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Relational (im)mobilities: a case study of Senegalese coastal fishing populations

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ABSTRACT

Immobility and mobility are often viewed as fixed, binary opposites: one is *either* a migrant or a non-migrant. Yet, everyday experiences and realities elude such simple bifurcation. Non-migrants are not necessarily immobile: they frequently participate in small-scale movements and are well-engaged in social spaces that cross international borders. Similarly, migrants often engage in corporeal, material and communicative practices that anchor them to their homelands. This article applies a climate mobilities lens to a qualitative case study of an urban Senegalese fishing community, characterised by its ‘micro-mobilities’ as much as by its international migration. Specifically, I take the case of Guet Ndar, Saint-Louis. Faced with rising seas, eroding coastlines, and depleting fish stocks and biodiversity, Guet Ndarians abroad and at home respond to the ensuing degradation of livelihoods and the destruction of homes by altering their mobility patterns through circular labour mobility to Mauritania, which then enables smaller-scale local movements including self-relocation via social and financial remittances. I argue that (im)mobilities are neither fixed nor all-encompassing but are rather relational and uneven – in time, space and agency – and that environmental changes pressure people, regardless of their migration status, to redirect their (im)mobilities into new constellations.

KEYWORDS

Immobility; mobilities; environmental migration; climate change; Senegal

Introduction

Migration studies have been criticised for ‘sedentary optics’ (Molland 2018) or a ‘sedentary bias’ (Jónsson 2011) as migration is being exceptionalised (Schapendonk, Bolay, and Dahinden 2020; Schewel 2019). This perception that migration is somehow abnormal manifests, too, in public and political discourses on climate change, which have long focused on the threats posed by mass migration and displacement (Bettini 2013). These discourses consider ‘staying put’ to be unproblematic and even desirable. Only in the last decade has environmental migration research started to pay attention to the vulnerability of another group: the people who cannot, or will not, migrate out of harm’s way (Foresight 2011).

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Emerging empirical work investigates what drives immobility, but research has yet to sufficiently explore the ways that mobility and immobility relate. Despite the long-held consensus that mobility within and outside of environmental contexts occurs on spectra of time, space and agency (Lazcko and Aghazarm 2009; Ionesco, Mokhnacheva, and Gemenne 2016), immobility and mobility are frequently viewed as fixed, binary opposites. They are, moreover, conflated with migration status: one is *either* a migrant *or* a non-migrant. Everyday experiences, however, elude such simple bifurcation. In the sub-field of environment and migration studies, static categories of migration fail to accurately portray how people move between mobility and immobility, and how mobility is dynamic, relational and subjective. Moreover, much of the political debate in international or national fora has relied on external conceptualisations rather than the perceptions of affected populations themselves (Suliman et al. 2019; Farbotko 2022).

To capture this fluidity and relationality, this article, therefore, follows the call for a new research agenda on the environment-migration nexus, one of *climate mobilities* (Boas et al. 2019; Boas et al. 2022). A mobilities lens elucidates the ways in which non-migrants are also mobile actors. I apply this thinking to the case of a bustling, urban fishing quarter in northern Senegal, concomitantly facing environmental threats to livelihoods and land. On one hand, coastal erosion and storms are destroying sea-front homes, displacing locals, and, on the other, overfishing and climate change's maritime impacts are making local artisanal fishing less sustainable as a livelihood strategy. In this context, people are transforming their movements in various ways, and the community is defined by its micro-mobilities and cultural anchorings as much as it is by its international labour migration. I argue that using a climate mobilities lens enables us to see *spaces of mobility* that encompass movement and stasis of people, of material and immaterial practices, and to analyse how these spaces are affected by, and respond to, environmental change. Spaces of mobility are not defined by migration of any individual member or household. They are constituted by community ties, familial relationships and the practices that sustain them, which are not strictly tied to the city or even country of origin.

The article is structured as follows: the first section outlines the ways that research has addressed ideas of mobility and immobility in environmental contexts in terms of agency and in terms of time and space. The second describes the methods and context of the case study presented, while the third presents findings in terms of spatio-temporal (im)mobility dynamics, migration included. Finally, the multi-scalar dimensions of spaces of mobility are examined as they speak to studies of migration as adaptation and social resilience in contexts of environmental change.

State of the art

The UK's 2011 Foresight report on Migration and Global Environmental Change first introduced the notion of 'trapped populations' into the environmental migration lexicon, referring to those who need to move, want to move, and yet lack the ability to do so (Black and Collyer 2014). This then triggered new interest in the mobility-immobility nexus within environmental contexts. A series of empirical studies have since explored who remains and what limits their mobility, divided along lines of the agency. One group of research focuses on trapped populations, emphasising that people who are involuntarily immobile are often amongst the poorest in terms of

resources, assets, and various forms of capital (Blondin 2020; Nawrotzki and DeWaard 2018; Logan, Issar, and Xu 2016; Gray and Mueller 2012). The policy concern becomes how people can overcome the threshold of immobility and ‘turn into migrants’ (Schapendonk, Bolay, and Dahinden 2020, 3). These studies have helped scholarship to identify the multiple, intertwined barriers to migration in the contexts of environmental change and the very real consequences for non-migrants living in fragile areas or amidst crisis, who would – given the opportunity – prefer to leave (Lubkemann 2008).

The second group of environmental immobility research finds that immobility does not always represent a lack of choice, just as migration is not always a failure to adapt. Increasingly, studies in environmental contexts recognise that immobility, too, can be voluntary and that applying trapped populations too broadly or without empirical investigation risks obscuring the agency of non-migrants (Farbotko et al. 2020; Mallick and Schanze 2020). In a study in the central highlands of Peru, Adams (2016) noted that even when people were dissatisfied, attachment to place was more likely to drive immobility than resource constraints. Similarly, Farbotko (2018, 2022) found that in the face of adverse climate impacts on health and livelihoods, indigenous people of the Pacific increasingly prefer to stay on their lands for cultural and spiritual reasons rather than to relocate. Such studies help to restore agency to non-migrants, whose voices and experiences are seldom elevated within migration studies.

Both groups of research highlight that immobility, like migration, is multi-causal, and that environment is rarely the determining factor. However, certain conceptual and empirical gaps persist. Literature on climate and migration, or environmental migration more broadly, skews toward questions of causality: causality of migration and, more recently, the causality of non-migration. Research gives comparatively little attention to the underlying spatio-temporal dynamics of mobility itself (de Campos, Bell, and Charles-Edwards 2017). The boundaries between climate mobility and immobility are seldom explored as they play out across distances and over time. Adjusting our focus, for example, we might see how circular, seasonal migration is defined by both departure and return, movement and stasis. As Zhang (2018, 201) notes, ‘where return migration was once considered the end or reversal of a migratory journey [...] return migrations are now seen as components of a grounded, temporally differentiated circularity’.

