreme weather events, such as droughts or floods, will become more frequent and less regular in the country (Cooper et al. 2008; Omondi et al. 2014). Heat waves, whose impact is devastating for cattle and pasture, are also expected to become more frequent. Sheep are likely to be particularly affected, as their tolerance to heat is limited.

Rainfed agriculture is the dominant livelihood strategy: agriculture accounts for 37% of the country's GDP, and 73% of the population depend on it (Rigaud et al. 2018)

2. Migration and displacement

Population movements – both within and across borders – are a historical reality in Ethiopia. Migration is particularly common among southern pastoral groups, which move seasonally across Ethiopia, Kenya, and Somalia. Altered rainfall and extreme temperatures, exacerbated by climate change, are likely altering these patterns. Livelihoods-related mobility patterns in Ethiopia are especially complex, as the resettlement and villagization programmes pursued by the government in the late 1980s and 1990s often left people vulnerable to famine, disease, pests and other risks (Kloos et al. 1990; Pankhurst 1992; McDowell 1997). While the experience was decades ago, and many people have returned, the effects in terms of poverty have not dissipated. As of February 2018, 8.5 million Ethiopians experience food insecurity and the populations affected vary from season to season, depending on cropping seasons (the so called hunger or lean seasons), and also year-to-year as influenced by both meteorological and socio-economic drought.

Drought and other climate-related hazards are rarely the sole or even most important driver of movement. Their impacts are determined in large part by structural vulnerability and exposure, such as demographic trends, weak institutions, underdevelopment and poverty, and anthropogenic causes of environmental degradation. Despite the government's valiant promotion of rapid economic growth, significant poverty reduction efforts, and improved social safety nets over the past decade, Ethiopia remains one of the poorest countries in the world.

Multiple interlocking drivers of mobility make it difficult to isolate and estimate the number of people displaced by drought conditions, and surveys rarely capture more than a single reason why people move. According to IOM and World Bank surveys, recorded displaced people and migrants coming from drought-affected areas may name drought as the primary cause for their movement, while others may refer to loss of livelihood, hunger, or conflict. In early 2016, people recorded as displaced by the droughts were primarily in the predominantly pastoralist regions of Afar and Somali.

The El-Niño 2016 episode has most severely affected the Somali region of Ethiopia. IOM had already recorded displacement in several parts of southeastern Ethiopia in spring 2015, particularly in the Somali region, in greatest numbers around Shebelle zone. *Meher* harvest cycles were disrupted for many agro-pastoralists and agriculturalists were forced to abandon their lands due to food insecurity. These

groups are more likely to be in a precarious situation, particularly if other factors combine to contribute to food insecurity. In October 2014, displacements occurred due to severe flooding along the Shebelle river basin, such as Gode and Kelafo. River basins are prone to flooding as they are areas that have experienced severe dryness. Floods of varying severity occur frequently, 2-3 times per year and often in October, in Shabelle, Ganale, Dawa and Weyb riverine areas.

All considered, displacements from Somali regions and from the Oromiya/Somali border areas are as much a result of drought-related famine as the cumulative effects of resource-based conflicts. Most of the affected persons are pastoralists and agro-pastoralists.

At the end of 2016, as per UNHCR data, there were 794,133 people of concern in Ethiopia, the overwhelming majority – 791,631 being refugees. As the graph below shows, this is the highest number since 1950.

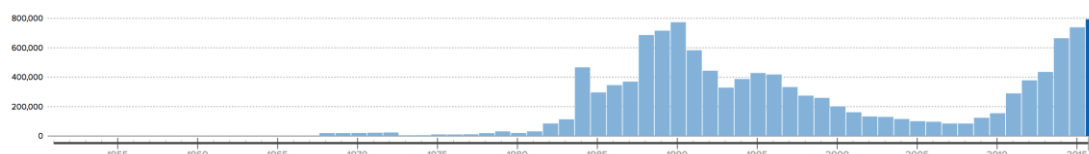


Figure 22- Evolution of the number of persons of concern in Ethiopia. Source: UNHCR.

According to IDMC data, in 2016 there have been 347,000 new people displaced by disasters, and 296,000 displaced by conflicts. The figure of the displaced by disasters is more than the triple of the 2015 figure (104,000), which itself represented a doubling of the year before (49,000).

According to IOM's Displacement Tracking Matrix, there were 1.3 million IDPs identified in Ethiopia as of October 2017. These represented 213,000 households,, displaced across 592 sites. As shown on the map below, 51% were located in the Somali region, while 40% were located in the Oromia region. It is estimated that 38% of these displacements were related to drought, most of them in the Somali region.

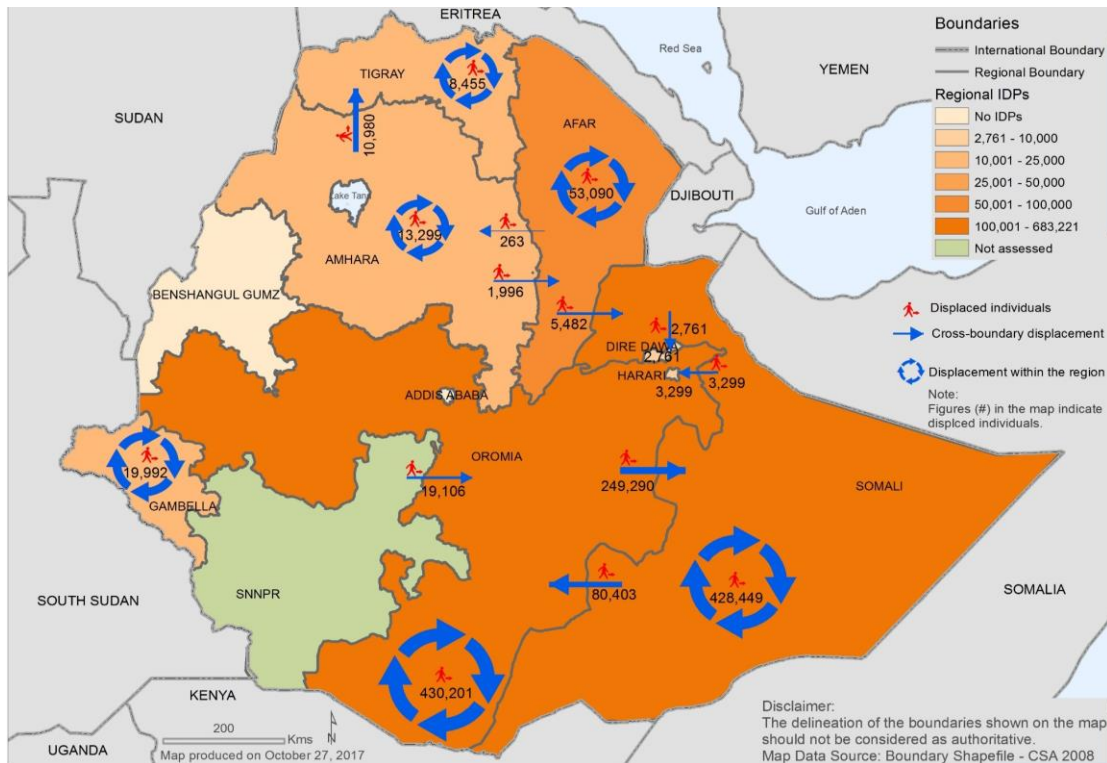


Figure 23 – IDPs identified in Ethiopia as of October 2017. Source: IOM Displacement Tracking Matrix.

A recent study by the World Bank (Rigaud et al. 2018) projected that by 2050, between 1.2 and 1.5 million people could migrate internally (voluntarily and forcibly) as a result of climate change.

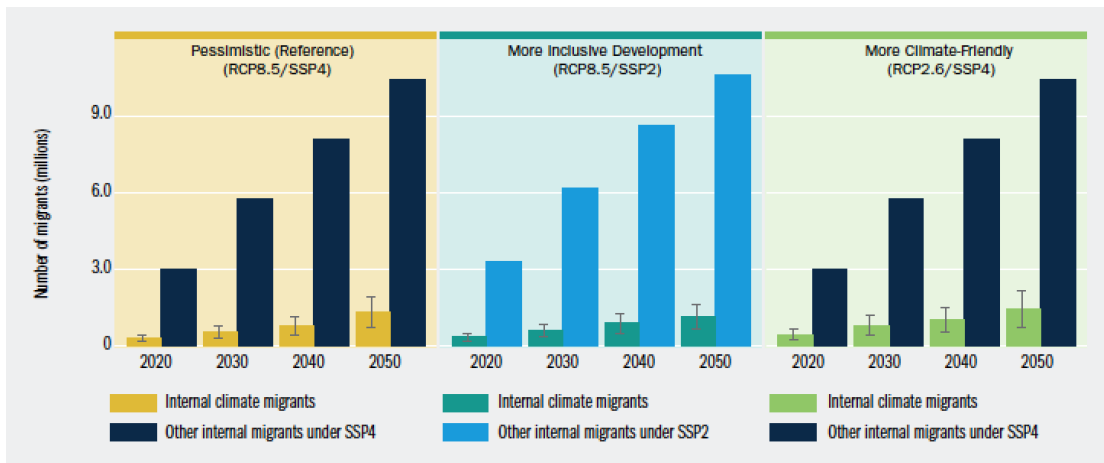


Figure 24 – Projected numbers of climate migrants’ and internal migrants in Ethiopia. Source: Rigaud et al. 2018.

These migrants would be leaving primarily the northern highlands, a region that will suffer from declining crop productivity, as well as the capital Adis Ababa, which is located at the core of the rainfed agricultural region. Mobility patterns will be directed primarily towards southern highlands and secondary cities in the dryland parts of the east (Rigaud et al. 2018)

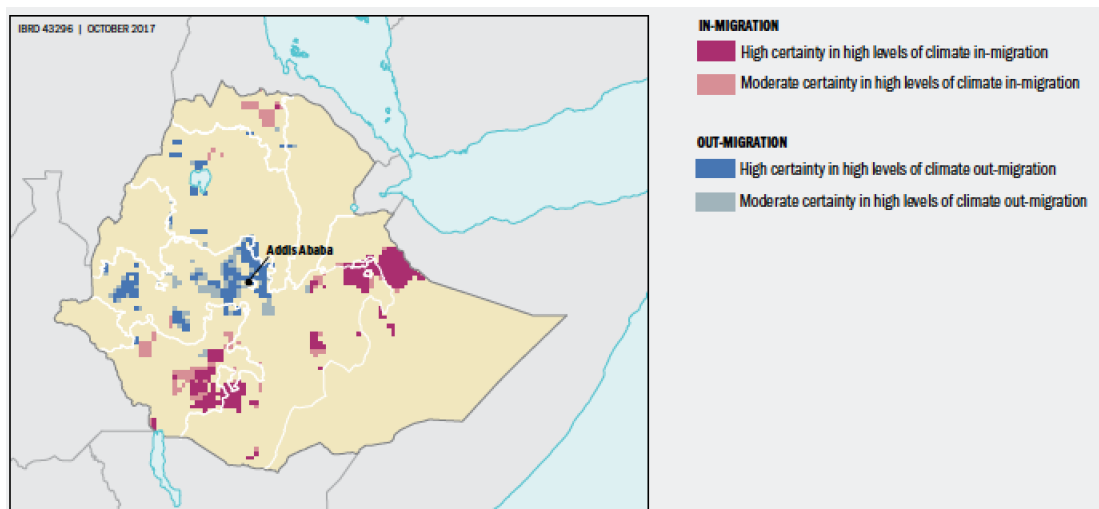


Figure 25 – Localisation of mobility patterns in Ethiopia under climate change. Source: Rigaud et al. 2018.

3. Kenya

Kenya is home to many different ethnic groups, with a young and quickly increasing population, standing at 48.5 million people in 2017. The main ethnic groups are the Kikuyu (17%), the Luhya (14%), the Kalenjin (13%), the Luo (10.5%), the Kamba (10%), the Kenyan Somali (6%) and the Kisii (6%). Pastoralist groups highly exposed to climate impacts such as the Turkana and the Maasai, only amount to about 2.5 and 2.1 % respectively.

Kenya's climate is inter-tropical, with two rainy seasons, in March-May and November. There are however wide differences across regions, with seven agro-climatic zones. Almost half of the territory is arid and non-arable land.

Zone	Climatic zone	Mean annual rainfall	% of total land area
I	Humid	1,400 – 2,700	3
II	Sub-humid	1,000 – 1,600	4
III	Semi-humid	800 – 1,400	5
IV	Medium to semi-arid	600 – 700	5
V	Semi-arid	500 – 600	15
VI	Arid	300 – 550	22
VII	Very arid	< 300	46

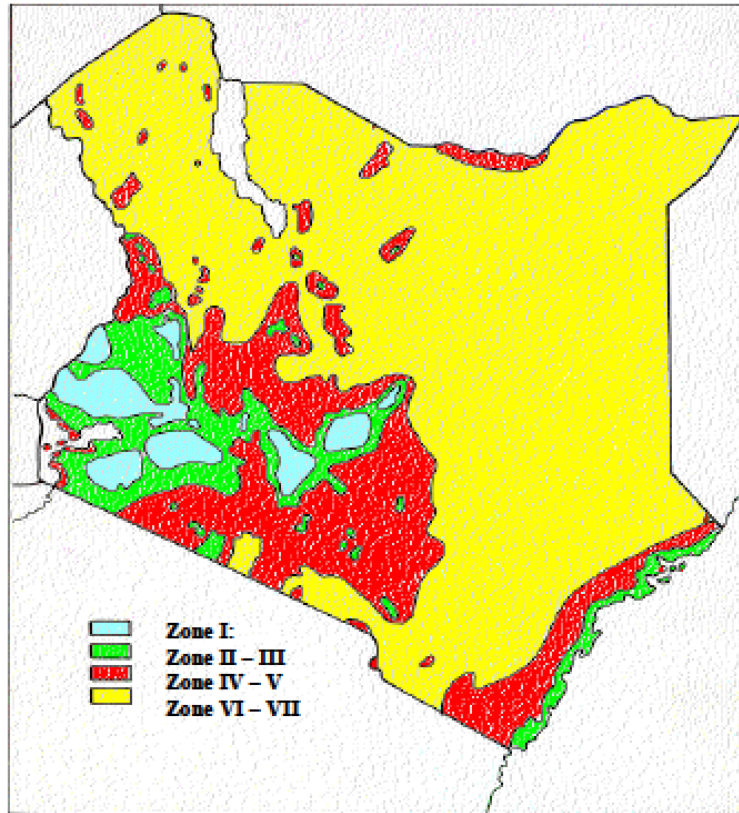


Figure 26 – Ecological zones of Kenya. Source: Government of Kenya

Along with climate change, one can expect drying over most parts of Uganda, Kenya, and South Sudan in August and September by 2100, as a consequence of a weakening Somali jet and Indian monsoon (Patricola and Cook, 2011).

Although Kenya’s economy remains strong and dynamic in the region, the country ranks quite low on the Human Development Index (HDI), with an index of 0.519, ranking 145 out of 186 in the world. The economy relies heavily on tourism and agriculture, and remains highly dependent on foreign imports (especially oil), with a commercial balance that remains consistently negative.

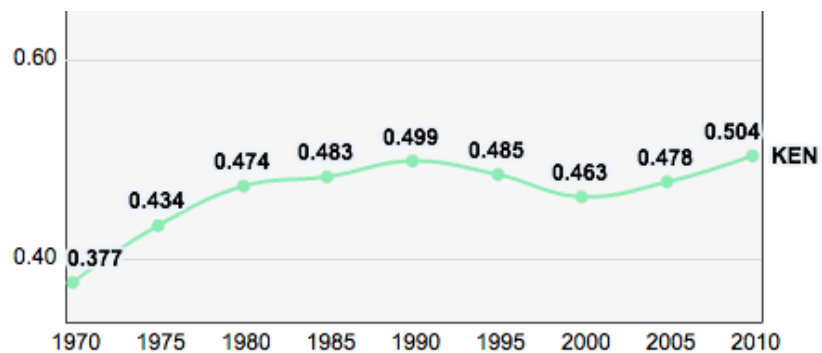


Figure 27 – Evolution of Kenya’s Human Development Index. Source: UNDP.

Agriculture remains very important in the country's economy, and is the second largest contributor to the country's GDP, accounting for about 25% of it. It is however a sector in decline, and highly vulnerable to climate change impacts.

Kenya is also home to a great number of refugees, originating mostly from Somalia (58.6%) and South Sudan (22.7%). Refugees and asylum-seekers represent about 500,000 people. 49% of the refugees in Kenya reside in the Dadaab/Alinjugur area, with Dadaab being the largest refugee camp in the world. Others live in Kakuma (38%) and 13% around Nairobi and other main cities.

1. Climate impacts

The most pressing impact of climate change in Kenya is related to drought and rainfall changes in arid and semi-arid lands (ASALs). These areas are characterized by low and irregular rainfall (200mm to 600mm a year) as well as periodic droughts. Over the last decade, droughts have been perceived as hotter and drier than before and it has been attributed to climate change, even though this causality remains disputed.

The drought of 2011 was described as the most severe in 60 years to impact the Horn of Africa. Regional drought added up on successive bad rains and rising inflation, leading to a major humanitarian disaster. Its impacts were multi-faceted. Because of reduced availability of water sources and of pasture land, livestock death and/or disease were massive. Crop failure, resource depletion, rising food prices, decreasing livestock price and health, patchy livestock buy-back programmes led to a loss of livestock, a loss of purchasing power and hence to food insecurity vulnerability of around 3,75 million people in Kenya.

Typically, the north and northeast regions suffer the most severe droughts, which are heavily influenced by El-Niño and La-Niña events. Climate change is expected to increase significantly the frequency and severity of droughts, reducing crop productivity and causing widespread food insecurity (Niang et al. 2014). In recent years, the cycles of drought have become shorter and more intense as a result of climate change and variability (Mateshe 2010).

Droughts are further compounded by desertification, which affects 22 % of the land in Kenya (Bai et al. 2008). The situation is further aggravated by overgrazing, the subdivision of land and soil erosion. The rapid subdivision of land, which quickly leads to overexploitation and unsustainable farming techniques, is a major driver of land degradation. Furthermore, agriculture competes with human settlements for the use of land, and this competition further compounds land degradation.

Floods are another major impact of climate change in Kenya. Flood events occur regularly, particularly in the region around Mombasa, the country's second largest city. Such flood events will be aggravated by sea-level rise: around 17 per cent of Mombasa's area could be submerged by a sea-level rise of 0.3 metres, with a larger area rendered uninhabitable or unusable for agriculture because of water logging and salt stress (Awuor et al. 2008).

2. Human mobility

Pastoralist populations are those that experience migration and displacement the most, often in reaction to droughts. Drought can trigger urban migration of pastoralists as a coping strategy, but this arrival of new communities in cities often reinforces long-standing disagreements and conflicts over use of natural resources with other communities.

Mobility, however, is an essential part of pastoralist communities' strategies to deal with climate shocks, and droughts in particular. A common strategy lies in changing the mobility patterns of the livestock, in order to reach new pasture or water. There are other strategies that are sometimes preferred however, and these are also often combined with human mobility. They include grazing in the early morning, establishment of feed reserves, separating livestock to areas of different ecological zones, feeding livestock with tree twigs and branches, hiring pasture and digging shallow wells on riverbeds and forming alliances with neighbours in carrying out these activities (Huho et al. 2011). Different groups will develop different strategies, depending on their characteristics, tradition and livestock. For example, whereas Turkana pastoralists will often cover longer distances with their herds, Masai pastoralists might prefer to sell their cattle before a drought.

