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Weak links: Challenging the climate & mixed migration paradigm in the Horn of Africa & Yemen

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Executive Summary

When mobility drivers are scrutinised and climate change is found to play a role in movement, it remains difficult to determine the extent of its influence. “Misleading claims about mass migration induced by climate change continue to surface in both academia and policy.”¹ There are arguments to indicate that research needs to move beyond simplistic assumptions so that it “more accurately advances knowledge of the nexus between human mobility and climate change”.² Some advocate a shift towards adopting the more flexible concepts of “climate mobility” and “climate immobility” instead of the more rigid “climate-induced migration”.³ Despite some evidence for climate-induced cross-border movement, there is a strong likelihood that involuntary immobility will become the biggest and most relevant issue in the Horn of Africa when it comes to the link between environment and mobility.

This paper will show that although conditions in the Horn of Africa and Yemen are variously characterised by conflict, authoritarian regimes, poor governance, poverty, and mass displacement, along with harsh environments that produce negative climate change impacts, there is scant evidence that these impacts cause intercontinental and interregional mixed migration. The linkages are hard to locate. Climate change and environmental stressors cannot easily be disaggregated from the wide range of factors affecting populations, and even where some disaggregation is evident the results are not seen in the volume, direction, or destination choices of those affected.

Instead, despite a wide range of deteriorating conditions and significant degradation of the environment creating mass displacement, these mobility patterns are heterogeneous, nonlinear, and multi-directional. Internal mobility (forced displacement and steady urbanisation) stands out as the primary consequence of combined factors affecting populations, but the patterns of those in cross-border (especially regional and intercontinental) movement in mixed flows offer no clear correlation to climate.

These findings – a strong presence of internal climate mobilities and a weak presence of external climate mobilities – conform to those of various studies cited in this paper. However, they by no means preclude the possibility of important changes in mobility patterns in the future as the negative impact of climate change further bites into the fabric of economy, politics, and sustainable development in these countries. The fact that there is a paucity of evidence that the impact of climate

change directly causes conflict or external movement today does not mean that it will not do so in the short- or medium-term future. Indeed, it is hard to see how it will not, given the scale of impact that climate is expected to have in the region and the likely importance it will have on people’s lives, their economies, politics, and options.

Section 1 of this paper sets the scene by introducing the critical elements of the current mobility/environment discussion.

Section 2 consists of thumbnail sketches of the geography, environmental conditions, climate change dynamics, and mixed migration patterns in Djibouti, Eritrea, Ethiopia, Somalia and Yemen.

Section 3 pans out from previous section’s country-specific case studies to provide a regional, comparative picture of the relationship between climate change and mixed migration.

Section 4 highlights several global and regional policy responses to the current and future impact of climate change on mobility.

By way of a conclusion to this paper, Section 5 explores future expectations of climate change and its impact in the region.

1 Boas, I. et al (2019) [Climate migration myths](#) Nature Climate Change

2 Ibid

3 See, for example, Werrell, C., Femio, F., & Sternberg, T. (2011) [No Way Out: Climate Change and Immobility](#) World Policy

Table 1. Summary of the current status and expected future scenarios of environmental stressors and mixed migration

Country	Human Development Index (2019) ranking <small>(out of 189)</small>	Current environmental stressors/hazards	Current mixed migration status	Future climate changes expected	Expected impact on mixed migration <small>(of economic migration, refugees and asylum seekers)</small>
Djibouti	171	Water resources scarcity, rising ground temperatures, cyclical drought, severely low rainfall and potential problems related to rising sea levels	A major transit country for Ethiopian migrants and some refugees A destination country for some refugees (29,000 from the region, mainly Somalis and Ethiopians – UNHCR data) Few Djiboutians found in mixed migration flows	Future climate change impact is expected to intensify. There is uncertainty as to how severe the negative effects will become, or how affected entire countries will be.	Impact may be limited due to Djibouti's atypical economy and demographic distribution. Urbanisation, already high, will increase.
Eritrea	182	Harsh climatic conditions , including cyclical drought affecting groundwater resources and flooding during rainy seasons Shortage of water resources and consequent food insecurity due to an overdependency on rainfed agriculture	A key country of origin in mixed flows, mainly going west and north, not going east to Yemen/Saudi Arabia (some 600,000 Eritreans live abroad as refugees or asylum seekers) Neither a transit nor destination country for other refugees and migrants Hosts a very small population of Somali refugees (under 3,000)		High dependency on rainfed agriculture will cause greater immiseration and mobility - primarily internal to cities but probably also external if economic opportunities and political freedoms continue to be limited.
Ethiopia	173	Droughts, floods Dependence on rainfed agriculture, low economic development, deforestation, land degradation , and larger and denser human settlements increase vulnerability to environmental stressors	Primarily a source country: most migrants on the move both within and out of the region are Ethiopian. Approx. 200,000 Ethiopians are refugees or asylum seekers abroad. Used as a transit country by large numbers of Eritreans and Somalis A destination country hosting 720,000 urban and encamped refugees in late 2019 (45% South Sudanese, 26% Somalis, 20% Eritrean)		High dependency on rainfed agriculture and rising population will cause greater immiseration and mobility - primarily internal to cities (as large-scale internal migration) but probably external if economic opportunities and political freedoms (currently improving) are limited.
Somalia <small>(including Somaliland & Puntland)</small>	Not ranked due to lack of data	Droughts and extreme flooding Fragile and significantly degraded natural resources Deforestation, overgrazing, soil erosion and desertification. Dust storms, heat waves and cyclonic winds	Primarily a source country – Somalis are found in mixed flows heading north, west, east and south (about one million Somalis live abroad as refugees or asylum seekers, mostly within in the region) A destination country hosting refugees and asylum seekers from other countries, mainly Ethiopia and, increasingly, Yemen, predominantly living in Somaliland & Puntland.		High dependency on pastureland in Somalia will cause greater immiseration and mobility - primarily internal to cities but probably external if economic opportunities and political freedoms are limited and if conflict persists
Yemen	117	Severe water scarcity, changing rainfall patterns, extreme heat, repeated urban and river flooding, biodiversity loss, desertification, and rising sea level	A destination and transit country for an annual average of some 110,000 (150,000 in 2018) Ethiopians and (to a lesser extent) Somalis, mostly seeking to access Saudi Arabia Host to about 275,000 refugees and asylum-seekers, mainly from Somalia (majority) and Ethiopia (UNHCR 2019) An origin country: approximately 200,000 Yemenis fled Yemen in recent years – living mainly in the region (2017 UNHCR/IOM data) Approx. 2.3 million internally displaced people (IDMC 2019), mostly due to conflict and a small minority (18,000) due to natural hazards Returns occurring, mainly from Saudi Arabia Unknown hundreds of thousands of Yemenis work as irregular migrants in Saudi Arabia.		Dependency on rainfed and irrigated agriculture and growing population will cause greater immiseration and mobility / displacement - primarily internal to cities but probably external if economic opportunities are limited and conflict persists. Water scarcity likely to drive mobility.

Section 1. Setting the scene: the mobility/ environment discussion

The new normal

Globally, migration, displacement, and organised relocation are increasingly affected by a range of environmental processes, including climatic variability (storms, drought, and other kinds of weather shocks such as heatwaves, floods, and cyclones), and shifts in climate patterns associated with glacial melt, sea-level rise and desertification. Communities living in low-lying islands and deltas, coastal zones, glacial-fed water systems, and regions subject to persistent drought are particularly vulnerable.⁴ Some argue these kind of climate mobilities should be seen as the new normal rather than the exception, just as human mobility and migration are already “inherent to the highly interconnected world we live in and a standard element of social life.”⁵

According to a major study by the International Organization for Migration, least developed countries, landlocked developing countries, and small-island developing states are among the most vulnerable groups of countries in the world. They are “disproportionately affected by the negative impacts of climate change due to their structural constraints and geographical disadvantage.”⁶ In 2016, 13 out of the 15 countries with the highest vulnerability to natural hazards were from these three groups of countries where the mobility and climate change nexus is evident, most prominently in terms of internal movement. They include all countries in the Horn of Africa and Yemen region.

As this paper will show, the Horn of Africa and Yemen face harsh environmental conditions that are currently exacerbated by climate change. “There is growing scientific analysis suggesting that the impacts of current and recent droughts in East Africa are likely to have been aggravated by climate change.”⁷ The seemingly gradual and incremental nature of some impacts of

climate change lead some to deny the severity of climate change and question the need to combat it. Meanwhile, “others are struggling for their lives as climate change makes a bad situation worse.”⁸ However, the contention that climate change directly causes displacement and increased mixed migration is a requires far more scrutiny and is by no mean provable at present.⁹

Contextually contingent

Climatic events and changes can affect human mobility either directly or, more commonly, in combination with other factors. “Contexts matter and the interactions of drivers are key to understand how environmental change influences the migration process...”¹⁰ A recent review of dozens of case studies of environmental change as a driver of migration found that migration-environment relationships are contextually contingent: “individual intentions to migrate [...] particularly depend on both socio-economic and demographic factors as well as the characteristics of the place of origin.”¹¹

Nevertheless, based on current measurable trends, five patterns of climate-induced displacement can be identified: temporary, permanent local, permanent internal, permanent regional, and permanent inter-continental.¹² The last two patterns are relevant to mixed migration flows, although the other forms of internal displacement (which accounts for most environment-induced displacement) can lead to subsequent regional and inter-continental movement.

4 While there is no universally agreed definition of “climate-induced human mobility”, it can be said to refer to “movement of people driven by sudden or progressive changes in the weather or climate. This can include temporary and permanent, seasonal and singular, as well as voluntary and forced movement.” See: Wilkinson, E. et al (2016) [Climate-induced migration and displacement: closing the policy gap](#) ODI Briefing

5 Boas, I. et al (2019) op cit

6 IOM (2019) [Climate Change and Migration in Vulnerable Countries. A snapshot of least developed countries, landlocked developing countries and small island developing States.](#)

7 Oxfam (2017) [A Climate in Crisis: How Climate Change is making Drought and Humanitarian Disaster Worse in the Horn of Africa](#)

8 Ibid

9 Mixed migration in the Horn of Africa and Yemen refers specifically to large and complex cross-border population movements combining refugees, victims of trafficking, and people seeking better lives and opportunities moving along similar routes, using the same means of travel, and often traveling irregularly.

10 Borderon, M. et al. (2018) [A systematic review of empirical evidence on migration influenced by environmental change in Africa](#) International Institute for Applied Systems Analysis

11 Ibid

12 Warner, K. et al (2013) [Changing Climate, Moving People: Framing Migration, Displacement and Planned Relocation](#) UN University Institute for Environment and Human Security

Causality attribution remains problematic

Environmental shocks and stressors manifesting as changes in the environment may be acute (sudden onset) or gradual (slow onset) and may result in temporary or permanent migration, normally within affected countries, but also internationally.¹³ However, establishing specific linkages between environmental stressors and mobility is problematic, particularly in the context of mixed migration in the Horn of Africa and Yemen. As this briefing paper will illustrate in Section 3, ascribing any single cause to mobility, even in situations where high levels of environmental stress pertain, poses problems.

Studies report less-than conclusive evidence about the effect of climate on international migration.¹⁴ One research team looked at 30 studies investigating the link between environment and displacement in sub-Saharan Africa and concluded that mobility is an established adaptation strategy and only one of a potential host of livelihood options: “importantly, the existing studies also highlight how migration is more than the outcome of poverty or intolerable vulnerability, instead appearing to manifest as a highly strategic response...”¹⁵

Researchers exploring interlinked drivers of human migration in the context of environmental change for a recent study identified five main factors which “influence people’s decision to stay or go.”¹⁶ These are:

1. **Economic**, which includes employment opportunities, income and the price of living.
2. **Social**, which includes the search for educational opportunities or obligations to kin, such as marriage or inheritance practices.
3. **Political**, which includes discrimination or persecution, conflict, levels of security and policy incentives, for example a change in land ownership policy.
4. **Demographic**, which includes population density and structure and risk of disease.
5. **Environmental**, including exposure to hazards and land productivity and habitability.”¹⁷

However, not all studies are so circumspect. A bolder assertion on correlations (not causation) was made in a study from New Zealand where 16 destination and 198 origin countries were analysed for migration correlations over a 34-year period (1980-2014). Its researchers asserted that climate change was found to be a more important mobility driver than income and political freedom combined.¹⁸ They also found that a long timeframe is key to understanding the effects of climate change, and described their findings as “just the tip of the iceberg” given that climate-induced movement (internal and external) is often not documented or recognised as such.