Binary thinking dividing people into those who move and those who stay – strictly based on migration status – is inadequate for capturing the space in between, i.e. the immobility experiences of migrants and the mobility experiences of non-migrants. To date, there has been little regard for the way environmental changes shape everyday mobility in communities of origin, and as Safra de Campos et al. (2017, 2) note, ‘migration itself forms just one component in a broad spectrum of mobility behavior’. If we consider that a spectrum of mobility includes (im)mobilities for migrants and non-migrants alike, we may begin to capture everyday movement as it reacts to and affects environmental change in new ways. A promising direction for future research is, therefore, offered by the mobilities paradigm, which moves away from classic migration/non-migration distinctions and towards an understanding of how mobilities, immobilities and moorings intersect (Sheller and Urry 2006; Urry 2007; Boas et al. 2022). Hannam, Sheller, and Urry (2006, 3) note: ‘mobilities cannot be described without attention to the necessary spatial, infrastructural and institutional moorings that configure and enable mobilities’. It recognises, moreover, that migrants do not exist a priori, but

are ‘made’ through regulations, visas and border processes, and that they may not always be the most pertinent subject of study (Hui 2016, 74).

As the editors of this Special Issue note, applying a climate mobilities perspective is less about what drives people out of places affected by the impacts of climate change or about making empirical distinctions between climate or non-climate migrants. It is instead about giving analytical priority ‘to understanding how people perceive and interpret climate changes in their surroundings in relation to their im/mobilities’ (Boas et al. 2022). This allows us to capture spatio-temporal dynamics that are largely left untreated or escape a migration lens. ‘Micro-mobilities’ or ‘everyday mobilities’ allow us to capture a broader range of movement in response to sudden or slow onset environmental changes. For example, commuting practices by non-migrants fit neither into a sedentary framing of ‘staying put’ nor into a migration framing where one is expected to move across geopolitical boundaries. Approaching movement from a climate mobilities perspective also enables scholars to more explicitly recognise the dynamism of (im)mobility status. One can move between moments of immobility and mobility. One can migrate and then become ‘stuck in mobility’ (Hess 2012), including protracted displacement after a disaster. Lastly, it allows us to explore (im)mobilities as *relational*. Adey (2006, 76–77) highlights the subjectivities and relationality between mobility forms: not only how mobilities appear immobile, but also how they behave and function empirically in this way: ‘while things are always on the move, they can appear in a fixed and stable manner because mobilities are all different, and we relate to them in different ways’.

Context and methods

Environmental mobility can be witnessed across Senegal, from displacement due to flooding to more economic migration patterns associated with slow-onset impacts on livelihoods (Dimé, Wade, and Ehode 2017; Hummel 2015; Van der Land and Hummel 2013; Tacoli 2011). While its interior faces desertification, water scarcity and drought, the Senegalese coastline is threatened by climate change impacts of coastal erosion, sea-level rise, flooding, soil salinisation and increasing storm surges (Salem 2013). These environmental changes threaten the livelihoods of the approximately 600,000 people directly or indirectly working in the Senegalese fishing industry (FAO 2015), augmenting and diversifying existing mobility patterns. However, African fishing communities receive scant attention in environment and migration research (Zickgraf 2021). Studies on coastal and fishing communities in West Africa are scarce compared to those in interior, drought-prone regions (Vigil Diaz Telenti 2019; Antwi-Agyei et al. 2018; Hummel 2015; Sow, Adaawen, and Scheffran 2014). Additionally, urban zones are by and large researched as destinations for migrants, rather than studied as points of origin (Delazeri, Da Cunha, and Oliveira 2021; Ishtiaque and Nazem 2016; Barrios, Bertinelli, and Strobl 2006). Therefore, the present qualitative case study is novel in approaching climate mobilities in an urban, coastal fishing quarter of West Africa.

This case study specifically targets the city of Saint-Louis. Situated on the north-western coast of Senegal, the city of Saint-Louis is home to the second largest population in the country after Dakar. It is also one of the most environmentally fragile places in the

country. In 2008, UN-Habitat designated the Saint-Louis the ‘the African city most threatened by the rising levels of the sea’. The city has a diverse population, broadly divided into three tracts of land: the mainland, Sor, the touristic centre of Saint-Louis Island, and a thin, sandy strip of land on the Langu de Barbarie spit, which includes the neighbourhood of Guet Ndar (see [Figure 1](#)). The latter faces concomitant sea level rise, coastal erosion, soil salinisation, maritime storms and depletion of fish stocks and biodiversity (IPCC 2014; Ndour et al. 2014).¹

Guet Ndar is unique in the Lange de Barbarie: a fishing quarter wedged between the Senegal River and the Atlantic Ocean where its inhabitants are intimately tied to their surroundings, both culturally and economically. Nearly the entire population depends on artisanal fishing for their livelihoods. Considering the vulnerability of natural resource-dependent livelihoods and their exposure to both oceanic and riverain hazards, Guet Ndarians are among the most vulnerable Saint-Louisians to environmental change. From a land-based perspective, river flooding has long been an issue, while the sea-level rise and increasing wave intensity has resulted in severe coastal erosion, with multiple seafront homes and workspaces destroyed or partially damaged (Ndour et al. 2020). The updrift segment of the Langu de Barbarie, which encompasses the study area, witnessed erosion with an average rate of -4.19 m/year from 2003 to 2016 (Ndour et al. 2018).

Compounding vulnerability, the quarter is one of the most densely populated districts globally, with more than 25,000 inhabitants occupying an area 1 km long and 300 m wide with a density of 1491 inhabitants per hectare (Diop 2020). Any loss of land, therefore, brings major consequences. Further to these land-based threats, artisanal maritime fishers find themselves in a progressively more dangerous occupation. The depletion of local fish stocks and decreasing biodiversity owing to overfishing by foreign trawlers, along with changing oceanic currents and wave intensity, means Guet Ndarians must fish farther afield into deeper, more perilous waters for less catch. The impact of overfishing is



Figure 1. Study area, from Google Earth.

felt throughout the community – fewer and less valuable fish cripple what historically was a profitable trade, the economic engine of the city (Ndour et al. 2014).

For this community, migration is not born of climate change, it is part and parcel of maritime fishing livelihoods. Guet Ndar and the surrounding neighbourhoods have an extensive history of seasonal migration, both to other parts of Senegal and to other countries of West Africa (Seck 2014; Sall and Morand 2008). As in many parts of the world where people depend on natural resources, here, the boundaries between what constitutes economic migration and what constitutes environmental migration are blurred (Afifi 2011). In order to allow fish to reproduce, and therefore to ensure the sustainability of their catch, retired fishers reported moving seasonally from Guet Ndar southward to other areas of Senegal and to other West African countries such as the Gambia, Guinea-Bissau, Guinea-Conakry, Sierra Leone and Liberia during the reproductive season, returning home to fish locally the majority of the year (Zickgraf 2018). As one respondent said, ‘the fish migrate and so must we’.²

The findings I present come from research stays in Saint-Louis since 2014 of four- and six-week durations,³ in which I asked residents who stayed, why they chose not to migrate when so many others were doing so, and what the relationship was between those who go and those who stay. I conducted semi-structured interviews with a maximum variation sampling strategy, as well as interviews with expert and national and local officials ($n = 17$), as well as more informal, moderate participant observation. A total of 51 interviews were conducted with Guet Ndarian men ($n = 39$) and women ($n = 12$), migrants and non-migrants, active and retired people from a variety of fishing-related occupations. Respondents ranged in age from 21 years old to 67 years old.