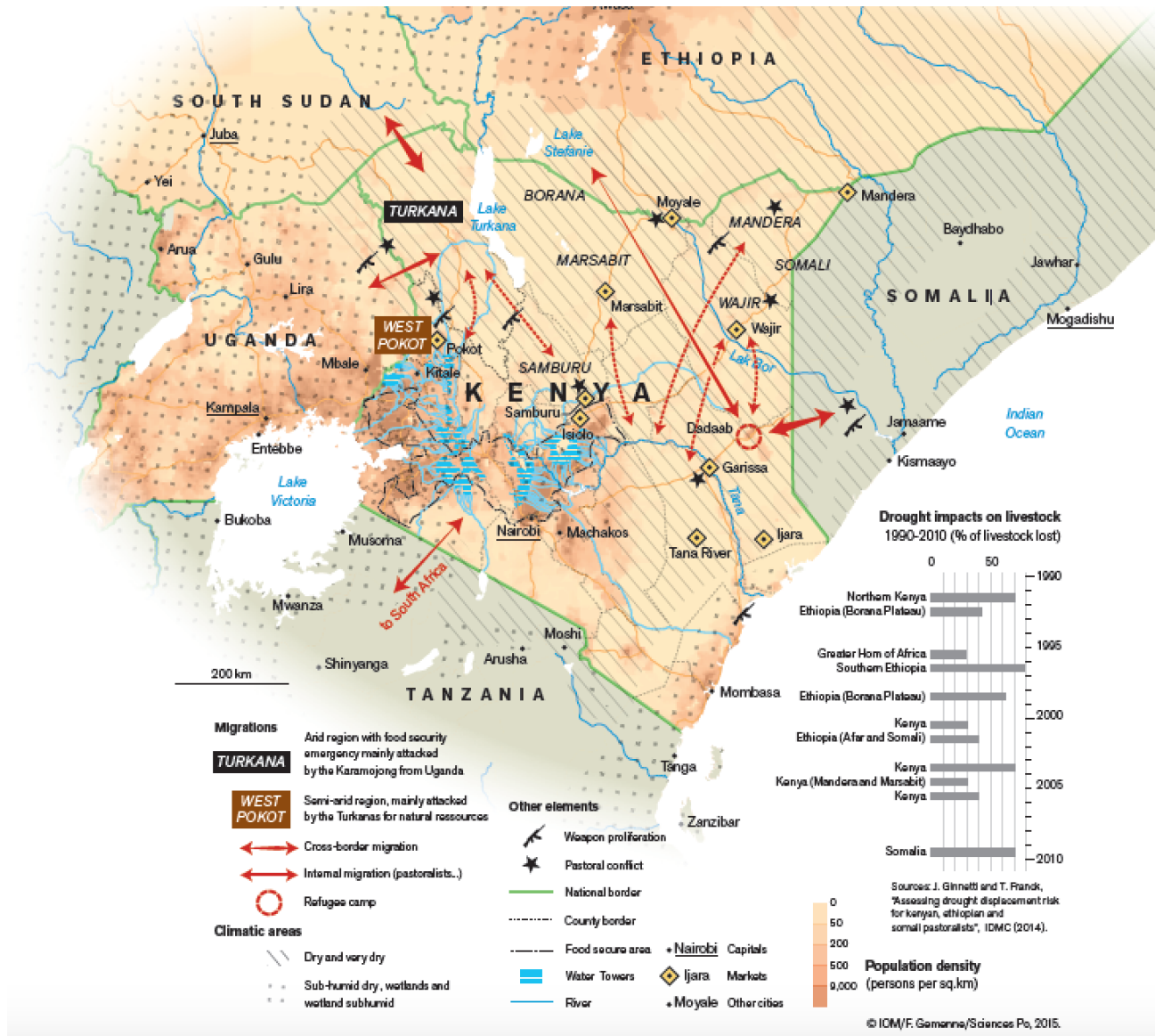


Figure 28 – Climate change and pastoralist migration in Kenya. Source: IOM/Gemenne/Sciences Po.

Displacement induced by disasters is another common feature of human mobility patterns in Kenya, and often associated with the mobility of pastoralists, as the latter is intrinsically related to the loss of livestock and access to land and markets. The counties that are the most affected by droughts also tend to be those inhabited by pastoralist groups: Baringo, Laikipia, Turkana, Samburu, Narok, Kajiado, Marsabit, Isiolo, Mandera, Garissa, Wajir, Tana River, Kilifi, Kwale and Taita Taveta (Nyaoro et al. 2016). Data on such displacements remain scarce however, which might in part be due to an observed ‘tendency in Kenya to consider that these groups are not displaced, since they are by definition mobile’ (Nyaoro et al. 2016).

Displacement induced by floods occurs both in both arid and semi-arid lands (ASALs) and highly fertile regions. ASALs are regularly affected with seasonal flooding, which can transform into severe flooding if associated with heavy rainfall. In 2013 for example, floods displaced close to 180,000 people in ASALs (Nyaoro et al.

2016). Non ASAL regions that are also often affected by floods include the highly fertile region around Lake Victoria: in 2012, over 97,000 people were displaced by floods in the region (Nyaoro et al. 2016).

At the end of 2016, as per UNHCR data, there were 514,867 persons of concerns in Kenya – about 90% of whom were refugees, and 10% were asylum-seekers.

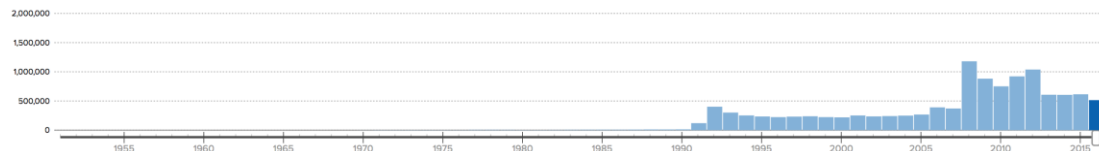


Figure 29 – Evolution of the number of persons of concern in Kenya. Source: UNHCR.

According to IDMC data, 40,000 people had been displaced by disasters in 2016, down from 105,000 displaced in 2015 and 180,000 in 2013. There were 138,000 internally-displaced people in the country (both as a result of violence and disasters) at the end of 2016.

IOM’s Disaster Tracking Matrix has not yet been deployed in Kenya.

4. Somalia

For the last about 25 years, Somalia has been considered to be in a situation of humanitarian crisis. Indeed, since the beginning of the civil war in 1991, the country undergoes a complex inter-clan civil war that has considerably weakened it and which it faces difficulties to overcome in spite of the establishment of the Federal Government of Somalia in late August 2012. The problem is made worse by the establishment of the Somali’s Islamic group Al-Shabab in 2006 that progressively managed to control some southern regions of Somalia subduing the population with violence to the Sharia’s laws. In addition, between 2010 and 2012, the country has suffered two years of consecutive extreme droughts - at a level not recorded for more than 60 years- that induced massive displacements within the regions and towards Kenya and Ethiopia as well as a deadly famine causing nearly 260,000 deaths. Based on these events and in spite of significant social and political improvements, the Somalis remain weakened and vulnerable to any economic and environmental shock. Somalia is indeed a country where 60% of the economy depends on the agro-pastoralist livelihoods and where the infrastructural development remains limited since the collapse of the centralized government. Thus, any climatic disruption during one of the two rainy seasons, the *Gu*, the main one, between March and June or the *Deyr* between October and December, leads to

economic difficulties of the same magnitude.

Since 1991, the country has been marred by political instability and violence. In 2015, the country barely ceded its long-held 1st place ranking on the Fragile States Index to South Sudan. In December 2016 and October 2017, the country's capital Mogadishu was the target of deadly terrorist attacks, which led to hundreds of casualties.

Any discussion of climate change and mobility in Somalia must address the clan system, as this underlies all legal, social, economic, environmental and security arrangements today (Brons 2001). The harsh natural environment of Somalia engendered a fierce reliance on clan groups for survival, and conflicts between clans over scarce resources have been regular. Clan violence is a push factor for migration, while clan allegiances are a pull factor.



Figure 30 – Clan distribution in Somalia. Source: CIA.

1. Climate impacts

Somalia has a harsh climate with mostly marginal land suitable for nomadic pastoralism. It lies at the extremity of the sub-Saharan semi-arid zone commonly referred to as the Sahel, which traverses the continent from Senegal to Somalia. It has predominantly very arid and semi arid climate zones, with large desert climate zones in the north and isolated humid semi arid zones in the south. Located between two subtropical anticyclone belts, its main weather patterns are controlled by seasonal monsoon winds. There are two rainy seasons: the primary rainy season (*Gu*) between March and July, and the secondary, lower rainfall, rainy season (*Karan* or *Deyr*) between August and November. The *Gu* is the primary cropping season. Most Somalis rely on rainfall for pasture and water for livestock and rain-fed,

largely subsistence, agriculture. Prior to the drought in 2015 that led to a major humanitarian crisis, there were severe droughts in 1964, 1969, 1974, 1987, 1998, 2000, 2001, 2004, 2008 and 2011.

There is a high correlation between extreme poverty, rural livelihoods and land degradation. Poverty in Somalia and population growth drives people to extreme, unsustainable land management practices, such as intensive agricultural methods, which exacerbate drought effects, deepening poverty. According to the World Bank, Somalia is the world's 5th poorest country with a per capita income of \$435. In 2014, 43% of the population lived on less than \$1 a day. Exports constitute only 14% of the GDP, with livestock trading with the Gulf being the mainstay of the Somali economy, and constituting 80% of foreign exchange earnings. Remittances are however very important in Somalia: according to World Bank data, they have reached 1.4 billion US\$ in 2015, and support 23% of the GDP, which makes Somalia one of the world's countries most dependent on remittances.

UNDP estimated that in 2014 over 70% of Somalis were pastoralists or agropastoralists. Somalia's nomads, in contrast to nomads in most other countries, are connected to urban centers, politicians and government employees. Pastoralism is a very respected profession. There are an estimated 2.4 million mainly crop-dependent agropastoralists and riverine people across Somalia (20% of the total population). Most of the country cannot support rain-fed agriculture but some river valley areas in the south central region can host irrigated agriculture. The Shabelle and Juba river valleys were historically the breadbasket of Somalia. In the last 100 years, nomads west of Hargeysa in the Togdeer region have become agropastoralists, cropping sorghum and maize. This area is known as Somaliland's breadbasket (Oduoari et al. 2007). The two crop growing seasons coincide with the *Gu* and *Deyr* rainy seasons (see Figure 21). Crops grown include sorghum, millet, maize, groundnuts, cowpeas, mung beans, sesame, cassava and vegetables. These crops are produced for both human consumption and animal fodder. The majority of these farmers also own livestock herds tended by family members, which graze far afield but return in the dry season to the home wells. In 2015 over half of the northern territories' population were pastoralists or agropastoralists.

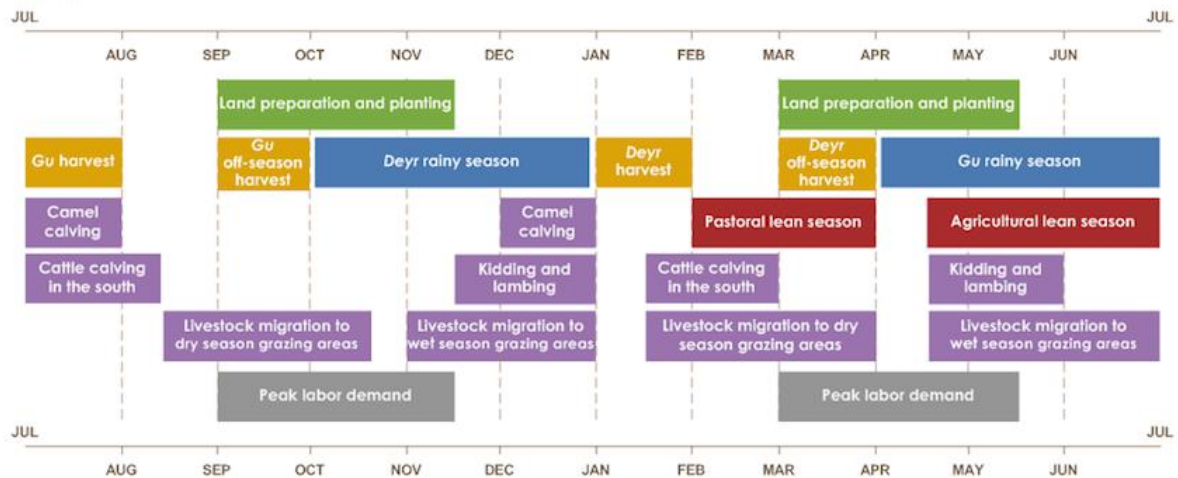


Figure 31 – Typical calendar of pastoralist and agropastoralist activities. Source: FAO

Given the very long coast of Somalia, sea-level rise is another key threat, which could flood millions of people and critical infrastructure by 2050. There is however no available tide gauge data along the Somalia coast that could allow for a precise assessment of this threat. Therefore, gauges located in Kenya have to be used for this.

2. Human mobility

Circular migration is the traditional Somali response to rainfall variability. They set up grazing encampments wherever pasture and water conditions are suitable, remaining in one place for weeks or months depending on the weather, inter-clan relations and government intervention. Pastoralist groups comprise members of the same sub-clan, and herders cluster together in times of inter-clan hostilities. Encampments consist of around 30 connected families occupying approximately 20 square miles with a population density of 20 people per square mile. Encampments are normally separated by large tracts of unoccupied land. Pastoralists have established ‘spheres of influence’ according to clan affiliation but they also follow the pasture. The following figure shows ‘normal’ migration patterns (not drought). These patterns roughly coincide with clan distribution and cross international borders. In times of drought, security permitting, they may migrate over 1,000 miles in search of pasture.

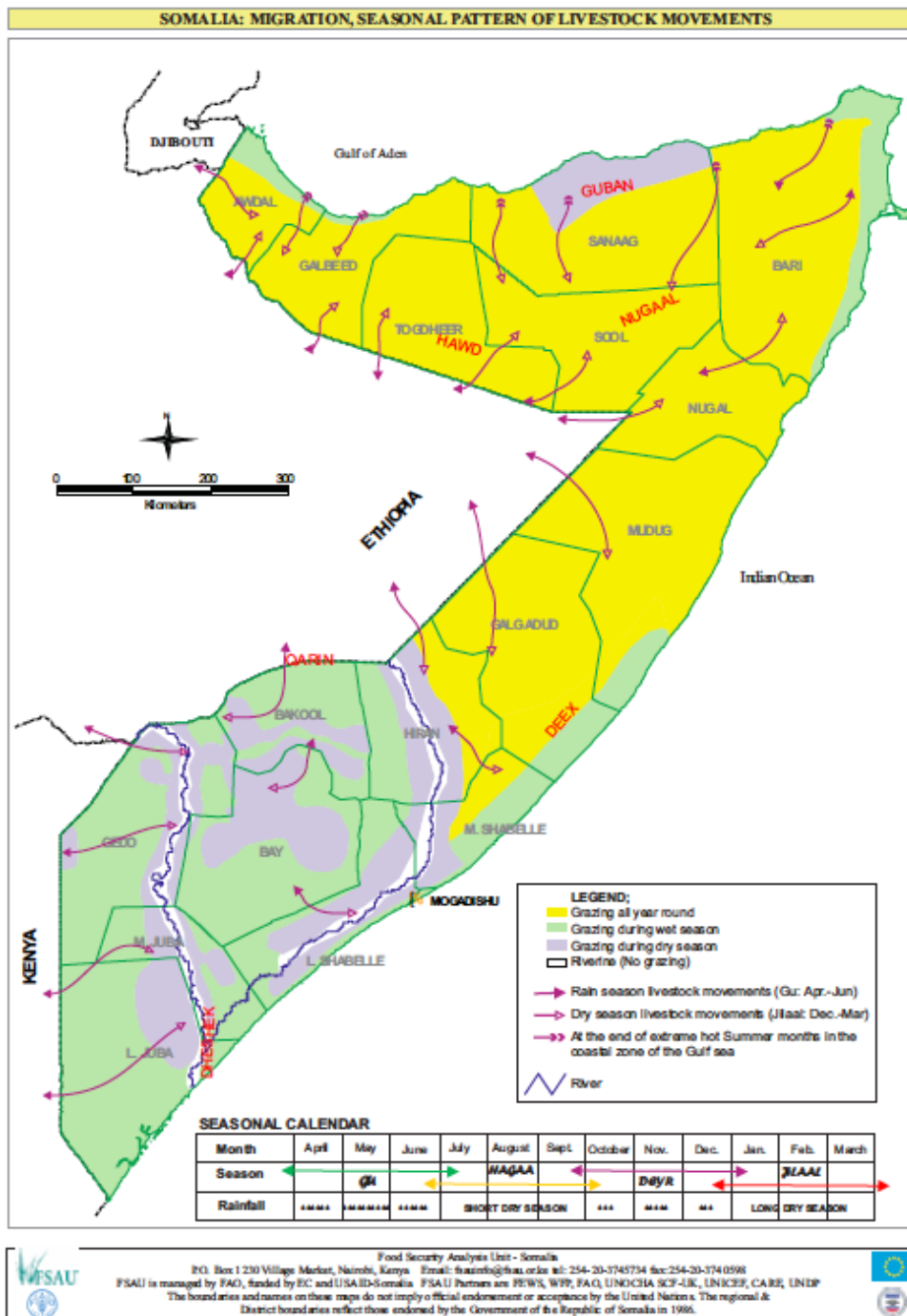


Figure 32 – Normal migration patterns in Somalia. Source: FAO.

Recurrent droughts pose a real threat to all pastoralists' food security, and they are becoming increasingly regular in the context of the adverse effects of climate change. When the drought of 2015 occurred, most Somalis had not yet recovered from the one that led to famine in 2010-2012. The viability of pastoralism depends on the ability of pastoralists to migrate with their livestock to adequate pastures year-round. Somalis are used to migrating large distances and across international borders with their livestock to find pasture. The effects of recurrent climate shocks and protracted armed conflict throughout the country for decades have decimated

Somalis' resilience to drought. Not only are their migratory patterns impeded by conflict, but they have lost most of their wealth – whether land or livestock – over repeated exposure to shocks. Pastoralists experiencing protracted displacement lose touch with pastoralism and many say they are not interested in returning to pastoralism even if they could be provided with material support to do so. Since most Somalis are pastoralists or agro-pastoralists this will have profound impacts on the Somali economy.

From 2015 onwards, Somalia was hit by a violent famine, which precipitated the country into a humanitarian crisis. The country was still highly insecure in 2015, with Al Shabab terrorizing Somalis, commandeering aid shipments, blocking transit access to pastoralists and targeting international installations. Several offensives from the African Union Mission to Somalia (AMISOM) took place and most of South Central was off-limits for relief organizations. Clan warfare continued in urban areas, and IDP camps saw clan violence. Conflict over natural resources, traditionally heavy in times of drought, increased in the northern territories.

According to the UN Office for the Coordination of Humanitarian Affairs (OCHA), by the beginning of 2016 an estimated 1.7 million or 36% of the northern territories' population of 4.7 million people were in need of humanitarian assistance. 385,000 of these faced acute, crisis or emergency food insecurity. By the end of 2017, the situation had considerably worsened: as of October 2017, there had been more than one million people internally displaced in Somalia over the year 2017. The majority of these displacements, about 860,000, were related to drought, mostly in the regions of Bay, Lower Shabelle, Sool and Bakool. Most of these displacements occurred in the Spring and were often compounded with conflict and insecurity.