Mobility decision making: a multi-causal process

A study conducted in 2017 found limited evidence of drought as a major driver for recent movement along the eastern route through Somalia towards Yemen and the Gulf countries.¹⁹ Overall, few migrants interviewed for the study linked their movement specifically to drought.²⁰ The study suggested that while drought may be one of a number of reasons for migrating to Yemen and beyond, it is not necessarily the main driver, with those interviewed citing a mix of factors including economic issues related to a lack of employment and livelihood opportunities, low salaries and land scarcity.²¹

Illustrating the same point, a 2019 study on migratory decisions in the low-lying Maldives archipelago arrived at some unexpected findings. “Contrary to a view of islanders preparing to flee their islands as ‘climate change refugees’, the interviewees provided nuanced and varied responses.”²² The prospect of future climate change impacts rarely influenced their migration-related decisions. Instead, these focused around internal (not international) movement seeking a better standard of living via improved services, better living conditions, and more job opportunities.

The Mixed Migration Centre’s primary data gathering network – the Mixed Migration Monitoring Mechanism initiative (4Mi) – surveys many thousands of people travelling in mixed flows within and out of the Horn of Africa, yet few select “environmental issues” as a leading

13 Rigaud, K. et al. (2018) [Groundswell: Preparing for Internal Climate Migration](#) World Bank Group

14 Waldinger, M. & Fankhauser, S. (2015) [Climate change and migration in developing countries: evidence and implications for PRISE Countries](#) Centre For Climate Change Economics and Policy & Grantham Research Institute on Climate Change and the Environment

15 Morrissey, J. (2014) [Environmental change and human migration in sub-Saharan Africa](#) in Piguat, E., & Loczko, F. (Eds) (2014) [People on the Move in a Changing Climate. The Regional Impact of Environmental Change on Migration](#) Dordrecht: Springer

16 Science for Environment Policy (2015) op cit

17 Ibid

18 Aburn, A. & Wesselbaum, D. (2017) [Gone with the Wind: International Migration](#) University of Otago

19 Research and Evidence Facility (2017) [Migration between the Horn of Africa and Yemen: A Study of Puntland, Djibouti and Yemen](#) EU Emergency Trust Fund for Africa

20 Ibid

21 Ibid

22 Kelman, I. et al (2019) [Does climate change influence people’s migration decisions in Maldives?](#) Climate Change

driver of their mobility (see Box 1).²³ Similarly, one of the main findings of a 2012 study by UNHCR in the Horn of Africa was that “cross-border movement, as a direct response to climatic variability, was rarely mentioned [by interviewees]. For most, cross-border migration was typically a second migration, the first often being internal (and often induced by environmental considerations) and the second caused by violence, drought or a combination of both.”²⁴ These findings were further echoed in a recent WFP/IOM study in Libya, where interviewed migrants gave very little priority to water scarcity, land degradation, natural disasters, extreme weather or “slow onset environmental” factors as their reasons for cross-border migration.²⁵

Box 1: A negligible mobility driver

According to findings calculated from 4Mi data for this study, of the more than 2,200 people interviewed by 4Mi in key transit locations in East, South, and North Africa and in Europe, less than three percent mentioned environmental factors or natural disasters as one of the reasons they left their country of departure. Common reasons associated with leaving included general insecurity, inability to find work, dissatisfaction with wages, and various forms of violence or discrimination, with aspirations focused around finding better work outside their countries. Although those who indicated that they had moved from rural areas were more likely to quote environmental factors than those who moved from urban areas, only 11 percent of those from rural areas indicated that environmental factors or natural disasters shaped their decision to move.

Climate-induced mobility and mixed migration are complex and multi-causal processes in which natural hazards are closely linked to economic, social, and political factors as part of the broader environments in which people live.²⁶ Political factors at community and national levels mediate access to resources between

and within households.²⁷ Mobility decisions are therefore not simply a response to deteriorating environmental conditions but “a particular set of livelihood options framed by biophysical, social, political and economic contexts”.²⁸ It is these contextual factors surrounding natural hazards that inform if and how natural hazards influence mobility.²⁹ Mobility in the context of drought, for instance, does not take a unique form, as people deploy different mobility strategies.³⁰ Indeed, given the incremental nature of environmental impact on people’s lives, those on the move, or those who have already moved, may be unaware of, or unable to directly identify, the role environmental factors played in their decisions to move.³¹

Climate as a threat multiplier

Climate change is commonly framed as a threat or stress multiplier that exacerbates complex and location-specific conditions, sometimes to a tipping point that leads to migration. It can exacerbate a wide range of existing, interrelated, non-climate threats, including security, and serve as a catalyst for conflict. It also impacts the political, demographic, economic, social, and environmental factors that can drive migration.³² UNHCR’s study of climate change in East Africa and the Horn found clear evidence of this through its interviews with refugees and migrants.³³

Drivers of migration are clearly interconnected, their categories are “permeable” and climate change may have a greater impact on some drivers than others: one “may cause the other or, more likely, each drives the other in a vicious cycle of reinforcing degradations”.³⁴ In October 2019 Filippo Grandi, United Nations High Commissioner for Refugees, stated that “forced displacement across borders can stem from the interaction between climate change and disasters with conflict and violence – or it can arise from natural or man-made disasters alone. Either situation can trigger international protection needs.”³⁵ UNHCR is increasingly charting examples where “conflict and climate change form a toxic combination that drives

23 Regional 4Mi teams in West Africa, North Africa, East Africa and Yemen, and Asia continually collect and analyse data on mixed migration flows, including profiles, drivers, means and conditions of movement, the smuggler economy, aspirations and destination choices. More information and the latest 4Mi data and analysis can be found [here](#).

24 Afifi, T. et al (2012) [Climate Change, Vulnerability And Human Mobility: Perspectives Of Refugees From The East And Horn Of Africa](#) UNHCR

25 WFP/IOM (2019) [Hunger, displacement and migration - A joint innovative approach to assessing needs of migrants in Libya](#)

26 Castles, S. (2002) [Environmental change and forced migration: making sense of the debate](#) New Issues in Refugee Research, Oxford University Refugees Studies Centre. See also; Foresight: Migration and Global Environmental Change (2011) [Final Project Report](#) The [UK] Government Office for Science; Zetter, R. & Morrissey, J. (2014) [The Environment-Mobility Nexus: Reconceptualising the Links between Environmental Stress, Mobility, and Power](#) published in Fiddian-Qasmiyeh, E. et al (Eds) (2014) [The Oxford Handbook of Refugee and Forced Migration Studies](#) Oxford University Press

27 Zetter, R. (2017) [The Politics of Rights Protection for Environmentally Displaced people](#) Migration Institute of Finland

28 Morrissey, J. (2014) op cit

29 Freeman, L. (2017) [Environmental Change, Migration, and Conflict in Africa: a Critical Examination of the Interconnections](#) The Journal of Environment & Development

30 Jónsson, G. (2010) [The environmental factor in migration dynamics – a review of African case studies](#) International Migration Institute

31 Ramirez, I. (2019) [Climate Change Will Create 1.5 Billion Migrants by 2050 and We Have No Idea Where They'll Go](#). Vice

32 Rigaud, K. et al, op cit

33 Afifi, T. et al, op cit

34 Goffman, E. (2006) [Environmental refugees: How many, How bad?](#) CSA Discovery Guides

35 Grandi, F. (2019) [Opening statement at the 70th session of the Executive Committee of the High Commissioner's Programme](#)

people from their homes.”³⁶ Another consideration that concerns UNHCR is that large-scale refugee movements – regardless of whether they are climate-induced – “have themselves in turn an environmental impact, and refugees are frequently located in climate hotspots.”³⁷

Securitising climate migration

The potential impact therefore, of climate change on natural resources, livelihoods, impoverishment, and inequality contributing to mass mobility “is why military minds around the world take climate change very seriously indeed as a threat multiplier with direct consequences for peace and security.”³⁸ But critics of this analysis argue that without concrete evidence of these linkages, there is “a danger that migration policy will continue to be based on weak scientific evidence that reinforces the self-perpetuating myth of climate change migration as a looming security crisis.”³⁹

The climate/conflict nexus remains

When considering the causal links between climate change and violence, analysts generally agree that intervening variables determine if and how environmental change causes population movements and political violence. At a local level it may be a primary cause for conflict, as groups clash over pastureland or water points etc. Here, one researcher states that migration is presented as an “intermediary and bidirectional causal variable”, and that “close attention needs to be paid to local-level manifestations of conflict and (mal) adaptive forms of migration to understand the potential propensity of environmental change to lead to conflict in Africa.”⁴⁰ But these are still “potential” propensities and have little grounding in empirical evidence that climate change is contributing to conflict in Africa (or Yemen) today. However, in the future its role may prove to be more pivotal and instrumental.

The Groundswell report finds significant statistical correlations between climate change and violence or conflict in scenarios where people move into areas where competition for scarce resources may already be problematic. “If human responses to climate change

remain unchanged, climate change has the potential to increase violence and conflict causing migration and flight.”⁴¹

Involuntary immobility

Not all of those affected by environmental stressors are able to move, whether they be slow onset such as drought, or sudden onset, such as in Mozambique after the heavy flooding of early 2019. Migrating is expensive, and people lacking capital, in the form of financial, social, political or physical assets, as a direct or indirect consequence of environmental stressors, may lack capabilities to move away from places where they are extremely vulnerable to environmental change. “While environmental change is likely to make migration more probable, it could also make it less possible.”⁴² In Somalia, the Food Security and Nutrition Analysis Unit, a multi-agency project managed by the UN’s Food and Agriculture Organization, reported that “many households are still recovering from the severe 2016/2017 drought or have been affected by conflict, and 2.6 million people remain displaced.”⁴³ However, according to research undertaken by RMMS (one of the preceding regional hubs that now make up the Mixed Migration Centre’s network), consecutive seasons of poor or below average rainfall in Somalia had reduced the ability of people to join onward migration flows outside of the region, and had led to an increase only in internal displacements.⁴⁴

As drought-affected communities may lack the resources necessary to engage in long-distance migration, they may be more likely to move within their own country or to nearby urban areas: “Those experiencing extremely depleted resilience and resources may no longer have the funds to pay for their journey, and stay put or move shorter distances rather than leaving the region.”⁴⁵ Factors such as age and gender may also impact the form that mobility takes in the context of environmental risks, affecting who leaves and who stays. In many countries, women face social, economic, and political barriers that limit their coping capacity when affected by climate shocks and stresses and that may also limit their ability to migrate.⁴⁶ There is a strong likelihood that immobility will become the biggest and most relevant issue in the Horn of Africa when it comes to the link between environment and mobility.

36 Thomson, B. (2019) [Climate change and displacement](#) UNHCR

37 Grandi, F. (2019) op cit

38 Guterres, A. (2017) [Calling Climate Change Direct Threat. Multiplier of Many Others at General Assembly Event. Secretary-General Stresses Need for Urgent, Decisive Action](#) United Nations

39 Boas, I. et al, op cit

40 Freeman, L. (2017) [Environmental Change, Migration, and Conflict in Africa: A Critical Examination of the Interconnections](#) The Journal of Environment and Development

41 Ibid

42 Mixed Migration Centre (2019) [The ‘inconvenient truth’ of future mixed migration](#) Mixed Migration Review 2019

43 FSNAU/FEWS NET (2018) [In the aftermath of drought, up to 2.1 million people in Somalia face acute food security Crisis or worse outcomes](#)

44 Akumu, O. & Frouws, B. (2017) [Drought: A contributing or limiting factor in migration?](#) Mixed Migration Centre

45 Research and Evidence Facility, op cit

46 Wilkinson, E. et al, op cit

Double jeopardy

A seminal UK government study published in 2011 warned of millions being potentially “trapped” and facing “double jeopardy” as they found themselves “unable to move away from danger because of a lack of assets, and it is this very feature which will make them even more vulnerable to environmental change.”⁴⁷ To the international community, such people represent “just as important a policy concern as those who do migrate,” not least due to the humanitarian crises this may cause.⁴⁸ The report’s authors conclude that preventing or constraining migration carries risks: “Doing so will lead to increased impoverishment, displacement and irregular migration in many settings, particularly in low elevation coastal zones, drylands and mountain regions.”⁴⁹

The aspiration/capability dynamic in the environmental context

Revisiting the aspiration/capability conceptualisation in migration theory is relevant to understanding what role the environment plays in mobility.⁵⁰ Four categories present themselves (illustrated in Graphic 1 below).

1) People may have aspiration or compulsion to move, but do not have the capability and are therefore trapped in involuntary immobility.