The community, unlike more touristic areas of the city, is relatively isolated and many consider themselves marginalised by the Senegalese government, and so this last aspect necessitated significant attention to building trusting relationships with individuals and the community. In order to contact potential participants, a local translator (Wolof to French) from Guet Ndar and from a fishing family was invaluable. He and another local contact acted as gatekeepers giving me access to the urban quarter. I then spent time not only conducting interviews but also observing fishing practices, routines, and family life through moderate participant observation within participating homes and in public gathering spaces including the fish market and retired fishermen’s tents.⁴

Findings

Circular labour mobility is not new to Guet Ndarians, but climate change is altering the volume and spatio-temporal dynamics for individuals, households and communities. Therefore, I analyse how climate change impacts have altered historical (im)mobility dynamics, not as they create out-migration from Guet Ndar. Owing to overfishing and climatic impacts on oceanic currents, as well as a number of related economic and political factors, people’s mobilities are changing in terms of duration and destination. The following sections argue that a strict application of categories of migration and non-migration fails to capture the nuance and relationality of (im)mobility dynamics, demonstrating that a mobilities lens may help research tackle climate (im)mobilities, firstly in space, secondly in time, and, finally, across individual, household, and community

scales. Guet Ndarians adapt to the adverse impacts of environmental change using multiple, connected forms of (im)mobility practices that constitute spaces of mobility.

International migration, micro- (im)mobilities

In 2014, all Guet Ndarian participants had local knowledge of their degrading physical environment and livelihoods, even if few attributed these changes to climate change. Men and women struggled to make a living from local fish stocks and dwindling biodiversity. At the same time, they watched their shoreline erode over the years, pushing them into even more cramped living conditions. Nonetheless, several older people said that they preferred to die rather than to leave Guet Ndar. One woman, while acknowledging the communities' vulnerability to sea-level rise and coastal erosion, remarked, 'There are no circumstances in which I would leave. I'm not scared. I know how to swim'.⁵ It is where they were born and where their ancestors were buried. One fisherman pointed out that, even though he did not have the resources to relocate, it was not money that anchored him to his homeland, 'This is the land of my grandparents [...] Even if I had billions. We are very attached to the land, even if we had the means [to leave]'.⁶

Guet Ndarian identity is strong and bound to the land, family, and cultural attachment, but the attachment is also to the sea. Even after the 2008 economic crisis, few moved out of the industry seeking better or more secure livelihoods. When asked why they did not find alternate livelihoods, and why they continued to train their sons to fish rather than to pursue formal education, participants reported that at least in fishing their children would always be able to eat. One older resident noted:

Our grandparents were born here. I was born here. This is a traditional family home. Our whole family is here so we stay. In Guet Ndar, we are all relatives. All of us. And we have nowhere else to go, which adds to our problems, we only have here. We don't have other means either. We don't have other revenue sources to try to find something. Because we only have the sea and the river for our work because we are born here and we only know how to fish.⁷

Dependence on artisanal fishing leaves Guet Ndarians economically vulnerable to the maritime impacts of climate change and industrial overfishing. However, it also offered participants an option to cope with, and even adapt to, these impacts.⁸ Guet Ndarians are amongst the most experienced and knowledgeable maritime fishers in the whole of Africa and used to working throughout West Africa during the Saint-Louisian reproductive season. As local livelihoods become more unsustainable, they increasingly look toward Mauritania, whose border with Senegal is a mere nine kilometres from Saint-Louis. This concentration of movement signals a break from the geographical dispersion of the past along the West African coast.

In contrast to Senegal, the northern neighbour has waters rich in fish but a population poor in experienced fishers versus other agricultural livelihoods. Mauritanian private factories even send envoys to Guet Ndar to recruit fishers offering contracts and fronting costs for new nets, motors, or other equipment. International labour mobility then allows coastal fishing families to diversify their income and face the adverse impacts of climate change and it enables them to remain fishing. Money earned in Mauritania is

then sent back to families in Guet Ndar via informal remittance mechanisms or brought when fishers return home for religious holidays such as Korité and Tabaski.⁹ For poor and wealthy fishers alike, this money is essential for supporting their families. It allows them to decrease reliance on local, natural resources and livelihoods, and secure food, shelter, and other essentials as part of a household strategy (Stark and Bloom 1985).

International labour mobility, in turn, enabled and facilitated *immobility* in two ways. Firstly, the movement of some family members allowed others to stay in Guet Ndar through remittances sent or brought back. Secondly, it facilitated different micro-mobilities to respond to local coastal erosion and overcrowding. Although Guet Ndarians were hesitant to abandon their land in 2014, by 2016 nearly all residents I spoke with recognised that sooner or later the sea ‘will arrive’.¹⁰ Straddling environmental risks and place attachment, remittances sent back, often accumulated over years, financed the construction of homes in other parts of Saint Louis: in Hydrobase, just south of Guet Ndar on the Langue de Barbarie within relative walking distance and much less crowded and the home of the fish market, or to neighbourhoods on the mainland, Sor, a 10-minute drive to the ocean.

For many, these new constructions are considered second homes. Guet Ndar consists of traditional family homes that house multiple generations with up to 30 people living in one place. These ancestral homes are passed down generationally and it is considered vital that they are occupied and cared for. Commonly, a relative or group of relatives stays in the family home, with others occupy the new residence. This, in turn, leads to a new, everyday ‘micro mobility’ within Saint-Louis. For retired fishers, they could visit Guet Ndar as they wished, spend their time socialising with fellow fishers in seaside tents, and return home in the evening. Others slept in the new homes only when storms approached. For active workers, they moved back and forth between Guet Ndar and Hydrobase, where they keep their boats, shops and where the market is located. These short distance moves do not qualify as migration because they occur within the boundaries of Saint-Louis, but they are, nonetheless, a form of mobility responding to environmental change.

