

Shaping the Future of Mobility in Africa January 2023

The Mixed Migration Centre initially shared these studies with ACMI in November 2021, to inform the extensive consultation process and ACMI's final report..

Climate and Mobility: Perceptions, attitudes and decision-making

Synthesis of field research findings

Summary of key findings

- Climate-related hazards were widely perceived to be worsening in the seven case study sites. For most people, this did not negatively affect perceptions of their own future wellbeing.
- There is an intersectionality in relation to the people living in the study locations who are experiencing the worst impacts of climate-related events: they are often also vulnerable according to other indicators, such as level of education or income.
- People living in the sites where research was undertaken are adapting, and are frequently optimistic about the future of the place, but these adaptation strategies rarely appear to be sustainable.
- Across the seven locations, immobility staying in place, whether voluntarily or involuntarily is much more common than any form of voluntary or involuntary mobility.
- For those who move from the study locations, the impacts of climate-related events are often one of a number of direct drivers of mobility, and can also be an underlying driver of mobility.
- Forced displacement from the study locations appears to be short-term and short-distance; migration is also often short-distance, but longer-term, often for years.
- Mobility among the researched populations is to a large extent an urban phenomenon; either movement within a city, or migration to a nearby city.
- The profile of who moves away from these study locations, particularly in terms of age and gender, appears to change according to the risks of staying in terms of a threat to safety and security as well as livelihood opportunities.





Climate Change









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ACMI was launched in September 2021 by the African Union Commission, World Bank, United Nations Development Programme, United Nations Framework Convention on Climate Change, and the International Organization for Migration, to bring a sharp global focus on climate-forced displacement and migration on the continent. ACMI will support the African Union and African nations to harness the potential of mobility in the context of the climate crisis, and address climate-forced displacement and migration. ACMI's report was launched at COP27 in November 2022, and more information on ACMI's work so far can be found on its website <u>https://africa.climatemobility.org/</u>

1. Introduction and background

Mobility and climate change in Africa¹

The 2020 Africa Migration Report highlighted the need for "a new paradigm on African migration" and raising awareness of the link between climate change and forced mobility.² This study – the synthesis presented here as well as the individual case studies – aims to contribute to these ambitions, and provide knowledge to support the Africa Agenda 2063, the Sustainable Development Goals, the priorities outlined by the Secretary-General for the 2019 Climate Action Summit and the proposed activities linked to climate change and migration by the African Union as part of the three-year implementation plan of action for the Global Compact for Safe, Orderly and Regular Migration in Africa.³

Africa is a highly mobile continent, aided by regional economic blocs that have enshrined the free movement of populations across borders.⁴ Climate impacts are likely to accelerate population movements.⁵ Recent research suggests that the optimal climate niche for human habitation will shrink on the continent,⁶ and that natural disasters such as droughts and flooding will increase in intensity and frequency.⁷ In addition, research suggests that climate change-induced mobility, migration and displacement are already taking place,⁸ and are most significant in the kind of marginal environments so prevalent in Africa – drylands and mountainous zones.⁹

The relationship between the effects of climate change, environmental drivers of mobility, and actual decisions and actions of migration are complex. We often see the direct link between a sudden-onset disaster like storms, or flooding, and immediate displacement, which is often short-term and covers a short distance. However, the link between slow-onset disasters or repeated experiences of sudden-onset disasters, and a more considered decision to move – which may still be perceived as forced – is less clear. Similarly, it is not always easy to establish the effects of climate change on populations that are not able to move, or how these changes affect patterns of mobility among people who are already mobile; these situations can culminate in "displacement in place".¹⁰ The dynamic shifts in mobility patterns across Africa, and the increasingly visible effects of climate change, mean that it is crucial to focus on and develop a better understanding of the links between the two phenomena.

¹ This section is mainly taken from the technical proposal for the major part of this research project: Center for International Earth Science Information Network (CIESIN), The Earth Institute, Columbia University, Africa Migration Displacement Modeling Technical Proposal, 2 October 2020.

² African Union, IOM, 2020, Africa Migration Report: Challenging the Narrative, Addis Ababa, IOM.

³ African Union, 2020. Three-year Implementation Plan of Action for the Global Compact on Safe, Orderly and Regular Migration in Africa (2020-2022). https://au.int/sites/default/files/newsevents/workingdocuments/37472-wd-3_year_implementation_plan_of_action-english.pdf

⁴ A. Adepoju, 1995, 'Migration in Africa: An overview'. In J. Baker & T. A. Aina (Eds.), The migration experience in Africa (pp. 87–108). Retrieved from http://www.neaculture.it/MigrationinAfrica.pdf; World Bank. Forthcoming. Climate Change-induced Migration in Coastal West Africa: Results of a Modeling Study. Report prepared by CIESIN and CIDR for the World Bank West Africa Coastal Adaptation Project. Washington DC: World Bank.

⁵ I. Niang et al., 2014, Africa. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change [Barros, V.R et al. (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1199-1265; M. New et al., 2011, The possible impacts of high levels of climate change in 2060 and implications for migration. UK Government's Foresight Project, Migration and Global Environmental Change.

