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# Adaptation as by-product: migration and environmental change in Nguith, Senegal

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## Abstract

*In the debate about the nexus between environmental change, climate and migration much attention has been given to a changing climate as a push factor for migration. A more recent strand of academic work focuses on migration as a means to enhance adaptation capacities and resilience. This article questions these intentional attributions and starts from the observation that migration is occurring regardless of environmental or climatic change and connects people and places through shared social and cultural identities and the flow of ideas and resources. Drawing on a case study of Nguith, a village in the Senegalese Sahel with a long and complex migration history, it is shown how migration and material and non-material remittances have led (in a way accidentally) to an increased independence from local agro-ecological conditions. Therefore, we investigate the social, cultural and historical background of the people of Nguith with regard to their mobility and trace the continents-traversing migration network and connected translocal spaces. Finally, we explain the cohesive forces of this community that perpetuate and reinforce migration and show the effects of migration on everyday life, economic development in the village and resulting land-use change.*

## Zusammenfassung

In der Debatte über den Zusammenhang zwischen Umweltveränderungen, Klima und Migration haben bisher Klimaveränderungen als sogenannte Pushfaktoren für Migration besondere Aufmerksamkeit erhalten. Aktuellere akademische Auseinandersetzungen mit dem Thema betrachten Migration vornehmlich als ein Mittel zur Verstärkung von Anpassung und Resilienz. Dieser Artikel hinterfragt verallgemeinernde Annahmen solcher Intentionen und geht von der Beobachtung aus, dass Wanderungen auch ungeachtet von Klima- und Umweltveränderungen in Erscheinung treten und Menschen und Orte durch gemeinsame soziale und kulturelle Identitäten sowie durch den Austausch von Vorstellungen und Ressourcen miteinander verbinden. Anhand der Fallstudie von Nguith, einem Dorf im senegalesischen Sahel mit einer langen und komplexen Migrationsgeschichte, wird gezeigt, wie der Austausch materieller und nicht-materieller Ressourcen (in gewisser Weise unbeabsichtigt) zu einer erhöhten Unabhängigkeit von lokalen agro-ökologischen Bedingungen führte. Deshalb untersuchen wir den sozialen, kulturellen und historischen Hintergrund der Gemeinschaft von Nguith hinsichtlich ihrer Mobilität und verfolgen das über mehrere Kontinente gespannte Migrationsnetzwerk und die dadurch verbundenen translokalen Räume. Schließlich erläutern wir die zusammenhaltenden Kräfte dieser Gemeinschaft, welche Migration aufrechterhalten und verstärken und zeigen die Auswirkungen der Migration auf das alltägliche Leben, die wirtschaftliche Entwicklung im Dorf und den damit einhergehenden Landnutzungswandel.

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## 1. Introduction

When we discussed the future of Nguith with *Ibrahima*, the imam of this small village in the Senegalese Sahel, he told us: “You know, if a village has everything I mentioned, that is, electricity, running water, communications, a primary school, a college and, above all, organised people, it can usually go nowhere other than forward. We have a bright future if we are united as we always were.”

Is a bright future possible for one of those countless villages in a region that is usually associated with droughts, desertification and resulting rural exodus? Nguith differs from other villages in the sense that livelihoods seem to be somewhat independent of the unfavourable agro-ecological conditions in this part of the Senegalese Sahel. And migration is the key to understand this difference. The case of Nguith may let others conclude that migration is a promising way of adapting to climate and environmental risks (*McLeman and Smit 2006*) or may hint at migration-based social resilience (*Sakdapolrak 2014*). Such views are quite progressive and much more nuanced than much of the simplistic representations of environment and migration linkages in the literature that was reviewed and challenged by several authors (*Black 2001; Castles 2002; Jónsson 2010; Lonergan 1998; Morrissey 2009, 2012*). Nevertheless, we argue that a focus on adaptation and resilience to environmental and climate stress still clings to a simplified causal understanding that perhaps hides more than it can reveal.

From an uncompromising stance and a refreshing perspective, *Colum Nicholson (2014)* identified banality, arbitrariness, ontological contradiction, equivocation, the laundering of categories and tautology as pervasive tendencies within the debate. He stated that the research on the relationship between environmental/climate change and migration “is a field that has political currency despite the absence of coherence, and in which a lot is being written without anything definitive being said. As a consequence, while often well-meaning, the discussion remains largely meaningless” (*Nicholson 2014: 152*).

The objective of this paper therefore is not to add another post-structuralist or post-positivist argument to the convoluted debate but to challenge the simplified representation of causal relationships. This is

done by taking a step back and looking at what is really going on at one of the places that are represented as hot spots of climate and environmental change-induced migration in the West African Sahel. Moreover, we argue for an understanding of contemporary migration in the case of Nguith by placing it in the historical context of Senegalese population movements that is briefly sketched in the following.

