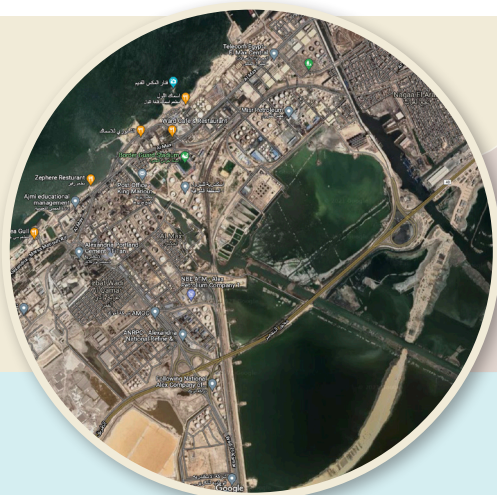


Alexandria, Egypt: Al Max



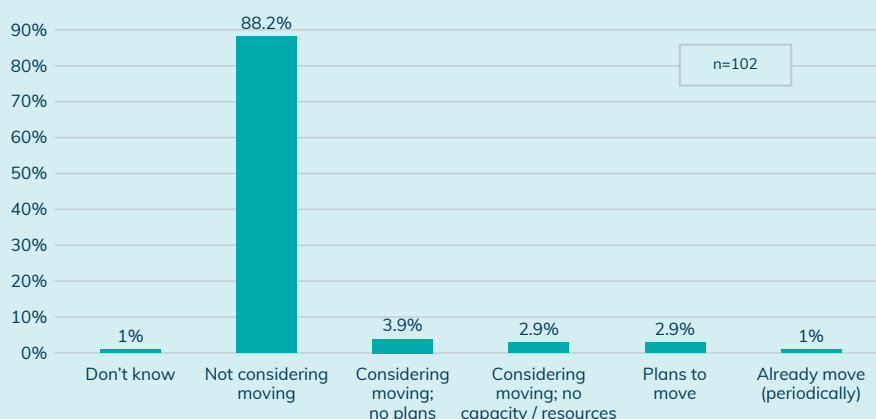
Map: © CNES/Airbus, Landsat / Copernicus, Maxar Technologies, Google Maps 2021

These coastal areas of Alexandria are contaminated by industrial pollution and predicted to be severely affected by future sea-level rise.

Key findings

- Few perceive the area to be affected by climate-related events or processes
- Very little desire to move
- Strong attachment to place
- Stories of migration were mixed in terms of perceived "success".

Figure 1. Mobility intentions



Note on the data collection

A research team visited the Al Max suburb of Alexandria in September 2021. A total of 102 survey interviews were conducted in an area close to a canal and the coast. Three focus group discussions were held with participants recruited from households in the sample area with: young people, women, and a mixed group. Ten in-depth interviews were conducted with people who experienced different mobility outcomes: one household planning to move (husband and wife); one household where a member had moved away (the person who moved and a cousin who stayed); one man who moved; one woman who stayed while her husband moved; one man who moved to Al Max; and five men who did not want to move.

About this project

The Mixed Migration Centre (MMC) undertook this research with the aim of identifying how climate-related factors affect aspirations and capabilities to migrate, and migration outcomes. MMC developed a framework based on Carling's aspiration / ability model of decision-making in migration, as well as literature on adaptation, adaptive capacity and resilience (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). This research considers the effects of climate-related environmental stressors on populations across Africa, and how they impact mobility outcomes, taking into account the full range of (im)mobilities, and the continuum from voluntary to forced movement.