⁶ C. Xu, et al., 2020, Future of the human climate niche. Proceedings of the National Academy of Sciences. 201910114; DOI: 10.1073/ pnas.1910114117; J. Samson, et al., 2011, Geographic disparities and moral hazards in the predicted impacts of climate change on human populations. Global Ecology and Biogeography doi:10.1111/j.1466-8238.2010.00632.x

⁷ R. Cervigni et al., 2016, Chapter 4. Vulnerability in Drylands Tomorrow: Business as Usual Raising Ominous Prospects. Confronting Drought in Africa's Drylands: Opportunities for Enhancing Resilience, African Development Forum Report 37. Washington DC: Agence Francaise de Developpement & World Bank Group.

⁸ M. Borderon, et al., 2018. A systematic review of empirical evidence on migration influenced by environmental change in Africa. IIASA Working Paper WP-18-003, July 24, 2018; C. Cattaneo and E. Massetti. 2015, Migration and Climate Change in Rural Africa. Milano, Fondazione Eni Enrico Mattei. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2596600; Foresight, 2011. Migration and Global Environmental Change. Final project report. London, UK: The Government Office for Science; R. Black et al., 2011, Migration as adaptation. Nature 478 447–9.

⁹ C. Wiederkehr et al., 2018, Environmental change, adaptation strategies and the relevance of migration in Sub-Saharan drylands, Environmental Research Letters 13, no. 11: 113003; A. de Sherbinin et al., 2012, Migration and risk: Net migration in marginal ecosystems and hazardous areas. Environmental Research Letters, 7, 045602.

¹⁰ S.C. Lubkemann, 2008, Involuntary Immobility: On a Theoretical Invisibility in Forced Migration Studies, Journal of Refugee Studies, 21(4), pp. 454–475, https://doi.org/10.1093/jrs/fen043.

The Africa Climate Mobility Initiative

The Africa Climate Mobility Initiative (ACMI) was jointly launched by the African Union Commission, World Bank, United Nations Development Programme (UNDP), United Nations Framework Convention on Climate Change (UNFCCC), and the International Organization for Migration (IOM) to bring sharp global focus on climate-forced displacement and migration in Africa by:

i. Developing a cutting-edge Africa Climate-Forced Mobility Model complemented by a standing capacity for modelling, field research and primary data collection in hot spots across the continent. This will be conducted in collaboration with African research institutions and centres of excellence;

ii. Establishing a continent-wide network of change agents from academia, policy and practice as a dedicated Community of Practice that brings together and drives cutting-edge research, analysis, policy development and programming; and

iii. Enabling strategic partnerships for climate mobility in Africa through the establishment of an Accelerator for Action that pools resources for driving economic integration and green growth, while holistically addressing the adverse consequences of climate-forced mobility.

Through this robust "toolkit," the ACMI will prepare a comprehensive report on climate-forced mobility in Africa. The report, <u>"African Shifts. The Africa Climate Mobility Report: Addressing Climate-Forced Migration and Displacement"</u>, and the Agenda for Action were presented on the margins of COP27 in late 2022. The report laid out recommendations with a clear Agenda for Action for the way forward, including on adaptation, resilience-building, disaster preparedness, protection, prevention, planned relocation, and humanitarian coordination and response. The ACMI will support the African Union and African nations to harness the potential of mobility in the context of the climate crisis, and address climate-forced displacement and migration. The ACMI aims to generate political momentum and a common policy agenda on climate-forced mobility in Africa and to support implementation capacity and partnerships on the continent.

The Mixed Migration Centre

MMC is a global network engaged in data collection, research, analysis, and policy and programmatic development on mixed migration, with regional hubs hosted in Danish Refugee Council regional offices in Africa, Asia and the Pacific, Europe and Latin America, and a global team based across Geneva and Brussels.

MMC is a leading source for independent and high-quality data, research, analysis and expertise. 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. MMC's overarching focus is on human rights and protection for all people on the move.

MMC is part of the Danish Refugee Council (DRC). While its institutional link to DRC ensures MMC's work is grounded in operational reality, it acts as an independent source of data, research, analysis and policy development on mixed migration for policy makers, practitioners, journalists, and the broader humanitarian sector.

Purpose of this report

The Mixed Migration Centre is contributing to ACMI through field research, complementing the quantitative modelling led by Columbia University with primary data collection among populations in places affected by climate extremes and variability. MMC's research will support greater knowledge and understanding of the link between climate-related events and the decisions by individuals and households to move, ensuring the inclusion of the "human face" of climate mobility in the report and subsequent agenda.

This report presents the research design and brings together the findings from seven case studies. Details of the methodology can be found in Section 2, a summary of the case studies in Section 3, and key findings in Section 4. The case studies which present the results for each location more comprehensively are available as separate reports.

2. Methodology

Objective

This research and analysis is designed to inform the design of inclusive recommendations and informed policies in support of populations who are affected by climate-induced (im)mobility. The aim of this study is that the findings inform responses to:

- Assist adaptation and boost resilience in places of origin, for those who stay; and
- Facilitate safe mobility for those who aspire to move and successful integration in destinations, for both migrant and host communities.

Research questions

This research is designed to address the following core research questions:

- Where are choices relating to mobility (or immobility) situated in relation other strategies to cope with and adapt to climate variability and extremes?
- What is driving migration/displacement from areas in Africa affected by climate change?
- How do climate variability and extremes interplay with other factors in people's decision to move?
- To what extent do climate variability and/or extremes represent driving factor in this movement?
- How is movement from places affected by the climate variability and/or climate extremes characterized?
- How are individual and/or household circumstances (perception of situation and needs), reflections (whether migration is viewed as a positive adaptation strategy), and aspirations (future ideas of movement and changes in situation) change after moving?

