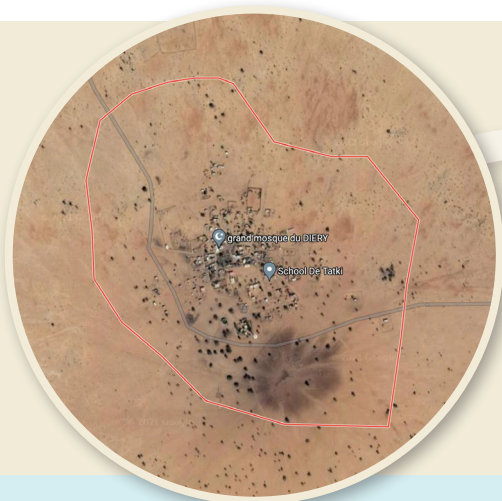
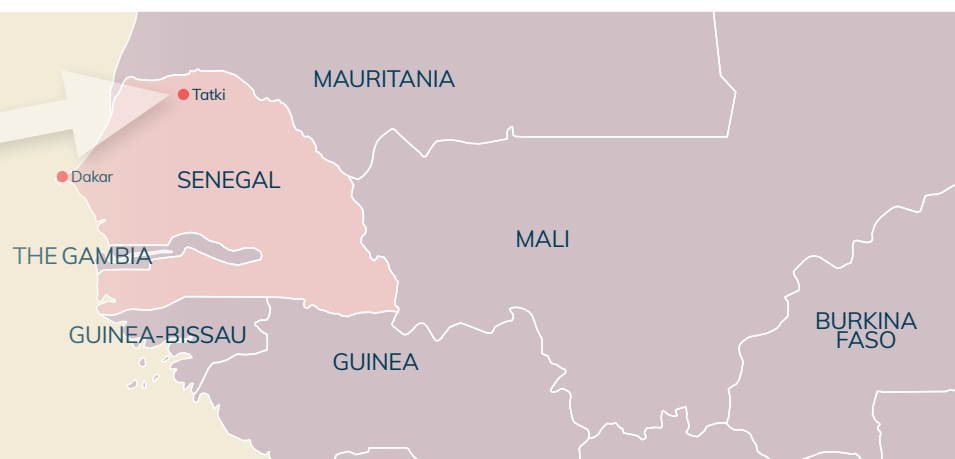


Western Sahel: Tatki, Senegal



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



Transhumant pastoralist population moving along routes in the Western Sahel, affected by unpredictable and reduced rains.

Key findings

- Strong awareness and understanding of climate-related hazards
- Strong attachment to “home” territories
- Increase in and changes to transhumance journeys
- Some seasonal migration to farms and longer-term migration to urban centres, primarily among young men
- Little desire to shift away from transhumant pastoralist lifestyles, despite challenges

Note on the data collection

A research team visited the village of Tatki and surrounding encampments in September 2021. Focus group discussions and in-depth interviews were conducted with participants from households in Tatki and the encampments. Five focus group discussions were held with: young people, women, men, and two with mixed groups. Ten key informant interviews were conducted with civic and religious leaders, and 20 in-depth interviews were conducted with people from pastoralist households, although not always with the household member that moved (nine women and 11 men; all aged 19-70 years). The household survey used in the six other case studies of this project was designed for a sedentary population, and was therefore not implemented in this setting.

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.

Western Sahel and climate risks

The Sahel, a vast arid region between the Sahara desert to the north and more fertile regions to the south, is home to a large population of transhumant pastoralists. For generations, these mobile livestock keepers have used climate variability in the region to their advantage, helping them produce milk and meat in a sustainable way with economic benefits for their households and societies. However, climate change is undermining livelihoods and systems of production for many pastoralists. The population is also affected by the lack of an empowering socio-economic and policy environment. Stressors such as population growth, declines in groundwater, land use/land cover changes, poor water management and infrastructure, and inadequate joint management of other resources are all expected to reduce water supply in the future.¹

The Sahel is, perhaps more than anywhere else on the planet, being affected by both local and global drivers of environmental change, and this results in a patchwork of outcomes and changes across the region.² Desertification is exacerbated by population growth, the removal of trees and roots, overgrazing, soil erosion and higher temperatures. Arid regions are particularly susceptible to land degradation, and unpredictable rainfall.

Drought has been a feature of life in the Sahel for many generations. The Sahel has experienced long-term droughts that last years (e.g. 1914, 2010 and 2012) or even decades (e.g. 1951 to 2004).³ In recent years droughts have increased in frequency and intensity, as well as combined with other negative stressors. Land degradation and unpredictable rain patterns due to climate change exacerbate flooding during the wet season.⁴ Pest and disease outbreaks are also set to increase in frequency and severity future. For example, extreme rainfall events intensify locust swarms, which devastate crops such as in 2020.⁵ These environmental stressors are predicted to increase further due to the effects of climate change.