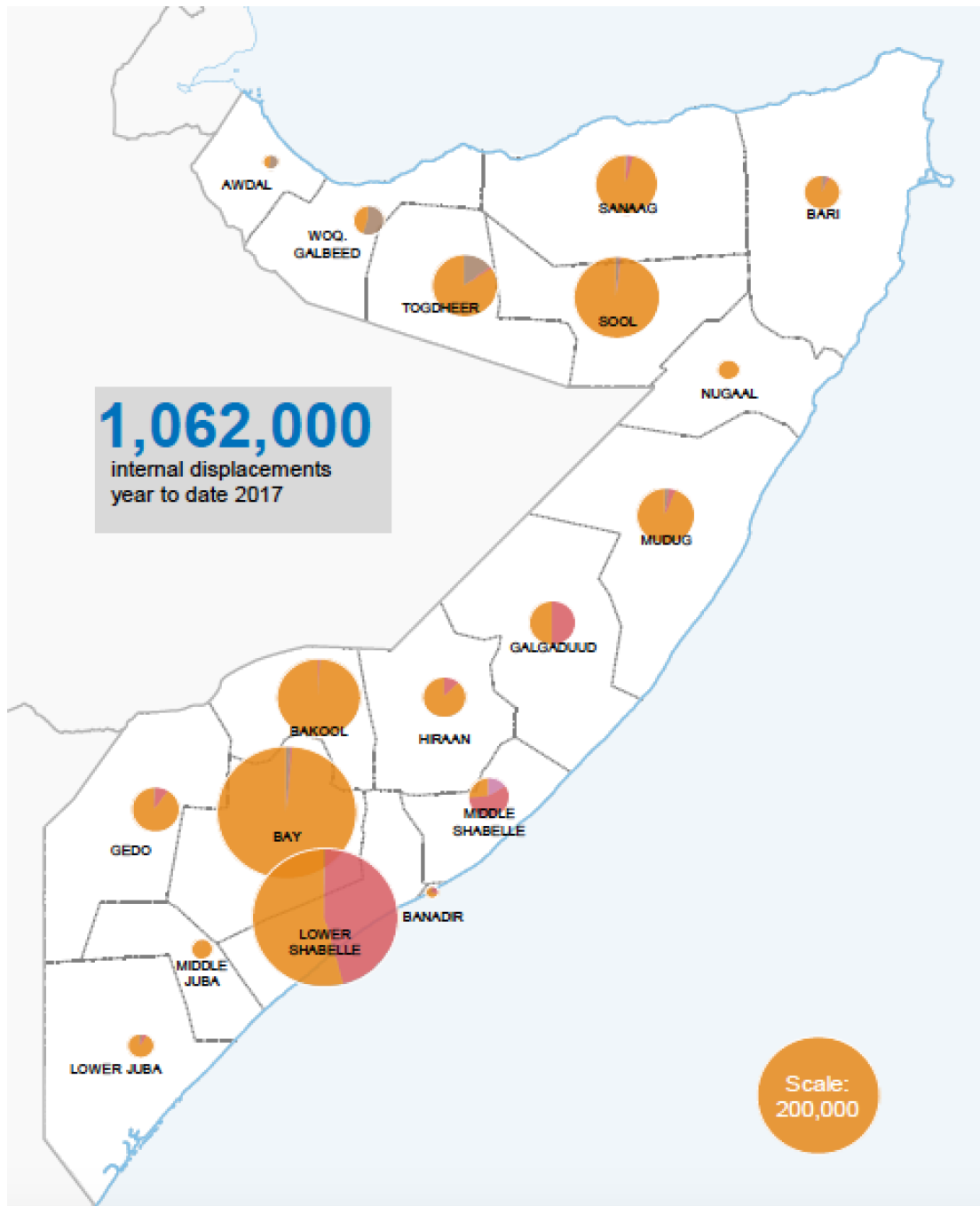


Figure 33 – People internally displaced in Somalia as of October 2017. Source: IOM Displacement Tracking Matrix.

As the impacts of recurrent drought and conflict accumulate, pastoralists are migrating into unfamiliar territory controlled by hostile clans, perpetuating the cycle of displacement and conflict and strengthening the link between environmental and conflict-driven migration. The figure below illustrates the abnormal livestock migration of 2015. Abnormal westward migration of Puntland pastoralists with their livestock has increased competition among pastoralists for already scarce pasture and water, sparking conflicts in an already tense society. According to UNHCR, disputes over pasture and water were the main drivers for

displacement in 2015 in the northern territories where tension between clans typically increases in the dry season. 60-70% of households migrated with their livestock from Bari and Sool and Sanag to areas in Awdal and Woqoyi Galbeed that had received better rainfall.

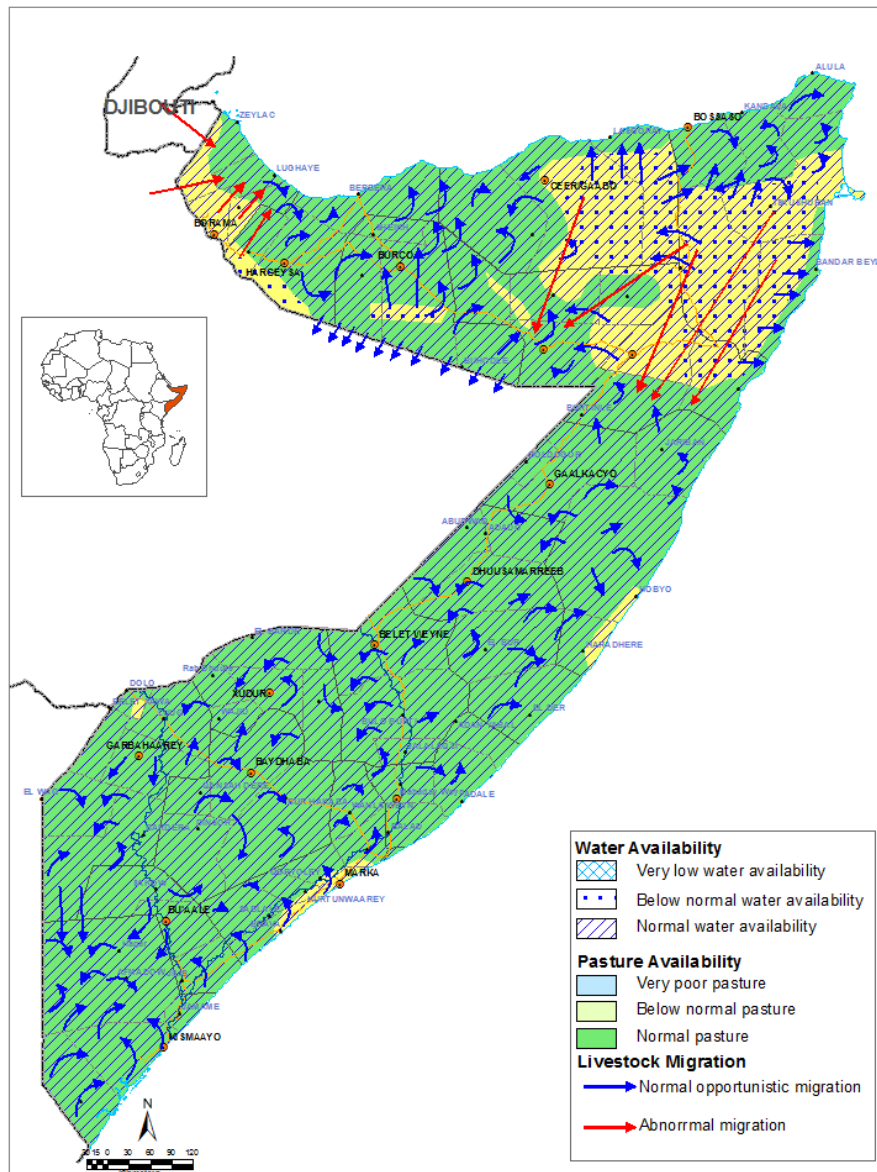


Figure 34 – Livestock migration in December 2015. Source: FNSAU.

Competition for resources among pastoralists was traditionally heavy with common violent clashes between sub-clans and clans (Lewis 2008). Normally if a pastoralist group needs to migrate outside of its sphere of influence for pasture it will send a scout ahead to assess the quality of range, water, and relations with clans already there. When land availability is not severely stressed there is usually sympathy for the group wanting to move in to the territory, as Somalis recognize that one day they too might need assistance, so a fragile sharing of the common resource is observed.

Migration from rural areas to urban centers has been increasing as people lose their livestock from drought. In 2015, 20% of drought-affected people moved from rural areas to towns in Somaliland, to stay with family. Drought-induced displacements are considered more serious by various NGOs because of their pre-existing vulnerability stemming from the loss of their property, livestock and livelihoods. Some IDPs who do not stay with a family settle on municipal land or occupy government buildings from which forced evictions are increasingly common. It is more common that rural-urban IDPs settle in urban fringes on traditionally-held land in IDP camps, where they pay rent to the local clan leaders.

At the end of 2016, as per UNHCR data, there were 1.62 million persons of concern in Somalia, most of whom – 1.56 million – were internally displaced. Though data for 2017 are not yet available, they should follow an upward trend.

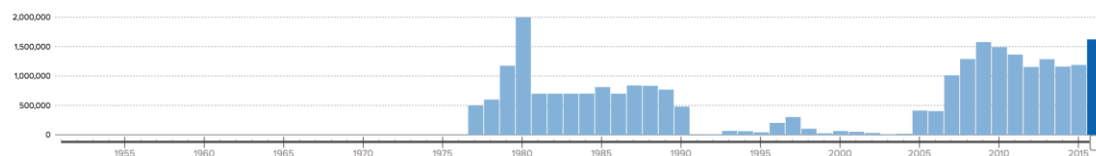


Figure 35 – Evolution of the number of persons of concern in Somalia. Source: UNHCR.

According to IDMC data, there were 70,000 people displaced by disasters in Somalia in 2016, a figure that represents a slight increase compared to 2015 (59,000 displaced).

5. South Sudan

According to the World Fragility Index, South Sudan is the world's most fragile country since 2015. It is also the world's most recent country, having gained independence from Sudan in 2011. Two years after independence, a civil war broke out, which is still on-going and fuelled by ethnic tensions. It is home to 12.5 million people, from very diverse ethnic groups. Its Human Development Index stands at 0.418, one of the lowest in the world. The climate of the country is tropical, with the exception of the northern part of the country, which is a warm semi-arid climate.

Because of the recent foundation of the country and the civil war that is raging, only few data – including official statistics – are available with regard to climate-induced migration and displacement in South Sudan. The country is however affected by a crisis that is highly comparable to the crises experienced by other countries of the region.

1. Climate impacts

South Sudan is one of the most vulnerable countries in the world with regard to climate impacts. According to the Climate Change Vulnerability Index 2017, it ranks among the world's five countries most vulnerable to climate change. The country is highly suitable for agriculture, with more than 95% of the territory being arable land, and 50 % prime agricultural land. Yet agriculture remains little developed in the country, with only 4% of the land being cultivated. Only 3% of the arable land is irrigated, despite very abundant water resources.

A key factor that explains this vulnerability is the fact that temperatures are expected to rise 2.5 times more than the global average. As a result of climate change, both droughts and floods are expected to increase significantly. This will result in crop failures as well as livestock deaths. This in turn is likely to lead to pastoralist migration as well as conflicts over water and pasture between farmers and pastoralists.

2. Human mobility

It is estimated that more than 95% of the country's population – roughly 11 million people – depend on climate sensitive activities for their livelihoods, like agriculture, forestry resources and fisheries. This figure represents a significant policy challenge, given that only 4% of the land is cultivated. Since 2017, the country is affected by a terrible humanitarian crisis, resulting from a massive famine. This famine is the result of the deadly combination of drought, conflict, economic turmoil, and political instability. The UN Office for the Coordination of Humanitarian Affairs calls the crisis of 'catastrophic proportions', as 7.6 million people are in need of humanitarian assistance, as of 2017. Six million are facing hunger directly, while 1.7 million are on the edge of famine.

Since the beginning of the conflict, 4 million people – one third of the total country's population – have been displaced: two million within the country's borders, and two million externally. As discussed below, many of the latter are refugees in Uganda, where they were protected as *prima facie* refugees – that is, people who find themselves in a refugee-like situation, irrespective of the motive for their displacement.

As in many countries of the region, pastoralist populations are particularly affected by droughts, which can lead to conflicts with sedentary farmers for natural resources, or tensions between different ethnic groups. The on-going conflict between the pastoralists and cultivators in the Equatoria region, for example, is an evidence of unregulated pastoralism and pastoralist migration (Manyock 2017). After the independence, the rates of forced and climate pastoralists migration into

the cropland region of Ekuatoria has risen. The movement has exaggerated the conflicts that have been going on since 2013. Whereas, historically, pastoralist migration and conflicts were more localized and inter-communal, the conflicts are now conventionalized because of the possession of weapons. Between 2013 and 2017, immigration purposes and motivations have become more confrontational and predictable by the cropland Equatorians.

Another explanation has focused on bloody communal and cattle rustling among the pastoralists. The Small Arms Survey (2007) associates seasonal migration more with the traditional communal practices of the cattle keeping communities rustling and raiding. Cattle raiding is the tradition and culture of many pastoralists in Eastern Africa. However, in South Sudan, the cattle raiding among the Dinka, Nuer, and Murle have been responsible for most of the unplanned migrations into Ekuatoria Region. Cattle-raiding conflicts inflict massive human fatalities, which include widespread indiscriminate and intended killings to a more prolonged displacement of households and severe livestock losses. While natural resources like the grazing and farming lands remain crucial in exaggerating the unpredictable outbreak of these conflicts, it is critical to consider their complexities. The possession of arms by pastoralists has considerably transformed the nature of pastoral violence in recent years. The less or unarmed communities have remained vulnerable to attacks, leading to many displacements. Pastoral violence has transformed in recent years. There are many factors, including economic and political marginalization, active resistance by pastoralist communities to assimilation, resource depletion, and demographic changes, and the growing availability of small arms and light weapons (Manyoack 2017). What one could characterize as low-level periodic violence has transformed into chronic, sometimes intensive, conflicts between cattle keeping communities. Particularly in South Sudan, it is therefore impossible to disentangle the environmental, economic and political drivers of migration and conflict.

At the end of 2016, as per UNHCR data, there were 2.87 million persons of concern in South Sudan. 1.85 million of them were internally-displaced people, while 752,000 are returnees, mostly from Uganda.

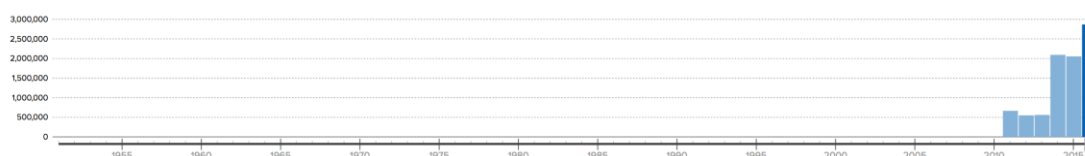


Figure 36 – Evolution of the number of persons of concern in South Sudan. Source: UNHCR.

According to IDMC data, 281,000 new internal displacements were registered in 2016. The collection of these data is however particularly difficult, ‘due to the fact that many population movements are very short term (‘pendular’), transitional or

undertaken in hiding. In this context, many of these displaced people are first accounted for once they have crossed an international border' (IDMC 2017).

6. Sudan

Sudan is a country of about 41 million inhabitants, which gained its independence in 1956. Political instability began in the early 1970s, with a civil war that lasted more than 20 years. Today Sudan is home to 597 ethnic groups, speaking more than 400 languages and dialects. Most of these groups are Arab – they represent 70% of Sudan's population. Sudan is also the country of origin of a large refugee population, often transiting through Egypt or Libya (UNHCR 2017).

Sudan is highly exposed to the impacts of climate change. The Nile river represents a vital resource for the country, but its flow will be significantly impacted by climate change. The construction of a series of dams in Sudan, as well as the Renaissance Dam in Ethiopia, could significantly change the water dynamics in the country. Sudan ranks at the 165th position in the Human Development Index, and suffers from chronic food insecurity, which is often correlated with episodes of violence. These often find their roots in tensions over access to natural resources or land. According to the Global Hunger Index (IFPRI 2017), Sudan ranks among the countries where food insecurity is the most severe. Climate change is likely to push several communities of the country to the limits of their resilience, which can exacerbate tensions over land or resources. Already in its assessment of the environmental impacts of second Sudanese civil war, the UN Environment Programme had noted a very strong linkage between land degradation, desertification and conflicts (UNEP 2007).

1. Climate impacts

Most of the country is a warm desert climate – only the southern strip of the country qualifies as semi-arid, and the southernmost tip has also swamps and rainforests. But most of the country is made up of desert areas, with the Nubian desert or the Bayuda desert. Desertification is a major issue, compounded by soil erosion, agricultural expansion and climate change.

Climate impacts are already manifest in the country, through a rise of the temperature and a lesser frequency of rainfall. Between 1960 and 2009, spring and summer temperatures have increased between 0.2°C and 0.4°C per decade, which means that temperatures of the 2000s were on average between 0.8°C and 1.6°C higher than temperatures in the 1960s (Government of Sudan 2013). The semi-arid

regions of the country are the most exposed to this temperature rise (Zakieldeen et Elhassan 2015).

Rainfall has also become more irregular and less frequent: between 1981 and 2012, rainfall has decreased significantly compared to the 1971-2000 period, and even more so compared to the 1941-1970 period (Zakieldeen et Elhassan 2015). The decrease has been particularly strong in the northern and central parts of the country. As a result of such erratic rainfall, the number of droughts has risen sharply and these occur nowadays on an annual basis, threatening 19 millions of hectares of arable land (Zakieldeen et Elhassan 2015).

By 2060, temperatures should rise between 1.5°C and 3.1°C in August and between 1.1°C and 2.1°C in January (Zakieldeen et Elhassan 2015). Rainfall should decline by about 0.5% annually, while rainfall's coefficient of variability will increase at a pace of 2% annually (Government of Sudan 2013).

This will impact negatively the flow of the Nile river, while demand for water is expected to increase. In 2090, the river flow should be reduced between 20% and 30%. This will first result in a 40% decrease of water availability by 2030, as well as a decrease of the country's hydro-electric production capacity (Government of Sudan 2013). In order to address this, the Government of Sudan has undertaken the construction of a series of dams along the Nile river. Sudan should also benefit considerably from the construction of the Renaissance Dam in Ethiopia, which was recently completed. While Sudan (and South Sudan) are still bound to Egypt by a 1959 agreement regarding the sharing of the Nile water, they could benefit from the hydraulic alliance created by Ethiopia in 2010 with Uganda, Tanzania, Rwanda, Burundi and Kenya.

A pressing issue in the country is however the occurrence of violent sand storms, called 'haboobs'. These sand storms advance like thick walls and bury everything – vegetation and homes – in dust.



Figure 37 – A 'haboob' advances towards the capital Khartoum. Source: AFP/Getty.

These haboobs have become more frequent and violent in recent years. They usually occur after several days of rising temperatures and declining atmospheric pressure. Haboobs represent a key risk for health (with regard to respiratory diseases), economic activity and agriculture (with regard to the destruction of crops). The increased frequency of the phenomenon hints at a linkage with climate change, but no research has yet confirmed such linkage to date. Temperature rise, rainfall decline and desertification should however constitute aggravating factors.