Such everyday movements are a product of financial remittances but also of social remittances, or the beliefs, knowledge, values and skills, obtained and transmitted through migration (Levitt 1998). Guet Ndarians are highly attached to place in a cultural sense, where culture and livelihood are indistinguishable, and from a spatial sense. Fishers are used to migrating for work, but they do not have a history of commuting locally. Families are accustomed to their boats and equipment being within view, or at least within reach. When working off the coast of Mauritania, however, migrant fishers had to commute between their (rented) homes or fishermen’s camps to the coast. Employing this practice during periods of migration then shifted their opinions on commuting within Saint-Louis. A community defined by its links to the sea, moving away from the ocean, storing boats out of sight, and living on the mainland seemed unfathomable to many participants in the past. Moving away, therefore, required an adjustment in both how livelihoods are conceived and how they are enacted through mobility. Financial remittances make local mobilities possible but social remittances make them imaginable.

However, while some build homes away from the encroaching sea thanks to the profits of international labour mobility, it is important to point out that not all are able to do so.

Often, internal movement is seen as less demanding in resources than international movement, and, therefore, the poorest are either immobile or are only able to move short distances. In Guet Ndar, it is quite the opposite. For poorer fishers with failing or aging equipment, factories offer credit for the purchase of nets, motors and the reparation of artisanal ‘pirogues’ – a debt that eventually must be repaid from the profits of catches.^[1] Wealthier Guet Ndarian fishing families, with their own boats and supplies, escape this debt trap and are, therefore, able to earn higher profits more quickly in places like Nouakchott and Noadhibou, and to move back and forth between countries more readily. Therefore, international labour mobility is available to most fishermen, but local, internal relocation is a luxury for the few (Zickgraf 2018).

Temporal (im)mobilities

Migration is typically categorised as temporary or permanent, with the former including circular and seasonal movements (Khoo et al. 2008; Bell and Ward 2000). Seasonal migration is commonly associated with environmental change, particularly among resource-dependent livelihoods, where people may move to urban centres during the agricultural ‘off season’ and return home for planting and harvests, or move to other agricultural areas according to crop seasonality (Antwi-Agyei et al. 2018). By what measure we qualify a temporary or permanent migrant varies according to the source, with some labelling short term or temporary migration as ranging between three months to one year, and permanent as more than one year. Others distinguish by temporal intention: Chen, Katrina, and Mueller (2015) describe temporary migrants as those who leave for short trips and then return to the area of origin and permanent migrants as those who move over longer distances with no intention of return. These categories are mutable, i.e. a temporary move may become permanent and a migrant that intends to move permanently, or has been abroad for more than a year, may in fact return to the point of origin.

Certainly, if judged by intention, permanent international migration among participants’ households was rare. Some had relatives who had moved long-term to other countries such as Spain, but, as Hofmann (2014, 36) points out, ‘moving is hardly ever seen as an absolute, irreversible motion’. Among fishers, traditionally, seasonal migration was the norm, spanning from weeks to a few months. However, owing to maritime changes including overfishing and shifting oceanic currents, labour migration diverged from historical patterns. People reported moving for longer stretches abroad. For some men, this was because they accrued debt with recruiting factories, which they had to pay off before earning profits. For others, monetary gain in Mauritania outweighed the profits they could earn at home, and therefore, they stayed year-round with exceptions for sporadic or holiday visits, when they would stay around one month before leaving again. Even though according to some international definitions, these people were ‘permanent’ migrants, they did not qualify their moves as permanent nor was their intention to ever settle in Mauritania.

Minimal family reunification in Mauritania, and a lack of investment in the destination, is evidence of the ultimate, or intended, return of fishers. It was exceptional to see a wife or child accompany a fisherman abroad. In the case that it did occur, women acted as ‘house mothers’, cooking and cleaning for their husbands and other fishers, and

sometimes engaging in small-scale commerce at local markets. No respondents reported owning homes or land in Mauritania. Thus, their remittances went towards supporting their families in Guet Ndar and investing in land and homes in Saint-Louis to 'prepare their return'.¹¹ The focus of labour mobility was not to escape Senegal but to help them cope with environmental changes 'back home'. As one participant remarked, 'It's better there [Mauritania]. It's better than to stay here because when you are there you can fix the problems here. But when you are here you can't fix anything'.¹²

When I asked fishers why, considering the economic opportunities elsewhere and the economic, demographic, and environmental challenges they faced in Guet Ndar, they did not move permanently to Mauritania, respondents were often puzzled by the question (if they did not laugh outright). When asked if he had considered moving to Mauritania, considering the amount of time spent there each year, one person emphatically stated, 'No, no, categorically no. [...] There is just for work!'¹³ Moreover, they were, many exclaimed, Guet Ndarians. They had no intention of leaving their land, cultures, or communities, nor a desire to do so.¹⁴ Migration was temporary, their identities were permanent.¹⁵ In framing the migration decision as one of the aspirations to migrate or to stay, we, therefore, might miss the aspiration to return.

Yet, not all fishers moved for long periods of time. In fact, it is common practice to cross the Senegalese-Mauritania maritime border for a few weeks, a few days, and even for a few hours at night to fish in more populated waters and return home with the catch. The preferred mobility pathway is in fact to obtain one of 400 licences granted to Senegalese artisanal vessels each year, who after a period of 15 days fishing for Mauritania are allowed to bring back their catch to sell in Senegal.¹⁶ These licences, however, are hard to come by, especially considering the high demand and boom in the number of Senegalese and other West African *pirogues* in recent decades (Sall and Morand 2008). Moreover, Mauritania over the years has, at times, revoked or failed to renew the bilateral agreement (Zickgraf 2019).

In some instances, fishermen who were unable to obtain one of the licences crossed into Mauritanian waters and brought fish back to Guet Ndar illegally. This circular mobility, however, is a dangerous one, especially considering the history of conflict between the two countries (Parker 1991). Even fishermen granted licences reported racism, abuse and corruption during their encounters with the Mauritanian coast guard, but those caught without licences reported being beaten, jailed, heavily fined and having their materials or catch confiscated. These abuses caused some fishermen to stay in Guet Ndar, preferring to cut their household expenditures including food for their families rather than to risk their safety and face hostility in Mauritania.

These movements are difficult to qualify from a spatial or temporal migration perspective. Crossing a border for a few hours or even days typically does not qualify as migration. It is a short-distance (albeit international) temporary and circular movement. Moreover, many participants engage in multiple mobility practices. For example, boats returning from Mauritania after months abroad, who then fish nightly just across the border during their time at home, only to again leave for months at a time. Permanent or temporary migration distinctions renders everyday mobilities like these, or the commuting practices described above invisible, where people are neither migrants nor immobile, and therefore points of temporary or permanent migration become moot. Circular migration might be somewhat more apt, inclusive of commuting between Guet

Ndar and other parts of the city, or between Senegal and Mauritania, even if it is often a matter of hours or days. These circular labour mobilities echo European mobility schemes within the Schengen area in which it is common practice to work in one country and live in another – which is rarely, if ever, referred to as migration.