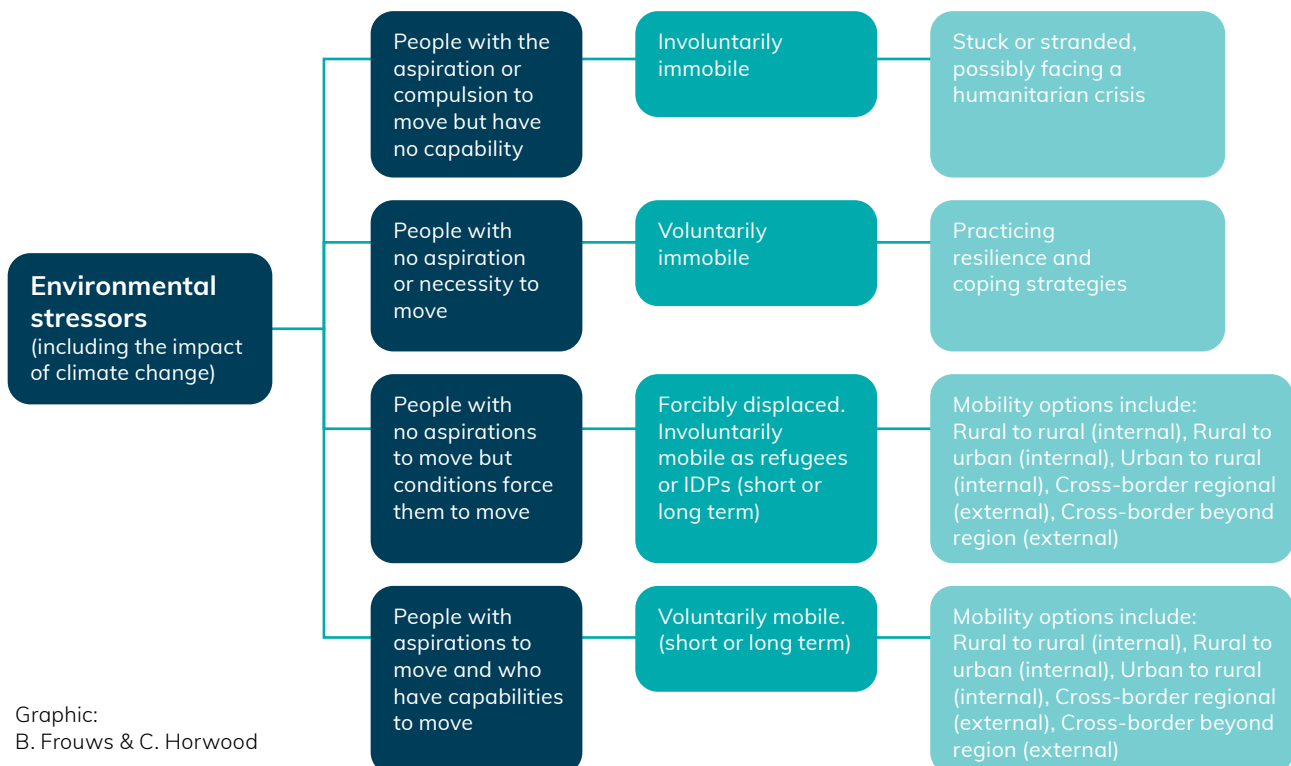
2) People may have no aspiration or immediate need to move and therefore find coping mechanisms to deal with shocks or environmental stressors. They are voluntarily immobile and practice resilience.

3) People may have no aspiration to move but left with no other choice due to climate shocks and stresses and therefore become forcibly displaced as internally displaced persons (IDPs) or refugees. Here the option of mobility could be rural-to-rural, rural-to-urban, urban-to-rural, cross-border within the region, or cross-border beyond the region.

4) People may aspire to move while also having the capability to do so. Here, they also have the options of rural-to-rural, rural-to-urban, urban-to-rural, cross-border within the region, or cross-border beyond the region.

This presentation of situations and options illustrates why environmental stressors are very context-specific and by no means automatically result in increased mixed migration.

Graphic 1: Outcomes and options facing those affected by environmental stressors



Graphic:
B. Frouws & C. Horwood

47 Foresight: Migration and Global Environmental Change, op cit

48 Rigaud, K. et al, op cit

49 Ibid

50 Carling, J. & Schewel, K. (2017) [Revisiting aspiration and ability in international migration](#)

Climate-induced migrants and the legal void

In international law, the status of people on the move where the prime causation is climate or environment remains undefined.⁵¹ This is mainly due to the difficulty of isolating environmental factors from other, often related, drivers of migration and because these groups are not covered by the 1951 Refugee Convention.⁵² Different terms are applied to those moving for environmental reasons, including environmental or climate refugee and environmental or climate migrant (see Box 2).

Box 2: The categorisation dilemma

During recent years, as academics, policy makers, and practitioners have wrestled to understand the migration/environment nexus, various terms have been applied to those moving for environmental reasons. Terms used include ecological refugee, forced environmental migrant, environmentally-motivated migrant, climate change refugee, environmentally-displaced person, disaster refugee, environmental displacee, eco-refugee, ecologically-displaced person, and environmental-refugee-to-be.⁵³ Such terms are politically and legally loaded and are often advanced by people with a specific agenda to promote. From a legal perspective, the term environmental refugee is a misnomer, and most recent literature avoids it. One recent paper advocates dispensing with all such terms in favour of a more holistic view of the subject through the lens of “climate mobilities.”⁵⁴ The critical issue is that people in this group fall through the cracks of international refugee and immigration policy, and legal categorisation presents a potentially huge dilemma for agencies, governments, and those affected themselves.⁵⁵

Even though this paper contributes to the argument that the linkages between climate change and mixed migration are currently tenuous, it by no means follows that in the future the linkages will not be far stronger. How then would the world respond to the predicted many millions of climate-induced migrants and asylum seekers when they have no official status?⁵⁶ For those who

move irregularly in mixed migratory flows, the question of “return” is also important, posing a “major dilemma for countries that do not accept environment-induced displaced people as refugees, but which at the same time cannot return people to places suffering drought, famine, food security crisis compounded by conflict or human insecurity.”⁵⁷

No major destination country has a pro-active policy designed to resettle persons adversely affected by environmental hazards.⁵⁸ Without some form of official status, and given the numbers predicted to be displaced by climate change, “it’s difficult to see how climate-induced migrants will not, quite rapidly, become a major social, political and humanitarian issue in some regions.”⁵⁹

Challenging terminologies

Arguably, the term migration does not capture the diverse ways in which people do or do not become mobile in response to a changing climate. They may move short or long distances, within or outside of their countries or regions, for short periods or longer periods or even permanently. Movement can be rural-to-rural, rural-to-urban, and even urban-to-urban. There is, therefore, a strong case for a change of terminology, from climate-induced migration to climate mobilities, as some academics in Nature recently suggested. Climate mobilities is more a politically neutral term that lacks the negative connotations of migration and captures better the “multiple forms, directions and multiplicities of human movement in the context of climate change, as well as the transformative character of mobility and its impact on places of origin, transit and destination.”⁶⁰

However, this paper is concerned with mixed migration as defined by the Mixed Migration Centre (see footnote 9). If movement is demonstrably driven by climate, and is cross-border, regional, or intercontinental, in accordance with the arguments advanced in the Nature paper, it could be regarded as a subset of climate mobilities. Graphic 2 shows the range of mobility choices made by those affected by environmental stressors. It illustrates how people choosing, or forced into, external mobility constitute a subgroup of various options. As this paper will show, the external options have been taken by a minority in the Horn of Africa and Yemen.

51 The legal landscape is however showing signs of evolving: a UN human rights body recently ruled that the threat climate change poses to the human rights of asylum-seekers in their country of origin must be considered when making deportation decisions. This is explored further in Section 4.

52 Waldinger, M. & Fankhauser, S., op cit

53 See for example: Boano, C., Zetter, R., & Morris, T. (2008) [Environmentally Displaced People: Understanding the linkages between environmental change, livelihoods and forced migration](#) Refugees Studies Centre

54 Boas, I. et al, op cit

55 Apap, J. (2019) [The concept of 'climate refugee' Towards a possible definition](#) European Parliamentary Research Service

56 A brief discussion of future expected climate change and estimated volume of those affected is found in Section 4 of this paper.

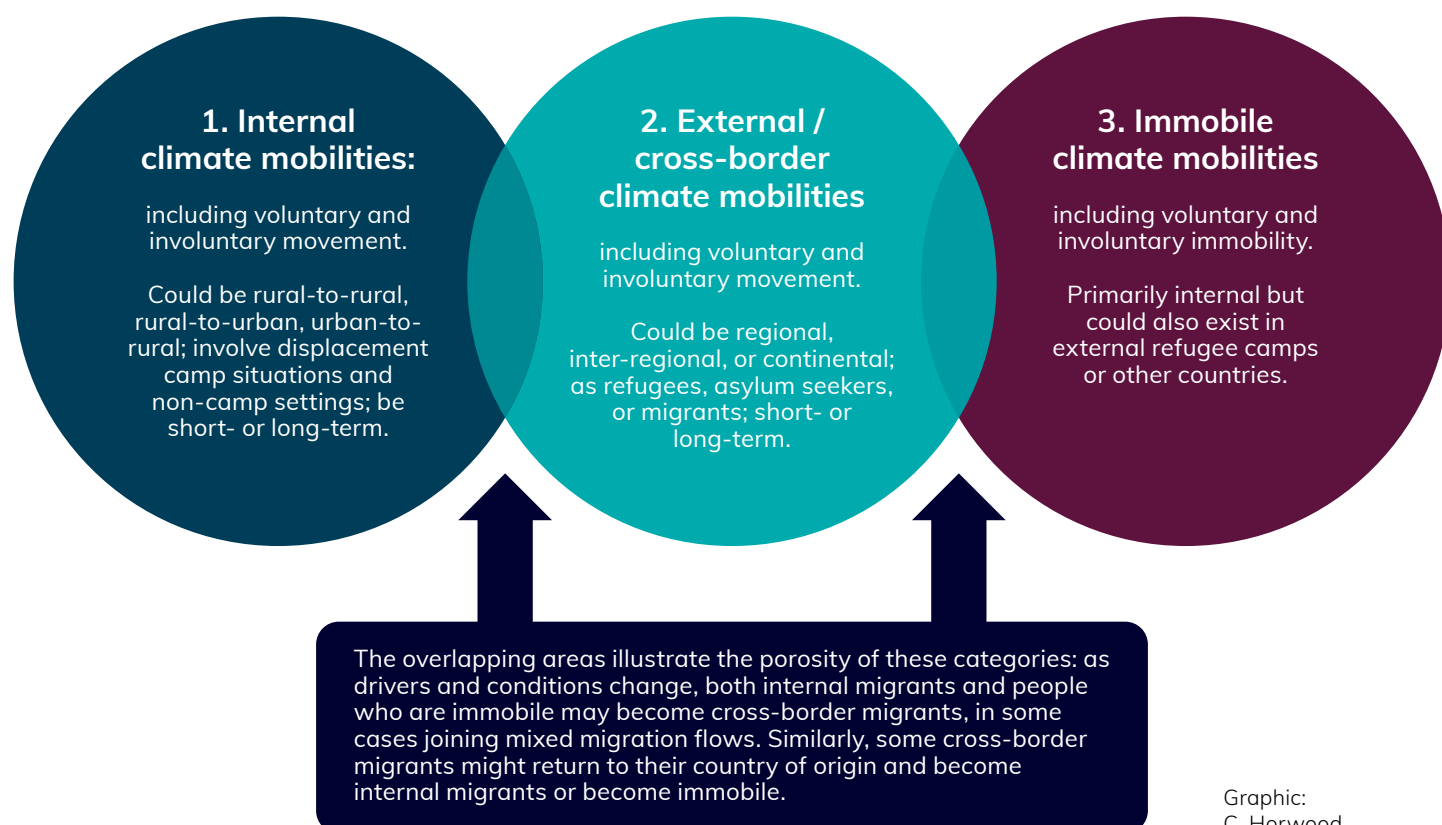
57 Mixed Migration Centre, op cit

58 Martin, S. (2010) [Climate Change and International Migration](#) The German Marshall Fund of the United States

59 Mixed Migration Centre, op cit

60 Boas, I. et al, op cit

Graphic 2: Climate (im)mobilities



Assuming strong climate-migration linkages serves different agendas

Both climate change and migration are, independently, polemical areas of debate and policy. When combined, they run the risk of being instrumentalised and politicised in the service of vested interests and ideologies or agendas.⁶¹ The result can lead to a distortion of reality and the exaggeration of linkages in the climate/migration nexus by those on various points of the political continuum. Those seeking to highlight the current climate

emergency may feel that stronger linkages between climate change and migration (especially intercontinental migration) serve to prod policymakers into emission-reducing action. Meanwhile, those aiming to securitise the migration debate in order to limit asylum and control immigration can use strong climate/migration linkages to encourage greater fortification of borders and more restrictive policies. Others, such as journalists and those working in the displacement sector may not challenge, or may even reinforce, the assumed but unproven links between climate and migration as they help generate powerful headlines and further justify investment and research.