Data collection took place in seven locations that were selected to cover a range of climate-related hazards across Africa, and various kinds of (im)mobilities. From July to September 2021, teams conducted research in Lagos, Nigeria; Cahama, Angola; Moroto, Uganda; Alexandria, Egypt; Chikwawa, Malawi; Beira, Mozambique; and Tatki, Senegal. In each site, more than 100 household surveys were conducted and three focus group discussions were held to better understand the impacts of climate-related hazards and environmental stressors on individuals, their attitudes and behaviour around mobility, and to identify linkages between the two. In-depth interviews were then conducted with five households that represent various kinds of 'migration outcomes'. Where possible, two representatives from each household were interviewed. These interviews aimed to find out more about experiences of mobility, connections to climate-related hazards, and the perceived outcomes of migration. See the [synthesis report](#) for more information on methodology.

MMC conducted this research as part of the Africa Climate Mobility Initiative (ACMI), with the results presented for discussion at ACMI Consultations, and informing the ACMI Report "[African Shifts. The Africa Climate Mobility Report: Addressing Climate-Forced Migration and Displacement](#)". MMC takes full responsibility for all research and findings presented in this study. The analysis and reflections in this study do not necessarily reflect the position of ACMI, the institutions leading ACMI, or any of the donors supporting the work of ACMI or MMC.

A note on terminology

MMC developed a list of key terms used throughout this project including:

- Climate change: A change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer (IPCC (Undated) [IPCC — Intergovernmental Panel on Climate Change](#)).
- Climate-related environmental stressors: Perceived and experienced long-term meteorological impacts on the ecosystem that may affect the functioning of the biological system (e.g. NCBI (2016) [National Center for Biotechnology Information](#)).
- Climate-related hazards: Natural meteorological events that pose danger to humans and the environment. These events occur due to deficiencies or excess of precipitation, destructive winds and anomalous temperatures (based on WMO and UNFCCC terminology around climate-related risks / hazards and extreme events).
- Resilience: The ability of individuals, households, communities, cities, institutions, systems, and societies to prevent, resist, absorb, adapt, respond and recover positively, efficiently, and effectively when faced with a wide range of risks, while maintaining an acceptable level of functioning and without compromising long-term prospects for sustainable development, peace and security, human rights and well-being for all (IOM (2019) [Glossary on Migration](#)).
- Vulnerability: The limited capacity to avoid, resist, cope with, or recover from harm. This limited capacity is the result of the unique interaction of individual, household, community, and structural characteristics and conditions (IOM (2019) [Glossary on Migration](#)).

A note on limitations

This is a comparative project looking in-depth into people's perceptions across a range of locations. The scope and timeframe were limited, however, and additional expert knowledge of locations and populations could further enrich a more detailed understanding.

This is a pilot study. It is expected that the tools and methodology will be refined based on lessons learned. The study provides insights into perceptions of climate-related environmental stressors and adaptation that merit further exploration.

Alexandria and climate risks

Alexandria, located on the Mediterranean coast, is the second-largest city in Egypt and had a population of approximately 5 million in 2021. Alexandria and the Nile Delta are among the most vulnerable areas in the world to climate change.¹ The UN's Intergovernmental Panel on Climate Change predicts that global sea levels could rise by as much as 68cm by 2050, flooding parts of Alexandria and causing saltwater intrusion into the groundwater. It would also cause buildings to collapse and salination of farmland in the nearby Nile Delta region, destroying livelihoods and triggering internal displacement.² Reports suggest that even 50cm of sea-level rise would threaten 2 million people in Alexandria, including Al Max.³ Increased temperatures driven by climate change are already affecting biodiversity in the Mediterranean Sea.⁴

In addition, pollution is a serious problem in Alexandria. The water from Lake Mariout, which flows through Al Max, is contaminated with metals, pesticides and other products that threaten aquatic organisms.⁵ The contaminants are mainly driven by the large amounts of waste discharged from industry and agriculture, as well as sewage water, which flow into the Mediterranean coastal region, often via the Nile and coastal lakes.⁶

Conditions in Al Max

Al Max, also known as Qaryat Al-Sayadin or the Fishermen's Village, is a neighbourhood of the Amriya district in the inner west of Alexandria. Amriya district is approximately 12km², of which Al Max comprises almost half.⁷ Population estimates for Al Max vary between 15,000 and 30,000 people, predominantly students, city workers, and fishers.⁸ This study focuses on the fishing community.