Multi-scalar (im)mobilities

Classifying (im)mobilities greatly depends on the unit of analysis and the perspective taken, considering that (im)mobilities are relational and uneven at the community, household and individual levels. Guet Ndar is neither mobile nor immobile. We cannot speak of an entire community on the move in contrast to relocations in which entire villages move together to a new destination. Nor can we speak of a ‘trapped population’, evidenced both by voluntary out-migration and by micro-mobilities that are substantial part of everyday life. Scaling down, most studies examine the environment-migration nexus at the household level, particularly when surveys are conducted or census data employed (van der Geest et al. 2020; Thiede, Gray, and Mueller 2016). These studies distinguish between migrant households, on one hand, and non-migrant households on the other, based on the assumption that the household is a collective migration decision-making unit (Stark and Bloom 1985). Nearly all households in Guet Ndar claimed one, if not several, migrant members (internal or international), making such a distinction of little value.¹⁷ As one participant joked, ‘There [in Mauritania], you’d think no one was left in Senegal’.¹⁸

Not every individual in Guet Ndar migrates though, whether they do not aspire to or do not have the ability to do so (Carling 2002). Demographic and social variables including gender, socio-economic status, and livelihood, all impacted individual (im)mobility dynamics. Age, too, affected the likelihood to migrate. Young children stayed in Guet Ndar with their mothers and elderly relatives until boys began to fish anywhere from 11 to 14 locally or internationally.¹⁹ One older woman noted, ‘Because here the children are obliged to leave it’s up to the old to stay’.²⁰ But (im)mobility is dynamic: among the older participants in this study, retired fishermen all reported having embarked on international seasonal or circular migration at some point in their career.

Women migrated much less frequently than men out of Saint Louis. They were immobile owing to their roles as mothers, wives and daughters, responsible for household management and care responsibilities, but it was also common for women to cite their occupations as constraining their migration opportunities. Guet Ndarian women are active in the fishing sector, primarily as ‘transformatrices’ (the women who process fish by salting, curing or smoking) and as ‘mareyeuses’ (fish vendors in the local market). In contrast to their fishermen counterparts, many did not see migration as a viable option to improve their livelihoods.²¹ Unlike a boat, their equipment and professional networks were rooted in Guet Ndar, difficult to relocate, which left them more exposed to local impacts of climate change and less able to move away. Many Guet Ndarian women worked in cramped and increasingly dangerous conditions with dwindling income as land and fish grew scarcer. Similarly, the (im)mobility of livelihoods presented challenges for carpenters, boat painters and others implicated in the fishing industry.

Such non-migrants did not enact ‘migration as adaptation’ at the individual level but being immobile relative to migrants does not preclude engagement in *spaces of mobility*.

These spaces stretch across (and yet are also defined by) geopolitical boundaries and are embedded in coupled social and ecological systems. Senegalese women, children, the elderly and men who ‘stay behind’ are receivers of social and financial remittances that help them, too, to cope with, and adapt to, environmental change, even if they do not migrate themselves. One woman, whose husband sent money home from Mauritania remarked, ‘That’s how we live. [...] You can buy milk, sugar ... All that you couldn’t do if [the men] stayed here’.²² Indeed, many participants considered fishing and cross-border mobility to be family ventures more than individual enterprises. Pirogue teams were typically staffed by relatives and the proprietors of fishing boats were often returned, retired fishers or non-migrant family members managing and profiting from international labour mobility from Saint-Louis.

A lack of migration, moreover, did not mean individuals were immobile. Non-migrant respondents, including those who never stepped foot outside of Senegal, too, exercised micro-mobilities when they move to and through other parts of Saint-Louis. The return home of retired fishers signalled the end of migration, but it did not signal the end of their mobility through and around Saint-Louis, such as the commuting described above. In some cases, women’s everyday mobilities made up for shortfalls in household income and insufficient remittances. For instance, some Guet Ndarian women travel to disembarkation points daily in hopes of being given fish from relatives or friends to sell to make ends meet or to bring home to feed their families (Figure 2). As one woman explained:

Because the women are always there, at home, so they have to deal with the [family’s] needs. The men give you what they have, and if it’s not enough, it’s you who must complete it. And sometimes, if there’s nothing, then it’s you who has to get by.²³

Spaces of mobility, therefore, are not singularly formed by migration, but rather by a host of practices that connect individuals, households and communities. It is also important to



Figure 2. Women arrive to collect fish from disembarking boats at Hydrobase market, photo by the author.

note that practices of material exchange, visits and communication allowed migrant respondents to feel connected to their families and community back home, keeping them moored in Guet Ndar even while on the move (Hannam, Sheller, and Urry 2006).

Applying a mobilities lens rather than a migration one is thus particularly powerful when combined with translocal and transnational approaches (Faist 2000), for example by employing a translocal social resilience framework (Sakdapolrak et al. 2016; Peth, Sterly, and Sakdapolrak 2018). Building on concepts of social resilience (Adger 2000; Obrist, Pfeiffer, and Henly 2010), Peth and Sakdapolrak (2020) define translocal social resilience as the capability of social entities (e.g. communities, households or networks) and their components (e.g. migrants and non-migrants) to deal with shocks and stress or to make use of opportunities to maintain or increase their well-being. With its emphasis on linkages at multiple scales, future research may then see how and to what extent non-migrant and migrant actors use various forms of mobility to respond to environmental change without privileging or burdening the migrant, moving away from 'migrant exceptionalism' (Hui 2016; Zhang 2018).

Conclusion

In many cases, categories like migration and non-migration do help more than they hurt to describe and analyse *migration* dynamics as they respond to and impact environmental change. However, a climate mobilities approach allows scholars to see everyday movement and moorings in space and time that have yet to be adequately explored within the environment-migration nexus. This study contributes to the emergence of a climate mobilities literature by showing that a strict migration lens does not capture many of the complexities of movement, such as everyday micro-mobilities like short-distance (self) relocation, commuting practices or short-term border crossings that co-exist and together constitute spaces of mobility.

The case of this Senegalese fishing community, moreover, demonstrates how mobility and immobility are multi-scalar. Migration is embedded in broader spaces of mobility, formed by migrants and non-migrants through material and immaterial practices that are dynamic and infused with social meaning. We should consider, therefore, (im)mobilities at multiple temporal and geographic scales as they interact. In turn, we can see if and how these are used to proactively or reactively respond to environmental change.

It is not enough, however, to recognise and broaden the spatial and temporal scope of what constitutes mobility and to credit non-migrants' mobility practices as if they are somehow better or more important than immobility practices. Contrary to the common perspective that internal moves act as a stepping stones to international ones, it was rather the inverse in this study. International circular mobility of fishers facilitated local movement within Saint-Louis, allowing participants to adapt to the threats posed by climate change while remaining attached to place. Future research should, therefore, acknowledge the rootedness of people on the move, which equally constitutes and defines their social space and may keep them connected to their places of origin and inform the aspiration to return. Thus, merging climate mobilities studies with translocal social resilience is a promising avenue.