61 Baldwin-Edwards, M., Blitz, B. & Crawley, H. (2019) [The politics of evidence-based policy in Europe's 'migration crisis'](#) Coventry University

Section 2. Overview of climate situation and environmental stressors in four Horn of Africa states and Yemen

This section outlines the main environmental threats and stressors facing Djibouti, Eritrea, Ethiopia, Somalia, and Yemen. It provides summaries of the climate and environmental resource-related vulnerabilities these countries are experiencing and the socio-political context in which they occur, and offers overviews of recent and current mixed migration trends.

Djibouti

Key environmental stressors: Djibouti faces significant problems relating to water resources, rising ground temperatures, cyclical drought, severely low rainfall, and, potentially, from rising sea levels. However, with so few people engaged in, and the country's economy not dependent upon, agriculture, climate change will have minimal impact on food security.

Geography and climate

Djibouti is situated in the second-lowest depression on dry land found anywhere on earth. Its coastline stretches 314 kilometres, with terrain consisting mainly of plateau, plains and highlands. It shares borders with Eritrea, Ethiopia, and Somaliland.⁶²

Djibouti is the world's third-smallest non-island country and one of the hottest countries in Africa. Approximately 90 percent of Djibouti is desert with just one percent forested. Djibouti's climate is significantly warmer and has significantly less seasonal variation than the world average. Djibouti's territory is characterised by either a hot semi-arid climate or a hot desert climate. On the eastern seaboard, annual rainfall is less than 130 mm.

Consequently, Djibouti has an unusually low amount of arable soil and less than five percent of its one million inhabitants are engaged in agriculture; over 80 percent of the country's income derives from service industries related to its modern seaport and the presence of bases for several foreign military forces. Djibouti depends almost

entirely on imports to meet its food needs. The share of the overall population living below the international poverty line of US\$1.90 per day was estimated at 17.1 per cent in 2017, with rural areas showing poverty rates of almost 60 percent.⁶³

Scientific, anecdotal, and media reports suggest that the impact of climate change has already affected Djibouti's resources and citizens. Some of those interviewed for a recent newspaper article, for example, spoke of steady and severe reductions in access to water, drying up of rivers and seasonal lakes, diminishing tree cover, and death of livestock.⁶⁴

Main environmental threats

Djibouti is "highly vulnerable to a variety of natural hazards, including multi-annual droughts, frequent flash floods that often follow extended periods of drought, earthquakes of up to magnitude 6 with a potential for as much as 7, and volcanic activity. Approximately 33 percent of the Djiboutian population live in areas of high hazard risk."⁶⁵ Sea-level rise represents a great threat to Djibouti, particularly in the capital city, where around 70 percent of the population is concentrated. Overall, Djibouti is the second most urbanised country in Africa with 78 per cent of its population living in urban areas – not surprisingly when the country has so little arable land or water resources.

The country is classified as severely water-poor and is one of the most water-scarce countries in the world. Djibouti's vulnerability to natural hazards is exacerbated by limited water management, excessive exploitation of its scarce groundwater resources, high levels of poverty, rapid demographic growth, high urbanisation, and ineffective land-use planning and building regulation.⁶⁶ Furthermore, climate change is predicted to increase the frequency and intensity of flooding and droughts.

Mixed migration

Djibouti is primarily a transit country for those in mixed flows. Approximately 35 percent of all new arrivals in Yemen (who numbered over 138,000 in 2019⁶⁷) use

62 See footnote 103

63 The World Bank (2019) [Macro Poverty Outlook for sub-Saharan Africa – Djibouti](#)

64 Schulman, S. (2019) [Shortages of food, water and electricity: how Djibouti has been destroyed by climate change](#) Daily Telegraph

65 The Global Facility for Disaster Reduction and Recovery (undated web page) [Djibouti](#)

66 UNDP (undated web page) [Climate Change Adaptation – Djibouti](#)

67 IOM (2020) [Yemen – Flow Monitoring Points - Migrant Arrivals and Yemeni Returns From Saudi Arabia in 2019](#)

departure points around Obock in Djibouti. The vast majority of those in transit are Ethiopian nationals. Djibouti is a destination country for a limited number of refugees and asylum seekers, hosting some 29,000 such “people of concern,” mainly Somali and Ethiopian nationals, but also including some 5,000 from Yemen.⁶⁸

Considering local levels of poverty and the deteriorating environmental context, it is surprising that more Djiboutians are not found in mixed migration flows, more so given the large numbers of nationals from regional and neighbouring states who transit their country en route Yemen and Saudi Arabia, where many find employment and practice circular migration. The very low number of Djiboutians recorded on the move means Djibouti cannot be described as a source or origin country in mixed migration flows. There is no “culture” of external mobility and migration although there is internal movement of Djiboutians from rural areas to town, mainly Djibouti City, linked to environmental stressors (drought).⁶⁹

Eritrea

Key environmental stressors: Eritrea is characterized by harsh climatic conditions, including cyclical drought affecting groundwater resources and flooding during rainy seasons. Its current shortage of water resources, and food insecurity due to an over dependency on rainfed agriculture, are key stressors.

Geography and climate

Located in the northern part of the Horn of Africa, Eritrea shares borders with Sudan, Ethiopia, and Djibouti and has a lengthy coastline of approximately 1,720 kilometres. Its terrain extends from highlands in the central and northern regions, to flat coastal plains in the eastern lowlands, and to flat plains of the western lowlands (varying between 60 to more than 3,000 metres above sea level).⁷⁰

Eritrea’s climate ranges from hot and arid near the Red Sea to sub-humid in isolated micro-catchments along the eastern escarpment. The central highlands have a semi-arid climate. Between 50 and 60 percent of the population live in highlands that comprise just ten percent of the country’s total area. Agriculture is an important sector for Eritrea, employing about half of the population as subsistence farmers.

Most of the year’s rain falls within a short time period, resulting in soil erosion and runoff. Rainfall patterns have been changing in recent years, which is presumed to be a consequence of climate change. Eritrea has several agricultural systems, most of which are highly dependent on rainfall: rainfed cereal and pulses; semi-commercial and peri-urban agriculture; small-scale irrigated horticulture; commercial farming; agropastoral rainfed farming; and agropastoral spate irrigation systems. The major food crops grown in Eritrea are sorghum, millet and barley.⁷¹

Eritrea is amongst the poorest countries in the world and among the most food insecure countries in sub-Saharan Africa.⁷² With just 3.5 million inhabitants, it has a low population density of 35 per km², with most of the population living in the cooler areas of the central highlands. Overall, 60 per cent of the population are rural and 40 per cent are urban.⁷³

Main environmental threats

War (and prolonged post-war adversarial relations) with Ethiopia, poor governance by a repressive and authoritarian regime, and frequent drought, combined with population growth, have reduced Eritrea’s food production and investment in development. Eritrea faces “severe and acute vulnerability including Africa’s highest level of food insecurity and malnutrition.”⁷⁴ It imports approximately 50 percent of the food required to meet basic needs.

Eritrea is particularly vulnerable to climate change. Its current adaptive capacity is considered low. Projected climate change impacts are significant and include a temperature increase above the global mean, increasing variability in rainfall, more frequent dry spells and more severe droughts. “The effects of these impacts on water resources and agriculture will exacerbate food insecurity.”⁷⁵

Mixed migration

Except for a small number of refugees (fewer than 3,000, mostly Somali nationals) Eritrea is neither a destination nor transit country for those on the move in the region.

However, Eritrea has been and continues to be a major source country for those joining mixed migration flows travelling north (via Egypt to Israel and Europe), south (into Ethiopia) and west (via Sudan and onward to Libya/

68 UNHCR (undated web page) [Global Focus - Djibouti](#)

69 Verumu, V. (2016) [Djibouti: Where forced displacement and migration meet](#) World Bank Blogs

70 Eritrea also has jurisdiction over the Dahlak Archipelago in the Red Sea, which includes four permanently inhabited islands.

71 Ghebru, B. et al (2019) [East African Agriculture and Climate Change: A Comprehensive Analysis – Eritrea](#) IFPRI/ASARECA/CGIAR

72 Eritrea experiences a malnutrition burden among its under-five population. The national prevalence of under-five stunting is 52%, which is significantly greater than the developing country average of 25%. Eritrea’s under-five wasting prevalence of 15.3% is also greater than the developing country average of 8.9%. See : Global Nutrition Report (2019) [Eritrea Nutrition Profile](#)

73 UNDESA (2019) [World Urbanization Prospects 2018. Country Profiles](#)

74 UNDP (undated web page) [Climate Change Adaptation - Eritrea](#)

75 Adaptation Fund (undated web page) [Climate Change Adaptation Programme In Water and Agriculture In Anseba Region, Eritrea](#)

Europe). Since Eritrea declared its independence (from Ethiopia) in 1993, well over 500,000 Eritreans have left the authoritarian politics, prolonged national service obligations, and poverty of the country, as refugees or asylum seekers.⁷⁶ The most common mobility driver cited by Eritreans interviewed on the move is “indefinite conscription”. This is also the main criterion many states in Europe use to grant refugee status to Eritrean asylum seekers.

In recent years, the exodus has peaked at an estimated 5,000 Eritreans leaving per month although this rate is atypical.⁷⁷ Most travel first into Sudan with the intention of passing into Libya and accessing Europe across the Mediterranean Sea. Eritreans do not travel to Yemen and/or Saudi Arabia in any significant numbers, mainly because they are seeking permanent settlement abroad and not seeking short term employment in Saudi Arabia.

Ethiopia

Key environmental stressors: Ethiopia is exposed to numerous environmental hazards, including droughts, floods, volcanoes, and earthquakes. The country’s dependence on rain-fed agriculture, coupled with low economic development, deforestation, land degradation, and larger and denser human settlements all contribute to making Ethiopia vulnerable to environmental stressors.

Geography and climate

Ethiopia is a large, populous, and mountainous country with a wide diversity in climate, biodiversity, ethnicity, and culture. Its climate varies from hot and arid to cold and humid types. Some 80 percent of the Ethiopian population live in rural areas, the majority as subsistence farmers but many others are semi-nomadic pastoralists; only 20% of the population live in towns or cities.⁷⁸

Ethiopia has rich water resources compared to most African countries although water management remains an important challenge facing rural farmers. Despite considerable economic growth over the last two decades, Ethiopia is still one of the least developed countries in the world. With a population of over 112 million and previously one of the highest fertility rates in sub-Saharan Africa (now declining rapidly) population growth has placed and still places a great strain on the

country’s natural resources and increases its vulnerability to negative impacts of climate change.

Main environmental threats

In recent years environment has become a key issue in Ethiopia. The main environmental problems in the country include land degradation, soil erosion, deforestation, loss of biodiversity, desertification, recurrent drought, flooding, and water and air pollution.⁷⁹ In Ethiopia, climate change has been experienced for a long time: there have been fifteen serious famines in the past 50 years.⁸⁰ However, there are also a high number of adaptation and mitigation programmes underway, the government having taken environmental hazards and climate change seriously for many years, with support from international donors and partners. The federal government has created a Commission for Environment, Forestry and Climate Change and has launched “major policy initiatives in the field.”⁸¹

Recurring droughts and floods have the most severe impact on Ethiopia’s population. The country has a long history of recurring droughts, which have increased in magnitude, frequency, and impact since the 1970s. The 1983-5 drought-induced famine killed over 1.2 million people, while the 2011 Horn of Africa drought forced more than 4.5 million people to become dependent on food aid in Ethiopia and affected approximately 12 million people in the region.⁸² In 2011 these food shortages were caused in part by the widespread death of livestock in the south and south-eastern parts of the country due to a severe absence of pasture and water. In addition, “armed conflict across the region compounded chronic ecological and economic vulnerability, which escalated the crisis and limited people’s survival and recovery choices.”⁸³

Climate models indicate that in the next century there will be a 20 percent increase in extreme rainfall events in Ethiopia.⁸⁴ Studies show that due to climate change and additional human-induced factors the areas affected by drought and desertification are expanding in Ethiopia and that flash floods and seasonal river floods are becoming more frequent and widespread.

Ethiopia and mixed migration

Ethiopia is a source, transit, and destination country in the region. Ethiopians make up the majority of those joining mixed migration flows within and outside the Horn of Africa region. The main migratory route is through neighbouring Somaliland and across into Yemen; many people taking this route aim to access Saudi Arabia

76 UNHCR (2019) [Global Trends – Forced Displacement in 2018](#)

77 UN News (2015) [Thousands of civilians fleeing ‘rule of fear’ in Eritrea, say UN experts, warning of gross rights abuses](#)

78 UNDESA, op cit

79 UNDP (undated web page) [Climate Change Adaptation - Ethiopia](#)

80 Webster, N. (2019) [Ethiopia, Climate Change and Migration](#) Danish Institute for International Studies

81 Ibid

82 Reliefweb (undated web page) [Horn of Africa Drought 2011-2012](#)

83 Ibid

84 The Global Facility for Disaster Reduction and Recovery (GFDRR) [Ethiopia country profile](#)

irregularly. Only a few Ethiopians have sought and obtained refugee status in Yemen, where approximately 15,000 Ethiopians reside in the Al Kharaz refugee camp in Lahj governorate or in urban centres. Ethiopians make up over 80 percent of these eastward flows which involved over 150,000 Ethiopians in 2019, but in an average year number at least 80-90,000 people, most of them male.