Until the early 1970s, Senegal, with its political stability and its enormous demand for labour for groundnut production, represented an attractive migration pole within West Africa. However, affected by the economic downturn, aggravated by the great Sahel droughts of the 1970s and 1980s, Senegal gradually turned into a country of net emigration (*Bakewell and de Haas 2007*). For a long time most international migration from Senegal was directed towards West African destinations and neighbouring countries in particular. Census information show that in terms of migrants stocks, about 51 % of Senegalese migrants live in West African countries, such as Gambia and Côte d’Ivoire, and 40 % in Europe (*World Bank 2010*). Owing to colonial dominance and respective historical linkages, France developed early into the most important European destination for Senegalese migrants. Within Senegal, the Senegalese migrant in France became a distinctive symbol of success and social advancement for a society characterized by a predominantly young population with limited income perspectives. Senegalese migrants’ investments and remittances exceed the country’s entire Official Development Assistance (ODA) (*Diané 2009*). When immigration policies became increasingly restrictive from the 1980s onwards, historically established migration patterns were re-structured. France became less attractive, whereas Italy and Spain, as well as the US and Canada, have recorded an important gain in immigrants from Senegal since the 2000s (*DPS 2004; Fall et al. 2010*). Since the international financial crisis which started in 2008, even though Italy and Spain have become less lucrative, almost 50 % of all Senegalese emigrants are to be found in these two countries, whereas merely 12 % chose France as their destination<sup>1</sup> (*World Bank 2011*). Population movements within Senegal are still mainly directed towards the urban centres along the coast and the former groundnut basin, resulting in a negative migration balance in the interior regions. The densely populated capital Dakar and nearby re-

gions of Thiés and Diourbel hence represent both the major destinations and also the origins of internal migration (ANSD 2008), hinting at a considerable degree of circular movements within Senegal, and among these latter regions in particular.

In view of this background information, contemporary migration within and from Senegal must be regarded a historically well-established economic and social practice along existing migration networks. Therefore, in our case study we analyse migration not as something overcharged with intentional attributions in regard to environmental and climatic changes but equally allow for its multiple dimensions. We document one development path shaped by migration that we consider an ordinary phenomenon and that connects people and places through shared social and cultural bonds, and the flow of knowledge and resources. Thus, we are not primarily interested in another case study of the potential effects of a changing environment or a changing climate on the mobility of people. Instead, we contextualize interrelations between agro-ecological conditions, migration and land-use change by providing vital social, cultural and historical information about a concrete place and, finally, draw out some conceptual conclusions.

The paper therefore has the following structure: It starts with an introduction to our theoretical approach. The chapter 'study area and research design' presents our methodological approach and briefly describes the research context of the village of Nguith. Afterwards, we present the results structured according to the social and cultural background of the investigated community, their migration history and contemporary migration network describing directions of movements and the choice of destinations, before we analyse the effects of the flow of ideas and resources between the interlinked translocal spaces and Nguith and how they contribute to the economic and infrastructural development in the village and to the specific land-use change in its proximity. The paper then discusses and positions interrelations between agro-ecological conditions and the mobility of the translocal community with regard to the historical context and the cohesive forces of this community. We conclude by speculating about the importance attributed to hot spots of environmental change for contemporary migration in the light of the complexity of this social phenomenon as presented. Finally, we carefully position these findings within the erratic debate about the nexus between environmental change, climate and migration.

## 2. Theoretical approach

To date no separate theoretical approach exists that combines the environmental dimension and human migration. Theoretical-conceptual approaches applied in most empirical studies concerned with climate, environment and migration can basically be classified into two types (Jónsson 2010; Suhrke 1994): 1) a simplistic push-pull framework (maximalist view) analogous to neoclassical assumptions in migration theory with regard to economic-spatial differences, i.e. population movements are unidirectional and driven by individual rational thinking to migrate from a deteriorating environment to an area where better environmental conditions prevail; 2) the environment is regarded as a contextual factor and the complexity, multicausality and multidimensionality of migration is highlighted (minimalist view). Even though most recent studies can hardly be assigned to the extreme maximalist category, and multicausality and complexity of migration is widely acknowledged by the authors (Jónsson 2010), the respective investigations are still centred around causal linkages between climatic and environmental conditions and population movements in the first place. However, this effort becomes useless without explaining the characteristics of such a causal relationship and distinguishing it from the various other aspects of contemporary migration (Nicholson 2014). In order to meet the complexity and multifacetedness of this phenomenon we address the social, cultural and historical dimensions as well as the reciprocity of migration and environmental change. Moreover, instead of focusing on so-called root causes of migration we are interested in those aspects that shape, perpetuate and reinforce migration.