Finally, a climate mobilities lens can help advance scholarship by destabilising hierarchies of mobilities that privilege (and burden) migrants, treat migration as exceptional,

and non-migrants as passive or unworthy subjects. (Im)mobilities are neither fixed nor all-encompassing but are rather relational and uneven – in time, space and agency – and environmental changes are pressuring people, regardless of their migration status, to redirect their (im)mobilities into new constellations.

Notes

1. Additionally, the opening of a breach in 2003 had disastrous effects for rural villages in the southern part of the Langue de Barbarie, with many villages being destroyed.
2. Quotes within this article have been translated either from Wolof to French with the assistance of a translator, and then into English by the author, or directly from French to English by the author.
3. Each stay consisted of two periods for two separate research projects: High-End cLimate Impacts and eXtremes (HELIX, 2013–2017), a European Commission funded FP7 programme and IMMOBILE (2015–2018), a research project financed by the Belgian National Fund for Scientific Research (FNRS). New government interventions since fieldwork have not been considered within the scope of the article.
4. This was valuable in order to engage in interviews and in informal discussions with groups of fishermen, noting their points of agreement and disagreement with each other around the themes of research and I was able to monitor the validity of information gathered in interviews.
5. Transformatrice, 67, Guet Ndar, 30 July 2014.
6. Retired fisherman, 61, Guet Ndar, 30 June 2014.
7. Transformatrice, 67, Guet Ndar, 30 July 2014.
8. Coping is a short-term survival strategy, whereas adaptation is a long-term, planned process of adjustment to climate change.
9. Korité refers to Eid al-Fitr in Wolof. Tabaski refers to Eid al-Adha.
10. Transformatrice, Hydrobase, 31 March 2016.
11. Retired fisherman, 61, Guet Ndar, 30 June 2014.
12. Transformatrice, 67, Guet Ndar, 30 July 2014.
13. Intermediary between fishers and factories, Hydrobase, 17 March 2016.
14. This should also be considered as these aspirations to return are influenced by the harsh treatment Senegalese experience in Mauritania.
15. Identities are dynamic and shift over time and life phases, but respondents did not see their identities as Senegalese – or Guet Ndarian – as mutable.
16. Under the agreement in 2018, Senegalese crews are allowed to capture up to 50,000 tons each year with a maximum of 400 vessels.
17. This must be taken in context because the size of households in Guet Ndar is above average considering that multiple generations and nuclear family units live together.
18. Housewife, 38, Hydrobase, 25 March 2016.
19. Not all boys in Guet Ndar become fishers. Families often select some children to fish and others to pursue formal education.
20. Transformatrice, Hydrobase, 31 March 2016.
21. There were a few reported instances of women migrating with their husbands to Mauritania to either manage large houses of Guet Ndarian migrants or to process fish. One participant was born in Mauritania but moved 'home' as an adolescent. One participant previously engaged in cross-border commerce between Senegal and the Gambia.
22. Housewife, 21, Hydrobase, 26 March 2016.
23. Former entrepreneur, 53, Hydrobase, 21 March 2016.

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References

- Adams, H. 2016. "Why Populations Persist: Mobility, Place Attachment and Climate Change." *Population and Environment* 37 (1): 429–448. doi:10.1007/s11111-015-0246-3.
- Adey, P. 2006. "If Mobility Is Everything Then It Is Nothing: Towards a Relational Politics of (Im)Mobilities." *Mobilities* 1 (1): 75–94. doi:10.1080/17450100500489080.
- Adger, W. N. 2000. "Social and Ecological Resilience: Are They Related?" *Progress in Human Geography* 24 (3): 347–64. doi:10.1191/030913200701540465.
- Afifi, T. 2011. "Economic or Environmental Migration? The Push Factors in Niger." *International Migration* 49 (S1): e95–124. doi:10.1111/j.1468-2435.2010.00644.x.
- Antwi-Agyei, P., A. J. Dougill, L. C. Stringer, and S. N. A. Codjoe. 2018. "Adaptation Opportunities and Maladaptive Outcomes in Climate Vulnerability Hotspots of Northern Ghana." *Climate Risk Management* 19: 83–93. doi:10.1016/j.crm.2017.11.003.
- Barrios, S., L. Bertinelli, and E. Strobl. 2006. "Climatic Change and Rural–Urban Migration: The Case of Sub-Saharan Africa." *Journal of Urban Economics* 60 (3): 357–371. doi:10.1016/j.jue.2006.04.005.
- Bell, M., and G. Ward. 2000. "Comparing Temporary Mobility with Permanent Migration." *Tourism Geographies* 2 (1): 87–107. doi:10.1080/146166800363466.
- Bettini, G. 2013. "Climate Barbarians at the Gate? A Critique of Apocalyptic Narratives on 'Climate Refugees.'" *Risky Natures, Natures of Risk* 45: 63–72. doi:10.1016/j.geoforum.2012.09.009.
- Black, R., and M. Collyer. 2014. "'Trapped' Populations: Limits on Mobility at Times of Crisis." In *Humanitarian Crises and Migration*, edited by S. F. Martin, S. Weerasinghe, and A. Taylor, 287–305. London: Routledge.
- Blondin, S. 2020. "Understanding Involuntary Immobility in the Bartang Valley of Tajikistan Through the Prism of Motility." *Mobilities* 15 (4): 543–558. doi:10.1080/17450101.2020.1746146.
- Boas, I., C. Farbotko, H. Adams, H. Sterly, S. Bush, K. van der Geest, H. Wiegel, et al. 2019. "Climate Migration Myths." *Nature Climate Change* 9 (12): 901–903.
- Boas, I., H. Wiegel, C. Farbotko, J. Warner, and M. Sheller. 2022. "Climate Mobilities: Migration, Im/Mobilities and Mobility Regimes in a Changing Climate." *Journal of Ethnic and Migration Studies*. doi:10.1080/1369183X.2022.2066264.
- Carling, J. 2002. "Migration in the Age of Involuntary Immobility: Theoretical Reflections and Cape Verdean Experiences." *Journal of Ethnic and Migration Studies* 28 (1): 5–42. doi:10.1080/13691830120103912.
- Chen, J., K. Katrina, and V. Mueller. 2015. *Temporary and Permanent Migrant Selection: Theory and Evidence of Ability-Search Cost Dynamics*. IFPRI Discussion Paper. IFPRI: International