An unknown, but smaller, number of Ethiopians move irregularly through Kenya and then south towards South Africa, and others travel west through Sudan with a view to transiting Libya to reach Europe. When Ethiopians present themselves as asylum seekers, they are often refused asylum and therefore many enter and remain in destination countries as irregular, undocumented migrants. Most Ethiopians on the move (even the many from the persecuted and marginalised Oromo community) self-report to 4Mi that the main compulsion for migration is poverty and lack of economic opportunities at home.

Approximately 200,000 Ethiopians are refugees or asylum seekers abroad. Ethiopia itself is a destination country regionally for urban and in-camp refugees. In late 2019, Ethiopia was host to more than 720,000 refugees (45% South Sudanese, 26% Somalis, 20% Eritrean, 8% other).⁸⁵ The reform of Ethiopian refugee legislation in 2018 offers refugees expanded opportunities to live, work and settle in the country. 2018 also saw a dramatic surge in internal displacement in Ethiopia, with some 2.9 new displacements associated with conflict recorded, the highest number in the world.⁸⁶ The same year, disasters prompted almost 300,000 people to leave their homes.⁸⁷ Over the first six months of 2019, some 755,000 new displacements were recorded (522,000 conflict-related, 233,000 disaster-related).⁸⁸

Somalia

Key environmental stressors: Somalia has fragile and significantly degraded environmental resources. The major climate hazards are droughts and extreme flooding events. Somalia's environmental problems also include deforestation, overgrazing, soil erosion and desertification. Other climate-related phenomena include dust storms, heat waves, and cyclonic winds whose occurrences, though less frequent, pose risks to livelihoods. Future climate change is expected to see all these hazards intensify.⁸⁹

Geography and climate

Somalia's terrain consists mainly of arid and semi-arid plateaus, plains, and highlands. It is predominantly a flat country, rising in the southern and central regions to a few hundred metres above sea level near the Ethiopian border. Somalia's arid and semi-arid lands make up more than 80 percent of the country's landmass and are "characteristically prone to extreme weather conditions including high mean surface temperatures, periods of extended drought, highly erratic rainfall and strong winds."⁹⁰ Land degradation is also a prominent environmental issue in the country, driven by drought, desertification and poor agricultural and pastoral practices.⁹¹

With one of the world's highest fertility rates (6.26 children per woman), Somalia's population has soared from an estimated 10 million in 2013 to almost 15.9 million in 2020.⁹² Approximately 45 percent of the population currently live in cities and urban centres and 55 percent in rural areas.⁹³ Urban centres, particularly the capital, Mogadishu, have experienced high levels of rural-urban migration in the last decade, partly due to conflict and unsustainable livelihood opportunities in rural areas. A large majority of Somalis live in "multidimensional poverty" whereby they experience "acute deprivation" in health, education and standards of living.⁹⁴ Somalia is ranked number two (after Yemen) in the global index of fragile states.⁹⁵

The impact of almost three decades of civil war and, more recently, violent extremism has greatly increased the population's vulnerability and mobility: of the 2.6 million

85 UNHCR (2019) [Operations Portal - Ethiopia](#)

86 IDMC (2019) [Ethiopia – Country Information](#)

87 Ibid

88 Ibid

89 Federal Republic of Somalia (2013) [National Adaption Programme of Action on Climate change \(NAPA\)](#)

90 Ibid

91 UNDP (undated web page) [Climate Change Adaptation - Somalia](#)

92 World Population Review (2020) [Somalia Population 2020](#)

93 UNDESA, op cit

94 UNDP (2010) [Human Development Report 2010](#)

95 The Fund for Peace [Fragile States Index Measuring Fragility Risk and Vulnerability in 178 Countries](#)

IDPs in Somalia, more than one million were displaced in 2018 alone (half by natural disasters and half by conflict and violence).⁹⁶ In addition, more than one million Somali nationals live outside the country, mostly in neighbouring countries as refugees or migrants. According to some analysts, climate change feeds armed conflict in Somalia in three ways: “by exacerbating tensions between clans; boosting the ranks and role of terrorist groups, including al-Shabaab; and increasing migration.”⁹⁷

Much of the country is arid and semi-desert – only 13 percent of the land is considered suitable for cultivation – so nomadic pastoralism (involving the raising of cattle, camels, goats, and sheep) is a dominant livelihood among rural communities, with a much smaller proportion of the population engaged in rain-fed agriculture. This means the population is highly vulnerable to disturbed and changing rainfall patterns, and the impacts are already being felt.⁹⁸

Main environmental threats

Somalia has fragile and significantly degraded environmental resources; the major climate hazards are droughts and extreme flooding events. Natural hazards also include deforestation, overgrazing, soil erosion and desertification, dust storms, heat waves, and cyclonic winds, whose occurrences, though less frequent, pose risk to livelihoods.⁹⁹

During 2019 and continuing today (early 2020) Somalia is experiencing several recurrent climate-related shocks that impact livelihoods and which, together with ongoing conflict, are leading to food insecurity, mass displacement, and crisis.

Multiple, severe drought episodes have affected Somalia since 1965 and the country is still recovering from the drought event in 2011-2012, which resulted in 258,000 deaths in Somalia and affected 13 million people in the region. Somalia’s long coastline (over 2,700 km) on the Indian Ocean and Gulf of Aden places the country in the path of increasingly intense cyclones.¹⁰⁰

In 2019, abnormally dry conditions caused widespread crop failure and a decline in livestock productivity, rapidly pushing communities in the worst-affected areas into a food insecurity crisis. Erratic and insufficient rainy seasons are also coming directly after a prolonged

drought in 2016-2017, which had already “devastated livelihoods”, and new dry conditions do not allow sufficient time to recover from past events. Environmental conditions in 2019, combined with ongoing conflict and protracted displacement, mean that Somalia once again faced a significant climate-related humanitarian emergency, with a reported 5.4 million people in need of assistance and 2.2 million people facing “crisis levels of food security.”¹⁰¹

The prognosis is that all the climatic changes currently experienced are likely to increase in both frequency and severity, further jeopardising hopes of any retreat from national fragility. Somalia currently has the lowest global scores on climate change vulnerability and readiness according to the ND-GAIN Index.¹⁰²

Mixed migration

Considering Somalia as a territory that includes Puntland and Somaliland,¹⁰³ it is a country of origin, transit, and destination for mixed migration flows in and out of the East and Horn of Africa region. Most refugees and migrants come from South Central Somalia, although those from Puntland and Somaliland are also commonly found in mixed flows, albeit in smaller numbers.

Somalis are found in mixed flows going north, west, east and south. Approximately one million Somalis live abroad as refugees or asylum seekers (87% within the region) and another million are estimated to live as settled migrants globally, although the actual figure may be higher. Most of those who are refugees live in the region in Ethiopia, Kenya, and Yemen, and mostly left Somalia due to the combined effect of conflict and drought or other environmental conditions that made survival precarious at home.

As a destination country, refugees and asylum seekers from other countries, mainly Ethiopia and, more recently, Yemen, reside in Somaliland and Puntland. South Central Somalia is not a destination location, though it does receive returnees. Many more use Puntland and Somaliland for transit and as departure points for Yemen. Of the 84,378 migrants arriving in Yemen in the first six months of 2019, 52,537 (62%) departed from locations in Somalia (Puntland and Somaliland).¹⁰⁴

96 IDMC (2019) [Country Information - Somalia](#)

97 Kuela, G. & Miola, C. (2018) [Climate change is feeding armed conflict in Somalia](#) Institute for Security Studies

98 Tahir, M. (2019) [In Somalia, the climate emergency is already here. The world cannot ignore it](#) The Guardian

99 Federal Republic of Somalia, op cit

100 The World Bank Group (undated web page) [Climate Change Knowledge Portal: Somalia - Vulnerability](#) .

101 UNDP (2019) [Climate and Resilience – Somalia](#)

102 The ND-GAIN (Notre-Dame Global Adaptation Initiative) Country Index ranks states by their vulnerability to climate change and other global challenges in combination with readiness to improve resilience. It aims to help governments, businesses, and communities better prioritize investments for a more efficient response to the immediate global challenges ahead. The most recent index, with scores relating to 2017, can be found [here](#).

103 While both territories are internationally recognized as components of Somalia, Somaliland asserted full independence in 1991 and Puntland’s leaders claim autonomy from the central government in Mogadishu.

104 IOM (2019) [Flow Monitoring Points - Migrant Arrivals and Yemeni Returns from Saudi Arabia January to June 2019](#)

As mentioned above, as of 2019 there were approximately 2.6 million IDPs in Somalia due to conflict and natural disasters. This represents a large number engaged in climate mobility, and affected by accompanying deprivation. A rising number of Somalis are returning to their homeland: almost 85,000 Somali refugees have returned from Kenya between 2014 and 2019.¹⁰⁵ Others are deported or return from Saudi Arabia and Yemen.

Yemen

Key environmental stressors: In addition to severe water scarcity, global warming and climate change have aggravated serious environmental risks in Yemen, including changing rainfall patterns, extreme heat, repeated urban and river flooding hazards, biodiversity loss, desertification, and sea level rise.¹⁰⁶

Geography and climate

Yemen is a predominantly arid country on the Arabian Peninsula with a history of food aid dependence and is the most fragile of the five countries under review in this report.

Climate change is already affecting temperatures and rainfall patterns. Future climate change impact is expected to further increase temperatures, variability of rainfall, and heavy precipitation events. The increase in heavy rains in combination with rising temperatures, especially in the north of the country, is expected to lead to shortened growing seasons and exacerbate food insecurity.

Yemen has a semiarid-to-arid tropical climate with significant variations due to topographical differences. It features five major ecological systems: a hot-humid coastal plain, temperate highlands, high plateaus, the desert interior, and the islands. Temperatures vary by location and season. The coastal regions are hot and dry. Rain is rare in all but the highest regions, where the monsoon winds from the Indian Ocean bring rainfalls of 5-10 cm per month in June and July. Rainfall in the drier regions is rare but can be very heavy.¹⁰⁷

The southern coastal areas are characterized by minimal rainfall (5 cm/year). Even in the central highlands, rainfall varies from 40 cm/year to 80 cm/year. Northern and north-eastern regions (towards the Saudi and Oman borders) are hot and dry throughout the year. Over the last 30 years, temperatures have increased along with a 29 percent increase in total annual precipitation even though the average rainfall in the drier seasons has been declining.¹⁰⁸

Although the majority of Yemen's income comes from oil production, agriculture and related processing contribute about 13 percent to GDP. About three quarters of agricultural output is produced in the highly-populated upper and lower highlands, with 30 and 40 percent of the total population, respectively, living in these agri-ecological zones.¹⁰⁹ Some 38 percent of Yemen's 29 million inhabitants live in urban centres and cities while 62 percent live in the countryside.¹¹⁰ Those in rural areas are most affected by climate change.