It is thus useful that researchers concerned with population movements in contexts of challenging climatic and environmental conditions also make use of the diverse approaches that migration theory offers (Doevenspeck 2011). In this case study, a number of selected theoretical-conceptual approaches such as 'cumulative causation theory' (Massey 1990; Massey et al. 1993; Myrdal 1957), 'migration system theory' (de Haas 2008; Mabogunje 1970), 'transnationalism' (Pries 2001), 'network approaches' (Faist 1997, 2000), the 'concept of social capital' (Massey and Espinosa 1997; Portes and Sensenbrenner 1993), the 'life course approach' (Elder Jr. 1994; Kulu and Milewski 2007; Wingers et al. 2011) and the 'biographical approach' (Apitzsch and Siouti 2007; Philipper 1997; Rosenthal 1999) mainly informed the research perspective and methodology applied.

Definitions of migration that characterize it as a specific type of movement across borders implying a change of residence for a specific period of time are useful for political and administrative purposes. However, such a terminological determination implies conceptual and analytical shortcomings and may not make a scientific contribution to understanding the diversity of phenomena and the processuality involved in contemporary human mobility (Standing 1984). Therefore, in the present case study we do not draw a distinction between migration and human mobility and follow the broad understanding of the International Organization for Migration who refers to migration as the “movement of a person or a group of persons, either across an international border, or within a State. It is a population movement, encompassing any kind of movement of people, whatever its length, composition and causes; it includes migration of refugees, displaced persons, economic migrants, and persons moving for other purposes, including family reunification” (IOM 2004: 41). Nevertheless, where it is appropriate we present an additional classification of migration.

### 3. Study area and research design

The selection of the study area and the village of Nguith was guided by the idea of ecological inference (Piguet 2010). We aimed at selecting places that show both noticeable trends of vegetation and land-use change, and of outmigration. The semi-arid Sahel-

Sudan region is characterized by remarkable rainfall variability and phenomena of land degradation commonly assumed to significantly trigger migration. Moreover, migration figures depict West Africa as the continent’s region with the most mobile population (Bakewell and de Haas 2007).

This high mobility can be exemplified by the people originating from the village of Nguith. The community of the Nguithois (as the people identify themselves) comprises those born in the village as well as people who were born elsewhere but refer to Nguith as their origin. According to interview statements, the Nguith community shows a distinctly higher proportion of international migrants compared to surrounding villages. Interviewed Nguithois affirmed that each village household has at least one member abroad.

Nguith is located in the predominantly rural region of Louga at a distance of 300 km from Dakar. The city of Linguère, four kilometres west of the village, is the administrative capital of the same-named province. The semi-arid region is also called the Ferlo and is mainly inhabited by two ethno-linguistic groups, the Wolof and the Fulani. However, even until today, the region’s inhabitants refer to their homeland as the Diolof. Until the late 19<sup>th</sup> century this was the name of one of the Wolof kingdoms whose royal residence used to be situated close to the town of Linguère.

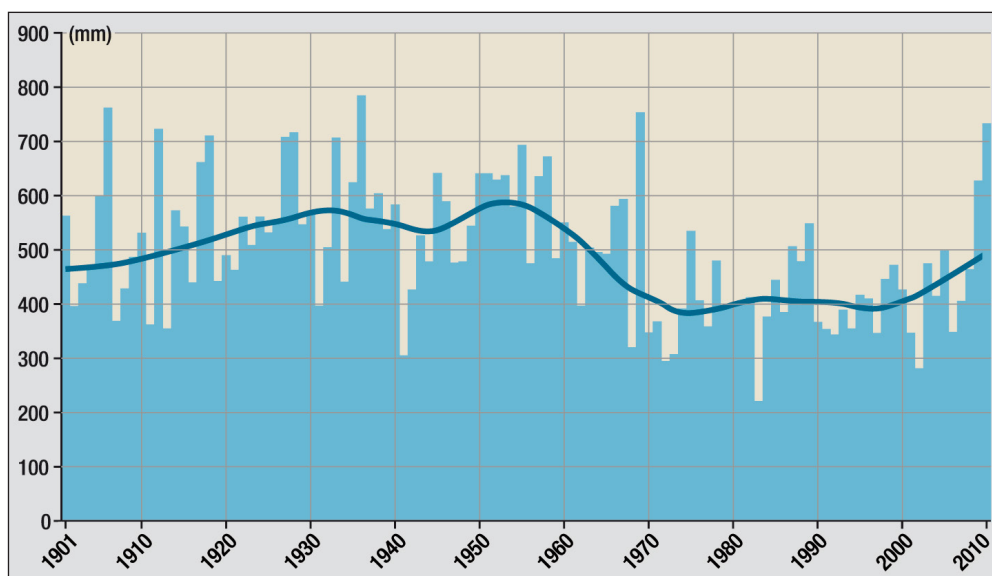


Fig. 1 Mean annual precipitation in Linguère (1901-2010). Source: GPCP (Global Precipitation Climatology Centre) 2012, data after Schneider et al. 2014. Draft: M. Brandt, graphics: M. Wegener, 2016