- Food Policy Research Institute. <https://www.ifpri.org/publication/temporary-and-permanent-migrant-selection>.
- Delazeri, L. M. M., D. A. Da Cunha, and L. R. Oliveira. 2021. "Climate Change and Rural–Urban Migration in the Brazilian Northeast Region." *GeoJournal*, doi:10.1007/s10708-020-10349-3.
- Dimé, M., C. T. Wade, and L. S. Ehode. 2017 "Les Envois Des Migrants : Un Levier Important Pour Un Développement Résilient Aux Changements Climatiques Dans Les Zones Semi-Arides Du Sénégal." PRESA. <http://www.iedafrique.org/spip.php?action=telecharger&arg=1279>.
- Diop, H. 2020. "Saint Louis Du Sénégal: Les Relations Psychosociales Des Communautés de Pêcheurs Avec La Mer: Le Cas de Guet Ndar - Médiaterre." <https://www.mediaterre.org/actu,20200206170431,5.html>.
- Faist, T. 2000. *The Volume and Dynamics of International Migration and Transnational Social Spaces*. Oxford: Oxford University Press.
- FAO (Food and Agriculture Organization of the United Nations). 2015. *Coastal Fisheries Initiative in Africa*. <https://www.fao.org/in-action/coastal-fisheries-initiative/activities/west-africa/senegal/en/>.
- Farbotko, C. 2018. "Voluntary Immobility: Indigenous Voices in the Pacific." *Forced Migration Review* 57: 81–83.
- Farbotko, C., O. Dun, F. Thornton, K. E. McNamara, and C. McMichael. 2020. "Relocation Planning Must Address Voluntary Immobility." *Nature Climate Change* 10 (8): 702–704. doi:10.1038/s41558-020-0829-6.
- Farbotko, C. 2022. "Anti-Displacement Mobilities and Re-emplacements: Alternative Climate Mobilities in Funafala." *Journal of Ethnic and Migration Studies*. doi:10.1080/1369183X.2022.2066259.
- Foresight. 2011. *Foresight: Migration and Global Environmental Change Final Project Report*. London: The Government Office for Science.
- Gray, C. L., and V. Mueller. 2012. "Natural Disasters and Population Mobility in Bangladesh." *Proceedings of the National Academy of Sciences* 109 (16): 6000–6005. doi:10.1073/pnas.1115944109.
- Hannam, K., M. Sheller, and J. Urry. 2006. "Editorial: Mobilities, Immobilities and Moorings." *Mobilities* 1 (1): 1–22. doi:10.1080/17450100500489189.
- Hess, S. 2012. "De-Naturalising Transit Migration. Theory and Methods of an Ethnographic Regime Analysis." *Population, Space and Place* 18 (4): 428–440. doi:10.1002/psp.632.
- Hofmann, R. 2014. "The Cultural Space of Climate Change, Adaptation, and Mobility in the Pacific Islands." In *Denaturalizing Climate Change: Migration, Mobilities and Space*, edited by Friederike Gesing, Johannes Herbeck and Silja Klepp, 34–43. Bremen: University of Bremen.
- Hui, A. 2016. "The Boundaries of Interdisciplinary Fields: Temporalities Shaping the Past and Future of Dialogue Between Migration and Mobilities Research." *Mobilities* 11 (1): 66–82. doi:10.1080/17450101.2015.1097033.
- Hummel, D. 2015. "Climate Change, Land Degradation and Migration in Mali and Senegal – Some Policy Implications." *Migration and Development* 5: 1–23. doi:10.1080/21632324.2015.1022972.
- Ionesco, D., D. Mokhnacheva, and F. Gemenne. 2016. *The Atlas of Environmental Migration*. London: Taylor & Francis.
- IPCC. 2014. *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*, edited by V. R. Barros, C. B. Field, D. J. Dokken, M. D. Mastrandrea, K. J. Mach, T. E. Bilir, M. Chatterjee, K. L. Ebi, Y. O. Estrada, R. C. Genova, B. Girma, E. S. Kissel, A. N. Levy, S. MacCracken, P. R. Mastrandrea, and L. L. White. Cambridge: Cambridge University Press.
- Ishtiaque, A., and N. Nazem. 2016. "Household-Level Disaster-Induced Losses and Rural–Urban Migration: Experience from World's One of the Most Disaster-Affected Countries." *Natural Hazards* 86: 315–316. doi:10.1007/s11069-016-2690-5.
- Jónsson, G. 2011. *Non-Migrant, Sedentary, Immobile, or 'Left Behind'? Reflections on the Absence of Migration*. Working Paper 39, The International Migration Institute (IMI), Oxford Department of International Development.
- Khoo, S.-E., G. Hugo, and P. McDonald. 2008. "Which Skilled Temporary Migrants Become Permanent Residents and Why?" *International Migration Review* 42 (1): 193–226. doi:10.1111/j.1747-7379.2007.00118.x.