The humanitarian crisis

More than half of Yemen's population live below the poverty line, and the mostly-rural population continues to grow rapidly at over three percent per year. "Severe food insecurity and water scarcity, worsening gender inequality, widespread poverty, and a lack of economic growth in Yemen are all compounded by ongoing armed conflict that began in 2014" and escalated into a country wide civil war in 2015 with close involvement of foreign military forces.¹¹¹ The Armed Conflict Location & Event Data Project (ACLED) estimated in 2019 that since 2015 more than 100,000 people had died in Yemen as a result of the conflict.¹¹²

According to the United Nations, the humanitarian crisis in Yemen is the worst in the world. An estimated 80 per cent of the population – 24 million people – require some form of humanitarian or protection assistance, including 14.3 million who are in acute need and mainly food insecure. "Severity of needs is deepening, with the number of people in acute need a staggering 27 per cent higher than last year [2018]."¹¹³ Reportedly, 2.3 million Yemenis have been forcibly internally displaced by conflict, with over a quarter a million displaced in 2018 alone.¹¹⁴

105 UNHCR (2019) [Figures at a glance - Kenya](#)

106 Bodetti, A. (2019) [The dangers of war and climate change in Yemen](#) The New Arab

107 McSweeney, C. et al (2010) [UNDP Climate Change Country Profiles - Yemen](#) Oxford University

108 UNDESA op cit

109 Elayah, M. (2017) [Yemen between the impact of the climate change and the ongoing Saudi-Yemen war: A real tragedy](#) Knowledge Platform – Security and Rule of Law

110 UNDESA, op cit

111 USAID (2016) [Climate Change Risk Profile: Yemen](#)

112 ACLED (2019) [Press Release: Over 100,000 Reported Killed In Yemen War](#)

113 UNOCHA (2019) [Yemen – Humanitarian Needs Overview](#)

114 IDMC (2019) [Country Information - Yemen](#)

Main environmental threats

Yemen faces serious risks from climate change that further threaten the already fragile state of the country. Environmental stressors, including the impact of climate change and rapid population growth, put more and more pressure on critical resources, especially water. Yemen has become more vulnerable to climate change because it is a poor developing country suffering from political instability and civil war which is severely limiting its ability to cope with global warming's effects.¹¹⁵ Climate change can therefore be said to be a risk multiplier aggravating the current suffering of the Yemeni people.¹¹⁶

While Yemen has the world's worst ranking in the Fragile States Index, it is also in the bottom 15 states ranked by climate change vulnerability and readiness.¹¹⁷ The Global Facility for Disaster Reduction and Recovery confirms the INFORM Global Risk Index's score of 7.2 out of 10 – one of the highest in the world.¹¹⁸

Yemen is a disaster-prone country that faces natural hazards every year with floods as the most important and recurring form of disaster.¹¹⁹ Models project higher rainfall levels for Yemen, therefore potentially increasing the frequency and severity of floods.¹²⁰ Rising sea levels are expected to accelerate coastal erosion, damage key infrastructure, force community relocations, and threaten marine ecosystems and low-lying coastal wetlands. Aden is one of the top 20 cities in the world where the most people will be at the greatest risk from sea level rise and storm surges in the developing world.¹²¹

Extreme water scarcity

Despite its frequent floods, Yemen's water availability per capita is the lowest in the world and is a far greater proximate danger than flooding.¹²² The country experiences extreme water scarcity due to overexploitation of groundwater that leads to saltwater intrusion in coastal areas. Extraction of groundwater has exceeded the level of replenishment, causing water depletion. Groundwater aquifers are declining one to seven metres each year. Sana'a is the world's most water stressed city and draws water from the world's most water-stressed aquifer and is the only capital city in the world that may run out of fresh water within the next decade.¹²³

Before the current conflict, over 90 percent of water consumption was reportedly used for irrigation, illustrating the heavy dependence of agriculture and cash crops (particularly the stimulant plant qat) on water. Water resources are increasingly scarce and rapid groundwater depletion as well as inadequate infrastructure, "pose challenges to sustainable development in the country, along with the expected impacts of climate change."¹²⁴

Mixed migration

Yemen is a destination and transit country for an average of some 110,000 Ethiopians (majority) and Somalis each year. 2018 saw a record high of 150,000 new arrivals.¹²⁵ The vast majority travel in the hope of reaching Saudi Arabia.

Yemen is a destination country for those who find work in the country; prior to the war Ethiopian men typically found work as domestic workers, while Ethiopian men laboured in qat farms. Some find themselves stranded, destitute or detained in Yemen, which also hosts over 275,000 refugees and asylum-seekers, mainly from Somalia (majority) and Ethiopia.¹²⁶ A minority of refugees live in the Al Kharaz camp near Aden, the rest eke out a living as urban refugees. The authorities have always been relatively tolerant of Somalis (with or without registration) but have taken a harder line on irregular Ethiopians, who often face abuse, exploitation, detention and deportation.

Although approximately 200,000 people have fled Yemen (mainly by boat and plane) because of conflict since 2015, only 64,000 of these were Yemeni nationals who were scattered in relatively small numbers in Oman, Saudi Arabia, Djibouti, Ethiopia, Somalia, and Sudan (2017 data).¹²⁷ Many refused to register as refugees. More commonly in recent years, hundreds of thousands of Yemenis travel irregularly to Saudi Arabia for work, periodically being subject to mass deportation or expulsion.¹²⁸ In 2018 an estimated 700,000 Yemenis were working irregularly in the kingdom.¹²⁹ Because they do not get involved with abusive smugglers to access Saudi Arabia, this aspect of regional economic migration is rarely covered in published reports. However, Yemenis are not normally found in migratory routes within or moving out of the Horn of Africa.

115 Elayah, M., op cit

116 Atkin, E. (2018) [Climate Change Is Aggravating the Suffering in Yemen](#) The New Republic

117 ND-GAIN [Country Index](#).

118 GFDRR (undated web page) [Yemen Country Profile](#)

119 Al-Batati, S. (2019) [In storm-hit Yemen, 'sin' is blamed for surging climate losses](#) Reuters

120 Netherlands Ministry of Foreign Affairs (2018) [Climate Change Profile - Yemen](#)

121 Glass, N. (2010) [The Water Crisis in Yemen: Causes, Consequences and Solutions](#) Global Majority E-Journal

122 Ibid

123 USAID, op cit

124 The World Bank Group (2017) [Climate Change Knowledge Portal - Yemen](#)

125 IOM (2018) [IOM Raises Protection Concerns as 2018 Migrant Arrivals to Yemen Approach 150,000](#)

126 UNHCR (2019) [Operations portal -Yemen](#)

127 UNHCR (2017) [Yemen Regional Refugee and Migrant Response Plan](#)

128 The New Arab (2018) [UN urges Saudi Arabia to halt Yemen migrant deportations](#)

129 Ibid

As mentioned above, due to war and other hardships, including environmental stressors, more than 2.3 million people are internally displaced within Yemen, almost all due to conflict (just 18,000 because of natural disasters) with over a quarter of a million of these displacements occurring in 2018 alone.¹³⁰

130 IDMC (2019) [Country Information - Yemen](#)

Section 3. Risks, vulnerabilities and implications for mixed migration

Table 2 below collates a range of data and rankings related to the fragility and vulnerabilities of the five countries under review. These states are among those facing the most persistent and intractable challenges anywhere in the world.

Dire conditions for the region's population

The 160.5 million people residing in the five countries are all in the bottom quarter of the global rankings for state fragility, environment vulnerability, and adaptation readiness. Somalia and Yemen consistently occupy the lowest levels of these (and other)

rankings.¹³¹ Furthermore, they all face a moderate-to-high risk of humanitarian crisis and disaster that would overwhelm national response capacity; Somalia and Yemen are already in such crises. Djibouti is a hybrid case with its economy and population distribution unlike others in the region, but Eritrea, Ethiopia, Somalia, and Yemen all have a high dependency on weather patterns and precipitation for the livelihoods of large sections of their populations.

All the countries face significant exposure to negative current and future climate change impacts. Again, Somalia and Yemen stand out as countries with extreme levels of humanitarian need, conflict, and high fragility in relation to the current and future expected impacts of climate change, and a very low readiness or capacity to meet future environmental challenges.

Table 2: Fragility and vulnerability rankings and indicators

Country (estimated population, 2019)	Fragile States Index ranking ¹³² (2019: 178 countries ranked)	ND-GAIN Vulnerability Index ¹³³ (2017: 181 countries ranked)	ND-GAIN Readiness Index (2017: 191 countries ranked)	INFORM Global Risk Index ¹³⁴ (2019: Scores above 5 are "high" or "very high")	Urbanisation (share of population living in urban centres)	Dependency on rainfed agriculture, pasture & livestock	Exposure to current and future climate change impacts
Djibouti (1 million)	43	167	155	5.4	78%	Low	High
Eritrea (3.5 million)	17	181 (most vulnerable on index)	190	5.2	40%	High	High
Ethiopia (112 million)	23	163	161	6.8	20%	High	High
Somalia (15 million)	2	179	191 (least ready on index)	9.1 (greatest risk on index)	45%	High	High
Yemen (29 million)	1 (most fragile on index)	141	177	7.6	38%	High	High

¹³¹ Such as the UNDP Human Development Index (HDI) – Eritrea, Ethiopia, Yemen and Djibouti are in the bottom decile of the [2019 HDI](#). Somalia is not ranked here due to insufficient data.

¹³² [The Fragile States Index](#) is derived from thousands of reports and datasets from around the world, detailing the existing social, economic, and political pressures faced by states. The FSI rationale and methodology can be accessed [here](#).

¹³³ [ND-GAIN climate vulnerability](#) and [adaptation readiness](#) indices are based on compiled indicators. 36 indicators contribute to the measure of vulnerability and 9 indicators contribute to the measure of readiness. An explanation of each indicator and their data sources can be found in the ND-GAIN [Methodology](#)

¹³⁴ [INFORM's Global Risk Index](#) is a composite indicator that identifies countries at risk of humanitarian crisis and disaster that would overwhelm national response capacity. It uses a scale from 0-10, with 10 as the highest level of risk.

Interpretation of findings

Harsh environments

The Horn of Africa & Yemen region has been facing a wide range of interconnected and mutually reinforcing negative conditions for many years. Even before evidence of climate change was evident, the Horn was a harsh environment for human habitation and survival. Despite the existence of mountainous regions in all five countries under review in this paper (with extensive ranges in Ethiopia), all are overwhelmingly hot and arid, with chronic water resource challenges. In recent years, the impact of climate change is clearly being felt in these countries and is rising incrementally.

Both compounded by and contributing to, conflict

The negative impact of climate change and other environmental stressors on populations is compounded by poor governance, armed conflict, over-population, and limited livelihood opportunities. In turn, conflict, and the dynamics perpetuating conflict, often involving resource competition, is exacerbated by environmental scarcity and the impacts of climate change. By some analyses, resource scarcity intensified by climate change may now be a root cause of conflict and will continue to be so.

Disconnected from mixed migration?

A clear finding from the country descriptions in Section 2, as well as from Tables 1 & 2 above, and Table 3 below is that there are no obvious correlations between environmental stressors and mixed migration volumes or directions of flows. There are individual countries where correlations appear to exist, but the available research and data on the region suggest that no generalised statement or conclusions can be made about the relationship between mixed migration today and the environment.

For example, in Somalia we see that environmental stressors, both in isolation and in combination with conflict, can cause considerable movement internally and externally, as occurred during the 2011 drought. But in Yemen - where the humanitarian crisis is widely seen as worse than Somalia's, where conflict is more widespread and environmental stressors are becoming a major problem, there is virtually no external mobility at all. Both countries have significant levels of internal displacement, but apparently this is mostly due to conflict, not climate change.

In Eritrea and Ethiopia migration dynamics (and especially flow volumes) do not keep pace with rises in negative environmental factors, variations in resource scarcity, or population growth. In Ethiopia there are high levels of internal displacement and rapid urbanisation, but the extent to which environmental factors, as opposed to ethnic rivalries and localised conflict, are key drivers remains unclear.

Finally, although poverty in Djibouti is endemic, and the climate harsh and rural livelihoods ever less viable, Djiboutians are not found on any migratory routes outside of the country. Instead, there is a high level of urbanisation despite the paucity of urban opportunity or employment.

If the precarious and harsh factors at play in these countries do not correlate with human mobility dynamics in any discernible way, more careful analysis is required if any definitive statements are to be made about the relationship these countries have with mixed migration in relation to its nexus with the environment and climate change. If this is the case now, then any suggested future scenarios of the relationship will also be less evidence-based and more speculative. (Nevertheless, Section 4 below will explore these questions in more detail.)

Putting it in perspective

The combined population of Djibouti, Eritrea, Ethiopia, Somalia, and Yemen is approximately 160.5 million (as of late 2019). In just 10 years this number will reach 208 million, a rise of 25 percent.¹³⁵

However, despite a paucity of specific data, when mobility in the five countries is categorised as either internal or external, enough is known to draw certain conclusions, and to determine, for example, whether movement is permanent or long-term in intention, as opposed to being short-term circular migration or immediate short-term refuge from conflict or disaster. Table 3 below offers a snapshot of types and causes of movement from what is already known.