Conceptual framework

In order to capture the interplay between climate-related hazards and migration, this research design was grounded in two disciplines. It takes inspiration from literature on resilience and adaptation to better understand how people are responding and/or adapting to the effects of climate change, and applies this to the ability/aspiration model of migration decision-making.

Adaptation and adaptive capabilities

Resilience and adaptation are commonly used terms in the sustainable development literature, especially in the context of climate change. In relation to human behaviour, resilience is frequently defined as a capacity to "bounce back" or return to normal within a system. According to some definitions, resilience constitutes a form of adaptation or adaptive capability, which focuses on finding ways to function within a new or changed system.¹¹

Ability/aspiration

Carling introduced the ability/aspiration model, to help describe the conditions under which people decide to migrate, and de Haas also discusses decision-making, referring to capability. Both are used in this framework. Aspiration refers to the preference to migrate, and ability/capability is the set of factors determining the capacity to migrate.¹² Both concepts are determined by external factors as well as individual characteristics. Differences in the degree of

¹¹ E. Lisa F. Schipper & Lara Langston, 2015, A comparative overview of resilience measurement frameworks: analysing indicators and approaches, Working Paper 422, London, ODI, 10-12; For lists of relevant indicators see N.A. Marshall et al., 2009, A Framework for Social Adaptation to Climate Change; Sustaining Tropical Coastal Communities and Industries. Gland, IUCN; C. Wiederkehr et al., 2018, op. cit.; Food and Agriculture Organization of the United Nations, 2016, Resilience Index Measurement and Analysis-II, 2016.

¹² J. Carling, 2002, "Migration in the age of Involuntary Immobility: Theoretical Reflections and Cape Verdean Experiences", Journal of Ethnic and Migration Studies 28 (1): 5–42. See also H. De Haas, 2011, The Determinants of International Migration. Conceptualizing Policy, Origin and Destination Effects (paper DEMIG project2). Oxford: IMI Working Paper 32.

aspiration and ability lead to different outcomes and modes of migration.¹³ Using this framework, combined with work by Schewel on the outcomes relating to ability to stay, MMC developed a conceptual model to include the role of climate-related impacts on decision-making around mobility (below).

Figure 1. Conceptual framework for the study: exploring the link between climate-related environmental stressors and mobility



*Note that the line from "voluntary" to "involuntary is a continuum. The boxes here simplify to clarify the model but do not reflect reality.

The framework focuses on understanding the role of climate change-induced environmental factors in mobility, but acknowledges the role of a wide range of other factors in determining migration outcomes. At the same time, it places migration and displacement within the full range of potential migration outcomes, including the risk of involuntary immobility, and "acquiescent mobility", which has been explored in a number of publications.¹⁴

The framework considers that changing environmental factors influence the adaptation strategies of households, and their ability to maintain either existing patterns of mobility or the ability to remain in place. It also considers that these same environmental factors may influence household aspirations around mobility, as they impact directly or indirectly on the wide range of other possible reasons (drivers) that people have for migrating or not migrating, including economic, sociocultural, and political factors.

However, an understanding of adaptation strategies and aspirations is not enough to determine migration outcomes. A household may have exhausted all its adaptation strategies and desire to leave, but other factors – here defined as the household's "capability to migrate" – must be considered for the migration outcome to be determined.

¹³ J. Carling and Kerilyn Schewel, 2018, Revisiting aspiration and ability in international migration, Journal of Ethnic and Migration Studies, 44:6, 945-963, DOI: 10.1080/1369183X.2017.1384146; H. De Haas (2021) "A theory of migration: the aspirations-capabilities framework", Comparative Migration Studies 9 (8).

¹⁴ See Science for Environment Policy, 2015, Migration in response to environmental change, Thematic Issue 51. Issue produced for the European Commission DG Environment by the Science Communication Unit, Bristol, UWE; Foresight, 2011, op. cit.

Migration outcomes and realised aspirations

According to the aspiration/capability model, there are four potential migration outcomes: staying in place voluntarily or involuntarily, and moving voluntarily or involuntarily. However, this is an oversimplification. Voluntary migration and forced displacement are different ends of a diverse spectrum.

Additionally, this research explores the kind of movement that occurs from areas affected by environmental stressors. What kind of journeys do people undertake? Is there a link between the degree of capability and aspiration, and the kind of mobility employed? And, once in the process of migration, how successful do people perceive their migration to have been, and what are their future aspirations?

Field research locations

The overall target population was people in locations across Africa that are being affected by climate variability and extremes, and where displacement/migration is occurring and assumed to be affected by climate change. The MMC selected seven locations that fit these criteria, and represented diversity in terms of: geographic location across the continent; type of climate-related hazards; population density; and types of livelihoods. It was also decided that data collection would take place in sites that were not highly insecure. The final sites selected after consultations with experts were: Cahama (Cunene, Angola), Nchalo (Chikwawa, Malawi), Ajegunle (Lagos, Nigeria), Praia Nova (Beira, Mozambique), Tatki (Podor, Senegal), Nadunget (Moroto, Uganda), and Al Max (Alexandria, Egypt).¹⁵



15 For more details on site selection, contact MMC for a copy of the rationale.

Each site was the subject of a context analysis, reviewing the existing literature with regard to the variables included in the analytical framework, as well as developing an overview of the current political, economic, socio-demographic, and cultural dynamics. This context analysis informed the development of the data collection tools, assisted the definition of the final zone for data collection, and provided a foundation for the analysis. The particular zones used were selected based on the context analysis and with the help of local informants on site.