Al Max lies in a low-lying coastal enclave with some sections looking over the Mediterranean Sea and others along a canal that cuts through the area, linking the sea with nearby Lake Mariout. In addition to the risk of sea-level rise, Alexandria and the surrounding Nile Delta is sinking at roughly the same rate due, in part, to "upstream dams that prevent the replenishment of silt and to natural gas extraction."⁹ These factors are predicted to exacerbate the effects of sea level rise with "potentially catastrophic consequences."¹⁰

Al Max is an unplanned area with industrial and residential development. Industrial buildings and compounds dominate the area: petroleum, cement, iron, and steel industries are all present.¹¹ The industrial area is not separated from residential areas, exposing residents to harmful air, land and water pollution. The dumping of factory waste and polluted water into Lake Mariout has been ongoing for years, with two agricultural canals draining the lake into the Mediterranean Sea.¹²

In 2015, unprecedented heavy rains left several people dead, hundreds of families displaced and millions of dollars in damage to private property across coastal areas of Alexandria including Al Max.¹³ Rising sea levels and increased rainfall are exacerbating rising levels of polluted water.¹⁴

1 ["Houses claimed by the canal: life on Egypt's climate change frontline"](#), The Guardian, 9 August 2018.

2 The Guardian (2018).

3 Cited in UNDP (2013) [Potential Impacts of Climate Change on the Egyptian Economy](#).

4 WWF, [The Climate Change Effect in the Mediterranean](#), June 2021.

5 Wahbi, O.M. and El-Greisy, Z.A., ["Impact of Water Quality at Different Locations of Alexandria Mediterranean Coast on the Pituitary-ovarian Axis of Gilthead Seabream Sparus aurata"](#), Journal of Fisheries and Aquatic Science, 29 April 2019.

6 Abdelsalam, Ali A.H., et al. (2020) ["Long-term evaluation of eutrophication problem using multi-sensor satellite data along El-Max Bay, Alexandria coast and Abu-Qir Bay, Egypt"](#), Egyptian Journal of Aquatic Biology & Fisheries.

7 Tadamun Initiative (2019) [Urban Challenge Meets Hidden Potentials Sustainable Development of El-Max Fishermen Village in Alexandria, Egypt \(2016\)](#).

8 Tadamun Initiative (2019).

9 ["Rising seas threaten Egypt's fabled port city of Alexandria"](#), Associated Press, 30 August 2019.

10 Ibid.

11 ["Al-Max residents agitated by wide-scale deterioration, pollution"](#), Daily News Egypt, 2 August 2016.

12 Tadamun Initiative (2019); also, Daily News Egypt, 2016.

13 Associated Press (2019).

14 The Guardian (2018).



Research interview at the
waterside in Al Max.

Photo credit: © MOI Research 2021

Some homes in the area are built with materials that are unable to withstand humidity, wind and heavy rain, increasing the risk of collapse.¹⁵ Al Max has been classified by the government as an unsafe informal area, and there have been several unsuccessful attempts to relocate people from the area.¹⁶ A spokesman for the governor of Alexandria said that “the state is working to end the issue of slums by 2022”. Although some families have been living and paying rent in Al Max for several generations, the government claims that the houses were built illegally and therefore should be demolished. In 2018, some 500 fishing families were forced from their homes by authorities due to flooding and relocated to nearby apartment blocks.¹⁷ There appear to be mixed reasons for the relocation pressure, potentially related to plans for the expansion of Alexandria’s port.¹⁸

Despite reports highlighting risks related to climate change for Al Max, participants in this study did not draw attention to flooding and rising sea water. Other environmental stressors affecting Al Max, such as water contamination, land pollution, poor air quality, subsidence and beach erosion, were also not mentioned.¹⁹ The perception of those interviewed offers a very perspective of Al Max than those provided in the reports and assessments quoted above.