- Lazcko, F., and C. Aghazarm, eds. 2009. *Migration, Environment and Climate Change: Assessing the Evidence. Environmental Migration Portal*. Geneva: International Organization for Migration.
- Levitt, Peggy. 1998. "Social Remittances: Migration Driven Local-Level Forms of Cultural Diffusion." *International Migration Review* 32 (4): 926–948.
- Logan, John R., Sukriti Issar, and Zengwang Xu. 2016. "Trapped in Place? Segmented Resilience to Hurricanes in the Gulf Coast, 1970–2005." *Demography* 53 (5): 1511–1534. doi:10.1007/s13524-016-0496-4.
- Lubkemann, S. C. 2008. "Involuntary Immobility: On a Theoretical Invisibility in Forced Migration Studies." *Journal of Refugee Studies* 21 (4): 454–475. doi:10.1093/jrs/fen043.
- Mallick, B., and J. Schanze. 2020. "Trapped or Voluntary? Non-Migration Despite Climate Risks." *Sustainability* 12 (11): 4718. doi:10.3390/su12114718.
- Molland, S. 2018. "Sedentary Optics: Static Anti-trafficking and Mobile Victims." *Current Anthropology* 59 (2): 115–137. doi:10.1086/697199.
- Nawrotzki, R. J., and J. DeWaard. 2018. "Putting Trapped Populations Into Place: Climate Change and Inter-District Migration Flows in Zambia." *Regional Environmental Change* 18 (2): 533–546. doi:10.1007/s10113-017-1224-3.
- Ndour, A., K. Ba, A. Almar, P. Almeida, M. Sall, P. M. Diedhiou, F. Floc'h, et al. 2020. "On the Natural and Anthropogenic Drivers of the Senegalese (West Africa) Low Coast Evolution: Saint Louis Beach 2016 COASTVAR Experiment and 3D Modeling of Short Term Coastal Protection Measures." *Journal of Coastal Research* 95: 583–587. doi:10.2112/SI95-114.1.
- Ndour, A., R. A. Laïbi, M. Sadio, C. G. E. Degbe, A. T. Diaw, L. M. Oyédé, E. J. Anthony, P. Dussouillez, H. Sambou, and E. H. B. Dièye. 2018. "Management Strategies for Coastal Erosion Problems in West Africa: Analysis, Issues, and Constraints Drawn from the Examples of Senegal and Benin." *Ocean & Coastal Management* 156: 92–106. doi:10.1016/j.ocecoaman.2017.09.001.
- Ndour, I., F. Le Loc'h, J. Kantoussan, M. Thiaw, H. D. Diadhiou, J. M. Ecoutin, L. Tito de Morais, and O. T. Thiaw. 2014. "Changes in the Trophic Structure, Abundance and Species Diversity of Exploited Fish Assemblages in the Artisanal Fisheries of the Northern Coast, Senegal, West Africa." *African Journal of Marine Science* 36(3): 361–368. doi:10.2989/1814232X.2014.950696.
- Obrist, B., C. Pfeiffer, and R. Henly. 2010. "Multi-Layered Social Resilience: A New Approach in Mitigation Research." *Progress in Development Studies* 10 (4): 283–293. doi:10.1177/146499340901000402.
- Parker, R. 1991. "The Senegal-Mauritania Conflict of 1989: A Fragile Equilibrium." *The Journal of Modern African Studies* 29 (1): 155–71.
- Peth, S. A., and P. Sakdapolrak. 2020. "Resilient Family Meshwork. Thai–German Migrations, Translocal Ties, and Their Impact on Social Resilience." *Geoforum: Journal of Physical, Human, and Regional Geosciences* 114: 19–29. doi:10.1016/j.geoforum.2020.05.019.
- Peth, S. A., H. Sterly, and P. Sakdapolrak. 2018. "Between the Village and the Global City: The Production and Decay of Translocal Spaces of Thai Migrant Workers in Singapore." *Mobilities* 13 (4): 455–472. doi:10.1080/17450101.2018.1449785.
- de Campos, S. R., M. Bell, and E. Charles-Edwards. 2017. "Collecting and Analysing Data on Climate-Related Local Mobility: The MISTIC Toolkit." *Population, Space and Place* 23 (6): e2037. doi:10.1002/psp.2037.
- Sakdapolrak, P., S. Naruchaikusol, K. Ober, S. Peth, L. Porst, T. Rockenbauch, and V. Tolo. 2016. "Migration in a Changing Climate. Towards a Translocal Social Resilience Approach." *DIE ERDE – Journal of the Geographical Society of Berlin* 147 (2): 81–94. doi:10.1285/erde-147-6.
- Salem, M.-C. C. 2013. "L'aménagement Du Littoral: Un Enjeu Crucial Pour Les Pêcheries Artisanales." *Artisans de La Mer: Une Histoire de La Pêche Maritime Sénégalaise*, 136–45.
- Sall, A., and P. Morand. 2008. "Pêche Artisanale et Émigration Des Jeunes Africains Par Voie Piroguière." *Politique Africaine* 109 (1): 32–41.
- Schapendonk, J., M. Bolay, and J. Dahinden. 2020. "The Conceptual Limits of the 'Migration Journey'. De-Exceptionalising Mobility in the Context of West African Trajectories." *Journal of Ethnic and Migration Studies* 47 (14): 3243–3259. doi:10.1080/1369183X.2020.1804191.

- Schewel, K. 2019. "Understanding Immobility: Moving Beyond the Mobility Bias in Migration Studies." *International Migration Review* 52 (4): 328–355. doi:[10.1177/0197918319831952](https://doi.org/10.1177/0197918319831952).
- Seck, Aichetou. 2014. *Les Pêcheurs Migrants de Guet-Ndar (Saint-Louis Du Sénégal): Analyse d'une Territorialité Diverse Entre Espaces de Conflits et Espaces de Gestion*. Liège: University of Liège. <https://orbi.uliege.be/handle/2268/182421>.
- Sheller, M., and J. Urry. 2006. "The New Mobilities Paradigm." *Environment and Planning A* 38 (2): 207–226.
- Stark, O., and D. E. Bloom. 1985. "The New Economics of Labor Migration." *The American Economic Review* 75 (2): 173–178.
- Suliman, S., C. Farbotko, H. Ransan-Cooper, K. E. McNamara, F. Thornton, C. McMichael, and T. Kitara. 2019. "Indigenous (Im)Mobilities in the Anthropocene." *Mobilities* 14 (3): 298–318. doi:[10.1080/17450101.2019.1601828](https://doi.org/10.1080/17450101.2019.1601828).
- Sow, P., S. Adaawen, and J. Scheffran. 2014. "Migration, Social Demands and Environmental Change amongst the Frafra of Northern Ghana and the Biali in Northern Benin." *Sustainability* 6 (1): 375.
- Tacoli, C. 2011. *Not Only Climate Change: Mobility, Vulnerability and Socio-Economic Transformations in Environmentally Fragile Areas in Bolivia, Senegal and Tanzania*. Vol. 28. Rural-Urban Interactions and Livelihood Strategies. IIED Human settlements Working Paper Series.
- Thiede, B., C. Gray, and V. Mueller. 2016. "Climate Variability and Inter-Provincial Migration in South America, 1970–2011." *Global Environmental Change* 41: 228–40. doi:[10.1016/j.gloenvcha.2016.10.005](https://doi.org/10.1016/j.gloenvcha.2016.10.005).
- Urry, J. 2007. *Mobilities*. Cambridge: Polity Press.
- van der Geest, K., M. Burkett, J. Fitzpatrick, and M. Stege. 2020. "Climate Change, Ecosystem Services and Migration in the Marshall Islands: Are They Related?" *Climatic Change*. doi:[10.1007/s10584-019-02648-7](https://doi.org/10.1007/s10584-019-02648-7).
- Van der Land, V., and D. Hummel. 2013. "Vulnerability and the Role of Education in Environmentally Induced Migration in Mali and Senegal." *Ecology and Society* 18 (4): 14. doi:[10.5751/ES-05830-180414](https://doi.org/10.5751/ES-05830-180414).
- Vigil, S. 2019. "Geopolitical Ecologies of Environmental Change, Land Grabbing and Migration. Comparative Perspectives from Senegal and Cambodia." Doctoral dissertation. Liège: University of Liège.
- Zhang, V. 2018. "Im/Mobilising the Migration Decision." *Environment and Planning D: Society and Space* 36 (2): 199–216. doi:[10.1177/0263775817743972](https://doi.org/10.1177/0263775817743972).
- Zickgraf, C. 2018. "'The Fish Migrate And So Must We': The Relationship Between International And Internal Environmental Mobility In A Senegalese Fishing Community." *Medzinarodne Vzťahy (Journal of International Relations)* 16 (1): 5–21.
- Zickgraf, C. 2019. "Keeping People in Place: Political Factors of (Im)Mobility and Climate Change." *Social Sciences* 8 (8): 228. doi:[10.3390/socsci8080228](https://doi.org/10.3390/socsci8080228).
- Zickgraf, C. 2021. "Climate Change, Slow Onset Events and Human Mobility: Reviewing the Evidence." *Current Opinion in Environmental Sustainability* 50: 21–30. doi:[10.1016/j.cosust.2020.11.007](https://doi.org/10.1016/j.cosust.2020.11.007).