135 UNDESA, op cit

Table 3: Mobility types & volume, & role of environmental drivers, by country¹³⁶

	Predominant mobility characteristics (internal or external)	Extent of overall irregular external movement (excluding official labour migration)	Extent of irregular external movement of people seeking long-term settlement abroad	Role of environmental stressors & climate change as mobility drivers
Djibouti	Internal Mostly rural-to-urban. Urbanisation rate set to grow by 4.5% between 2020 and 2030 – slightly more than in than earlier periods, but no notable spikes in recent decades.	Negligible	Negligible	Significant , but causing internal movement only.
Eritrea	External No recent internal displacement data available. Urbanisation steady and gradual in recent decades, with annual growth of 3.5% expected between 2020 & 2030, down slightly lower rate on earlier periods. Noteworthy spike in urbanisation between 1960 & 1990.	Moderate-to-high Involving an estimated 0.5-1% of the population annually. Roughly 15% of population currently live abroad as refugees.	Moderate-to-high Most Eritreans moving externally aspire to settle abroad for the long-term.	Possible , but mixed in with and dominated by other issues, especially mandatory military conscription and oppressive governance.
Ethiopia	Internal Frequent sudden, large-scale internal displacements. Rural-to-urban movement has seen steady and rapid growth in last three decades. Urbanisation rate set to grow by 4.2% between 2020 and 2030. No notable spikes in recent decades, even during famine periods.	Low-to-moderate An estimated 0.14% of the Ethiopian population (about 160,000 people) move irregularly annually, many returning in irregular circular migration. Less than 0.45% of Ethiopians (500,000) live abroad.	Low Few Ethiopians move with the intent to settle abroad permanently.	Probably significant but also combined with other issues, including inter-communal violence and political oppression.
Somalia	Internal High level of sudden and sometimes short-term displacements. Rural-to-urban movement has been rapid but steady in last 3 decades. Annual urbanisation growth between 2020 & 2030 set to reach 4.1%, a slightly higher rate than earlier periods. No remarkable spikes in recent decades)	Moderate 6.6% of the population live abroad as refugees, another 6.6% as migrants/diaspora built up over almost 3 decades of conflict, so relatively small annual outflows.	Moderate Most Somalis found on migratory routes or seeking asylum outside the region aspire to permanent resettlement. Most Somalis as refugees in the region (870,000) would return to Somalia if conditions improved.	Significant for both internal and external movement. Slow onset disasters as well as emergencies such as the 2011 drought.
Yemen	Internal High level of sudden displacements. Rural-to-urban mobility steady but rapid in last 3 decades. Annual urbanisation growth between 2020 & 2030 set to reach 6%, a slightly lower rate than earlier periods. Sharp spikes 1985-95.	Moderate Mostly irregular circular labour migration to Saudi Arabia.	Negligible Hardly any Yemenis are found on irregular migratory routes looking for permanent settlement abroad.	Significant , although in recent years greatly compounded with conflict.

¹³⁶ Table 3 based on the author’s calculations, estimates and judgement using official data and multiple secondary sources.

From the foregoing, a number of general points can be made and conclusions drawn about the relationship between mixed migration and the environment in context of the five countries under review:

- Section 2 of this report establishes that all five countries face increasingly damaging environmental stressors. There is no doubt that climatic conditions are deteriorating and affecting populations significantly.
- Population movements are for the most part *internal*, whatever the associated drivers (including climate change) are.¹³⁷
- Internal mobility is currently a combination of conflict- or disaster-related sudden movement and steady rural-to-urban movement (urbanisation).
- Rural-to-urban migration has been occurring for decades in each of the five countries and continues at a substantial but steady rate. There have been few dramatic spikes in recorded urbanisation rates.
- Urbanisation growth rates in all five countries are expected to remain steady, with no spikes or surges in the near future.
- It is impossible to determine the extent to which rural-to-urban migration is a response to rising environmental stressors. Numerous studies suggest that urban migration is a common adaptation and coping strategy for rural communities and families, one that normally takes place in a gradual manner or sometimes in response to a dramatic weather event.
- *External* irregular movement involves a much smaller number of people in each of the countries (with the exception of Eritrea) and a tiny share of their populations.
- Much of the irregular external movement involves economic migrants intending to practice circular labour migration (particularly those from Yemen and Ethiopia working in Saudi Arabia).
- The number of people practising *irregular external migration* with the intention of living abroad for the long-term or permanently is relatively small and mainly involves Eritreans and Somalis, many of whom are considered refugees.
- While there is evidence that environmental changes are impacting agriculture and adaptation in Eritrea,¹³⁸ the predominant self-reported reason for mobility in this country is desire for political freedom and escape from mandatory and limitless conscription, as well as from poverty. Among 4Mi survey respondents from Somalia, the main reason for movement is a search for better opportunities and livelihoods, in addition to escape from conflict and violence. It is not clear what

role environmental stress plays in decision-making for these two groups of nationals; as a rule, neither identify these factors as central to their economic needs.

- The number of people who are *involuntarily immobile* but still severely affected by environmental stress and climate change and who would move if they had the capability is not known.
- The fact that large-scale cross-border climate mobility is not occurring today does not mean it will not take place in the future. When the impacts of climate change start to bite more deeply and more widely in these fragile, poor, and conflict-affected countries, a variety of responses may be seen, including a rise in involuntary immobility combined with increased short- and long-term cross-border movement in the form of mixed migration.

Two persistent but as yet unanswered questions emerging are:

- **What role do environmental stress and climate change play as drivers among this relatively small and specific group of people who currently move externally and irregularly looking for long-term settlement abroad?**
- **If, as scientists predict, climate change continues to increase the severity and frequency of environmental stressors, what changes would have to occur in other aspects of the aspiration/capability dynamic for the numbers joining mixed migration flows to rise?**

To reiterate: it is evident that there is no general trend of people moving externally on migratory journeys as a demonstrably direct result of environmental factors. (The causality of conflict-related displacement, by contrast, is more clear-cut.) "...[M]igration is not simply an outcome of intolerable invulnerability but rather a complex product of a particular set of livelihood options that are framed by a complex mix of biophysical conditions and social, political and economic contexts."¹³⁹

To those who assume that as climate change and environmental stressors start to take greater effect, the volume of cross-border climate-induced migration will increase, these findings may be surprising. However, there is very little at present to indicate mixed migration flows are significantly being swelled by climate change. Table 4 below summarizes available evidence with regard to Horn of Africa states and Yemen in this regard:

137 For more on this point, see, for example: Singh, C. (2019) [Migration as a driver of changing household structures: implications for local livelihoods and adaptation](#) Migration and Development; Hassan, O. & Tularam, G. (2018) [The Effects of Climate Change on Rural-Urban Migration in Sub-Saharan Africa \(SSA\) – The Cases of Democratic Republic of Congo, Kenya and Niger](#). Additionally, this is true world-wide and for all migration: globally, there are 760 million internal migrants compared to 250 million international migrants and 23 million refugees.

138 Tesfamariam, Y. & Zinyengere, N. (2017) [Climate, Gender and Ethnicity: A Study of Vulnerability and Adaptation of Eritrean Farmers](#) published in Zinyengere, N. et al (Eds) (2017) [Beyond Agricultural Impacts - Multiple Perspectives on Climate Change in the Horn of Africa](#) Academic Press

139 Morrissey, J. (2014) op cit

Table 4: Impact of environmental stressors on mixed migration dynamics

Issue	Consensus	Confidence level of consensus (based on available evidence)
Current impact on life of environmental stressors and climate change	High	High
Current levels of internal displacement & mobility	High	High
Current levels of cross-border irregular migration	Low-to-medium	High
Current levels of cross-border flight from countries under review (refugees)	High	High
Number of those in mixed migratory flows seeking permanent settlement abroad (as opposed to short-term refuge or respite)	Low	High
Current impact of climate and environmental changes, shocks and stresses on internal mobility	High	High
Current impact of climate and environmental changes, shocks and stresses on inter-regional/intercontinental migration	Low*	High
Expected future impact of climate change on population	High	High
Expected future rate of climate-induced internal movement	High	Medium
Expected future rate of climate-related involuntary immobility	High	Medium
Predicted future rate of climate-induced mixed migration (cross-border)	High	Medium

*However, as refugees are a sub-set of cross-border migration, the example of the Somali drought in 2011 shows that in specific cases large scale inter-regional movement can occur as a direct result of environmental factors. But the movement for most resulted in increased refugee numbers in Ethiopia and Kenya with the majority not attempting secondary movement beyond the region.

Section 4. Policy response highlights

With regard to the nexus of climate change, environmental stressors, and mobility three recent global processes attempt to address the protection gap and the legal limbo relating to those affected. These are the Nansen Initiative, the Global Compact for Refugees and the Global Compact for Safe, Orderly and Regular Migration. At the regional level, the Intergovernmental Authority on Development (IGAD) and others have started to develop policy responses relating to climate-induced mobility issues.¹⁴⁰ In addition, a ruling handed down in late 2019 by the UN's Human Rights Council is set to have profound ramifications for the rights of people who move for reasons related to climate change and, by extension, the obligations of states who host them.

Nansen's 'Protection Agenda'

Launched in October 2012 by the governments of Norway and Switzerland, the **Nansen Initiative** is an intergovernmental, state-led, bottom-up consultative process intended to build consensus on the development of a new "Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change." The resulting Protection Agenda – the first of its kind – was endorsed by 109 states in October 2015 and is now seen as the key framework for action by states and other stakeholders wrestling with the question of how to respond to the current caseload of disaster-induced forced displacement and the expected future incidence of natural disasters and/or the impacts of climate change.¹⁴¹

The Protection Agenda's premise is that if displacement arises in the wake of a disaster, international protection should be granted, irrespective of the character of the disaster in question. It also recognises a distinction between *voluntary* migration and *forced* displacement. This creates some immediate challenges in regions where mixed migration takes place: as this paper has illustrated, in the Horn of Africa, refugees and migrants move for a variety of reasons, and in varied flows, and may have different rights accorded to them. Determining whether movement in a given area – or even for a particular person – is forced or voluntary can be problematic, particularly in scenarios involving slow-onset natural hazards such as drought, where the relationship between the hazard

and broader factors is unclear. A practical outcome of the Nansen Initiative is the state-led Platform on Disaster Displacement. This seeks to implement the recommendations of the Protection Agenda and address the legal, institutional, and operational gaps in the protection of those moving in the context of disasters related to natural hazards through a wide range of processes in areas including disaster risk reduction, environmental and climate change action, human rights, development, migration management, and refugee protection.¹⁴²

The global compacts

The protection gap has been addressed in the 2018 **Global Compact for Safe, Orderly and Regular Migration**, which recognises that environmental factors may be a cause of irregular migration and commits (in Objective 2 (18)) to creating "conducive political, economic, social and environmental conditions for people to lead peaceful, productive and sustainable lives in their own country and to fulfil their personal aspirations, while ensuring that desperation and deteriorating environments do not compel them to seek a livelihood elsewhere through irregular migration."¹⁴³

The compact also notes that in the case of natural disasters the adverse effects of climate change and environmental degradation there should be efforts to:

Strengthen joint analysis and sharing of information to better map, understand, predict and address migration movements, such as those that may result from sudden-onset and slow-onset natural disasters, the adverse effects of climate change, environmental degradation, as well as other precarious situations, while ensuring effective respect for and protection and fulfilment of the human rights of all migrants

Develop adaptation and resilience strategies to sudden-onset and slow-onset natural disasters, the adverse effects of climate change, and environmental degradation, such as desertification, land degradation, drought and sea level rise, taking into account the potential implications for migration, while recognizing that adaptation in the country of origin is a priority¹⁴⁴

140 These initiatives have not occurred in a vacuum: inter alia, the Intergovernmental Panel on Climate Change (IPCC) has highlighted, and UNHCR has been leading discussions, on the relationship between disaster and climate displacement throughout the past decade (see: UNHCR (2017) [Climate Change and Disaster Displacement: An Overview of UNHCR's role](#).) Various international meetings/agreements, such as the [Cancun Adaptation Framework](#) (2010), the [Sendai Framework for Disaster Risk Reduction 2015 – 2030](#), and the [Agenda for Humanity](#) platforms were important preparatory processes that identified the issues and the urgency for a response.

141 The Nansen Initiative (2015) [Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change](#) Volume 1

142 [Platform on Disaster Displacement](#)

143 [Global Compact for Safe, Orderly and Regular Migration](#)

144 Ibid

The **Global Compact on Refugees** also addresses the reality of increasing displacement in the context of disasters, environmental degradation and climate change, recognising that “external forced displacement may result from sudden-onset natural disasters...” and that while not in themselves causes of refugee movements, “climate, environmental degradation and natural disasters increasingly interact with the drivers of refugee movements”.¹⁴⁵

Both compacts are legally non-binding on states and the refugee compact, in particular, does not try to afford cross-border climate-induced displaced people the rights of refugees as enshrined in the 1951 Convention, although it does attempt to create a more predictable and equitable responsibility-sharing context for all refugees. However, the 2016 New York Declaration that paved the way for the compacts process also launched the **Comprehensive Refugee Response Framework (CRRF)** that was rolled out in dozens of countries across the globe, incorporating a wide range of new initiatives, some of which are directly related to climate-induced displacement.

The 2017 **Nairobi Declaration and Plan of Action**, which now forms a component of the Horn of Africa’s application of the CRRF, aims to support countries that host significant refugee and other migrant populations in the region, primarily Somalis.¹⁴⁶ States in the region are in the process of developing National Action Plans to form part of the CRRF. These plans represent an opportunity to mainstream consideration of the effect of natural hazards on mobility, and to ensure that host states have the resources and expertise necessary to provide comprehensive support.

A legal milestone?