Data collection methods

MMC took a mixed methods approach. A geographic zone was selected within the designated location, and within this, survey respondents were sampled through a random walk approach. A closed-question quantitative survey was administered across six locations, with at least 100 respondents in each location (one participant per household). The survey covered the participant's individual and household profile; satisfaction with living conditions; experience of mobility; aspirations around mobility; drivers of mobility; perception and impact of climate-related hazards; use of coping/adaptation strategies; any links between climate impacts and mobility; and expectations for the future. Respondents were sampled through random walks within a designated area; only one person participated per household. This quantitative aspect enables the study to reach a relatively large number of people, and allows for some degree of comparison across cases.

At least three focus group discussions were conducted in every location. The aim was to reach people whose voices may be less represented in the survey. Women-only and youth discussions were conducted in each location, but the composition of the third group varied (for details, see the individual case studies). Participants were selected from among survey respondents, or through referrals. This qualitative data allowed for a more nuanced understanding of the local context.

Ten in-depth interviews were then conducted. Participants were selected based on the survey results regarding people's approach towards mobility, to ensure interviews took place with people representing the dominant attitudes. Where possible, two people were interviewed from each household: e.g. a man and a woman, or someone who wants to stay and someone who wants to leave. Where a household member or an entire household had left, the interviews were conducted by phone. Sampling was purposive, and often through referral among survey participants. These interviews probed the topics covered in the survey, but also explored migration outcomes further.

The survey questionnaire and focus group and interview guides benefited from external review by experts in adaptation and resilience, and climate and mobility.¹⁶

Ethics

MMC's ethical practice starts from the overarching principle of "do no harm". The field research teams were all trained in the conceptual aspects of research ethics, as well as more practical guidance on how to approach participants, elicit informed consent, and how to conduct interviews that cover sensitive topics. All teams had guidance on how to conduct data collection while respecting Covid-19 safety measures, and had personal protection equipment for themselves and the participants. Everyone involved in data collection activities with MMC is required to adhere to the DRC Code of Conduct.

The following ethical principles are central to MMC's research practice:

- Non-identification: all interviews are recorded anonymously. Datasets do not include any identifying characteristics of the participant;
- Respect for the autonomy, decision-making, and dignity of participants. We do not conduct data collection without fully informed consent. Participants always have the right to withdraw from the research process and to refuse. In this case, consent recorded was oral in order to guarantee anonymity;
- Beneficence: minimising the risks and maximising the benefits to participants. Protection, safety and security are all considered in making decisions about data collection, and are monitored closely throughout data collection;
- Justice: participants are selected from groups of people whom the research may benefit; and
- Respect for communities: protect and respect the values and interests of the community as a whole.

¹⁶ For more details on methodology, contact MMC for the technical proposal, rationale for field study locations, and research protocol.

Limitations and potential bias

- Sites were selected because of reported evidence of climate impacts. This evidence is often strongest among marginalised communities, which have a greater dependence on natural resources. Findings may have been different with a greater variety of socioeconomic profiles in the sample.
- Efforts were made to cover a broad range of locations, but obviously, each is unique, therefore findings may not be applicable to other locations with similar climate-related events, processes, mobilities and geographies.
- The scale of data collection was limited: it was decided to focus on a very small site in each location, and interview numbers were limited, meaning findings are not statistically representative.
- The research was time-bound. The data collection was one-off, representing a snapshot of the situation and people's aspirations and behaviour at a particular point in time. Based on this, we cannot know whether and how rapidly circumstances and decision-making change.
- Asking questions about intentions and aspirations is difficult. While extreme opinions may be easier to capture, people whose views lie in the middle are harder to define and validate. For people who see no option for moving, the aspiration may no longer be accepted or recognised. In addition, cross-cultural comparison must consider differences in how people perceive these questions.
- In order to gather information about people that moved to a diverse range of geographic locations, the data collection from people who had moved was conducted by telephone. This carries the inherent bias that participants must have access to a phone. Additionally, there may be a self-selection bias in that those who agree to be interviewed are more likely to have a "success" story to tell.
- Travel restrictions: oversight by MMC staff based in Geneva was primarily conducted virtually, with training conducted by videoconference due to Covid-19. Some quality assurance measures were only possible to carry out remotely, which led to a longer time delay between data collection and full quality control than usual.

3. Summary of case studies

Table 1. Summary of multi-country research examining climate change-related environmental stress and mobility¹⁷