The agro-silvo-pastoral region constitutes a vast grazing land and Fulani pastoralists control important livestock herds. The region is characterized by an open tree and shrub savannah, annual herbaceous vegetation and the abundance of spiny trees. The predominantly sandy soils are suitable for rain-fed agriculture when regular crop rotation is applied. During the rain-laden 1950s and 1960s the area around Linguère made groundnut cultivation a very profitable business. During this period, original bush and woody vegetation was cleared to expand cropping areas, particularly in the proximity of Linguère. However, the severe droughts in the 1970s and '80s, and the subsequent dry period, made the cultivation of demanding crops such as groundnut extremely risky and resulted in a significant drop in production. Nevertheless, until today the overall area in the wider region used for rain-fed agriculture has still increased compared to the 1960s (Tappan et al. 2004). Nowadays, fields are sparsely scattered over the study region but concentrate around Linguère. Although annual rainfall increased again in the 2000s, the intra- and interannual variability remains considerable (Fig. 1) and only modest crops such as millet can be cultivated without high risk (Brandt et al. 2014b).

Our methodological approach was mainly based on ethnographic research which encompassed participatory observations as well as narrative and semi-structured interviews with individuals and groups of people (Collinson 2009; Iosifides 2011) and focussed on village history, migration patterns, migrant biographies and migrant networks. In a multi-sited approach, altogether 60 qualitative interviews were conducted between 2011 and 2015 among members of the community in the village of Nguith and in multiple places constituting its migration network such as Dakar and Saly (Senegal), Marbella (Spain) and Nice (France). The choice of informants in Nguith was arbitrary (non-random) and mainly targeted persons with migration experience, village elders and farmers. Snowballing enabled to establish contacts with community members outside of Nguith by telephone and via the internet.

Based on interview and remote sensing data, we analysed land-use change, phenomena of vegetation change and degradation as indicators of the interaction between prevailing agro-ecological conditions and the economic activities of the local population. The latter, again, are very much influenced by the engagement of migrants and their contributions of financial means, experience and expertise. We take the chang-

ing area of land occupied for rain-fed agriculture as a measure of people's engagement in farming and thus as one measure of their direct economic (in)dependence regarding local agro-ecological conditions and the amount and timing of rainfall, in particular.

To assess land-use and vegetation change, two satellite images were compared. A RapidEye scene from December 2010 represents the current time period, whereas a Corona scene from December 1965 stands for the pre-drought period, a time of expansion of settlements and cultivated land in the Sahel. Cultivated fields were mapped by a manual land-use classification with the help of photographs and knowledge of the terrain. Only currently cultivated and harvested land in 1965 and 2010 was mapped, and fallow fields were excluded. Fully harvested fields, leaving only bare sand in December, appear as a much brighter colour in both Corona and RapidEye imageries than surrounding grassland and fallow land covered by decaying herbaceous vegetation (see Fig. 3).

## 4. Results

### 4.1. Social and cultural foundations of contemporary mobility

Particular cohesion and solidarity characterize the migration network originating from the village of Nguith and constantly contribute to its perpetuation and expansion. This solidarity is mainly based on direct family relations and consecutive intra-family marriages on the one hand, and their affiliation to and identification with the Tijaniyyah brotherhood, a Sufi Order within Sunni Islam, on the other hand.

The Nguithois trace back their village history to two brothers originating from the Fouta Tooro region in Senegal who founded the village; one was a craftsman, the other a scholar of the Koran. In line with the foundation history, today the Coundoul family appoints the village chief whereas the marabout, the local Islamic leader and teacher, is always a member of the Gadjji family.