15 Tadamun Initiative (2019); The Guardian (2018).

16 Tadamun Initiative (2019).

17 The Guardian (2018).

18 Information from field research team. For more on the port project: Government of France, “[Le projet Great Alexandria Port](#)”, 1 March 2018.

19 Frihy, Omran E., et al. (1996) “[Evaluation of coastal problems at Alexandria, Egypt](#)”, Ocean and Coastal Management.

Population profile and perceptions

Profile of survey participants

102 survey respondents

Gender:

45% women; 55% men

Age:

60% aged 25-54 years

Religion:

98% Muslim, 2% Christian

Average household composition:

4 members; 1 financial contributor; 1 member under 18 years

Education level completed:

33% secondary;
27% primary;
35% no schooling completed

Occupation:

48% fishing; 30% carer/at home;
6% unemployed

Dependence on agriculture:

4% food from farming, but also purchase food; 94% do not farm

Remittances:

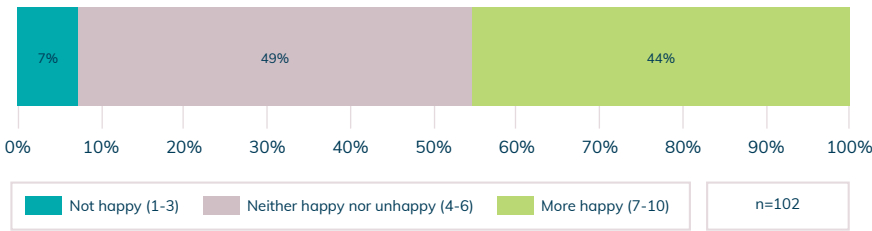
3% receive remittances

Virtually all respondents (98%) were born in Al Max. Although it was built as an informal settlement, Al Max is connected to the electricity grid and has potable water; 96% of interviewees had electricity in their homes.

Respondents reported that crime and levels of violence were low in the area, with 84% reporting that it never occurred. This was corroborated in the focus group discussions.

Most respondents were generally happy with their living conditions (see Figure 2), despite complaints about low incomes and the cost of living. Participants portrayed a sense of stability; about a quarter expected their situation to improve in the future, while about half felt things would stay about the same as before. In terms of their perception of how their lives had changed over the past five years, most interviewees (91%) mentioned that their situation was about the same and only 2% said their situation had worsened.

Figure 2. How happy are you with your household's conditions in the past 12 months?



Note: Respondents are asked for a score between 1 and 10.

“We are the type of people that even if we only eat boiled potatoes, we say Alhamdulillah [praise be to god]”.

32-year-old man

situation was similar to past generations and would remain similar in the future. There was no sense that the situation in Al Max would change significantly.

The homogeneity in Al Max was evidenced in responses given about the situation of participants compared with that of their neighbours. In all respects including access to services, assets, income, etc., **no respondents reported feeling particularly better or worse off than others around them.** Not only did they feel their situation was similar to each other, but they also expressed that their



Research team conducting interviews in Al Max.

Photo credit: © MOI Research 2021

Common challenges

In the survey, there were few reports of insecurity, limits on freedoms, economic concerns, or difficulties accessing services. Half of respondents (50%) mentioned that they had not experienced economic instability in the past decade, while two-thirds mentioned that the community did not experience issues accessing services in the same time period. In focus group discussions and in-depth interviews, the most frequently cited complaints related to **restrictions on fishing imposed by the military or induced by storms, increasing bureaucracy, and rising living costs**, including costs of electricity and water. There were also several comments about the poor condition of housing.