Case study location and community	Setting	Main livelihoods	Current main climate-related hazards	Perceived impacts of climate-related stressors	Main responses to impacts of climate-related hazards or processes	Mobility linked to climate-related events	Mobility status
Angola Cahama, Cunene	Peri-urban ¹⁸ Borderland	Salaried work Trade and services	Severe Drought, rising temperatures	Moderate Disrupted access to water; rising food costs	Working longer hours; improving productivity; setting up new businesses	Moderate Movement driven by drought, but also livelihood opportunities and education.	Mobility quite common; few considering moving and capability to move was limited Acquiescent immobility
Egypt Al Max, Alexandria	Urban Coastal Delta	Fishing	Moderate Flooding, sea level rise (water toxicity an additional stressor)	None	None	None	Most born in the area and had no intention of leaving, but also limited capability to do so Acquiescent immobility
Malawi Nchalo town, near Chikwawa	Peri-urban	Agriculture	Severe Flooding, drought, heat, storms, unpredictable rainfall and land degradation, termites	Severe Health problems; loss and damage to assets; disruption to livelihoods and food security	Working longer hours; reduced food consumption; taking up farming/ gardening for food	Moderate-High Movement driven by flooding, loss of income, and drought. The few aspiring to move are driven by loss of livelihoods, followed by flooding	Mobility quite common; few considering moving and capability to move was limited Acquiescent immobility
Hozambique Praia Nova, Beira	Urban Coastal Delta	Fishing, trade and services	Severe Tropical cyclones, flooding, sea-level surges	Severe Loss and damage to assets; health problems; safety and security; livelihoods concerns independent of climate also prominent	Working longer hours: selling assets; improving productivity	High Climate-related hazards are the main reason for movement	Few born in the area; short-term displacement is common; relocation often occurs. Most want to move but cannot Forced displacement and involuntary immobility
Arguno Alguno Nigeria Ajegunle, Lagos	Urban Coastal Delta	Small trade and services	Moderate Flooding from rains and sea-level rise	Low-moderate Health problems; loss and damage to assets; disruption to livelihoods; access to drinking water	Few: some reports of building flood barriers; purchasing water. Most adaptation relate to economic conditions	Low Climate-related hazards are the not a main reason for movement	Movement is common; many aspire to move but cannot Involuntary immobility
Senegal Tatki. Podor	Rural Borderlands	Transhumant pastoralists	Severe Low rainfall, land degradation, water scarcity	Severe Livelihoods; Loss and damage to assets; disrupted access to water	Increased transhumance covering longer periods and distances, and taking different routes; diversification of livelihoods	High Climate stressors drive transhumant pastoralism and most intend to continue; climate-related impacts on livelihoods are driving other forms of mobility and, to a small degree, aspirations of increased sedentary lifestyles	Temporary mobility in the form of transhumance, some seasonal labour on farms; low mobility out of homelands Voluntary mobility
Uganda Nardunget Morato Koromoja	Rural Borderlands	Casual labour (quarries) Agropastoralism	Severe Drought, unpredictable rains, extreme heat	Severe Loss and damage to assets; disrupted livelihoods and food security; health problems	Working longer hours; taking up farming / gardening for food; selling livestock	Low Determined to remain and adapt	Movement away from the area is uncommon; few aspire to move, and had limited capability to do so Acquiescent immobility

Image credits: Google Maps 2021. Classification within each column results from data analysis, comparing across cases. Some are determined from multiple indicators: **mobility status** determined from a combination of perceptions of mobility within the community, experiences of mobility within the household, and individual aspirations; **responses to impacts of climate-related events** determined from adaptation discussed and implemented (where current living conditions are largely attributed to the impacts of climate-related events) both 17 in survey and in qualitative data collections; mobility linked to climate-related events assessed from a combination of reasons for individuals' wishing to move, household experience of movement, and perceptions of reasons for moving within the community. The Senegal case study, consisting of qualitative data, was assessed slightly differently. For details on conditions in each setting, see the individual case studies. Peri-urban is used to describe hybrid landscapes with both rural and urban characteristics

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4. Findings and discussion

• Climate-related hazards were widely perceived to be worsening in the seven case study sites. For most people, this did not negatively affect perceptions of their own future wellbeing.

The study locations were selected because they were experiencing the impacts of climate-related variability and extremes, often related to climate change. In most locations, these climate-related events and processes have been increasing in frequency or severity, and are predicted to continue to do so. On the whole, the populations were aware of this, and research participants gave testimony from their own experience and expectations that this was the case. A minority, often a very small minority, thought that the environmental context would improve in the future. Al Max, in Alexandria, was an outlier in this regard, and is discussed below.

Nadunget, Karamoja (Uganda) was an exception to the pessimistic future outlook. Despite very poor current conditions, and scientific predictions of deteriorating future conditions (although precise changes in terms of rainfall are far from certain), around a third of survey participants consistently mentioned that climatic conditions were likely to improve in the future. The reasons for this optimism are worth exploring further. Is it a reflection of the current severity of the crisis, that people cannot imagine the situation getting worse? Is it due to a lack of information? Or are there deeper, more cultural reasons for this optimistic approach to the future?

In Al Max, Egypt, there was little perception of any climate-related hazards being present, including any that impact living conditions. Participants thought that things were generally as they had been in the past, and would continue in the same way. Again, this runs counter to scientific predictions about the future of Al Max.

How do perceptions about the future influence decision-making around mobility? The picture that emerges from the data in this study is not clear. The residents of Nadunget in Uganda do not want to move; and neither do the residents of Al Max. This may be because they do not expect conditions to deteriorate further. However, the residents interviewed in Chikwawa, Malawi do not want to move either, and the majority of them expect flooding and drought to worsen in the future. Moreover, the two locations where the aspiration to move was highest were Beira, Mozambique, where storms frequently force displacement and a majority were pessimistic about the future, but also Lagos, Nigeria, where the impact of frequent flooding was mainly tolerated as part of daily life, and where expectations of improved future conditions in the area prevailed.

The imagined severity of future impacts was not generally seen as a key reason to start preparing for departure. There was no sense that worsening climatic conditions – sometimes in places where conditions were already dire – should trigger thinking about moving somewhere else with better conditions. Participants rarely mentioned their children or descendants would have to move either. An exception was in Senegal, where a few individuals among the interviewed pastoralists suggested that in the future, the tradition of transhumance would no longer be possible due to a combination of factors including increased dryness and unpredictable rains, but this sentiment was not widely expressed.