People and livestock gather around Tatki during the rainy season.

Photo credit: © Cheikh Sall 2021

Climate change can trigger and amplify conflict in the Sahel,⁶ with a series of complex emergencies characterised by a combination of drought and conflict in the region between 2010 and 2021.⁷ In a region experiencing environmental degradation and sustained population growth, the effects of climate change have exacerbated competition over dwindling resources, fuelled conflict and radicalisation, and exacerbated tensions between communities and with governing authorities. These combined pressures create fertile ground for armed movements to recruit impoverished and dissatisfied pastoralists,⁸ and compound the vulnerability of affected people.⁹

1 Government of the Netherlands (2018) [Climate Change Profile: West African Sahel](#).

2 Cherlet, M. et al. (2018) World Atlas of Desertification, European Union, p.193.

3 ["Africa trapped in mega drought cycle"](#), New Scientist, 2009.

4 Monerie, P-A. et al., ["The fast response of Sahel precipitation to climate change allows effective mitigation action"](#), Nature.com, 6 April 2021.

5 Meynard, C. et al, [On the relative role of climate change and management in the current desert locust outbreak in East Africa](#), Global Change Biology, 29 April 2020. FAO (2020) [West Africa: Desert Locust Crisis Appeal](#). Also for example; ["Locust swarms could be heading for one of the most vulnerable regions on earth, warns UN"](#), The Telegraph, 4 August 2020.

6 ICRC (2020) [When Rain Turns to Dust](#).

7 OCHA, [The Central Sahel: CERF allocations 2010-2021, February 2021](#).

8 Vétérinaires Sans Frontières, 2020, [Mitigating the ongoing crisis in the Sahel – the key role of pastoralists](#).

9 ICRC (2020), op. cit.

Conditions on the pastoralists' routes

Tatki is a small but important local centre for pastoralists. It is situated close to the Ferlo semi-desert area of north Senegal, and to state-designated pastoral protection zones. Tatki itself has limited services including an elementary school, mosque, health dispensary, veterinary station, milk station as well as various private and public boreholes. There are virtually no amenities in the surrounding camps.¹⁰ Children in the area rarely attend school; the only school mentioned by participants was in Tatki. Instead, children assist their families with herds and travel together with adults.

The nearest town is 50km away, and the urban centre of Podor is nearly 90km from Tatki. There are no main roads that run through Tatki, as a result, it is not serviced by public transport. It is also not connected to the electricity grid but there are two mobile telephone towers in the area.¹¹ Tatki's proximity to the Senegal River Valley, some 40km away, facilitates economic trade and social links with other farming communities.

Tatki and the surrounding areas are very hot with average temperatures above 40°C for many months of the year. Many of the environmental stressors exacerbated by climate change mentioned in the above section affect people living in the area around Tatki. The communities of Tatki were originally scattered around a borehole, which has now been replaced by several, newer boreholes.¹² Most of the population relies on livestock, fodder resources and milk production. Some households also engage in subsistence agriculture, conducted primarily by women and older people who typically do not travel with livestock.

Population profile and perceptions



Community members gathered in Tatki.

Photo credit: © Cheikh Sall 2021

The methodology for this case study differs from that used for the other six. Here, no survey was conducted¹³ but instead, the data were collected through qualitative methods: in-depth interviews (20), focus group discussions (5) and key informant interviews (10).

The key informant interviews, in-depth interviews and focus group discussion participants described a highly marginalised pastoralist community under increasing pressure from a changing and harsh climatic context. This pressure is being felt in a context of rising human and livestock populations, meagre government support and services, a lack of viable alternative livelihoods, and growing insecurity due to cattle rustling. While transhumance routes were previously determined by livestock disease, this has changed significantly due to improved health and veterinary services.

The main source of income for most families in the area is from the sale of animals. While climate change, environmental degradation and biodiversity loss have affected the community considerably, these changes have been gradual. In terms of satisfaction with their situation, most respondents reported that their lives were more or less good (middle ranking); no one expressed extreme satisfaction and few expressed extreme dissatisfaction.

¹⁰ Information gathered from key informant data for this study.

¹¹ "Les cinq endroits les plus isolés du Sénégal", [Planet Senegal](#), 2019.

¹² Wane, A. et al. (2017) [Analysis of Sahelian Herders Market Behaviours to Facilitate Moving Towards Structural and Sustainable Transformation of Pastoral Economies](#). Contribution presented at the XV EAAE Congress, "Towards Sustainable Agri-food Systems: Balancing Between Markets and Society".

¹³ The survey questionnaire was designed for sedentary population and therefore could not be used in this case.