Impacts of climate-related events

As observed above, various environmental stressors and extreme weather events are affecting Egypt and specifically Al Max. Nevertheless, when asked to consider the last 10 years, the 102 people surveyed in Al Max overwhelmingly reported their community had not been affected by major environmental stressors and climate-related events in the past decade. Despite media reports of pollution and water contamination by nearby industries, an extraordinary 89% reported they had not experienced damages due to reduced quantity or quality of fish stocks. Some 69% mentioned that their health had not been adversely affected and 21% mentioned that such cases were rare.

“I hear my husband and my brother-in-law saying that the water has changed, the fish run away now.”

33-year-old saleswoman

“As long as you have health, you can earn from the sea.”

61-year-old fisherman

Despite media reports of storms and flooding affecting the Al Max area in 2015 and 2018, 97% said their community had not been affected by flooding in the past decade, 95% said their community had not been affected by storm surges, and 83% reported that they had observed no damage due to sea-level rise in the same period. Only one of the 17 people who reported observing such affects felt that it would worsen in the next five years.

There was little evidence in either the quantitative or qualitative data of the residents considering environmental pressures or climate change as having a past, present or future impact on their household situation or lives. Only one person mentioned that decreasing fish stocks were a problem during an in-depth interview; however, most mentioned that fishing

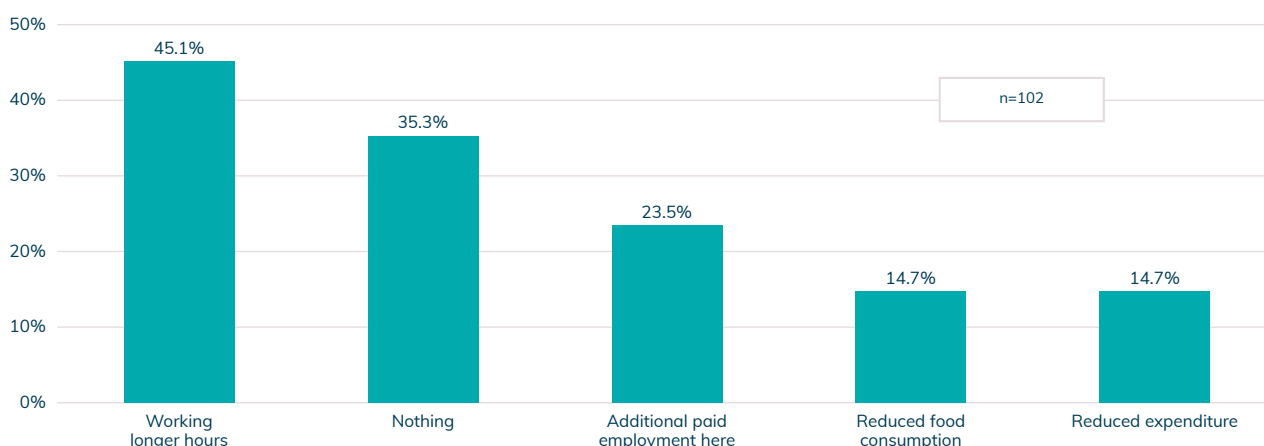
continued to be a viable livelihood. Some interviewees talked about storms preventing fishing; while some considered storms to be worsening others felt that the storm situation had improved.

Responses to climate-related impacts

Egyptian authorities are responding to the threat of sea-level rise on the Mediterranean coast by building coastal defences.²⁰ The survey participants were, however, unanimous that their lives were not affected by climate-related events or environmental issues. As a result, there were no reported responses to climate-related impacts.

When asked about what they could do to improve the situation of their household, 50% reported that they could make changes. The most commonly cited changes were working longer hours and seeking paid employment as additional income. However, 35% hadn't talked about making any changes. Female respondents more frequently said they had not discussed or implemented changes. This represented one of the few topics where responses varied significantly between females and males. Perhaps these subjects are not so much discussed among or with women.

Figure 3. What have you talked about doing to improve your situation?



Note: These are the most common answers. Participants can provide more than one answer.