A clue about why the perception of future climate-related hazards does not seem to have a clear link to how people are thinking about future mobility may lie in people's sense of their own future wellbeing. Across almost all cases, more people expected their household's personal circumstances to improve in the future than the proportion that expected a deterioration, no matter their general perceptions about the future in general.

• There is an intersectionality in relation to the people living in the study locations who are experiencing the worst impacts of climate-related events: they are often also vulnerable according to other indicators, such as level of education or income.

The study locations were selected because there was evidence of climate-related variability and extremes, as well as of some form of mobility. The project sought locations with different socioeconomic profiles, but there is a limitation in the variety of profiles represented in the samples.

The seven case studies highlight the intersectionality of socioeconomic deprivation and environmental vulnerability. The kinds of livelihoods that people engaged in were often indicators of the extent to which their lives were affected by climate change. Those who said they were most affected by the changing climate were typically dependent on farming or livestock for their livelihoods, often rain-fed subsistence agriculture. Those living in Nadunget, Senegal, or Chikwawa, Malawi, are examples of this; Beira is an exception, representing an urban population that is severely affected. People engaged in non-farming occupations were more insulated from the detrimental impacts of environmental stressors. In Angola there was a stark contrast in impacts of environmental stressors on people from the town engaged in more urban livelihoods (who often referred to water scarcity and rising food costs) and people who had been forcibly displaced from their farms due to a lack of food.

The range of livelihood opportunities and limitations available are key aspects of how communities are affected by climate-related hazards. In Beira, while many of those in cyclone-prone Praia Nova depend on fishing, they can access alternative occupations and opportunities nearby in the city. In contrast, the communities studied in northern Senegal are almost exclusively pastoralist, and have virtually no alternative livelihood options. In their case, therefore, the primary response is to increase mobility to find pasture and water, and thereby maintain their existing livelihoods. Climate-related events are intensifying existing mobility in the short and medium term.

People suffering the most due to climate-related impacts were often dependent on the climate for their livelihoods. Moreover, this dependence stems from having few alternatives to these livelihoods. These people typically do not have: the money to invest in adaptation such as building flood barriers, or practising irrigation; the education/skills to adapt or switch livelihoods; or the resources to migrate. They are caught in a poverty trap, whereby socioeconomic deprivation prevents them from adapting, responding and/or bouncing back from the effects of climate change.

• People living in the sites where research was undertaken are adapting, and are frequently optimistic about the future of the place, but these adaptation strategies rarely appear to be sustainable.

The majority of people affected by climate-related hazards were, at a minimum, discussing making changes to improve their living conditions, and many were implementing these changes. Moving away was not, however, a common topic of conversation. This is explored further in the next section. Resilience in place, rather than departure, was the primary approach. Adaptation seems to be understood as finding ways to be able to stay.

Very few sought or depended on support from the government or non-government organisations to respond to climaterelated impacts. There were some calls for external assistance: in Beira, Mozambique, study participants felt that the state could protect them by building sea walls and helping them build better houses. In Lagos, there was frustration that urban management especially waste management was poor; and in Malawi people wanted the government to help set up dykes and irrigation systems. But on the whole, not many had received assistance from either the state or non-government organisations in the past, and they were not expecting or waiting for it.

Overall, most people expected to find their own solutions. For example, in Lagos, people built their own barriers against flooding. The sustainability of solutions at the household level, however, is open to question. By far the most common adaptation practice was to work longer hours, followed by efforts to maximise income-generating potential. In all six locations where the survey was administered, reducing food consumption was the third most frequently used adaptation strategy. This is unsustainable. In settings where the future of current livelihoods is bleak, working longer hours is also highly unlikely to be sustainable in the medium to long-term, in some cases, it is likely to be unsustainable even in the short-term.

Diversification as adaptation was not widely reported. In Cahama (Angola), Beira (Mozambique), and Lagos (Nigeria), people talked about setting up new businesses or changing sectors, but working longer hours or improving productivity were mentioned more often. It is worth noting again that these are urban areas, where there is a wider range of alternative livelihood options. In Nadunget, Uganda, few survey participants mentioned diversification, but the discussions and interviews revealed that people had taken up new occupations in recent years: many were burning charcoal and brewing as well as farming. However, these may not prove sustainable, and may even be counter-productive, since charcoal burning leads to land degradation and brewing consumes water.

The findings suggest that the adaptation strategies most commonly being implemented in the face of worsening impacts from drought, flooding etc., consist mainly of putting more energy into the current set-up. This may be because there are no alternatives to existing livelihood patterns; nonetheless, in many cases, these strategies seem to be closer to maladaptation than to positive sustainable change. Again this brings us to how people are thinking about the future. The communities in this study appear able to be able to live with (and withstand) worsening conditions, while at the same time harbouring personal optimism for the future. Are people staying put because they are optimistic about the future and have good grounds for being so? Or are they optimistic for the future because they cannot conceive of the situation getting worse, and cannot conceive of any viable way out of their current situation? The line between hope and hopelessness could be very thin.

Across the seven locations, immobility – staying in place, whether voluntarily or involuntarily – is much more common than any form of voluntary or involuntary mobility.