Considering the division of the traditional Wolof society into different endogamous groups (cf. O'Brien 1971), the ancestors of the village community of Nguith used to belong to the distinct occupational group of artisans (*ñeeño* in Wolof) such as blacksmiths or leather and wood workers. The affiliation to this endogamous group determined people's social rank and their inher-

ited professional metier of craftwork. For generations, the craftsmen of Nguith specialized in basket making, which enabled them to generate additional income in Senegal's cities during the dry season, independent of prevailing climatic conditions (*Photo 1*). However, the Nguithois always pursued agricultural activities in the rainy season such as the rain-fed cultivation of millet. Even though their handicrafts, knowledge and skills were highly appreciated, the Wolof society had an ambivalent relationship with the *ñeeño*. Owing to their specific occupations and social functions in the Wolof society they were associated with impurity, which entailed specific taboos. The Wolof strictly avoided mixed marriages with, or residence among, them (*Boulègue 1987*), a fact that contributed to a certain isolation of the village community in the past and the development of a stronger solidarity among its members. In the Wolof society, the practice of identifying and differentiating people along endogamous groups resisted the impacts of Islam, independence and modernization and is preserved to a certain extent by myths and legends until today (*Diouf 2001*). The valuation of inherited affiliation and kinship continues to influence a great part of social life. Even though the former hereditary group-specific occupational specialization no longer necessarily determines people's economic activities or social reputation, respective endogamy, as indicated above in the case of Nguith, is still widely practised (*O'Brien 1971*).

Today, the Nguithois have a particular reputation among the Senegalese Tijaniyyah. This is due to the fact that Sheikh *Ibrahim Baye Niass*, the founder of the largest Tijaniyyah branch in the world (Tijaniyyah Ibrahimiyah), in the 1950s appointed a marabout from Nguith (*El Hadji Momar Rokhy Gadj*) as the representative of this Tijaniyyah movement in the Diolof. The importance of the family history of successive marabouts in Nguith, and people's associated strong commitment to Islamic belief and the Tijaniyyah brotherhood, were factors of crucial importance for current migration for several reasons. As teachers of the Koran, the local Islamic scholars were literate and undertook regular travels within and beyond Senegal in order to study and to teach. This helped the village community to recognize early the importance of literacy and formal education so that since the 1960s all children have attended school. The consistent promotion of school and university education proved to be advantageous with regard to professional careers, income and successful integration into national and international job markets. Nowadays, highly-skilled and well-educated individuals from Nguith have found well-qualified jobs abroad, are entrepreneurs or occupy executive positions in the Senegalese public service. Until today the village marabout can be regarded as the spiritual guide in maintaining and strengthening the communal spirit of togetherness and solidarity, which became even more significant with the in-



*Photos 1 and 2* Left: Dakar-based migrants from Nguith making and selling baskets at a market in Dakar: an important source of income for generations; right: migrants from Nguith in Spain praying during the Gamou (Mawlid), the annual celebration of the prophet Mohammed's birthday

creasing dispersion of the community. During joint religious ceremonies of the Nguithois (*Photo 2*), in his sermons the marabout emphasizes the significance of origin and identification and conveys the norms and values of co-existence, in particular with respect to mutual solidarity among Muslims, the Tijaniyyah and the Nguithois. Part of these guiding principles was and is to repeatedly stress the meaning of Nguith as the place of the (entombed) ancestors, and the prediction of the village's bright future.

As in other Sufi brotherhoods in Senegal, in the course of time the Tijaniyyah evolved into an influential institution with political and economic power (*Diouf 2001*), even, crucially, determining the organizational structures of Senegalese migrant networks abroad. The Nguithois in Europe are organized in so-called dairas, local religious and social associations of the Tijaniyyah, which not only provide the place and opportunity to practise religion, but also play a crucial role in, for example, facilitating entry to Europe, providing accommodation and finding jobs for newly arriving migrants (*Molins Lliteras 2009: 221*).



Fig. 2 Migration system and distribution of the translocal migrant community from Nguith, Senegal. Draft: C. Romankiewicz; cartography: M. Wegener, 2016

#### 4.2 The evolving migrant community and its movements

As elaborated above, the mobility of the Nguithois can be traced back to perennial journeys of the local marabouts, as well as to people's handicrafts, which required them to move where their craftsmanship was demanded. "The profession is a know-how. We transport the know-how. And this necessarily requires mobility. One needs to find a market" (*Samba, migrant in Spain 2012*).

Embedded in Senegal's history of population movements described in the introduction, the migration history of Nguith is characterized by three major stages: 1) since the 1940s, seasonal, circular migration to the cities, and above all to Dakar, where people from Nguith generated income primarily because of their specialization in basket making; 2) since the 1970s, attracted by favourable income opportunities, increasing emigration to Dakar and other urban centres in Senegal as well as a stronger orientation towards other West African countries with the onset of Senegal's economic crisis; 3) since the 1980s, increasing migration towards Europe and North America.

Interviewees stated that the period of reduced rainfall, beginning with the great Sahel drought of 1972/73 (*Fig. 1*), and associated diminishing harvests, contributed to extended stays and permanent settling of hitherto seasonal migrants in Dakar and other urban centres. The extreme climatic conditions during that period thus did indeed shape and reinforce patterns of existing migration from Nguith.