Common challenges

A frequent concern raised by interviewees was the **insufficient schooling** for children. This was due both to a lack of services, but also because children moved with livestock. **Increasing living costs, especially to purchase water**, were also reported.

None of those consulted mentioned a risk of extremism but people frequently reported that unemployed youth engage in cattle rustling, and consumed alcohol and/or drugs. Tensions with sedentary farmers were highlighted, particularly in communities visited during transhumance, including reports of farmers turning off water and others setting fire to pastures.

Impacts of climate-related events

All participants reported that environmental conditions were deteriorating. This was experienced as land degradation, loss of plants and trees, disappearance of ponds, diminished rains, longer dry periods, frequent hot winds and sandstorms, increased temperatures, and a lack of pasture or fodder. The main concern expressed related to increasingly unpredictable and scarce rainfall. The loss of trees was a common complaint despite nearby land being officially designated as a pastoralist reserve area as wood represents the primary source of fuel and construction materials. The participants did not mention flooding but did report that rainy were shorter, more sudden, and followed by increasingly intense daytime temperatures. As a result, the precipitation quickly evaporates in heat.

The lives of households and communities in the area revolve around pastoralism, mainly sheep, cattle and sometimes goats. As a result, the presence of water and fodder is critical. One interviewee said that the life of a pastoralist could not be more dependent on natural resources and weather. All participants mentioned that their livelihoods were highly affected by climate change and environmental stressors with the negative effects experienced including less milk production, lower livestock births, poor prices for cattle, and increased livestock mortality.

While boreholes are becoming more common, many people from encampments still travel long distances (2-20km) with donkeys and carts and multiple containers to obtain water. Many were, however, glad to have vehicles to transport water, unlike previous generations. Water sources were under a mixture of private and public ownership, and some respondents spoke of occasionally paying for water. The community paid close attention to ensuring access to water, with water scarcity representing a common challenge, especially during transhumance. Respondents noted that acute water stress and the changing environment had led to lower milk production and poorer quality livestock, which in turn resulted in lower market prices at a time when many were affected by rising consumer prices.

Environmental stressors have also intensified inter-communal tensions including conflict between farmers and herders over limited land and water, especially in areas visited during transhumance. These areas were becoming more crowded, with the expansion of farmland limiting areas accessible to herders and their livestock. Additionally, many people complained of insecurity and livestock theft when travelling and in camps on the route. Two key informants mentioned that the stress associated with being a pastoralist was driving an increase in suicide rates.

Responses to climate-related impacts

“We have new approaches to deal with the situation: selling some of our assets, planting trees, reducing household expenses and sending children to school. We are also thinking about market gardening.”

In-depth interview

The main responses to deteriorating environmental and climatic conditions were changes in transhumance practices and mobility including more intense or different forms of transhumance, seasonal labour elsewhere, or departure to urban centres (see next section). Participants mentioned that destocking and reducing the head of livestock was an inevitable response to climate change, some also mentioned the need to sell livestock or “modernise” animal husbandry in the future.

People reflected that alternative livelihood strategies were important. Many spoke of the need for **livelihood and income diversification**, however, in the Tatki area there were understood to be limited alternative opportunities. Many of the opportunities identified were highly dependent on scarce water supplies such as market gardening or irrigated agriculture. Diversification of livelihoods in Tatki was also evident in the growth of businesses supporting **livestock and subsistence agriculture** (wood, iron, leather for tools), and supporting professions relating to breeding, fattening

livestock, milk marketing, and fertilisers, etc. Respondents also mentioned the need to plant more trees to regenerate the soil. Participants frequently cited the need to diversify livelihoods. However, there were little or no stories of people successfully applying this strategy; the only activity regularly mentioned was the small market gardening by women close to boreholes in “home” areas.

Most respondents expressed that they wanted to maintain their transhumant lifestyle and connection to livestock. Senegal has established various government-run outreach initiatives and associations to support pastoralists, but people frequently mentioned that they were reluctant to join these associations with some suggestions of corruption.

Mobility

Mobility played a central role in the lives of people in the area, but most participants also felt rooted in their “home” areas. Most households in the area practised temporary or seasonal mobility, either as part of the pastoral cycle, or as labourers working on farms to the north and west of Tatki area. There were also reports of several men moving to cities to pursue various opportunities. In recent years, as farms have developed in the River Senegal Valley some 50 to 80km from Tatki, young men have begun travelling to work as farm labourers on a seasonal basis.

In good years, when there is grass and water in and around Tatki, other pastoralists will come and stay in the area with their herds. However, Tatki is not typically a destination. Some interviewees also reported that the government also struggled to retain staff such as teachers in Tatki.

“Travel has become common because the challenges are increasing. We’re used to it... Transhumance is a practice that we have adopted to deal with risks. But sometimes movements are unusual.”