2. Human mobility

In the desert areas of the country, many farmers rely on rainfall patterns for subsistence agriculture, while the many nomadic pastoralists are constantly on the look-out for pastures. Yet the alternance of droughts and floods is ruining crops and pastures: flood related disasters have displaced more than 600,000 people in Sudan since 2013, according to IDMC database³. About 70% of the rural population depend on traditional rain-fed agriculture, which is heavily vulnerable to climate impacts. Sudan has a long history of food insecurity, as one of the most food-insecure countries in the world according to the Global Hunger Index.

The recent construction of dams on the Nile river, as well as the completion of the Renaissance Dam in Ethiopia, should bear important consequences for the agricultural sector in Sudan, as these dams should reduce the flood cycles and regulate the annual water flow. For now, Sudan faces severe riparian floods from

³<http://www.internal-displacement.org>

the Nile river, which occur almost annually. In August 2016, the Nile river reached its highest point, at more than 17 metres. These floods caused more than 100 casualties and affected 122,000 people, according to data provided by the UN Office for the Coordination of Humanitarian Affairs.

As of 2017, there were 4.8 million in need of humanitarian assistance in Sudan, according to the UN Office for the Coordination of Humanitarian Affairs, including 3.6 million in need of food assistance. The situation in Darfur, where food crises and violence are intrinsically related to each other, remained particularly critical.

At the end of 2016, as per UNHCR data, there were 2.7 million people of concern in Sudan. The majority (2.2 million) were internally-displaced people, but there were also 420,000 refugees, 16,000 asylum-seekers and 37,000 returnees.

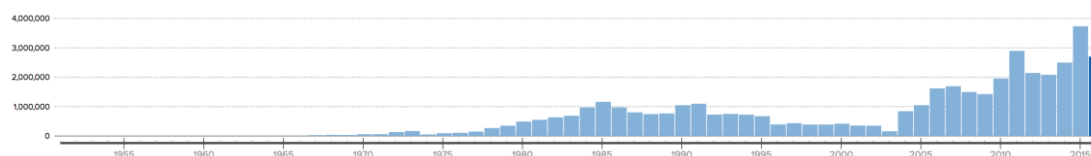


Figure 38 – Evolution of the number of persons of concern in Sudan. Data: UNHCR.

According to data provided by IDMC, there have been 123,000 people displaced by disasters in Sudan in the year 2016. Most disaster-related displacement occurred in the years 2013 and 2014 however, with 284,000 and 187,000 displaced people respectively.

According to IOM Displacement Tracking Matrix, most IDPs are located in South Darfur (31.25%), Central Darfur (23.69%), North Darfur (20.34%) and West Darfur (10.26%).

7. Uganda

Despite the praise it often receives for its asylum policy and the importance of climate impacts in the country, Uganda remains little addressed by research on the climate-mobility nexus.

Uganda's economy has enjoyed a steady growth for quite a few years, and is slowly transitioning from an agriculture-based economy to a service-based economy. Uganda has also large and untapped reserves of oil and gas. Despite its economic growth, Uganda remains heavily indebted, and inequalities are growing. Poverty remains high, especially in rural regions, where 84% of the population live (World Bank 2016).

Another major issue for the country is its overpopulation, which can lead to competition for resources. The population currently totals about 40 million people: its fertility rate is the fifth largest in the world, with 5.97 children per woman, while the median age of the population – 15 years old – is the lowest in the world. The fertility rate is however steadily declining: though population should grow at a much slower pace in the future, the issue of overpopulation will remain, especially in a situation where resources will become more scarce under climate change. In addition to its rapidly growing population, Uganda is also home to a large number of refugees: more than one million refugees from South Sudan have been welcomed in Uganda over the past few years, adding up to the 200,000 refugees from Burundi, DR Congo, Rwanda, Kenya or Sudan.

1. Climate impacts

Although the whole territory of Uganda is a tropical savannah, the country is highly vulnerable to climate change. Uganda is a very rural country: the capital city, Kampala, has only 1.5 million inhabitants, and 84% of the population live in rural areas. Rural populations depend almost exclusively on rain-fed agriculture. Already, erratic and unseasonal rainfalls have cost USD 60 million/year in crop losses (World Bank 2016).

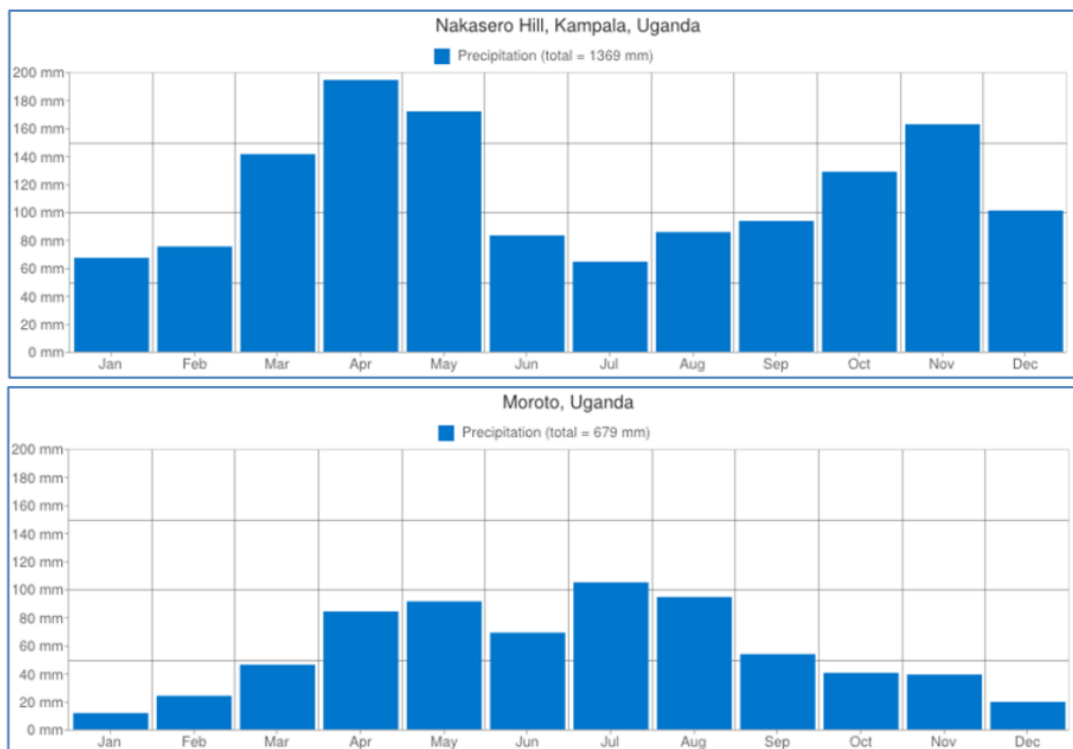


Figure 39 – Current precipitation variation in Uganda. Source: Hisali et al. 2011.

Key climate impacts in Uganda include heavy rains, flooding, landslides, drought, as well as disease outbreaks and epidemics. Annual mean temperatures have already increased by 1.3°C since 1960, and changes in rainfall patterns have dramatic impacts on food security. In the future, temperatures are likely to increase in Uganda by up to 1.5 °C in the next 20 years and by up to 3.2°C by 2080s. In the scenario RCP 8.5, where global temperature increase would reach 4°C by the end of the century, Uganda's average temperature would increase by 4.3°C by 2080 already.

Rainfall will become less predictable, less reliable and more intense, while climate extreme events such as droughts and floods will become more frequent and more intense (Uganda National Meteorological Authority 2017). The impacts of climate change are already felt in the country, as the drought of 2010-2011 caused economic losses of about US\$ 470 million in crops and livestock, amounting to 16% of the total value of the country's crops.

A study on the impacts of climate change in the Karamoja cluster revealed that the average monthly rainfall in the region had increased over the last 35 years and that the rainy season is now longer by two months. However, the variability of rainfall has also increased considerably. Combined with temperature increase, this unpredictability has a detrimental effect on agricultural production, thereby threatening to aggravate food insecurity in the Karamoja cluster (Uganda National Meteorological Authority 2017).

Agricultural production in Uganda is dependent on rainfall, which makes about 85% of the Ugandan population vulnerable to climate change (CGIAR 2016). For example, the production of coffee, a major export of the country, could be heavily affected, as climate change could cut production in half by 2050, which would be a loss worth US\$ 1.2 billion.

Declining crop yields have led to an increase of food prices and have slowed down the progress towards poverty reduction in the country. Increases in the number of pests and diseases have also been reported, affecting not just the population's health, but also crops and livestock.

In its strategic document for economic development (Vision 2040), the Government of Uganda recognizes that climate change will affect most of its key economic sectors and that action to increase climate resilience is crucial if the country is to meet its goal to become a competitive, upper middle-income country by 2040 (Government of Uganda 2013).

2. Human mobility

Herders and pastoralists are expected to be most affected by these changes, though no data has been found regarding the magnitude of their mobility patterns, pointing towards an obvious need for further research. One can however safely assume that patterns of mobility would not differ considerably from the other countries of the region, though the share of rural population is consistently higher in Uganda.

Uganda is also major destination for refugees across the region: it is Africa's largest refugee-hosting country. More than one million South Sudanese refugees, for example, had fled to the country by the end of 2017, and Uganda had received considerable praise for its welcoming refugee policy. New arrivals are primarily made up of women and children.

Refugees in Uganda are given small plots of land upon which they can grow crops or build a house, and they can move freely within the country. Refugees are also granted with the right to education, health services and business ownership.

Data on disaster-related displacement remains difficult to find. In 2016, IDMC reports that 2,500 people were displaced as a result of rainy season floods in March, but this figure is considerably lower than in 2013 and 2014, where 30,000 and 50,000 people had been displaced by disasters, respectively. Unlike many countries of the region, Uganda appears more as a hotspot for in-migration and displacement than for out-migration and displacement.

At the end of 2016, as per UNHCR data, there were 1.16 million persons of concern in the country, the vast majority of whom were refugees.

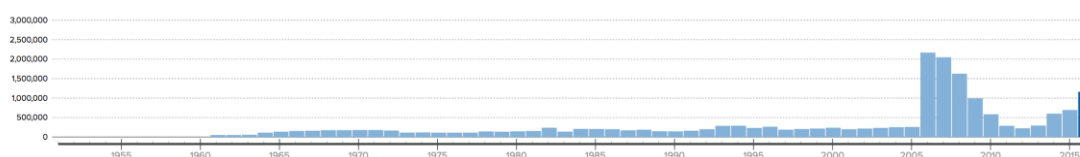


Figure 40 – Evolution of the number of persons of concern in Uganda. Source: UNHCR.

7. Pastoralism

Pastoralists represent a disadvantaged minority and are considered one of the most vulnerable human groups in the world. In addition to enjoying the universal rights recognised to all, pastoralists enjoy some additional, specific rights: the rights

recognised to all minorities and the rights recognised to indigenous people. The international jurisprudence on minorities is based mostly on the right to maintain their own cultures, including their own means of subsistence, the Declaration of the Rights of Persons Belonging to National or Ethnic, Religious and Linguistic Minorities among others, recognises this right.

Mobility in the context of climate change also takes a different meaning for pastoralists: for example, what qualifies a displacement for a group that is mobile by nature? Can we speak of climate-induced displacement, or even migration, in that context?

With an estimated pastoralist population of over 17.3 million people, Africa has the highest concentration of pastoral communities in the world, which represent some of the most vulnerable groups to climate change. Indeed, the chronic vulnerability that characterises many pastoral groups in East Africa and beyond is not merely related to environmental stresses but is the result of complex and multi-dimensional political, economic and social processes. Processes of marginalisation date back to colonial times when policies and measures interfered with pastoralist systems and constrained seasonal mobility within the newly created state borders and in-country boundaries.

Amongst the groups affected by climate change in the IGAD region, pastoralists hold a special place, as their livelihood depends directly on environmental conditions, and as they constitute an already mobile population. The pastoralist lifestyle – relying on livestock production in arid and semi-arid land through extensive mobility patterns and use of natural forage and water points – is intrinsically linked with mobility and migration – and droughts heavily disturb these traditional migration patterns, leading to displacement and tensions over land and resources. These elements shed a particular light on the climate-mobility nexus for pastoralist groups – this is the focus of this cross-cutting chapter.

Pastoralists are present in all countries of the IGAD region, but they are far away from being a single homogeneous group. Their mobility patterns differ, from wholly mobile, semi-nomadic with seasonal migration (transhumant), or quasi sedentary with short-term migrations. Far away from being monolithic, pastoralist lifestyle is also a changing at a rapid pace through increasing diversification and education. Many pastoralists rely on other economic activities such as crop cultivation (agro-pastoralism, predominantly in Semi-Arid districts in Kenya) or petty trade (Cabot Venton et al, 2012). Also, because of education, many children are attending sedentary schools while other parts of the family, mostly men, are migrating with the herds during seasons. The role of women, previously in charge on the domestic chores and of child care, is also changing: in North-western Kenya, pastoral women are also migrating to work as domestic servants, in restaurants and breweries, for

example in Uganda's Karamoja region.

Pastoralists' populations are also characterized by important inequality of wealth and assets: wealthy pastoralists households with hundreds or thousands of livestock units with good access to markets and information are siding very poor pastoralist households with very few livestock, important vulnerability to shocks leading to livestock death and weak access to information and markets.

Droughts heavily disturb the traditional nomadic patterns of pastoralists, but drought in itself is not the main problem, indeed "pastoralists have survived natural {...} stressors for centuries through traditional institutions and coping strategies" (Opiyo et al., 2012). It becomes one when coupled to the vicious circle of vulnerability and poverty, demographic pressure, eroding traditional livelihoods, absence of service provision, political marginalization, demographic pressure and the already important insecurity (Overseas Development Institute, 2009). Drought does not only mean absence of rainfalls, but also changing mobility patterns; increased likelihood of cattle raiding and resource-based conflicts; overgrazing; resource depletion; livestock disease and death, and destitution of communities. All these factors, that can occur one after the other, at the same time, or in feedback interaction, may contribute to forced or obliged internal and cross-border migration and displacement flows of pastoralists– especially if coping strategies are constrained.

Pastoralist communities have different coping strategies to face livelihood shocks triggered by droughts, but they are more and more challenged. One of the most common strategies is change in mobility patterns of livestock to access farther pasture or water (Opiyo et al., 2012). Other coping strategies involve diversification of livestock species, and economic diversification towards non-pastoralist activities such as crop farming, petty trade, rural-rural or rural-urban migration, or charcoal burning⁴.

However changing mobility patterns are affected both by land fragmentation and by rising insecurity and resource-related conflict. Land fragmentation is the result of a trend of privatization and enclosure of land for diverse purpose such as farming, ranching, conservancies, and touristic reserves. As a consequence, traditional resources and migration routes are not available any more. Land fragmentation, added to repeated impact of droughts, leads pastoralists to their mobility patterns extend farther and farther to access natural resources in territories whose use is not previously agreed upon through shared resource agreements. This extension of mobility increases the risk of border conflicts with other pastoralist communities competing for the same resource (Opiyo et al., 2012).

⁴This coping strategy being considered as negative because increasing resource depletion of scrubs and trees.

Land fragmentation, combined with conflict and perceptions of insecurity (Opiyo et al. 2012) can also lead to concentration of herding on certain areas, which leads to over-grazing and further depletes the natural resources. Because of the erosion of traditional coping strategies, the impacts of droughts are more important than before and so are conflicts and livestock deaths.

Access to markets is important as pastoralists obtain the majority of their calories from their own livestock products and from grain purchase from the sales of livestock and livestock products. Camels, cattle, sheep and goats are the main livestock reared and of these sheep are the least suited to the hot, dry climate in the pastoral regions. Sheep and cattle are most vulnerable to heat stress, which can impact milk production and body condition, and they also require pasture for grazing which is dependent on sufficient rainfall.

With independence and African self-rule, already strained pastoralist livelihood systems were further undermined by inappropriate and biased policies that further constrained mobility, promoted private land ownership over communal land ownership or assigned fixed grazing lands. Today pastoralist communities are among the most politically marginalised groups in East Africa (Oxfam, 2008). Pastoral mobility continues to be constrained and pastoral areas continue to be neglected in resource allocation, basic services, and infrastructure development. Pastoralist groups are poorly represented within national political arenas and struggle to have their rights recognised and make their voices heard in decision-making circles. These are among the key reasons why pastoral communities often dangerously sit on the edge of statelessness.

On the other hand, some of the challenges to access to citizenship and threats to statelessness arise from the nomadic character and their unique way of life. Pastoral ethnicities and identities straddle across borders and many communities live in border areas. The Afar pastoralist group for example are found across Ethiopia, Eritrea and Djibouti; Somalis across Ethiopia, Djibouti, Somalia and Kenya; Beni Amer and Beja in Sudan and Eritrea; and the Karamoja in Kenya, Uganda and Sudan. Pastoralist communities have also always been highly mobile over large tracts of land and across international borders (and in-country administrative boundaries).

With their identities and livelihoods spanning across borders and their constant movements, some pastoral communities such as the Nubians and Turkana (Kenya/Sudan), Zaghawa and Masalit (Chad/Sudan), Somalis (Kenya/Somalia/Ethiopia) are at particular risk of denied citizenship by state authorities on both sides of the border.

Pastoralists, in particular, were at risk of displacement as groups came in increasing contact with one another as resources became scarcer. In recent history in the IGAD

region, a number of flare-ups between pastoralist groups have occurred. This is the case, for example, along the border of the Somali and Oromiya regions in Ethiopia. While these localized conflicts are attributed to resource scarcity, they are typically the result of Oromo groups perceiving an ‘invasion’ by Somali groups into their lands in the Oromiya region.

In addition, pastoralist communities usually have their own laws and practices to regulate proper use of water, forest and grazing resources, which can create tensions when a pastoralist group ventures into the territory of another one. Furthermore, the proliferation of small arms in the Horn of Africa and for pastoralists’ self-protection has escalated the conflict (Mkutu 2001, 2003). A culture of reprisals and counter-reprisals from all sides is building up, contributing to conflict escalation. Over many years, as in this case, this can build into a history of resentment. Land tenure insecurity is also a prime factor for tensions and conflicts.

The ICPAC/WFP Atlas of Climate risks and Food Security notes that ‘the root causes of conflicts in pastoralist areas of the Greater Horn of Africa are principally competition for shrinking pasture and water resources. At the same time, conflict itself almost always intensifies hunger, as it drives people from their homes and disrupts marketing and distribution systems.

Resource based conflict and insecurity in the pastoral areas seriously affect pastoralist livelihoods by hampering seasonal migrations, limiting farming activities, disrupting internal trade and human mobility and causing the loss of lives and livestock. This has resulted in already food insecure groups resorting to violence as their livelihood options shrink.’ (ICPAC/WFP 2017).

The link between droughts and conflicts, be they cattle-raiding or resource-based conflicts, remains however heavily debated (Sheekh et al., 2012 ; Opiyo et al., 2012). Certain theories assert that there is a positive correlation and that drought is a factor increasing the possibility of conflict by increasing competition for scarcer resources, while other theories point to the importance of external political (electoral issues) and economic factors (commercialization of cattle raiding) to understand why conflicts are so widespread in northern Kenya. The discussion over this link is of particular importance in our assessment of drought-related displacement that is often framed as conflict-induced displacement.