Nowadays, the migrant network of Nguith comprises communities in several Senegalese cities such as Dakar, Kaolack, St. Louis, Touba, Thiés and Louga, and the West African countries Mauritania, Gambia and Côte d'Ivoire (*Fig. 2*). Starting from Dakar, where today the majority of Nguithois reside in the quarter of Guediawaye, the first migrants had already arrived in France by 1969. Subsequent chain migrations during the following decades led to the development of large communities in Europe, especially in France (Nice, Paris), Spain (Madrid, Marbella) and Italy (Bergamo). Other important groups live in Saudi Arabia, Canada and the US.

The contemporary national and international migration dynamics among the people of Nguith are

complex. The choice of destination and the duration of stay depend on a multitude of factors such as a person's life phase, the presence of relatives, the kind of residence permit, the professional qualifications, type of job activity and labour contract, or the residence of the spouse(s) and children. Whereas, for example, students mainly aim at admission to a university in France, labour migrants rather focus on Spain and Italy. After the end of the tourist season in southern Spain, it is not uncommon to work in industry in Italy during the winter, or to temporarily return to Dakar for other income-generating activities. Regular visits to family members and attending meetings in Senegal and Europe are common practice. Once a year, the community members from different countries get together, whether in a European country or in Nguith, to celebrate the so-called Gamou, the birthday of the Islamic prophet Muhammad (*Photo 2*). These religious events serve to strengthen the sense of community and to provide the opportunity to discuss the future development of the village and the diaspora, which in numbers exceeds by far the current population of Nguith.

#### 4.3 Migrant money, diversification and land-use change in Nguith

In spite of continuous outmigration from the village in the past decades, the population of Nguith rose slightly from about 1,400 in 1960 to 1,800 in 2015. The strong identification with the village of origin is very much driven by people's attachment to their religious authority, the local marabout, his prophecy of Nguith's prosperous future and the associated advice to purchase plots of land. The sending of money by migrants to support family members in the village of origin is a common practice in Senegalese contexts. Over the years, emigrants have made enormous investments in Nguith. Purchasing plots of land and constructing houses are dominant private investments. With an annual financial contribution, most of the Nguithois overseas are members of the "Comité de développement du village de Nguith" (CDV), which manages the infrastructural development of the village. With these remittances, the CDV financed the construction of the mosque, a school building, a health station and a nursery school. Other migrants constructed a bakery and grocery stores in order to