In July 2020, the UN Human Rights Committee, hearing a case brought by a citizen of the Pacific island nation of Kiribati against the government of New Zealand, ruled that the effects of climate change should in some circumstances be taken into consideration when destination countries make decisions about deporting asylum seekers. While the committee did not uphold the man’s claim to be a “climate refugee” entitled to Convention protection, its 16-page ruling included the following passage:

The Committee is of the view that without robust national and international efforts, the effects of climate change in receiving states may expose individuals to a violation of their rights under articles 6 or 7 of the [International Covenant on Civil and Political Rights], thereby triggering the non-refoulement obligations of sending states. Furthermore, given that the risk of an entire country becoming submerged under water is such an extreme risk, the conditions of life in such a country may become incompatible with the right to life with dignity before the risk is realized.¹⁴⁷

Some have interpreted the ruling as setting a “global precedent”, one that asserts “a state will be in breach of its human rights obligations if it returns someone to a country where – due to the climate crisis – their life is at risk, or in danger of cruel, inhuman or degrading treatment.”¹⁴⁸ Crucially, the committee “recognised that climate change represented a serious threat to the right to life and therefore decision-makers need to take this into account when examining challenges to deportation.”¹⁴⁹

While there is no doubt that in theory the ruling broadens the protection parameters afforded by the non-refoulement principle, only future legal challenges to deportation will reveal the extent to which it significantly alters – or clarifies – the current legal landscape.

A growing regional response

The nascent **African Union Strategy on Climate Change** states in its draft form 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”.¹⁵⁰ Interestingly, the **IGAD Regional Strategy** (2016-2020) refers to climate change and environmental stressors in relation to economic losses, poverty and the need for resilience, mitigation and adaptation, but no stated link is made with movement or displacement externally – as migrants or refugees. Conflict alone is identified as the predominant cause of cross-border mobility.¹⁵¹

However, by mid-2017 the impact of climate on displacement was firmly on IGAD’s agenda when the organisation held its Ninth Regional Consultation Process (RCP) titled, *Climate Change and Human Mobility*, with the objective of increasing awareness around issues related to displacement caused by natural disasters and

145 [Global Compact on Refugees](#) §§ 12 & 8

146 UNHCR (2017) [Applying the Comprehensive Refugee Response Framework: regional approach to the Somalia situation December 2017](#)

147 UN Human Rights Committee (2020) [Views adopted by the Committee under article 5 \(4\) of the Optional Protocol concerning communication No. 2728/2016](#)

148 Amnesty International (2020) [UN landmark case for people displaced by climate change](#)

149 Ibid

150 African Union (2014) [Draft African Union Strategy on Climate Change](#)

151 IGAD (2016) [Intergovernmental Authority on Development Regional Strategy 2016-2020](#)

building a common understanding on protection gaps and opportunities.¹⁵² Asserting that climate change is “one of the leading causes of forced displacement in the IGAD Region”, it endorsed an integrative approach that seeks to mainstream questions of mobility into other regional and national policy frameworks dealing with disasters and climate change.¹⁵³ This approach was consolidated during the tenth RCP meeting, held in November 2017, and subsequently, illustrating its rising salience in the region.

IGAD is receiving funding from the European Union Emergency Trust Fund for Africa, which was established in direct response to Europe’s so-called migration crisis in 2015. As of early 2020, over 4.6 billion euros have been pledged to the fund. Its specific aims are to foster stability and address the root causes of irregular migration and displaced persons in Africa, and IGAD represents an important vehicle to disburse significant volumes of funds and implement migration-targeted interventions.¹⁵⁴

As an example, the IGAD **Drought Disaster Resilience and Sustainability Initiative** (IDDRSI) is aimed at building the resilience of vulnerable communities to the effects of recurrent droughts and achieving simultaneous growth and sustainable development in the IGAD region. While IDDRSI does not refer to the relationship between drought and mobility, the EU Trust Fund is supporting it specifically “to strengthen IGAD’s capacity for coordinating and facilitating the implementation of IDDRSI to build resilience, as a means of addressing the root causes of vulnerability, forced displacement and irregular migration.”¹⁵⁵ Again, the EU Trust Fund is also financially underwriting IGAD in its efforts towards the development of the IGAD Protocol on Free Movement of Persons, considered an important element to reduce out-of-region migration in mixed flows as a response to diverse drivers, including natural disasters and environmental stressors. According to a speaker at the second round of negotiations in October 2019, the protocol is “aimed at ensuring that migration in IGAD region is safe, orderly and beneficial to the citizens of this Region”.¹⁵⁶

Beyond the EU as a partner and donor, and beyond IGAD as the regional vehicle for policy and programmes, a wide range of projects related to displacement and the environment are underway in individual countries in the region. As a region identified as already facing serious impacts from climate change and existing environmental stressors, combined with high levels of displacement and migratory flows, the Horn of Africa and Yemen are already the focus of many planners and policymakers. Conflict and insecurity significantly impede programme and policy implementation in countries such as Somalia and Yemen, but the awareness of the dynamics of climate mobilities is already established and growing fast.

152 Platform on Disaster Displacement (2017) [Disaster Displacement at the heart of the IGAD Regional Consultative Process on migration meeting in Nairobi](#)

153 IGAD (2017) [IGAD Addresses Links Between Migration And Climate Change](#)

154 For example, inter alia, the EU’s regional Better Migration Management project’s two phases have already earmarked 70 million euros.

155 EUTF (2018) [Strengthening the ability of IGAD to promote resilience in the Horn of Africa](#)

156 IGAD (2019) [IGAD Member States To Refine The Draft Protocol On Free Movement Of Persons](#)

Section 5. Conclusion: future risks

Climate change impacts set to worsen

All studies suggest the future impact of climate change will further intensify deterioration in environmental conditions and bring hardships to the populations of the five countries under review. Current estimates of the future impact are often considered conservative as uncertainty surrounds the role tipping points and positive feedback loops may have on global and regional weather.¹⁵⁷ These may act as multipliers and replace incremental change with exponential change, along with severe (albeit for now unquantifiable) repercussions. According to scientific consensus, the likelihood is that the world only has another 11 years to prevent irreversible damage from anthropogenic climate change.¹⁵⁸

There appear to be no winners or windfalls in the region as a result of climate change, either now or in the future. At the time of writing, indications of climate-induced mobility, be it forced or voluntarily, can be found in regions and communities all over the world, including, as illustrated in this paper, the Horn of Africa and Yemen. The critical finding of various recent studies is that global environmental change affects the main drivers of migration even if it is not the primary cause for regional or intercontinental movement.¹⁵⁹ “This means that categorizing climate migrants as distinguishable from ‘non-climate migrants’ is not empirically possible in most, if not all, circumstances.”¹⁶⁰

As a consequence, although current predictions of mass climate-induced migration may be inherently flawed, such migration may well take place.¹⁶¹ Although migration and climate change have a significant relationship that is difficult to disentangle and quantify and is highly context-dependent, regarding the future there is a degree of scientific consensus that “the numbers of climate-induced migrants will increase.”¹⁶²

The science and findings that lie behind successive assessments by the IPCC predict very likely increases in average temperatures by the mid and late 21st century under both high and low emission scenarios. Projections for rainfall were less certain than for temperature but showed likely increases in annual average rainfall. The problem is that this is expected to come in the form of extreme weather events such as flooding, so increased precipitation is likely to be a significant hazard.¹⁶³

“The long rains season of East Africa has recently experienced a series of devastating droughts, whereas the majority of climate models predict increasing rainfall for the coming decades.”¹⁶⁴ Even if ultimately the drying trend goes into reverse as a continuation of what is being called the “East African Paradox,” Horn of Africa countries face higher temperatures and decades of disruptive climate change.¹⁶⁵

The impact that temperature increases alone will have on agriculture and livestock are likely to be significant, regardless of rainfall changes. Severe drought should no longer be considered exceptional in this part of the world, but a new reality: “Governments urgently need to help their communities to adapt to the possibility that the current devastating droughts will continue for years to come,” with obvious potential impact on migratory flows and demand to re-locate.¹⁶⁶

Climate change is therefore causing more intense and frequent extreme events in some places, as well as gradual changes in average temperatures and sea-level rise. Risks will therefore appear as either *intensive* or *extensive*, and people’s movements in response to these risks tend to be quite different. “Intensive risk is a much clearer driver of displacement but the number of

157 “Climate feedback is an interaction in which a perturbation in one climate quantity causes a change in a second and the change in the second quantity ultimately leads to an additional change in the first. A positive feedback is one in which the initial perturbation is enhanced [or intensified]. A Tipping point is a level of change in system properties beyond which a system reorganizes, often abruptly, and does not return to the initial state even if the drivers of the change are abated” -IPCC [Glossary](#) 2019

158 United Nations (2019) [Only 11 Years Left to Prevent Irreversible Damage from Climate Change. Speakers Warn during General Assembly High-Level Meeting](#)

159 For example: Foresight: Migration and Global Environmental Change, op cit

160 Boas, I. et al, op cit.

161 Ibid

162 Wilkinson, E. et al., op cit.

163 The previously cited [Oxfam report](#) (2017) offers a wide selection of scientific references concerning climate change and weather patterns in the Horn of Africa.

164 Rowell, D. et al (2015) [Reconciling Past and Future Rainfall Trends over East Africa](#) Journal of Climate

165 Ibid. The point is illustrated by the region currently experiencing very heavy rainfall, mudslides, flooding, etc. in tandem with rising land temperatures – this is the East African Paradox.

166 Oxfam, op cit.

people moving in response to extensive risks may rise considerably in the future.”¹⁶⁷

Globally, estimates of the numbers who will migrate within or across borders because of climate change by 2050 range from 25 million to one billion.¹⁶⁸ Predictions of future numbers should be handled with care, as estimates vary widely and none are considered very reliable and there may be bias due to the perspective of those estimating: “some of the highest estimates come from environmental actors who predict vast population flows in an effort to galvanise international cooperation on climate change.” Meanwhile, “lower estimates are likely to be too optimistic given that the current average number of IDPs after disasters (25.4 million annually) already exceeds this figure.”¹⁶⁹

How we tackle the future – the world’s development and sustainability trajectory – is expected to significantly influence how climate influences conflict drivers and risks, but as Table 2 illustrates, the Horn of Africa and Yemen are not well placed to face the future impacts. In Yemen for example, “with the current weak adaptive and institutional capacity, climate change associated impact, including more frequent, and prolonged droughts under specific climatic scenarios will push livelihood vulnerability of the poor into further declines, leading to further environmental resource degradation, increased ecological scarcities, and hardship, and hence increased poverty expansion.”¹⁷⁰ But there is no separating of the issues. According to some analysis, these cascading impacts linked to climate change are already shifting patterns of migration and “will increasingly do so.”¹⁷¹

Looking forward, the growing impact of climate change – as a future catalyst – is therefore set to “threaten livelihoods, increase competition, intensify cleavages, reduce state capability and legitimacy, trigger poorly designed climate action with unintended consequences, and lead to large movements of people...”¹⁷²

Even if migration is only employed as “one strategy amongst many other adaptive responses, and income and productivity loss due to climatic stressors could limit out-migration rather than being in favour of it,”¹⁷³ the future remains uncertain. Current patterns may change significantly as stressors increase and opportunities reduce. Considering what is at stake in terms of the potential impact of climate change and its effects on all forms of movement, including mixed migration, it seems eminently prudent to take the predictions of future risks seriously.

167 “Intensive climate risk is associated with sudden-onset, high severity events such as hurricanes and large-scale floods. Extensive climate risk is associated with low severity, high frequency or persistent weather and climate events such as drought and recurrent local flooding. Extensive risk also includes the slow-onset but permanent environmental changes associated with climate change such as changes in rainfall predictability, salt water intrusion, desertification and sea level rise. Climate change increases both kinds of risk, shifts the geography of risk, and creates new environmental risks. The movement of people in response to climate risk is complex, but the distinction between intensive and extensive risks is a useful starting point in characterising the relationship between climate risk and human mobility.” Wilkinson, E. et al, op cit. (p.2)

168 IOM (2019) [Migration and Climate Change](#)

169 Wilkinson, E. et al. op cit

170 Elayah, M., op cit

171 Rigaud, K. et al, op cit.

172 Ibid

173 Borderon, M. et al, op cit

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The MMC is a global network consisting of seven regional hubs and a central unit in Geneva engaged in data collection, research, analysis and policy development on mixed migration. The MMC is a leading source for independent and high-quality data, research, analysis and expertise on mixed migration. The MMC aims to increase understanding of mixed migration, to positively impact global and regional migration policies, to inform evidence-based protection responses for people on the move and to stimulate forward thinking in public and policy debates on mixed migration. The MMC's overarching focus is on human rights and protection for all people on the move.

The MMC is part of and governed by the Danish Refugee Council (DRC). Global and regional MMC teams are based in Amman, Copenhagen, Dakar, Geneva, Nairobi, Tunis, Bogota and Bangkok.

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