The advocates of the positive drought-conflict correlation emphasize the importance of resource scarcity in conflict motives among pastoralists. Because of natural resource scarcity pastoralists’ coping strategies involve extension of mobility patterns and increase the risk of border conflicts and competition for the same resources. This approach of the drought-conflict link is also framed by many

media reports. Advocates refer to statistics to assert that there is a correlation between deaths that led to clashes over resource and the presence of above-normal dry conditions (Hsiang et al. 2013). On the other hand, other theories advocate for a negative link between droughts and conflict by showing that cattle-raiding is more developed during the wet seasons and the short rains period (Opiyo et al., 2012).

The independence of South Sudan and the risk of statelessness

The independence vote in Sudan's 2011 referendum has had a direct impact on the livelihoods of a number of pastoralist communities living along the border, whose cultures and livelihoods depend on annual herd migration across the North/South borders between Sudan and South Sudan. Those affected include, but are not limited to the Misseriya, Ngok Dinka, Aweil, Ruweng, Panaru, Nuer, Hawazma, Nuba and Southern Rizeigat.

The high level of mobility of pastoralist communities make them a group at particular high risk of statelessness, which is one of the most serious potential consequence of any state secession. For example, the Baggara who have historically migrated north-south with their cattle were at risk of being denied citizenship by South Sudan even though for centuries they have moved to follow the alternating cycle of long dry and short rainy seasons from north to south and back again, spending at least half if not more on the southern side of the border. There are also several Southerners (e.g Dinka communities) living or regularly crossing north of the border. Many seek goods and services, medical care and education in the North; the majority of commodities in the area are sold by Northern traders.

8. Bringing the data together: a regional perspective

The magnitude of displacement related to environmental changes remains very high in the region. By the end of 2016, according to UNHCR figures, there were close to 10 million persons of concern in the region, be they refugees, asylum-seekers, internally displaced people or returnees – the repartition between these different categories is highly versatile from a country to another.

It is difficult, however, to know how many have them have been displaced as a result of environmental changes, and even more so as a result of climate impacts. Data on the annual flows of people displaced by disasters, however, provide an indication for this.

They come in addition to the number of people who have chosen to migrate in reaction to or in anticipation of environmental changes, whose number is often not registered, and difficult to estimate via proxies.

Country	Number of persons of concern at the end of 2016 (stock)	People displaced by disaster in 2016 (flow)	International migrant stock in 2015 (data: UN DESA)
Djibouti	25,862	n.a.	112 351
Ethiopia	794,133	347,000	1 072 949
Kenya	514,867	40,000	1 084 357
Somalia	1,620,000	70,000	25 291
South Sudan	2,870,000	n.a.	824 122
Sudan	2,700,000	123,000	503 477
Uganda	1,160,000	2,500	749 471
Total for the region	9,684,862	582,847	4,372,018

There is ample evidence, however, that mobility related to climate change will increase significantly in the coming years. The World Bank projects that the number of people migrating as a result of climate change will increase significantly in East Africa over the coming years.

According to the different scenarios, the number of 'climate migrants'⁵ could rise from 1.8 million in 2020 to 6.9 million in 2050 (in a climate-friendly scenario), or from 2.6 million in 2020 to 10.1 million in 2050 (in the pessimistic, reference scenario).

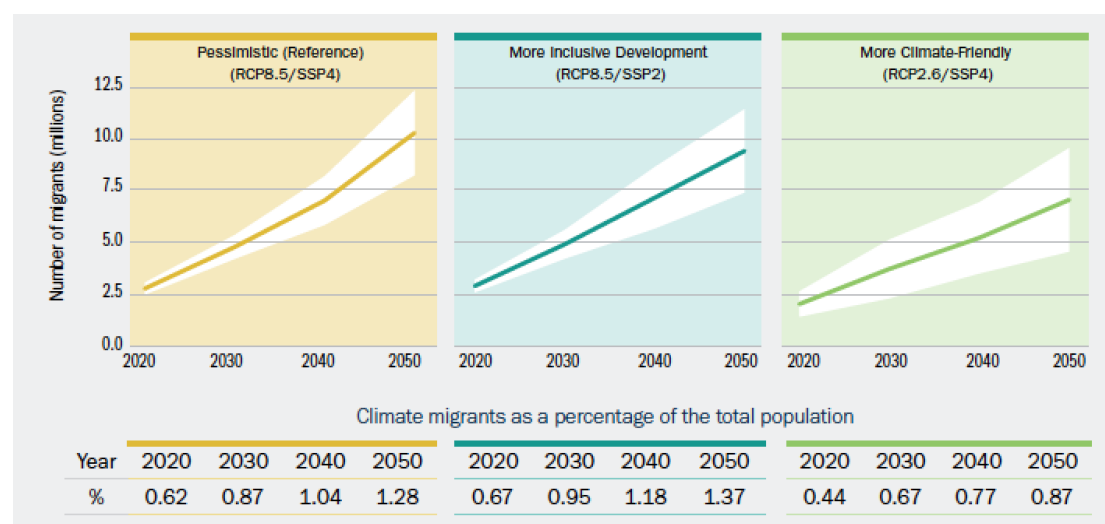


Figure 41 – Projected numbers of 'climate migrants' in East Africa under three scenarios. Source: Rigaud et al. 2018.

⁵ This is the term used by the World Bank. In the report, climate migrants are defined as 'people who move - within countries - because of climate change-induced migration. The modeling work captures people who move at spatial scales of over 14 kilometers - within a country - and at decadal temporal scales. Shorter distance or shorter term mobility (such as seasonal or cyclical migration) is not captured'. Climate change-induced migration is defined as 'migration that can be attributed largely to the slow-onset impacts of climate change on livelihoods owing to shifts in water availability and crop productivity, or to factors such as sea level rise or storm surge'. (Rigaud et al. 2018)

The three scenarios developed by the World Bank consider not only the evolution of climate change, but also of social policies. These figures, however, come with two important caveats.

- First, many forms of mobility that are common in the IGAD region are not considered in these projections. This is the case of the seasonal migration of pastoralists, but also of pendular migration and migration on distances under 14 km. More importantly perhaps, the report does not consider international mobility (including refugees and asylum-seekers), which is also very significant in the IGAD region.
- Second, the geographical definition of East Africa is significantly different from the IGAD region, or even the Greater Horn of Africa. Some countries that are member-states of IGAD are not considered in these projections: this is the case of Sudan and South Sudan. On the other hand, countries that are not member-states of IGAD are considered in the projections: this is the case of Eritrea, Tanzania, Rwanda, Burundi, Malawi, Mozambique, Madagascar, Zambia and Zimbabwe.

It is important to note, however, that many of climate migration ‘hotspots’ identified in the projections are located in the IGAD region. The projections foresee that people will migrate or be displaced out of the northern parts of the Ethiopian highlands, parts of western Uganda and coastal regions in Kenya. On the other hand, they foresee that people will migrate or be displaced to the southeastern highlands of Ethiopia, and other zones outside the IGAD region.

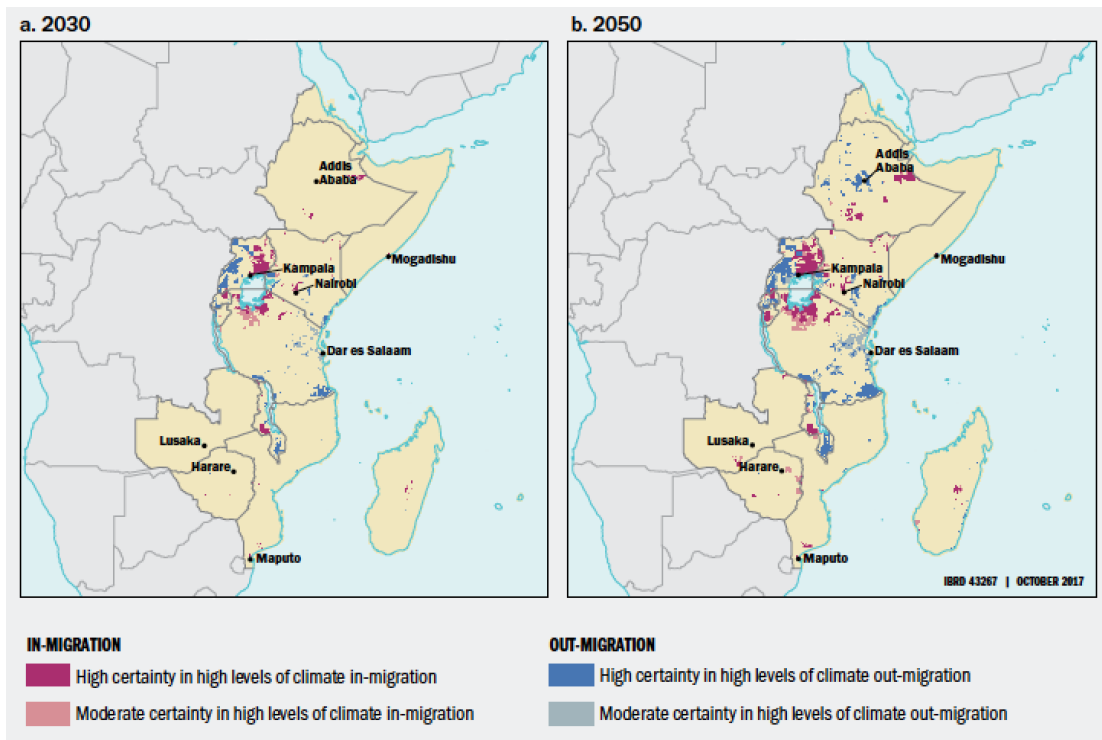


Figure 42 - Hotspots projected to have high levels of climate in-migration and climate out-migration in East Africa, 2030 and 2050. Source: Rigaud et al. 2018.

In particular, all models project a significant increase in urban populations, as internal mobility (part of which will be related to climate change) will combine with demographic growth in the region. This trend will be particularly acute in Ethiopia, Kenya and Uganda.

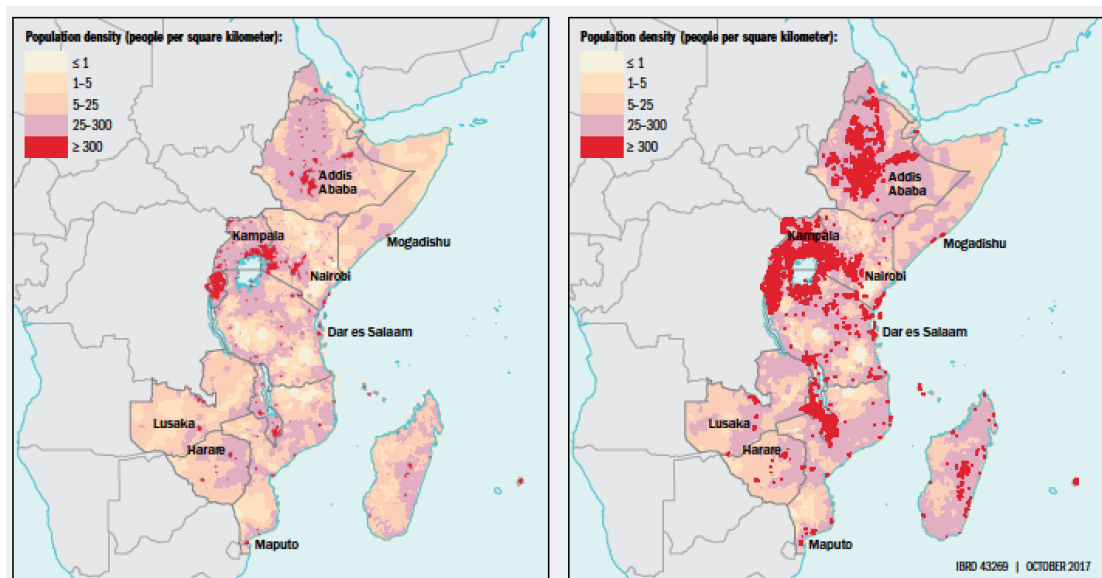


Figure 43 - Population density in urban areas of East Africa, 2010 and 2050 (projected). Source: Rigaud et al. 2018.

2. Policies and practices

As shown in the previous section of this report, countries of the region share many similar challenges, but are also very diverse when it comes to economic development, political governance or stability. Different forms of mobility are also present in the region, and range from massive displacements compounded by violence, political instability, economic hardships and climate change, to migration deployed as an adaptation strategy.

A central common feature however is the deep interconnection between environmental, economic and political drivers of migration and displacement. This is particularly obvious in the case of humanitarian crises, which are compounded by a whole range of factors that mutually influence each other and are impossible to disentangle from one another.

Addressing the issues of climate change and human mobility holistically, requires a range of interventions from different policy areas. This section reviews and analyses different policies, strategies and practices that have been designed and implemented at the national and regional levels to address the climate-mobility nexus. The analysis was conducted on the basis of the review of policy documents and interviews with local experts and policy-makers.

It does not seek exhaustivity, but rather seeks to highlight pertinent policies, frameworks and practices that can new inform on-going or new policies and programmes. Different types of climate impacts, as well as different mobility patterns, have influenced and shaped different responses and initiatives in IGAD member states. This sections reviews and analyses these different responses, and is organised around different policy areas that are central to the climate-mobility nexus.

1. Climate change

One channel to address migration and displacement related to climate change is through the lens of climate policies, both at the international level – with the UNFCCC negotiations – but also at the national level, as an increasing number of countries have developed adaptation plans that account for human mobility.

The international negotiations on climate change have long been perceived as the primary forum for policy initiatives towards human mobility induced by climate change (Warner 2011). Combined advocacy efforts have led to migration being recognized as a possible strategy to adapt to climate change impacts in the Cancun Adaptation Framework, adopted in 2010. The paragraph 14 f of the Framework

invites parties to undertake ‘measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at the national, regional and international levels’⁶.

The Paris Agreement, signed in 2015 at COP21, should logically become the main framework for action on climate change in the coming years, and especially after its implementation in 2020. The Paris Agreement contains important provisions for adaptation, loss and damage, or climate finance. All those provisions can support and provide legal grounding to future policy initiatives. The COP21 also requested the Executive Committee of the Warsaw International Mechanism on Loss and Damage to establish task-force ‘to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change’.

This task-force has recently been operationalized and is supposed to provide recommendations to the WIM ExCom in the Fall of 2018, and at the COP24 in Katowice (Poland) in December 2018. The task-force includes constituencies from diverse branches and agencies of the UN. Regional organisations such as IGAD or regional grassroots organisations are not represented however.

In May 2014, the African Union issued an African Strategy on Climate Change, where the issue of human mobility is discussed on different occasion: migration is primarily discussed in relation to urbanisation trends, while displacement is mostly related to sea-level rise. The document recognises in particular that ‘climate change influences the migration of people, the resources such as water and food available to cities, and generally the manner in which cities develop’. It also notes that ‘rises in sea levels and sea temperatures could have devastating consequences on the coast of Africa with risk of inundation of many important commercial centres, loss of infrastructure, and population displacement’. The linkage with food security and resources-based conflicts is also acknowledged, as the document states that ‘serious resources-based conflicts are already being witnessed over many parts of the region, especially during the periods of climate extremes. With increasing population, and corresponding demands for the continuously degraded environment resources, forced migration and natural disasters increase in resources-based conflicts in Africa’ (African Union 2014).

Therefore, adaptation is recognised as an ‘overriding priority’ for the continent, with a specific focus towards shifting from vulnerability assessments to the implementation of adaptation programmes. A specific emphasis is put on the

⁶ UNFCCC. Cancun Adaptation Framework (2011). Cancun: Conference of the Parties (16th session).

funding needs for adaptation, with a reinforcement of the need to improve the assessment of the costs and step up the funding from industrialised countries.

This strategy is aligned with other regional strategies in the Horn of Africa, such as the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI) and the IGAD Food Security Strategy. The implementation plan 2016-2020 of the IGAD Regional Strategy contains several projects that could help catalyse a better regional strategy for adaptation to climate change. Projects related to climate variability and change and disaster risk management are delineated into four thematic components:

- Geospatial Climate Data Management system
- Climate Monitoring, Diagnostics, Prediction and Early warning system
- Mainstreaming Climate Information Services in key Sectors
- Disaster Risk Reduction and Climate Change and Adaptation.

Amongst the projects under these four components to the downscaling of agricultural seasonal forecasts, which would help farmers and governments better anticipate the effects of climate change and climate variability is foreseen.

Adaptation policies and programmes

Only few countries have included migration policies in their national adaptation plans, and when they did, there was no connection made with agriculture. Amongst the LDCs, African countries were the countries where migration was the most addressed: two of the ten countries where migration issues were mentioned at least 20 times in the NAPA were IGAD countries⁷.

⁷ Eritrea's NAPA also features migration prominently, but this country is currently suspended from IGAD.

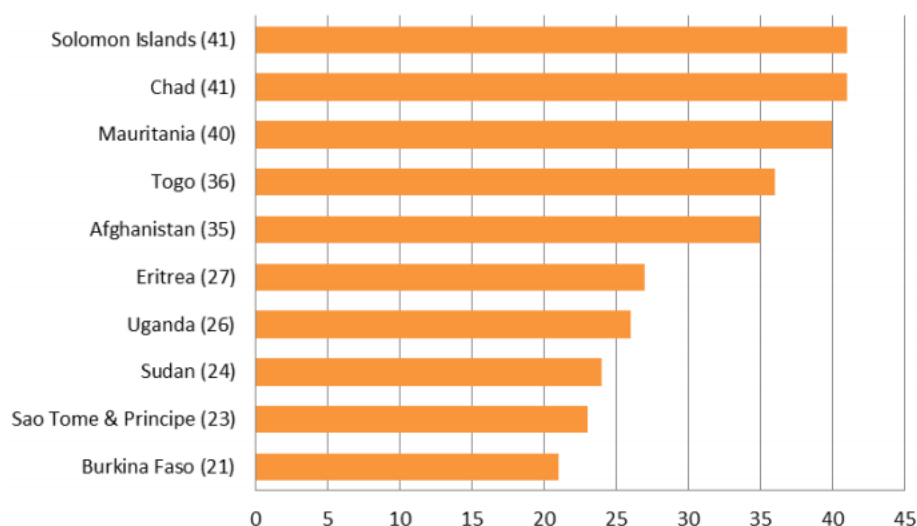


Figure 44 – Countries whose NAPA mentions migration at least 20 times. Source: Sward 2012.

Amongst the policies considered to address migration in NAPAs, the limitation of rural exodus appeared as a key priority, mentioned by 13 countries (Sward 2012). Sward warns however that such adaptation policies in rural areas cannot be expected to limit rural to urban migration, as such policies have failed in the past and risk ‘creating barriers to people leaving fragile ecological zones, potentially resulting in increased vulnerability to climate change impacts’ (Sward 2012 :3). Most countries of the IGAD region have addressed migration in their adaptation plans, but often with a view to reducing it. Other countries addressed displacement more specifically, also with a view to reducing the risk thereof. The following table synthesises how countries of the IGAD region have addressed human mobility in their NAPAs.

Country	Addressing migration?	Addressing displacement?	With a view to reducing migration or displacement	Promoting migration as adaptation	Comments
Djibouti	x	-	-	x	Describes the migration of farmers as ‘a spectacular adaptation measure’
Ethiopia	x	-	-	-	Migration is acknowledged as a traditional coping mechanism.
Kenya	-	x	x	-	Displacement is related to sea-level rise and droughts
Somalia	x	x	x	-	Significant attention paid to the vulnerabilities of migrants and IDPs;

					tensions and conflicts connected with mobility.
South Sudan	-	x	x	-	Displacement is related to floods; only the migration of wildlife is addressed.
Sudan	x	x	x	-	Seasonal migration for water is identified as an issue, to be resolved by the creation of micro-catchments of water.
Uganda	x	x	x	-	Strong emphasis on the consequences of migration: pressure on resources, tensions...