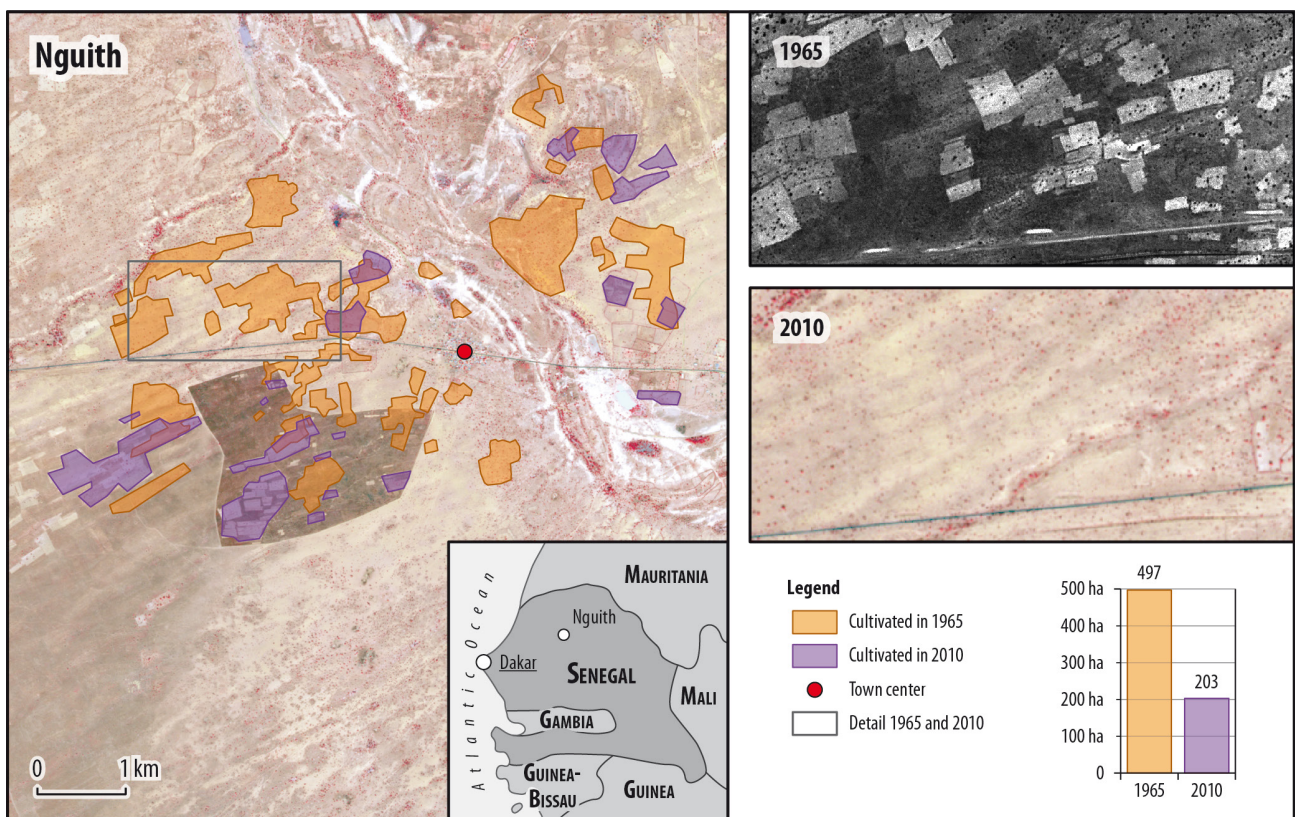


Fig. 3 Left: cultivated areas in 1965 and 2010 are illustrated for Nguith; right: zoom to the box west of Nguith; whilst in 1965 huge areas were under cultivation, in 2010 this entire area is no longer cultivated. Draft: M. Brandt, cartography: Julia Blauhut, 2016



create additional sources of income for the remaining family members. Such investments not only aim at improving the living conditions and increasing the diversification of economic activities, but also offer an incentive for people to move or return to Nguith, as some in fact have done following their working life in Europe. Moreover, many children of Dakar-based families, and even some born in other West African countries, attend school in Nguith before they pursue higher education and a career in the capital, in other Senegalese cities or overseas. One can thus state that owing to the community's translocal organisation, the village of Nguith has developed into a lively place of passage or residence (depending on a person's stage of life) for its migrant community, hence providing an additional incentive to invest in its development.

Linked to increasing mobility and migrants' support, the growing financial security of the villagers also essentially contributed to a change of land use and the diversification of agricultural activities in Nguith. Agriculture in Nguith serves two purposes: food self-sufficiency of the village and selling the surplus production. Even though the amount of annual rainfall has increased since the 2000s (Fig. 1), compared to the dry period of the 1970s, its intra- and interannual variability remains significant, as does the variability of annual crop yields from rain-fed agriculture. Permanent employment and regular income opportunities in the cities and abroad have had a clear advantage

on the route to prosperity compared with a focus on seasonal labour and uncertain harvest outputs. This is the reason why most of Nguith's migrants never considered reengaging in rain-fed farming back home. Today, merely a quarter of the households in Nguith continue to carry out rain-fed cultivation of millet, groundnuts and, to a much lesser extent, sorghum and beans. This development can be seen by observing the enormous decrease of cultivated land around the village (Fig. 3). In 2010, spiny trees cover formerly intensively cultivated areas (Brandt et al. 2014b). Whilst nearby villages still cultivate vast millet fields, the areas under cultivation around Nguith decreased between 1965 and 2010 by 59%. Only 203 ha were cultivated in 2010, whereas the rest of the land is classified as fallow or grazing land. This is a considerable change from 1965, when 497 ha were under cultivation. However, the remaining farmers are motivated to maintain rain-fed cropping. "You can have a good production this year. Next year, one never knows. You may have more, or less, or even nothing. But that does not mean anything. It does not prevent us from preparing everything we need to prepare every year. And the rest we leave to the good god" (Modou, farmer in Nguith, 2012). Despite high rainfall variability a good harvest still gives a non-negligible revenue and enables the villagers to achieve food self-sufficiency. Nevertheless, due to migrants' financial assistance, today's crop yields can no longer be regarded as the sole or major economic security of Nguith's house-



Photos 3 and 4 Left: a passing camel herd from Mauretania gathers around the deep well in Nguith contributing to visible soil degradation; right: returned migrants inspect a vegetable garden.

holds. Even a complete harvest loss, as in 2011, due to an invasion of birds into the fields, did not threaten people's livelihoods; this is a clear indication of a weak dependence on the returns from agriculture.