A key finding from this study is that mobility is not an easy or necessarily desired adaptation strategy. Despite the evident hardships people face because of environmental stressors and climate change, the number of people who actually choose to migrate or move as a result of these hardships and deteriorating situations is relatively low.

Many of the study participants could be considered to be involuntarily immobile: 24% of everyone surveyed said they wanted to move, but did not have the resources or the capacity to do so. While involuntary immobility was high in Lagos (Nigeria) and Beira (Mozambique), forced immobility was less common than expected.

Rather more striking is the level of what appears to be voluntary immobility. The majority of survey participants across the study were not considering moving away. However, given their current living conditions, a large proportion of them also did not have the capacity to move. They are more accurately described as being in a situation of "acquiescent immobility": not wishing to move away, but also not able to do so. Acquiescent immobility was more prevalent in Karamoja (Uganda), Chikwawa (Malawi), and Cahama (Angola). This population merits particular attention: an analysis of living conditions and adaptation strategies would suggest that, if anything, the situation is more dire in Karamoja, Chikwawa, and possibly even Cahama than in places where people were more frequently involuntarily immobile. Particularly in Karamoja, and among people who had been displaced to Cahama, "acquiescent immobility" seems to be less due to people having considered and rejected the option of moving, and more due to people not even considering it an option. Thus, people may not consider themselves trapped, but the constraints within which they live would suggest that they are, to a large degree, "stuck".

People may be stuck, but among the study participants, there are strong reasons for staying put: a strong sense of belonging to the local community; attachment to land; risk and uncertainty of moving away; a perceived absence of opportunities elsewhere (e.g. land or jobs); and optimism that the household would do better in the future.

Some mobility was observed: there had been forced displacement in Cahama (due to drought and dryness), in Chikwawa (due to storms and flooding), and in Beira (due to storms and flooding). In Senegal, among transhumant pastoralists, existing patterns of mobility are being disrupted by lack of water, but again there is generally no desire to change mobility patterns. People also choose to move from each of the study locations, but in relatively small numbers (see individual case studies for a discussion of mobility patterns in each location).

Unless people are starving, or their homes have been completely destroyed, it was difficult to discern how far participants felt that movement was forced. It seems that the sense of urgency or need to move depends very much on individual assessments of living conditions, and the opportunities and risks of moving away. To an outsider, current conditions among the sample population in both Chikwawa and Karamoja would suggest a high need to move; but while this was echoed among study participants in Chikwawa, who felt they had to move, interviewees in Karamoja considered that moving was a completely free choice, and there was very little forcing them either to move or to stay.

• For those who move from the study locations, the impacts of climate-related events are often of a number of direct drivers of mobility, and can also be an underlying driver of mobility.

Immobility may be the norm but mobility still occurs. In all seven cases – even in Alexandria, where 98% of survey participants had been born in the area, and 88% were not considering moving – there were reports and examples of outmigration (for Senegal, "outmigration" refers to a different kind of movement than traditional transhumance patterns).

The decision to move is multi-causal, and in five out of seven cases, the impacts of climate-related events were among the most common reasons for moving.¹⁹ The two exceptions are Lagos, where flooding was a reason, but only to explain specific cases of mobility, not general perceptions or individual aspirations; and Alexandria, where only one or two people indicated climate-related drivers as reasons why people move generally. In the other five cases, climate factors were present alongside economic reasons and livelihood (or education) opportunities – which often dominated. Marriage was also reported in Beira and Lagos.

Climate factors, however, also play a role as a threat multiplier, underpinning other drivers. The impacts of climaterelated events clearly affect livelihoods in many of the cases studied here. In addition, in the in-depth interviews and focus group discussions, participants talked about the impacts of climate-related events on health and insecurity. There were cases of respondents or other people that moved or were planning to move because of this insecurity or ill-health. For example, flooding caused disease outbreaks, and flooding/drought led to an increase in theft or other crime. In Senegal, pastoralists often referred to conflict with farmers. As transhumance routes have changed, farmers have moved into pasturelands, and water resources are insufficient. While it must be noted that there are multiple causes (with complex interlinkages) of the tensions between farmers and pastoralists, climate-related factors do appear to play a role.

The finding here – that people mention climate impacts as a reason for movement – does not align with the finding above – that moving away is generally not considered a common strategy to improve the deterioration of conditions resulting from climate impacts. Mobility may be a response to climate-related impacts, but it seems that it is not considered a form of adaptation. In Beira and Chikwawa, the most common form of mobility was forced displacement in response to a given emergency, followed by return. While forced displacement is often not considered as adaptation by inhabitants, it may be that migration in general is not understood as adaptation, but rather that successful adaptation, encourage further exploration of how migration is understood in terms of adaptation, and what potentially differentiates migration as a failure versus migration as successful adaptation; these can have important implications for possible interventions and policy responses.

• Forced displacement from the study locations appears to be short-term and short-distance; migration is also often short-distance, but longer-term, often for years.

In Beira and Chikwawa, where movement most often took the form of displacement, rates of return were relatively rapid and high. Over half of respondents reported that the person in their household who left had returned, and mostly within one year. This points to the often short cyclical nature of sudden-onset climate-forced displacement. It also appeared that displacement was repeated. In Cahama, those who were displaced, expected it to be temporary, although all had been in the camp for at least a year. In Beira and Chikwawa, most people were displaced to areas very close by; in Cahama, people travelled further, but all stayed within the region.