Though most of these plans have been produced in the late 2000s, they still provide excellent insights into each country's adaptation priorities, and they continue to act as overarching guidelines for local and adaptation projects. From the analysis of the IGAD member-states' NAPAs, some common characteristics do emerge.

First, migration is most often cast in a negative light: it is described as negative impact of climate change, and remains often confused. Consequently, different projects and strategies seek to reduced migration. For example, Kenya's National Adaptation Plan 2015-2030 includes measures to 'promote livelihood diversification for vulnerable groups in order to reduce rural-urban migration'.

Though the promotion of migration is often recognised as an efficient adaptation strategy to climate impacts in international negotiations and forums, none of the NAPAs recognises migration as a possible adaptation strategy, with the exception of Ethiopia's. Even in this case, though, migration is not promoted nor encouraged.

The interconnections between climate change, mobility and conflicts remain little addressed in the different NAPAs. Though some linkages with tensions are acknowledged, the conflicts or humanitarian situations that can occur as a result of mobility remain little addressed.

The issue of mobility is also addressed on the ground through different adaptation projects: though they do not address migration directly, different countries of the IGAD region have developed adaptation projects that could significantly reduce the risk of displacement.

For example, Djibouti has delineated its priorities for adaptation in a document called ‘Vision 2035’, hinting at a long-term view on adaptation issues. The adaptation strategy seeks to achieve the following objectives:

- reduce the vulnerability to droughts;
- protect against sea-level rise;
- develop access to water;
- protect biodiversity;
- reinforce the resilience of rural populations.

As part of this strategy, a project that is particularly interesting with regard to the climate-mobility nexus is the development of agro-pastoralist perimeters as a strategy for Djibouti’s poor rural communities’ adaptation to climate change. Such perimeters seek to diversify and bolster resilience to climate change among the agro-pastoral practices, through three components: long-term, guaranteed access to water resources; shaded agro-pastoral perimeters to support and diversify the climate resilience of agro-pastoral systems; and finally secure access to funding for climate resilience. Such measures could prove instrumental to reduce the risk of displacement and resource-based conflicts, and could be generalised across the region.

Another example lies in Somalia’s National Action Plan for Adaptation (NAPA), which recognises explicitly that the reduction of displacement related to natural disasters is a priority for adaptation. In that regard, a component of the adaptation strategy addresses directly the need to reduce the risks arising from natural disasters amongst vulnerable populations. The different components of the project include policy and planning development through awareness-raising activities and the reinforcement of risk management authorities, but also climate risks planning and management through better data collection, as well as institutional development, notably through the establishment of relations with regional institutions in the Horn of Africa to promote information exchange and joint action at national and district levels in Somalia.

Ethiopia provides another good example. Ethiopia’s adaptation strategy is delineated in several documents: the National Action Plan for Adaptation (2007), but also the Ethiopian Programme for Adaptation to Climate Change (EPACC, 2011), as well as regional and municipal plans, sectorial plans and a specific strategy for agriculture. Adaptation plans are primarily geared towards droughts and floods. Ethiopia has set up a specific mechanism to receive adaptation funding, the Climate Resilient Green Economy Facility.

2. Food and water security

Food security is a central element when one seeks to understand climate-related migration and displacement in the IGAD region. The type of agricultural development that one chooses to promote will have far reaching implications on the adaptive opportunities of the sector. The passage from small-scale family farming to large-scale industrial agriculture can have devastating effects on the environment leading to increased climate change impacts⁸ and the distress migration of communities who lose access to their land (Vigil 2016). How agricultural patterns and techniques develop will thus not only impact the environment, but will also be a key determinant of future migration flows. Although highly context specific, capital intensive agriculture can push more migrants to urban centres, whereas more labour intensive small-scale farming might allow for a better preservation of rural livelihoods. This is however not always a solution that will prevent rural exodus. The creation of off-farm opportunities, decreasing the dependence on agriculture for rural livelihoods, can also reduce the pressure to migrate.

Agricultural issues can be addressed through adaptation and mitigation policies, as they can both reduce greenhouse gas emissions and mitigate the impacts of climate change. Too often, agriculture remains seen as a major cause of climate change, because of the methane and nitrous oxide emissions it induces. Yet it is of crucial importance to consider agriculture also as a solution to some of the adverse effects of climate change, one that can reduce the vulnerability of rural communities to climate impacts whilst ensuring that mitigation options don't lead to the distress migration of the most socio-environmentally vulnerable. In most countries, agriculture is already a central element of adaptation plans and policies.

Agricultural practices are crucially important to help rural households adapt to climate change. Many countries have included agricultural policies as a key priority in their adaptation plans and programs. Indeed, in their review of 47 National Adaptation Plans for Action (NAPAs), developed in the Least Developed Countries at the request of UNFCCC, Meybeck et al. (2012) from FAO found a vast majority of adaptation projects prioritised in the NAPAs were in fact related to agriculture. Their allocation per country, however, was not provided. Even though projects officially gathered under the label 'agriculture' represented only 20% of the proposed adaptation projects, Meybeck et al. found that most projects were actually 'mainly related to agriculture', including forestry and fisheries. Such projects included watershed management and conservation, restoration of degraded land, water management or income diversification in rural areas.

⁸ The agro-industrial sector accounts for up to five billion tonnes of CO₂, and is greatly responsible for land-use changes that result in one quarter of all anthropogenic carbon dioxide emissions (IPCC 2014).

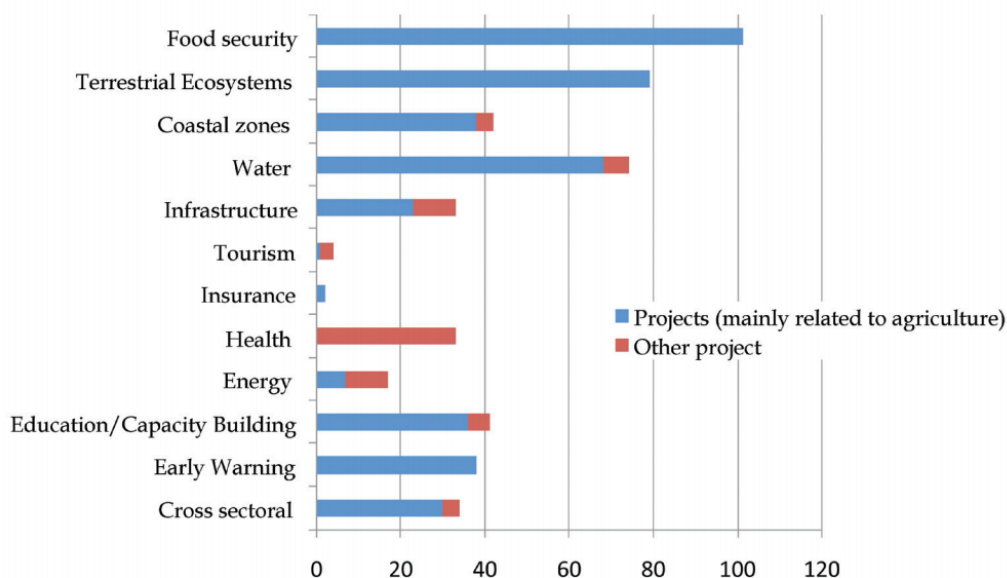


Figure 45 – Adaptation projects ‘mainly related to agriculture’ in each of the 12 UNFCCC categories. Source: Meybeck et al. 2012

Food security also ranks very high in the UN Sustainable Development Goals, as Goal #2 seeks to End hunger, achieve food security and improved nutrition and promote sustainable agriculture. In the Horn of Africa, this can be achieved through regional and national policies in support of this Goal.

An example of cooperation mechanism: The UNCCD initiative on land degradation and migration

The United Nations Convention to Combat Desertification recognised that ‘desertification and drought affect sustainable development through their interrelationships with important social problems such as poverty, poor health and nutrition, lack of food security, and those arising from migration, displacement of persons and demographic dynamics’. This forms the basis of a memorandum of understanding signed between the UNCCD Secretariat and the International Organization for Migration in 2014, which seeks to create a partnership between the two organizations on the mutual influences between desertification and migration. The partnership should lead both organizations to benefit from each other’s expertise in the matter and conduct joint projects, such as one that seeks to promote better land management in West Africa. A better understanding of both migration and desertification processes should allow for a better integration of migration into the debates on the causes and consequences of desertification.

As early as 2005, IGAD developed a regional strategy for food security. The strategy seeks to ‘improve environmental, water and natural resources management, including developing responses to the consequences of climate change and desertification’. Though the strategy itself is not connected to migration and displacement issues, it is aligned with several other regional strategies that are also

instrumental in reducing the risk of climate-related displacement. Indeed, one of the key endeavours of IGAD is to boost the agricultural production in the region through a more sustainable management of natural resources and the environment, in order to ensure not just sustained economic growth, but also resilient livelihoods. This strategy is aligned with other pan-African initiatives, such as the New Partnership for Africa Development (NEPAD) and the African Union Commission's Department of Rural Economy and Agriculture (AU-DREA).

Therefore, IGAD Food Security strategy is connected to other regional strategies, including IGAD Fisheries Strategy, IGAD Regional Environment Policy, IGAD Environment and Natural Resources Strategy, IGAD Environment Impact Assessment (EIA) Policy Framework, IGAD EIA Guidelines, IGAD EIA Protocol, and IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI) Strategy. This last strategy, in particular, is crucial to reduce the risk of displacement induced by food insecurity in the region. A key element of the Strategy relies on the valorisation of the resources of arid and semi-arid lands, in particular with regard to agricultural livestock production. Such production was previously neglected in agricultural policies, leading to a lack of governmental interventions and investments, which aggravated food crises.

Despite the pivotal role that regional strategies can play, national policies will remain essential to ensure food security. These can encapsulate different aspects of food security, from rural livelihoods to land rights. For example, in order to reduce food insecurity and the vulnerability of rural populations, Ethiopia has developed a Food Security Programme, in order to provide households with access to credit, agricultural extension services, technology transfer, and irrigation and water harvesting schemes.

Bilateral and regional cooperation can also prove crucial to address food and water security. The best recent example of the potential of cooperation to reduce food and water insecurity is the joint water project between Djibouti and Ethiopia. This project, which became operational in the Fall of 2017, will provide daily 100,000 cubic meters of drinking water from Ethiopia to 700,000 Djibouti nationals. This has been achieved through the creation in Ethiopia of water wells and reservoirs, as well as a 102-km long water pipeline between Ethiopia and Djibouti. The project should provide a long-lasting solution to recurrent issues of water stress in Djibouti.

Investment in rural communities

Agricultural patterns and techniques at large will need to be key elements of any adaptation strategy in rural livelihoods, though they should not be implemented with the sole view to preventing migration, but rather to addressing forced displacement and the distress that this type of movement brings. As stated before, migration can also be a powerful adaptation strategy in rural areas. Rural

communities will be affected by the urban exodus of the wealthiest, most educated. In fact, aiming to interpret the relationship between development of rural areas and levels of out-migration as linear and inversely proportional is unfounded by empirical research. This relationship is rather curvilinear and development, at least initially, tends to coincide with rapid increases in migration rates because social and economic development enables and inspires people to migrate (de Haas 2007). However, since many natural resource- dependent communities are not educated or wealthy, they encounter deep challenges in finding employment outside agriculture in urban areas.

Public investment in education, in both rural and urban areas, as well as in employment creation, will be needed to improve the adaptive capacity of vulnerable populations and to break the cycle of poverty in rural areas. Rural areas often display very low levels of education, translating into low-paying jobs (WDR 2008:216). Such investments should thus not be expected to limit the rural-urban migration flows, but rather to improve the living conditions of both migrants and non-migrants.

Sedentarisation of pastoralists

Food insecurity and demographic growth are the primary factors contributing to rural-urban migration of pastoralists. Decreased pasture production is furthermore causing pastoralists to adopt coping strategies, including covering longer distances, which put them in increased contact with agriculturalists and other pastoralist groups, which can lead to localized conflicts. Others have relied on migration of family members, mainly young men, to reduce population pressure and to ensure their income is supplemented by internal remittances. Still others have turned to 'modern' and intensified livestock raising, such as stall feeding.

Overall, the increasing sedentarization of pastoralists and agropastoralists is largely related to availability of pastureland. This phenomenon can be expected to increase due to climate change, multi-causal land fragmentation, and socio-cultural transformation. These developments may threaten the integrity of 'traditional' pastoralist livelihoods and their social fabric through rural-urban migration ('pastoralist dropout'), poverty and inequality.

However, many pastoralist and agro-pastoralist groups are adopting strategies, including migration, that enable members of the community to adapt *in situ* and continue their lifestyle. Migration, in this case, is often seasonal or pendular. Modern communications has facilitated the maintenance of traditional social roles and hierarchies. Rather than treat pastoralism as an ailing and failing livelihood, governments can support adaptation strategies, address the causes of land fragmentation, and address urban youth unemployment to help avoid the rupture of this way of life.

Reliability of livelihoods

Climate change will affect the reliability of crop yields. This instability, often resulting in food prices volatility, will often create needs for migration, as households can no longer make a reliable income.

Yet this instability can be mitigated through different income replacement or compensation mechanisms. For example, in 2005, Ethiopia launched the Productive Safety Net Programme (PSNP), a programme that seeks to provide cash transfers to vulnerable households through public works projects that improve the resilience of the community. The programme's primary objective is to reduce food insecurity, and initial assessments show that food insecurity has decreased by 1.3 months thanks to programme (Rigaud et al. 2018) This is a modest but very encouraging result (Rigaud et al. 2018). The potential of such programme for the reliability and stability of livelihoods is considerable, and it could be replicated across the IGAD region.

Land rights

Land grabbing and forced evictions take place on a wide scale worldwide, and this is particularly obvious across the African continent. According to the database LandMatrix, Africa is by far the most affected region of the world, with land deals topping more than 17 million ha, about half of the total surface of land deals worldwide. Food security is often a key driver of land grabbing, as countries seek to secure arable land, but forced evictions are also conducted by private companies to make way for industrial or infrastructure projects.

Though the latter is not prevalent in the IGAD region, the issue of land rights is particularly complex: disputes and tensions over land occur frequently, and can induce conflicts between different groups. Land rights are often governed by customary practices that can differ significantly from one group to another. Migration for land and pasture can therefore induce violent tensions or resentment. For example, as mentioned above, localised conflicts along the border of the Somali and Oromiya regions in Ethiopia are related to land rights issues. This was also the case, to a large extent, of the Darfur conflict.

Land rights need to be reinforced in order to prevent populations against land disputes and land tenure insecurity, and IGAD could play a key role in the promotion of land rights with governments and populations. FAO's Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests

in the Context of National Food Security provide a good framework for this and need to be linked to the agendas dealing with the climate-mobility in a consistent manner. Similarly, farmers who own their land need to be guaranteed their land will not be repossessed if they migrate temporarily. This can be a key impediment to relocation when faced with a major environmental disruption. Temporary migrants need to be sure they will be able to recover their land when they return.

Cooperation to avoid conflicts

Humanitarian crises in the region are typically resulting from a combination of political instability, economic hardship and environmental changes, droughts in particular. Research shows a strong historical correlation between environmental disruptions and civil conflicts in Africa (Hsiang et al. 2013). Recent African conflicts, such as the war in Darfur, were directly related to natural resources, though their labelling as ‘climate conflict’ remains disputed.

Though there are still many uncertainties as to the mechanisms that catalyse conflicts (Gemenne et al. 2014), cooperation mechanisms will need to be reinforced to avoid competition and conflict over rarefied natural resources. This should be the case in particular for arable land, food and water – three resources that will become even more scarce under the influence of climate change.

With regard to water, there are more than 60 transboundary river basins in Africa. As water resources will be depleted under climate change, governance mechanisms for the joint management of these river basins will need to be reinforced to catalyse cooperation. Formal mechanisms such as the Nile Basin Initiative, or the Zambezi Watercourse Commission, or the Hydraulic Alliance initiated by Ethiopia in 2010 around the Renaissance Dam, can serve as models for such cooperation mechanisms. Cooperation can also go beyond such formal mechanisms and include the provision of water from a country to others: the joint water project that was recently launched between Djibouti and Ethiopia paves the way for such cooperation in the IGAD region.

3. Disaster risk reduction

In 2016, about 600,000 displacements were caused by disasters – mostly floods and droughts – in the IGAD region. Displacements related to disasters in the region are very complex, as these disasters are often related to the impacts of droughts and other environmental changes on food security.

In the IGAD region, while data on sudden-onset disasters – or rapid-onset disasters, such as floods – are relatively robust and reliable, this is much less the case for slow-onset disasters – such as droughts – despite their importance in the region. As a result, most of the data available for the region are related to sudden-onset disasters: data on slow-onset disasters, and droughts in particular, are not collected in a systematic way.

Though both types of disasters induce displacement, they are very different from each other. As put by Alex Randall (2018), ‘rapid-onset disasters unfold almost instantly, slow-onset disasters can be predicted much further in advance and unfold over months or even years. Rapid-onset disasters tend to create their destruction through the immediate physical impacts. Slow-onset disasters also create crises through the economic and social impacts of the disaster’.

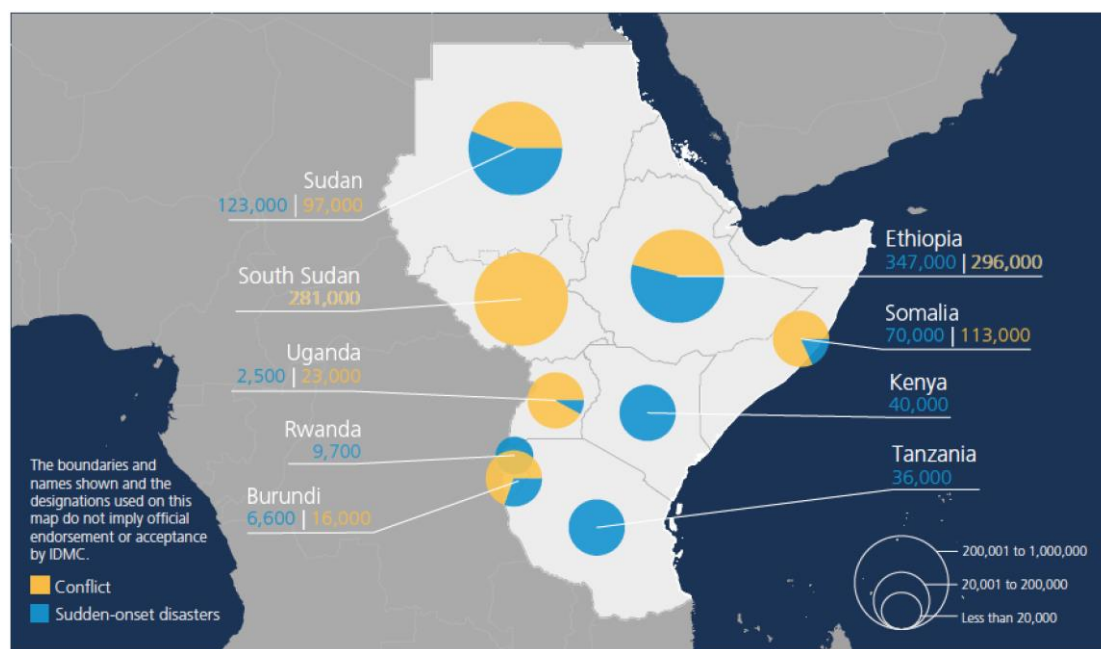


Figure 46 – Displacements associated with sudden-onset disasters and conflicts, 2016. Source: IDMC

Though most of displacements associated with disasters are confined within national borders, cross-border displacement also occurs in the context of disasters: in April 2017, for example, about 60,000 Turkana pastoralists crossed the border from Kenya to Uganda. A 2017 report by the Internal Displacement Monitoring Centre (IDMC) found that vulnerability and limited capacity to reduce disaster risk were the key determinants of displacements (Milano and Ginnetti 2017).