Mobility

Mobility is not a feature of the population of Al Max surveyed for this study. Almost all (92%) respondents reported that no one from their household had moved from the area. Only 5% said it was normal and expected for people to move from the area, while 75% reported that moving away was unusual and unexpected.

“People choose to stay because they are like fish, if they leave the water they will die.”

32-year-old fisherman

Of the 102 people surveyed, 88% were not considering moving. Only 3% mentioned that they wanted to move but did not have the resources to do so; 4% wanted to move but had no plans; 3% had plans to move; and 1% had already moved (see Figure 1). Those considering moving all felt that the decision was based on necessity rather than will. When asked to elaborate, people said they would only consider moving in the case of extreme economic necessity or if a special economic opportunity presented itself outside of the community. Residents of Al Max were generally not in favour of moving from the area. Despite repeated government warnings that parts of Al Max are unsafe and not fit for habitation, people are reluctant to move, especially fishing families who need and want to be close to their boats and the water due to their source of livelihoods, irrespective of their living conditions and risks.²¹

the water due to their source of livelihoods, irrespective of their living conditions and risks.²¹

Nonetheless, dozens of families have been relocated to purpose-built apartment blocks in the same neighbourhood.²² Other efforts to relocate people from the area were underway. None of the interviewees nor participants in focus group discussions made any mention of relocations or any extreme weather events in the last 10 years. A few did mention

²⁰ Associated Press (2019).

²¹ Tadamun Initiative (2019).

²² Associated Press (2019).

“Youth can move. Old men shouldn’t move.”

61-year-old fisherman

the threat of housing demolitions, and evictions were potential reasons for people moving away. Two interviewees mentioned that housing required renovations because of damage. The damage appeared to be related to weather conditions, but this was not acknowledged by the participants.

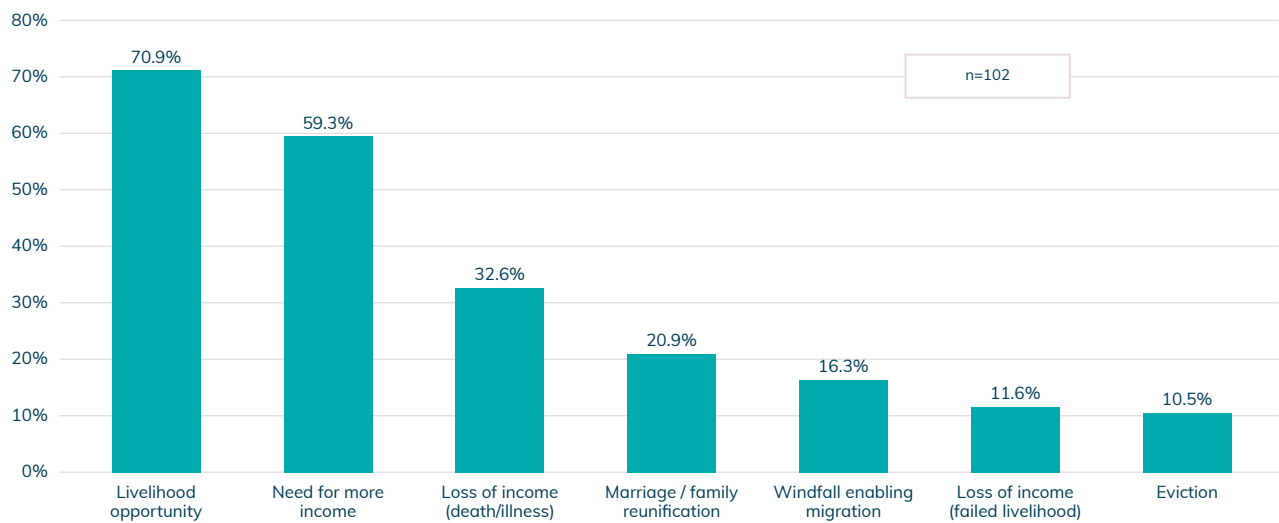
Of those who left Al Max, the majority went to another part of Alexandria or to Cairo. It was mainly young men who moved, while older people were the least likely to move.