There were very few participants who were engaged in seasonal movement beyond the annual tradition of the transhumant pastoralists interviewed in Senegal. Pastoralists mentioned seasonal movement to work on farms in the north, Angolans reported seasonal labour on farms in Namibia; in Egypt there were also reports of seasonal labour, sometimes to work at tourist resorts. However, barely any participants spoke of undertaking regular seasonal movement themselves. In most cases, when people do migrate, it appears to be longer-term, or permanent.

• Mobility among the researched populations is to a large extent an urban phenomenon; either movement within a city, or migration to a nearby city.

The primary destination for people moving is cities. In Lagos – where participants rarely reported moving due to climate-related reasons – people were moving to other districts in Lagos. In Beira, people also wanted to stay within the city. In Angola, the most common destinations were nearby cities, and the same for Malawi (often 30km to Chikwawa town). Even in Egypt, where movement was rare, it was most often within Alexandria. Only in Karamoja and Tatki (Senegal), did people primarily move to another rural area, taking their livestock with them. Access to land was a frequent consideration when people who were dependent on farming were asked about the possibility of moving away.

¹⁹ Assessed by asking the reasons why people are considering moving, the reasons people in their household actually moved, and the perceived reasons why people are moving in general).

This urban trend was reflected in individual interviews with people who had moved away. An exception was found in Beira: people affected by storms in Mozambique have been resettled to a number of different locations. Some interviewees in this study had been resettled to rural locations outside the city, and had taken up agriculture (see the case study for more information on resettlement, as well as other literature).

Having family links appears to have been important for those who have migrated. Many received help finding work from family members in the destination or had first moved in with family members. Those who felt that they had done well often spoke of bringing other family members to join them. Some said it took time to integrate, but such difficulties were not consistently reported. Among people who had moved away and returned, there was only one who said he came back because of difficulties integrating: this was someone in Karamoja, who had moved to another rural area within the region but despite enjoying the new environment, he was treated with suspicion by the population, and decided to move back. One person in Alexandria had been deceived with promises of work, and moved to find that the job he expected did not exist. For the most part, however, stories of migration were positive, and people who moved often learned new skills or expanded their markets. Note that there may be a bias, as perhaps those whose experience of migration was generally positive may be more willing to talk about their experiences.

It is important to underline that the movement to which participants in this study aspire is internal and local. Those who want to move or who do move, generally move short distances, either within a city or to nearby urban centres, if they are from rural areas. Long-distance migration within the country was not commonly mentioned as an aspiration or existing practice, and cross-border migration was very rare. Crossing into Namibia was quite commonly reported as a general phenomenon in Angola, but few participants had done it or aspired to do so. Elsewhere, there were just one or two mentions of cross-border migration. This was almost always to neighbouring countries or within the subregion, with a couple of exceptions: in Lagos, both France and Italy were mentioned as possible destinations; and in Egypt, a few participants spoke of people moving to Saudi Arabia or Kuwait.

The implications for cities are significant. Many towns and cities across Africa are facing their own climate-related challenges. As we have seen in this study, the most severe impacts are often felt in the informal settlements where many new arrivals start their urban lives. How will these cities and informal settlements cope if the population grows?

• The profile of who moves away from these study locations, particularly in terms of age and gender, appears to change according to the risks of staying – in terms of a threat to safety and security – as well as livelihood opportunities.

The data from this study suggest that either the whole household leaves, or children are prioritised when fleeing for safety. In contrast, when people need to move in search of livelihoods, then it is young adults who move, in some cases men move more often than women. In Beira, men were more often reported to stay, which likely means that other household members move to safety during storms and flooding, while men stay to earn a living. In Chikwawa, where mobility primarily took the form of forced displacement, it was often the whole household that left.

In all other cases where the survey was administered, children and older people, and people who were sick or had disabilities, more often stayed, while young adults left. We also find a pattern in terms of education level and the aspiration to migrate: a majority of those with no education were not considering moving (70%), while those with some schooling far more frequently aspired to migrate. This may point to people with lower educational levels also staying behind.

5. Conclusion

This study was conducted before the impacts of climate change reached their full scope. It cannot demonstrate or predict people's future movement in reaction to those impacts. However, it can provide insights into how climate-related impacts shape thinking and decision-making about mobility, and how people are responding to conditions brought about by flooding, storms, sea-level rise, and drought.

In conclusion, we return to the fact that most people who participated in this study do not aspire to move, and even more, do not have the capabilities to move. What appears to be a logical assumption, that severe climate or environmental deterioration leads to widescale migration, was not found in these case studies except in cases of short-term, short-distance displacement in response to more sudden-onset environmental events. Modelling indicates that climate change will lead to large-scale movement, and political and media discourse, and commentary by climate activists and non-government organisations, often portray a "catastrophe" of imminent mass migration as a consequence of climate change inaction. However, the findings here suggest that the will to move – and particularly, to move far – is often absent and migration is not generally considered a feasible or desirable adaption strategy.

It is, therefore, absolutely critical to look at adaptation and building resilience so that people have improved capability. With improved capability, people will have both the option to stay or to migrate safely and productively. Without the capability to stay, the world will see a growing population that is trapped, unable and in many cases unwilling to move. A population that will only move in desperation, when all resources have been exhausted and there is no alternative. Policy and programmatic interventions should focus on avoiding forced immobility and forced mobility, while enabling both voluntary immobility and voluntary mobility as desirable outcomes of successful adaptation.