The Sendai Framework for Disaster Risk Reduction, adopted in 2015, features displacement quite prominently, as states recognised the requirements for disaster response to address the needs of the displaced. The Framework encourages to

ensure ‘rapid and effective response to disasters and related displacement, including access to safe shelter, essential food and non-food relief supplies, as appropriate to local needs’, as well as to ‘consider the relocation of public facilities and infrastructures to areas outside the risk range, wherever possible, in the post-disaster reconstruction process, in consultation with the people concerned, as appropriate’ and ‘strengthen the capacity of local authorities to evacuate persons living in disaster-prone areas’.

IGAD has developed a specific strategy for droughts, the Drought Disaster Resilience and Sustainability Initiative (IDDRSI). This strategy puts resilience at its very core, and was agreed following the severe drought that affected the region in 2010-2011. The strategy comprises seven pillars of action – though none of them addresses displacement specifically, several pillars touch upon issues the prevention of displacement and the protection of the displaced. These include providing equitable access to livelihood support and basic social services or promoting conflict prevention and resolution and peace building.

Many member-states of IGAD have institutionalised the IDDRSI in their domestic policies and disaster risk reduction plans. Further to this, the integration of the Framework with the Nansen Initiative Protection Agenda provides a great opportunity to articulate protection of the displaced around disaster risk reduction measures. In the IGAD region, this could be particularly relevant for cases of drought, and complementary with IDDRSI. This would allow, in particular, a greater integration of evacuation processes and preparedness in disaster risk reduction. Indeed, evacuation processes and preparedness remain however limited in the region, which increases the risk of displacement induced by sudden-onset disasters.

Many countries of the region have developed national policies and strategies for disaster risk reduction. While these frameworks usually do not address displacement as such, they contain however very significant elements pertaining to displacement challenges and issues, which could be streamlined.

Kenya, for example, has established several units and structures to better respond to disasters, including the National Drought Management Authority, the National Disaster Operation Center, or the National Disaster Management Unit (NDMU), as well as a National Platform for Disaster Risk Reduction. Such structures are essential, as disaster risk reduction measures will often focus on sudden-onset disasters and overshadow the risks related to slow-onset disasters such as droughts.

Similarly, Ethiopia has revised its National policy and strategy on disaster risk management in 2013. With regard to displacement, the policy seeks to reduce and eventually prevent disaster risk and vulnerability and to ensure all disaster affected populations are provided with recovery and rehabilitation assistances, to build resilience of vulnerable people, and ensure that disaster risk management is

mainstreamed into development plans. Following the terrible famine of 1973, Ethiopia set up in 1974 a governmental agency tasked with the prevention of famine and the assistance to populations, the Relief and Rehabilitation Commission (RRC). In 1989, the National Strategy for the Prevention of Natural Disasters enlarged its field of competence to disasters at large, and in 1995 the RRC was re-named the Disaster Prevention and Preparedness Commission, a name that reflected its broader missions. In 2002, Ethiopia has also set up a National Disaster Prevention and Preparedness Fund, which aims to compensate financially the populations who are victims of natural disasters. Such a fund is an essential component of communities' resilience to climate impacts.

In Sudan, disaster management is the responsibility of the National Council for Civil Defence (NCCD), established in 1991 and reshuffled in 2005. The Council is in charge of the coordination of plans and measures of civil protection at the national level, with regard to disaster preparedness as well as disaster relief. The Council is placed under the authority of the military, but it involves different experts from different ministries, as well as researchers. International assistance and cooperation remain however crucial, and Sudan has recently reviewed the availability of its data to report against the indicators identified in the Sendai Framework.

Djibouti has a national mechanism to anticipate and regulate risks related to disasters caused by natural hazards. The country is well equipped with a national Direction for civil protection, in charge of emergency disaster assistance. In 2013, the government of Djibouti launched a study on the analysis of the risks related to natural disasters, entitled *Plateforme d'Analyse Intégrée des Risques (PAIR-CARAD) (Platform for Integrated Risk Assessment)*. This platform provides a central resource for stakeholders involved in disaster risk reduction and management in Djibouti.

Uganda's National Policy for Disaster Preparedness and Management, adopted in 2010, addresses displacement very comprehensively. The policy recalls that droughts, in particular, induce massive population displacements. It also recalls the constitutional obligation for the state to 'institute effective machinery for dealing with any hazard or disaster arising out of natural calamities or any situation resulting in the general displacement of people or general disruption of normal life'. The costs of displacement are also highlighted, as they involve the 'feeding and settling persons for unspecified periods', as well as their health impacts.

4. Migration management

Obviously many policy solutions will need to arise from migration and displacement policies. In this section we cover different types of policies, with a view to distinguishing between policies to seek to facilitate migration and those that seek to prevent and address displacement, at the regional and national levels.

In recent years, a number of international initiatives have sought to plant the seeds of a better international management of migration, sometimes with a specific emphasis on displacement and migration in the context of disasters and the adverse effects of climate change. The Global Compact for Migration could provide a specific impetus for this, as the first drafts of the text address specifically environmental disasters as a key driver of migration and displacement worldwide. The conclusions from the Global Compact, which should pave the way for a more cooperative governance of migration, are expected in at the end of the year 2018. The contribution from Eastern African governments and civil societies will be crucial in this endeavour.

Other international processes also address the role of climate and environmental changes as drivers of migration. Migration is prominently featured in the UN 2030 Agenda for Sustainable Development. The Declaration recognises the positive contribution of migrants for inclusive growth and sustainable development, and highlights the impact of humanitarian crises and forced displacement on development progress. Migration is addressed more specifically on Sustainable Development Goals #8 (Decent Work and Economic Growth) and #10 (Reduced Inequalities). The Global Forum on Migration and Development (GFMD), launched in 2006, has also recognised the importance of environmental changes for human mobility, and so has the High-Level Dialogue on Migration.

A cross-cutting process: The Nansen Initiative

The prime international initiative that has sought to address migration and displacement induced by environmental changes, however, is the Nansen Initiative. For three years, between 2012 and 2015, the Nansen Initiative held regional consultations with governments and civil society across the world. A consultation was organised for the Greater Horn of Africa region in May 2014. Many participants to the consultation mentioned food insecurity and food crisis as key drivers of migration and displacement. These regional consultations led to the adoption of the Nansen Initiative Protection Agenda, a series of guidelines and recommendations adopted by 110 States gathered in Geneva in October 2015. The Nansen Initiative was succeeded in 2016 by the Platform on Disaster Displacement, which is primarily concerned with the implementation of this Protection Agenda.

In recent years, the African Union has also taken different initiatives to address climate change or migration, which have a particular echo in the IGAD region. The African Union Humanitarian Framework, released in 2015, re-affirmed the commitment of the African Union to progressive migration policies, and has established a Coordinating Committee on Forced Displacement and Humanitarian Action, meeting biannually to provide advice to national policy-makers. Though the document acknowledges that humanitarian crises have been exacerbated by the effects of climate change, the document makes no mention of migration and displacement related to climate change. In a similar fashion, the African Union Strategy on Climate Change, released in 2014, acknowledges that climate change can lead to migration and displacement, but does not offer insights as to how to address these. More bridges can therefore be made between these two strategies.

With regard to migration, the African Common Position on Migration and Development and the Migration Policy Framework for Africa, adopted in 2006, constitute overarching frameworks. The Migration Policy Framework covers nine key areas of intervention, but none of them addresses specifically the climate-mobility nexus: labour migration, border management, irregular migration, forced displacement, human rights of migrants, internal migration, migration data, migration and development, and inter-state cooperation and partnerships. Both documents have a strong protection focus and put a great emphasis on human rights, though they lack an institutional mechanism to facilitate and guide their implementation. The revised Migration Policy Framework for Africa and Plan of Action (2018-2027), which is still in a draft format, attempts to correct these weaknesses and addresses migration and environment as a cross-cutting issues, aligned with the UN Sustainable Development Goals. The document recommends to:

- ‘Incorporate environmental considerations in the formulation of national and regional migration management policies to better address environment related causes of migratory movements, as well as the impact migratory movements have on the environment - increase collaboration with relevant international agencies to this end, including by strengthening research and data gathering and exchange on the relationship between migration and the environment.
- Counter environmental degradation caused by the large protracted presence of displaced persons, for example by means of implementing relevant and targeted environmental protection programmes, including periodic review of ecosystem impacts and remedial measures to mitigate such impacts; in the case of protracted refugee situations, calling upon UNHCR and countries of first asylum to identify priority areas for resettlement based on the degree of potential environmental degradation and the need to protect ecosystems in a given area.’

In the IGAD region, the prime framework for migration policy at the regional level is the Regional Migration Policy Framework, adopted in 2012. The Framework addresses the environment-mobility nexus in a dual way, looking at both the environmental impacts of human mobility and at the mobility consequences of environmental changes. It notes that ‘well-formulated migration-environment related policies are inevitable for IGAD member-states given that they lie in a region often afflicted by environmental problems that cause migration oscillations between migrants’ or displaced persons’ origins and destinations’ (IGAD 2012). The framework recommends six different strategies to address this nexus:

- Formulate appropriate national and IGAD-wide migration management policies geared toward conserving and improving the environment to out-migration or population flight due to environmental mismanagement;
- IGAD to engage with UNEP, UNHABITAT, UNHCR, OCHA and national environmental management authorities to provide technical, financial and other assistance which ensures environmental protection in areas where the environment pushes out and those where it pulls migrants and displaced persons;
- Institute routine gathering, analysis and disseminations of migration and environmental data in the member States of IGAD for sharing relevant information and finding lasting solutions;
- Monitor residential behaviour of displaced persons in the host communities to detect plausible environmental challenges and opportunities for formulating appropriate policies and programmes;
- Encourage appropriate adaptation strategies that ensure environmental sustainability;
- Encourage the formulation and implementation of appropriate strategies to factor migration in climate change, environmental challenges and adaptation strategies in the IGAD region.’ (IGAD 2012).

This regional framework is accompanied by a Migration Action Plan 2015-2020, which seeks to operationalize the Framework. The prevention of climate change/natural disaster-induced displacement is a key strategic priority of the Plan (Priority #10), which recommends a number of concrete, precise actions. The Plan focuses on prevention, preparedness, mitigation, and adaptation, and recommends the following actions by IGAD (Actions 1-10) and its member-states (Actions 11-15):

- ‘Action 1: conduct study on the causes, triggers and accelerators of disaster and climate change-induced migration in IGAD
- Action 2: conduct IGAD-RCP on the theme ‘Climate Change, Disasters and Migration’
- Action 3: develop scenarios for the IGAD region on the causes and consequences of climate change for migration

- Action 4: study on how to synergize the Migration Governance Architecture of IGAD with the IGAD climate change mechanisms and Disaster Cycle Management structures
- Action 5: link disaster warnings with IGAD Migration Observatory and CEWARN displacement indicators and reports
- Action 6: develop proposal on effective regional and national preparedness and response mechanisms to disaster-induced migration
- Action 7: organize experience-sharing seminar on disaster-induced migration for MSs
- Action 8: conduct training on designing policies addressing climate change and disaster-induced migration
- Action 9: organize training courses on the 'Protection of Human Rights in Crisis and Disaster Situation'
- Action 10: develop proposal on effective collaborative, cooperation and coordination between regional and national preparedness and response mechanisms to disaster-induced migration
- Action 11: provide technical support to MSs on designing policies on and mechanisms for prevention, preparedness, mitigation, adaptation to disaster-induced migration preparedness and response mechanisms to disaster-induced migration
- Action 12: include authorities with disaster related mandates within the NCMMs
- Action 13: design policies on and mechanisms for prevention, preparedness, mitigation, adaptation to disaster-induced migration
- Action 14: integrate migration and disaster prevention in the a national policies and action plans on migration and also mechanisms on disasters including climate change
- Action 15: link disaster warnings with migration monitoring and National Early Warning System' (IGAD 2014).

Climate and environmental changes are also addressed through other strategic priorities, as courses on climate change and migration, and the impact of migration on the environment, or courses on climate change and movements of pastoralist communities are also recommended.

The implementation of this Migration Action Plan is under-way, and covers many different aspects of the climate-mobility that are addressed in this paper. The climate-mobility nexus is clearly one that requires regional cooperation, and the Action Plan is the perfect vehicle to stimulate cooperation between member-states on this issue.

In line with these documents, the IGAD Regional Consultation Process, established in 2008, provides an especially convenient forum where to discuss these issues on a regional level. Currently, the East African Community Climate Change Policy addresses migration only marginally, and is mostly focused on the migration of animals. Therefore, the IGAD Regional Consultation Process can provide an optimal forum for the integration and mainstreaming of climate and mobility agendas, along the recommendations of the Regional Framework and the Action Plan. At the national level, National Coordination Mechanisms (NCM) need to be strengthened in order to serve as the best equivalent platform at the national level. Addressing the climate-mobility-conflicts nexus requires coordination between different agencies, ministries, and policy areas at large: it is therefore of utmost importance that policies are coordinated. Failing that, there is a serious risk that each component of the nexus be treated in silo, leading to counterproductive policy outcomes.

Facilitating migration

In order to promote migration as an adaptation strategy, a key priority is the removing of obstacles to migration, starting with legal and administrative obstacles. In that regard, within IGAD, negotiations on a protocol on the free movement of persons as well as the transhumance protocol across the region have started recently.

Free movement agreements exist already on a bilateral basis in the region: this is the case between Ethiopia and Djibouti or between Ethiopia and Kenya, for example. A regional protocol would naturally take this cooperation on a greater level, and would provide broader benefits for migrants. The experience of these bilateral agreements has been positive, and can pave the way for the establishment of a regional protocol.

Negotiations on a Transhumance Protocol are on an advanced stage, and negotiations on a Free Movement Protocol have been conducted during workshops in different countries of the region, before its validation at the regional level.

The ECOWAS Protocol

One experience of such protocols in Africa is from West Africa, which is certainly one of the world's regions where migration policies are best integrated on a regional level. This integration materialized in 1979 with the signing of the Protocol on Free Movement of Persons, Residence and Establishment. This Protocol asserts the right of citizens of the Community to entry, residence and settlement and has only reinforced the situation, especially with the subsequent waiver of entry visa for community citizens and introduction of a common ECOWAS passport. The Protocol is primarily geared towards rural pastoralist populations, and recognizes a

long tradition of cross-border migration for pastoralists and their cattle. In the region, migration, including cross-border migration, has long been recognized as a major adaptation strategy to environmental changes⁹.

The IGAD Transhumance Protocol should be able to address some of the key problems faced by pastoralists when they cross a border, and which the ECOWAS experience has highlighted. Pastoralists are often subject to extortion (or worse) by border agents, who refuse the right of entry if bribes are not forthcoming. Different official languages at various border crossings impede the movement of people due either to outright problems in communicating intentions or the inability to comprehend authorizing documents. Conditions in receiving states also impose their own limits: if the receiving state suffers from poor socio-economic-political conditions, migrants are often evicted in order to free up limited resources. Finally, many migrants and pastoral communities lack the requisite documents both because authorizing institutions do not have a presence in the pertinent areas, and because many people in the communities lack, for instance, birth certificates necessary to obtain the documents. The documents themselves, meanwhile, are easily falsified, which makes for both poor regulation and a black market in false documents. This suggests the need for a broad approach towards pastoral regulation particularly focusing on addressing interlocking economic, political, governance, and social factors that any *single* policy appears unlikely to resolve.

An IGAD Protocol on the Free Movement of Persons would pursue the implementation of the Protocol for Free Movement adopted by the African Union Summit at the end of January 2018. It would also pursue an objective of the Nansen Initiative Protection Agenda, as it stated that ‘Free movement agreements may permit entry and stay of disaster displaced persons, allowing access to territory, assistance and livelihoods’ (Nansen Initiative Secretariat 2015). Therefore, the Agenda recommended a review of the ‘existing regional, sub-regional and bilateral free movement of persons agreements to determine to what extent such agreements already, or could better, facilitate international migration’ (*ibidem*). The results from this study are expected by the end of 2018.

Modelled on the ECOWAS International Transhumant Certificate, COMESA has launched a livestock trade initiative based on the introduction of a Livestock Green Pass to ease the transboundary movement of livestock in the region. The Green Pass is a commodity-based certification to enable and facilitate transnational movements and the trade of livestock and related commodities within the COMESA region. The AU Border Programme, coordinated and implemented by the AU since 2007, among

⁹ Under the presidency of Felix Houphouët-Boigny, farmers of Burkina Faso were provided land in Côte d’Ivoire if they had lost theirs to environmental disruptions. This is no longer the case today, but this practice illustrates how common migration was for farmers and pastoralists facing adverse environmental conditions.

other issues aims to facilitate the cross-border integration of African states and the development of local cross-border cooperation initiatives within the framework of the Regional Economic Communities (RECs).

Pastoral codes: Initiatives from West Africa

A number of countries in West Africa have also made considerable progress in the last decade with regards to the formulation of pro-pastoralist national policies to protect pastoral land and facilitate seasonal pastoral mobility, both within and across national and international borders. Since 2000, a number of West African countries have developed and applied, with varied degrees of success, Pastoral Codes and Charters. Mauritania for example has adopted a Pastoral Code, Mali a Pastoral Charter, Burkina Faso the Orientation Law on Pastoralism, and Niger is currently developing a Pastoral Code. The Mali Pastoral Charter of 27 February 2001 defines the basic principles governing the exercise of pastoral activities and systematises the management of pasture lands and access rights within a legal protection framework. Furthermore, a whole chapter of the Charter has been dedicated to the rights of pastoral communities to move their animals, both within Mali and across other countries. Mali's agricultural orientation law recognises and values pastoralism and also the need to facilitate livestock internal and external mobility.

Preventing displacement, and protecting the displaced

Displacement is an essential component of migration management in the region. With regard to internal displacement, the Kampala Convention is usually considered as the most progressive instrument, as it explicitly recognizes the potential displacement challenges associated with climate change, within the context of reduction of risks and prevention of displacement. The Convention not only seeks to protect the rights of those displaced, but also to prevent displacement. This should be achieved through the establishment of effective early warning systems, disaster risk reduction strategies, and disaster preparedness management plans. To address these challenges, the Convention sets out benchmarks and mechanisms for coordination and information-sharing, and provides a road map for states to establish their own national frameworks to develop comprehensive response strategies. The Convention entered into force in December of 2012.

A key problem however lies in the low level of ratification of the Convention. Within IGAD, as of June 2017, only Djibouti and Uganda have ratified the Convention. Ethiopia, Somalia and South Sudan have signed but not ratified, while Kenya and Sudan have neither signed nor ratified.

The Kampala Convention, however, only provides protection for people displaced internally. The protection of people displaced across borders thus remains a significant challenge, which can be addressed the IGAD Regional Consultation Process. People displaced across borders have three key protection needs: access to territory, their status and rights during their stay, and opportunities for lasting solutions. Despite the rise of regional and international approaches to migration management, national policies remain of prime importance when it comes to the protection of people displaced across borders by disasters. While Uganda's asylum policy has received much praise recently, countries of the IGAD region have long engaged in a tradition of protection of people displaced across borders by disasters: Somalians displaced by the 2010 drought often benefitted from a refugee status, for example.