Focus group discussion

Transhumance in the area historically involved short periods of movement. Interviewees relayed how all or part of the livestock were moved for weeks or months depending on the climate and availability of pasture. Today people travel further sometimes for periods of six to seven months or longer. Some interviewees mentioned crossing into Mali and the Gambia, which was perceived as unusual. A number of interviewees also retold experiences of starting transhumance journeys too late because of unpredictable rains with catastrophic consequences for their livestock. They reported that they would be among the first to leave in the future.

There seemed to be no culture or tradition of permanent mobility out of the Tatki area. It appears that most, if not all, people living in the area were born there and that mobility practices were typically temporary. It was unclear if those who left the area to find jobs in the city sent money home or whether they would return. Household movement to cities, or widescale movement to cities by the young, was not apparent among those in the Tatki area.

Impact of climate-related events and mobility

“People are psychologically preparing to deal with climate change. They have adopted mobility as their main strategy.”

Key informant

Periods of increased rain such as 2020 to 2021, were associated with communities reverting to more traditional patterns of transhumance involving shorter distances and durations.

“It was a year, the scarcity of pastures almost decimated my livestock, since then I do not take risks. I take my animals as soon as the grass begins to diminish in the area.”

In-depth interview

“If I had the possibility, I prefer that the children stay to go to school as well as the elderly.”

In-depth interview

The impact of the climate-related hazards and environmental stressors on patterns of mobility in the Tatki area was threefold.

First, it affected the **location, chosen routes, duration and necessity for transhumance**. Some pastoralists were even crossing international borders into the Gambia and Mali. Sheep were understood to have more need for longer-term transhumance to graze on grasslands – compared with cattle – with journeys often taking multiple months. Cattle are also moved, however when the rains are sufficient or if fodder can be brought to Tatki, older members of the family and women who remain in the Tatki area look after the cattle while also pursuing other income-generating activities. Men, children and young adults were most likely to move through transhumance.

Second, it caused **more people to seek seasonal work**. Mainly young men travel to the Senegal River valley and work as agricultural labourers. While this was fairly frequently reported as occurring, it was not reported to be practised among the households interviewed.

Third, it caused some individuals, but not entire households, to seek **work in larger towns and cities in Senegal**.

Some respondents spoke of their situation becoming critical, suggesting pastoralism was becoming unviable. Participants considering shifting to more immobile lifestyles in response to the impacts of climate change. It was indicated that this would take the form of a more sedentary life around Tatki and potentially involve farming, rather than permanently migrating elsewhere. There was little evidence that people were already implementing these strategies. However, it was clear from this study that **changing patterns of mobility were the most common responses to climate change impacts in the area**.

While these strategies have a long history in the area, they are being used increasingly as people feel the effects of climate change. As one analysis put it, “[Sahelian pastoralists] are gradually adapting to these conditions by using mobility and diversification/multifunctionality strategies to enhance production and secure their livelihoods.”¹⁴

Ultimately, **increased and changing patterns of mobility were the most common responses to climate change impacts**, although in the future people might also become less mobile and revert to more sedentary lifestyles. And, when the rains are good (as some communities claimed they were in 2020/21), the pressure is greatly eased, life improves, and transhumant mobility reduces to the more traditional patterns of shorter-distance and duration.

¹⁴ Wane, A et al. (2018) [Securing Sahelian pastoralism by using a remunerated workforce for livestock keeping activities: The ambivalence of commodification](#) Cahiers Agricultures 27(3).

Summary

All participants in this study reported that **climate change had been evident in their region for at least a decade**. Participants firmly believed that these effects would become more intense and cause a further deterioration of their environment and livelihoods.

Participants suggested that in the future, pastoralists would encounter **greater resistance** from settled agricultural communities due to government restrictions. As a result, participants suggested that pastoralists would: move further during the dry season; encounter increased competition for resources and insecurity between pastoralists and with farmers; experience more pressure to adopt more sedentary lifestyles; and experience declining incomes and living conditions.

Virtually no-one spoke of leaving the areas or solid plans to abandon their pastoralist livelihoods despite the difficult conditions already experienced and challenging outlook. There was a strong sense of kinship, tradition and social cohesion in these communities that was a driver of stability and resilience. **Climate-related hazards were disrupting patterns of mobility**, but were no evidence of a shift underway from traditional transhumant pastoralism towards sedentary lifestyles.

However, given the persistent degradation of livelihoods, how long can the pastoralist system continue? Will there be a point where communities have to switch to another (less mobile) livelihood system – probably supported or facilitated by the state or NGOs; and will such a transformation be preferable to these communities than wholesale departure from rural areas to urban centres? Will immobility in place prove viable? Or would migration to a sedentary life in an urban centre prove the best form of adaptation?

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