Impact of climate-related events and mobility

This study did not find a strong connection between climate or environmental stressors and movement into or out of Al Max, but they were cited as a factor in the historic relocation of residents within the neighbourhood. The study shows a pattern of very low mobility out of the community, what mobility does occur is driven by livelihood opportunities.

When those surveyed were asked about the reasons that led people to move, the most common reasons cited related to livelihoods (see Figure 3); only 1% mentioned “flood damage” and/or “unpredictable rains”, and 2% mentioned “storms” and “pollution”..

Figure 4. Why do people move?



Note: These are the most common answers. Participants can provide more than one answer.

In-depth interviews with people who had moved from the area revealed that some left on a seasonal basis to earn money elsewhere in Egypt, when their livelihoods dwindled in Al Max. One respondent mentioned that he left because changing sea patterns meant he had to travel further to find fish. However, this was the only person that mentioned any environmental factors. One person who moved away in search of income, returned to Al Max despite higher earnings because he did not like the hot weather or the water quality. Another interviewee moved away but was not able to find work elsewhere. A few participants recalled people moving to Libya, Saudi Arabia, or the United Arab Emirates, but this did not involve the household members of any participants. Overall, the narrative on migration is as a last resort, with uncertain results.

Summary

The findings from this research appear to be in stark contrast to the limited grey literature and media coverage. Despite reports that thousands of residents of Al Max will have to move due to pollution and climate change effects including flooding, this was not reflected in the results of this study. None of the study participants reported climate-related changes in the area; this contradicts evidence of major flooding in the area in 2015 and 2018. There are various factors that might explain for this discrepancy, for example: participants may not have been directly affected by the flooding or may have only been affected in a minor way; pride in the community or cultural barriers may have curbed discussion negative aspects; or participants may have wished to avoid providing evidence that may support unwanted government relocation efforts. Despite depending on livelihoods highly affected by environmental conditions, respondents made few comments about changing conditions in recent years.

The second major finding of this case study was the widespread acquiescent immobility; **people do not have the resources or capability to migrate, and neither do they have the aspiration to do so.** It appears that immobility was the clear preference: people wished to remain in their community, in their profession, and in the environment they know and value, surrounded by their families and close networks. This was despite generally low income and education levels.

The “unchanging” nature of Al Max was also strongly expressed through this study. **Participants felt their world had not changed significantly in the recent past, and they did not predict that it would in the coming years.** Furthermore, they felt their own lived experience of Al Max was shared by most other community members. The desire to stay was not reflected by extremely high satisfaction with life in Al Max, but possibly simply reflects **a strong sense of belonging.** The evidence suggests that if and when environmental factors such as flooding and pollution start to affect the population more, residents are likely to resist mobility up to an extreme point – up to where the means of survival are almost completely taken from them. This would be an extreme scenario, probably many years off, but in the meantime, **climate-related events and processes are likely to have increasingly negative impacts on the population.**

This case study highlights a stark contrast between reports from external actors, including media, and survey data from the population, which warrants further in-depth research and engagement with people in the community.

Acknowledgements

This project was led by the Mixed Migration Centre (MMC). This case study was written by Chris Horwood of Ravenstone Consult, reviewed by Jane Linekar and Bram Frouws of MMC, and edited by Stephanie Matti. MMC would like to thank the research participants for their time and generosity in sharing their thoughts. We also extend our thanks to TRi Facts, Ravenstone Consult, and Dalberg Research and their field research teams, for their work on the design and implementation of this project. ACMI's technical advisory group members provided valuable advice and input, and our colleagues from Columbia University were particularly helpful. This project was generously supported by the Ford Foundation, the Mayors Migration Council, the Open Societies Foundation, Porticus, and the Danish Ministry of Foreign Affairs.

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 <https://africa.climate-mobility.org/>