Remittances

Remittances represent a significant share of IGAD countries' economy. Many of them, such as Kenya or Uganda, have become leaders as receivers of mobile remittances, in particular. Yet, though remittances are often one of the key *raison-d'être* of migration, their potential to address climate impacts and displacement is often not fulfilled.

Remittances represent a stable, steady source of income for many developing countries, and they are usually higher than other resource flows, such as overseas development assistance. Remittances have been demonstrated to provide both livelihood and insurance strategies in the event of sudden shocks and slow-onset disasters. The effect of international remittances in reducing poverty is far higher than the effect of domestic remittances in reducing poverty (Gyimah-Brempong & Asiedu 2009).

There is a substantial amount of work on the impact of remittances on disaster relief and recovery in developing countries, many of whom are already experiencing climate change impacts. When remittance-receiving infrastructure remains intact, migrant remittances tend to increase in times of disaster (World Bank 2006; Yang 2008; Manandhar 2016). Unlike foreign investment, they are countercyclical and thus provide a safety net in any number of crisis contexts for households with migrants abroad. There is also evidence, in fact, suggesting that migrants react faster than international aid in times of disaster. Remittances also usually remain high for a long period after disaster strikes during recovery and reconstruction.

At the moment, for example, households in Somalia rely largely on remittances to cope with the drought. Restrictions on the sending of remittances in the US compromise the food safety of thousands of households.

Remittances indeed increase during and in the aftermath of sudden-onset disasters, but they cannot be assumed a priori. In contrast to slow-onset disasters or more gradual environmental degradation, rapidly occurring extreme events such as floods can inhibit remittances through their impacts on infrastructure, disruptions to banking services, and the loss of assets, such as identity cards. Informal remittances in such cases prove more efficient in reaching affected populations (Le De et al. 2013).

In the immediate aftermath, remittance recipients tend to deal more easily with emergency needs, including purchasing food and clothing, accessing relief aid distribution points or getting medical and health-care treatments.

Although limited in scope, evidence also suggests that remittances can contribute to preparedness in communities of origin by making resources available for house improvements so as to increase their disaster resilience (Mohapatra et al. 2009). It is thus important to go beyond the measurement of flows to climate change-affected countries, and further investigate their use and functions. For poor migrant-sending households that are able to generate some level of remittances, remittances continue to function primarily as a coping mechanism, a survival strategy in both slow and sudden-onset events. Eriksen et al. (2005) noted that in Kenya migration and remittances were principal coping strategies amongst rural agriculturalists in times of drought. Basic functioning for remittance-receiving households entails the usage of remittances for food, water, and shelter to cope with the impacts of climate change. Remittances act as only one amongst a range of possible coping strategies for households experiencing environmental stress.

Several studies have demonstrated how money sent back by migrants allow households to maintain a basic supply of food when faced with climate and rainfall variability. According to one study, in Ethiopia households that depend on international remittances reacted better to shocks from food shortages, illness, and drought. They also tend to rely more on their own cash reserves during shocks to food security, and less on selling productive assets such as household assets or livestock (Mohapatra et al. 2009).

Planned relocation

Planned relocation is increasingly considered by a number of states as an adaptation strategy to climate impacts. The Cancun Framework for Adaptation (2010) acknowledges this, and guidelines to assist states in the process of relocation

have since been developed by UNHCR and IOM in association with Georgetown University and the Brookings Institution¹⁰.

In the Horn of Africa, the majority of planned relocation processes in disaster contexts have taken place within the same country following a disaster, although governments have also moved communities as a preventative measure such as the risk of drought. Although this is not (yet) a prominent form of mobility in the IGAD region, such relocation processes are increasingly common. In the IGAD region, they have been used mostly by Ethiopia, where relocation efforts have taken place for decades, as part of the Government-led “villagization programmes” aimed, in part, at building resilience to droughts. For example, in the early 2000s, the Government of Ethiopia launched renewed relocation projects as part of a national food security strategy in drought prone areas – a programme that continues today. In countries like Somalia, Sudan and South Sudan, regional relocation efforts enacted by clans and other local bodies have also occurred during times of drought, with varying levels of success.

¹⁰ See <http://www.refworld.org/pdfid/596f15774.pdf>

3. Policy recommendations

Addressing the nexus between climate change and human mobility in the IGAD region will require action across many different policy areas. The following policy recommendations seek to foster the implementation of the Nansen Initiative Protection Agenda at different levels – local, national and regional. They can serve as guides for further policy development, sometimes with the support of regional or international partners. They cover policy areas as diverse as climate change adaptation, food security, disaster risk reduction and migration management. Obviously a key recommendation, however, is that these different policy areas need to be better harmonised and take better account of issues pertaining to human mobility. These should not be isolated as a specific area, but rather mainstreamed into adaptation, disaster risk reduction and development policies.

Strengthen cooperation

Cooperation is a key element to address the climate-mobility nexus. Countries of the IGAD region have already shown great levels of cooperation, either regionally or bilaterally. Djibouti and Ethiopia, for example, cooperate on both projects on water security (with a joint water project) and projects on migration management (with free movement between the two countries). Such bilateral cooperation schemes could be replicated by other countries or implemented at a regional scale. IGAD can be a key facilitator for such cooperation.

Improve the data on mobility

The collection of temperature and rainfall data has greatly improved in the region over the past few years, greatly thanks to the work of ICPAC. There is still however a dire lack of data on mobility and displacement. Data are uneven and scattered, and often sporadically collected. At the moment, data about drought-related displacement are collected in Ethiopia, Somalia and South Sudan, but with different metrics and different methodologies (Milano and Ginnetti 2017). While data on sudden-onset displacement are relatively reliable and harmonised, this is not the case for the data on slow-onset displacement, despite the importance of droughts in the region.

ICPAC could take a greater role, in collaboration with national statistical agencies, in centralising migration and displacement data at a regional level. This would allow for migration data to be matched against climate data, in order to better establish patterns of migration and displacement induced by climate change.

In that regard, different ways could be explored:

- Questions on mobility related to climate change could be incorporated in censuses conducted by national statistical agencies;
- ICPAC could work with IOM Displacement Tracking Matrix to connect their data with key observed environmental changes in the region;
- ICPAC could seek to harmonise the databases on internal displacement with the databases on observed environmental changes, so that those databases could be connected and trends could be delineated.

Address key research gaps

Despite the abundant knowledge on the interactions between climate impacts and mobility in the region, significant research gaps persist: there is a dire lack of knowledge on the duration of displacement when related to disasters, as well as on the impacts of human mobility. IOM's MECLEP project addressed the impacts of migration for Kenya; similar research exercises are needed for the other countries of the region.

Another significant research gap concerns the perception of environmental changes. Research has shown that migration decisions were often based on perceptions of environmental changes, rather than on these changes themselves (Koubi et al. 2016). Yet very little is known on the way people perceive these changes: in order to understand the patterns of migration, it would be important to acquire evidence not just on environmental changes themselves, but also on the perception of these changes by the affected populations: the Regional Mixed Migration Secretariat is currently in the process of conducting a study on this topic.

Engage local researchers

The engagement of local researchers is absolutely crucial for the improvement of data on the climate-mobility nexus in the region. Yet many local researchers lack access to international research networks and opportunities. This is the reason why initiatives to reach out local universities and research centres and to stimulate local research need to be taken.

A regional conference could gather researchers working on the climate-mobility nexus in different universities of the IGAD region, and could lead to the creation of a regional research network, on the basis of those established in West Africa after the Ouagadougou conference (2018), or in Asia-Pacific following the ADB Manila conference (2012).

ICPAC could facilitate the organisation of this research network and could possibly host the secretariat of the network, while providing internship and networking opportunities to the network's members.

Address migration as adaptation in adaptation planning

In adaptation plans, migration remains perceived as a phenomenon to avoid. Yet policy processes increasingly recognise the positive role that migration can play for adaptation, especially in areas with rarefied natural resources. None of the IGAD region's NAPAs seeks to promote adaptation through migration.

IGAD could facilitate this through the development of a specific regional strategy on migration as adaptation, as well as the organisation of workshops and capacity-building exercises of this topic, for a wide range of policy-makers.

Pay more attention to humanitarian situations

In adaptation planning, little attention is paid to humanitarian situations compounded by climate impacts, food security and mobility. Likewise, evacuation processes and preparedness remain little addressed in disaster reduction plans in the region, which increases the risk of displacement induced by sudden-onset disasters.

Countries of the IGAD region should integrate a structural response to humanitarian situations as part of their adaptation plans and disaster risk reduction policies, in a consistent and coordinated way. At the moment, responses to humanitarian situations in the region remains largely reactive, rather than proactive.

Create alternative livelihoods for people affected by climate change

In the IGAD region, people most affected by climate change will often be rural populations, depending on farming for their livelihood. They could be provided with alternative livelihoods through the boosting of rural labour markets, so that they could offer jobs outside of farming. In countries with transforming economies such as Kenya, more attention needs to be given to rural labour markets to facilitate transition out of agriculture, possibly through migration. Another way to provide alternative livelihoods is to promote insurance and income-replacement programmes to the affected populations. Governments of the region could seek to promote local, small-scale insurance schemes for farmers or income-replacement programmes that would allow for farmers to be better protected against the volatility of incomes and food prices, and thus maintain a livelihood in rural areas

when it is their choice to remain.

There is also a need to improve education in rural areas, in order to allow people to seize employment opportunities outside of farming. Many rural populations are 'blocked' from a professional viewpoint for a lack of education.

Provide safety net programmes

It is also crucial to promote decent farm and off-farm employment opportunities and provide safety nets that support and complement incomes in rural areas. Cooperation could be sought with the UN Food Agriculture Organisation (FAO) and the International Labour Organisation (ILO) to promote rural non-contributory pensions, such as those introduced in South Africa, Brazil or Bolivia, as they could make a significant difference for the most disadvantaged populations if they were more widespread.

Programmes like the Productive Safety Net Programme (PSNP) developed by the government of Ethiopia could be replicated in other countries of the IGAD region, possibly with the support of IGAD.

Give more consideration to sea-level rise

When discussing the impacts of climate change in the region, droughts usually overshadow any other impact. Yet the region is highly vulnerable to sea-level rise as well, though this impact is little considered in climate policies or adaptation plans. Different countries of the region, such as Djibouti, Somalia or Kenya will be highly affected, but measurement of sea-level rise remains limited, mostly due to a lack of gauges in the region. Future projections indicate that large portions of people are likely to migrate out of the coastal regions of Kenya and Somalia, for example.

In order to give more attention to sea-level rise, data first need to be improved: more gauges need to be operational in coastal areas, for example. Plans for coastal retreat need to be developed in order to protect economic opportunities in coastal regions, and vulnerability assessments of key coastal infrastructure need to be conducted.

Integrate human mobility into the policy discussions on agriculture and food security

A crucial challenge will be to integrate not just agriculture, food security and human mobility into the policy discussions on climate change; but also human mobility into the policy discussions on agriculture and food security. This discussion will need to address the debate on the future of agricultural models, as food production and food systems will be a key element of the resilience and adaptation to the impacts of climate change.

The IGAD project on the strengthening of the drought resilience – migration nexus is an excellent step in this direction, as the project seeks to mainstream migration into the resilience agenda.

Support pastoralism

Rather than treat pastoralism as an ailing and failing livelihood, governments can support adaptation strategies, address the causes of land fragmentation, and address urban youth unemployment to help avoid the rupture of this way of life. Pastoralism remains very important in the IGAD region, and faces very significant challenges as a result of climate change.

Projects like the Transhumance Protocol should help pastoralist communities deal with some of the challenges they are confronted with. But besides this, it is important to promote pastoralism as a way of life that can be sustained under climate change.

Strengthen the inclusion of human mobility in disaster risk reduction

While many countries of the region have developed plans for disaster risk reduction, these plans are often not accounting for displacement related to disasters. Overall, disaster risk reduction needs to be better aligned with the protection of displaced persons, and there's ample space for better coordination and harmonisation of practices. Addressing displacement more systematically and specifically in disaster risk reduction policies and strategies would allow for a better streamlining of the prevention and protection challenges. Here again, regional frameworks can serve as an inspiration for national policies.

Use the Kampala Convention as a structural framework for the prevention of displacement and protection of affected populations

The Kampala Convention is an essential instrument that not only seeks to prevent displacement, but also to protect the displaced, including those displaced in the context of disasters and climate change. It can provide a structural framework for the implementation of the Nansen Initiative Protection Agenda in the region. The Convention, however, remains too little ratified: in the region, too few countries have ratified it. It is essential to increase the level of ratification of the Convention.

Pursue the development of instruments to facilitate the free movement of people

Such initiatives will be increasingly necessary in the context of climate change across the world and the African continent. Following the adoption of the African Union Free Movement Protocol, the IGAD Protocols on the Free Movement of Persons and Transhumance are bound to become key instruments in the near future.

With regard to the implementation, it will be important to draw lessons from the ECOWAS Protocol on the Free Movement of Persons, first adopted in 1979. A study tour was agreed between the two regions in July 2017, but a common forum between ECOWAS and IGAD would allow for the sharing of best practices and the development of cooperation mechanisms.

Conclusion

The relationship between climate change, human mobility and social unrest has often been discussed in the literature. Several studies, for example, have pointed out the correlation between environmental disruptions and the occurrence of violence throughout history, in diverse regions (Hsiang et al. 2013). Other studies have warned that climate change, migration and security would be increasingly linked to one another in the future. But these issues often remain discussed on the conceptual level, as if it remained a theoretical possibility only.

More importantly, it also shows that the environmental drivers of migration or conflict cannot be disentangled from its economic, political or cultural drivers. This fundamentally challenges a common assumption that 'environmental migration' would constitute a specific, discrete category of migration. The establishment of such migration categories, which would distinguish clearly different migration motives, and create different legal regimes and protection policies on the basis of the motive of migration, does not hold against empirical realities. Rather than seeking to establish discrete migration categories, delineated on the basis of the motive of migration, it is essential to recognise the increasingly important role played by environmental degradation and climate change in the mobility patterns in the IGAD region. The environmental, economic and political drivers will be increasingly tied with each other, influencing each other. Therefore protection regimes and migration policies cannot revolve around a distinction based on the motive of migration, as it is still largely the case now. And 'environmental migration' cannot be considered as a distinct category of migration, as evidenced by the mobility patterns in the IGAD region.

The Nansen Initiative Protection Agenda is the most ambitious attempt to date to improve the legal protection of those displaced across borders in the context of disasters and the adverse effects of climate change. In the IGAD region, it does provide an appropriate framework to ensure a better protection of the rights of those whose movement is related to environmental disruptions, including those displaced internally. Combined with other regional instruments, such as the Kampala Convention, it does also provide a sound foundation for better migration management in the region. But, as often, what is really lacking in the region is the actual implementation of these instruments. Yet different countries have taken meaningful steps towards addressing the challenges brought upon by the environment-migration nexus: many initiatives and policies could be replicated across the region, and the potential for mutual learning is considerable. IGAD, as a regional organisation, has a critical catalyser role to play. Not only can IGAD deploy regional policies and protection regimes across the region, it can also facilitate the

liaison between the countries of the region and international forums where these issues are debated at the international level, such as the activities of the Platform on Disaster Displacement. Such a liaison role will be critical to ensure that the voice of the IGAD countries is heard at the international level, but also that appropriate international funding is provided to address the root causes of humanitarian crises in the region. Such action cannot be delayed: addressing the interactions between environmental changes, migration and violence is the only way to avoid future humanitarian crises in the region, where millions are already displaced today.

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Appendix

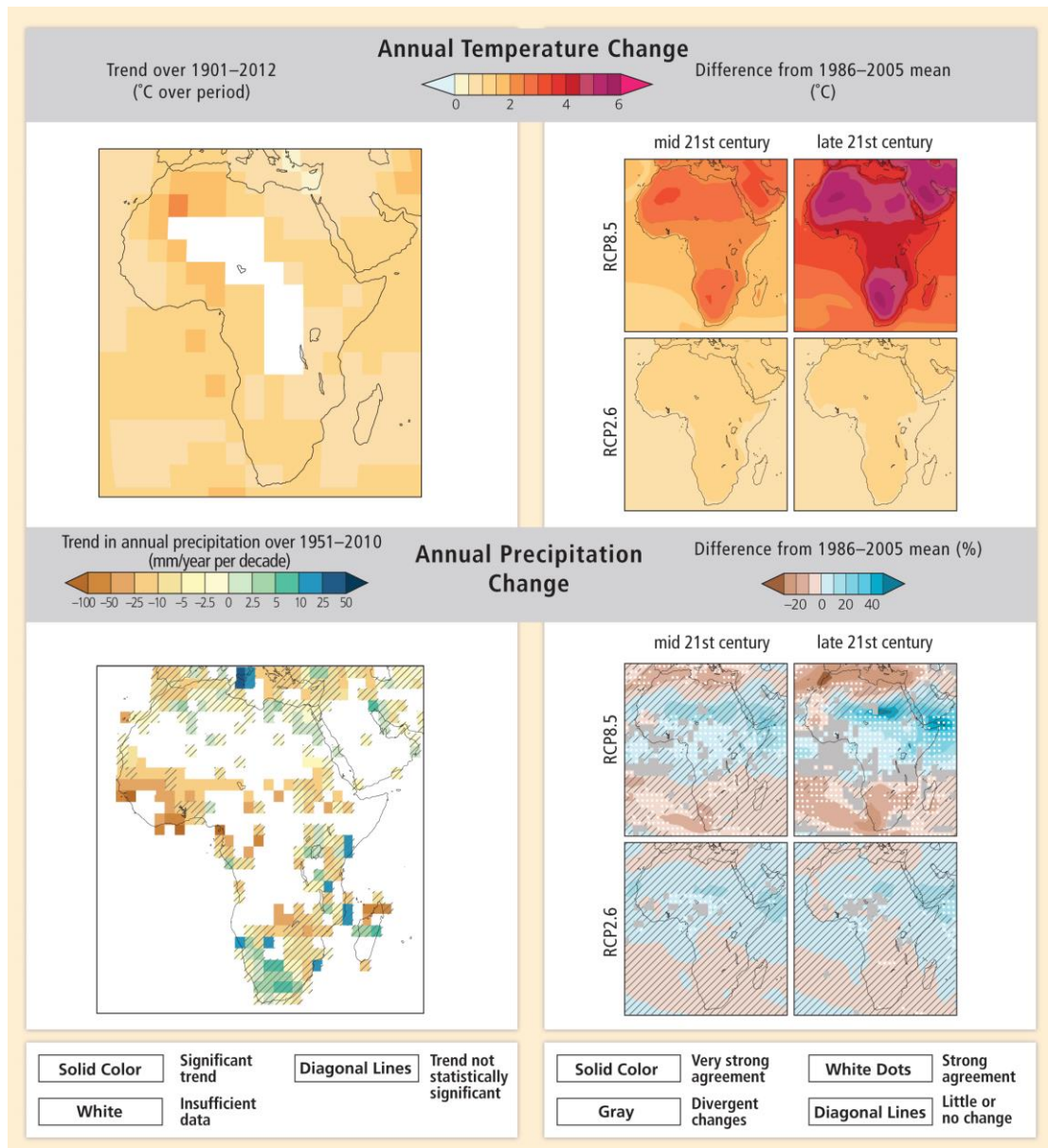


Figure 47 – Expected temperature and precipitation changes for Africa. Source: IPCC.