The augmentation of livestock that is given to and managed by the local Fulani is a typical example of financial investment of migrant remittances in the study area. Fulani families reside at the outskirts of Nguith in order to herd the villagers' goats, sheep and cattle, mainly purchased with money earned by migrants. These days, a network of deep wells and water holes in the region ensures the provision of drinking water for the herds – conditions not existing during the 1970s, when large numbers of animals died of thirst. Today a deep well and a water tower enable water provision within the village, which at the same time attracts passing herds. Both the augmentation of the local animal stock and the inviting watering place, however, brought about the increasing frequency of animal movements that compact the soil through trampling (*Photo 3*). Thus, soil degradation around the village, close to the deep well in particular, can be observed but is not of alarming extent. This effect is reinforced by the higher clay content of the soils around Nguith (*Brandt et al. 2014a*). What is more, the growing number of animals increased the grazing pressure on the woody and herbaceous vegetation in the vicinity with the effect that only robust woody sprouts survive(d). In combination with the recurring droughts of the past decades, a shift to a grazing and drought resistant woody vegetation could be observed in the area (*Brandt et al. 2014a*).

Nguith's deep well and water supply system has also enabled individuals to initiate the installation of irrigated vegetable gardens (*Photo 4*). Such gardening projects are very attractive since continual harvesting is possible over the whole year and thus these projects represent a steady and more reliable source of income compared to rain-fed farming. However, these gardens require very high initial investment for fencing and the construction of the irrigation system. Additionally, garden maintenance is extremely costly, especially considering the high water prices, fertilizer input, pest control and the workforce necessary for the intensive care of the plants and beds. In Nguith, migrants partly subsidized the erection of vegetable gardens; one is even managed by returned migrants. To co-finance the latter, migrants contributed with their know-how and contacts with NGOs or European sponsors. Today, fruits and vegetables are sold along the main road by women and are mainly consumed in the village. Thus, these irri-

gated gardens do not only create additional incomes but also increasingly contribute to a year-round food supply in contrast to the varying outputs of rain-fed agriculture. Nevertheless, because of the expensive garden infrastructure and the more convenient and traditional alternative to invest in livestock breeding, very few people are able or want to engage in gardening. To date only three such irrigated gardens have been realised in the village. In 2015, the entire area of irrigated horticulture in Nguith already covered approximately 15 ha.

### 5. Discussion

The beginning and perpetuation of the mobility of the Nguithois was significantly shaped by the community's socio-historical background. However, a period of unfavourable rainfall conditions since the onset of the 1972/73 drought progressively motivated many of Nguith's migrants to settle permanently in Senegalese urban centres and to abandon seasonal agricultural activities in the village. The great Sahel droughts thus reinforced the departure from this village. However, the manual skills in basket-making, and advanced formal education among the community members, gave them the advantage of economic success in the cities – a circumstance they benefitted from already, long before the beginning of the Sahel droughts. Additionally, this put them in the position to remit sufficient means in times of exceptional harvest shortfalls to support the family members remaining in the village. The end of the 1960s already marked the beginning of Dakar-based Nguithois migrating to France. The increasing numbers of migrants outside of Nguith, and growing communities overseas, must be regarded as a result of chain migration and the desire for progress and prosperity among well-educated people. Today, people do not only live to earn food, not only to practise farming. At this point it becomes obvious that the adaptive capacities of the Nguithois cannot be regarded as a strategic answer to extreme climatic events in the first place, but, in the context of their migration history, must rather be considered as a by-product.

The subsequent development of Nguith, village life, economic and agricultural diversification and related processes of land use and vegetation change in and around the village were very much informed by migrants' initiatives and particularly by the considerable financial support of the diaspora overseas. Nevertheless, traditional forms of agriculture such as livestock breeding and rainfed farming

continue to play an important role regarding food self-sufficiency and the generation of income in the village or as an investment option of migrant money especially in the former case. Thus, the development and economic security of the village, and therefore also the increasing independence from local agro-ecological conditions, are based on decentralised (translocal) income generation.

However, the particular way and extent of people's engagement and solidarity is not a matter of course in the context of the study area and particularly when compared to other villages. Important aspects of mediation and motivation need to be considered in understanding the relevance that the village itself retained for the entire community. Today, only a small fraction of the entire translocal community resides and was born in the village of Nguith. However, as the place of the ancestors and origin it gained and retained paramount symbolic importance for the community's identity. Crucial mediating factors of identity and cohesion form the particular socio-historical background; these factors are their religious belief and, above all, the commitment to their marabout as their (translocal) religious authority, who lives in the village but frequently travels within Senegal and to Europe in order to meet the dispersed Nguithois and to promote unity and solidarity. It is these cohesive forces that give meaning to the village and consequently form the basis of the development towards a more sustainable and adapted life in Nguith today. However, it must be noted that the Nguithois overseas face the particular difficulty of a balancing act between simultaneously maintaining the traditional norms and making the expected financial contributions that ensure their affiliation to the community on the one hand, and the challenges that involve adapting to and making a living in the Western World on the other hand. Additionally, taking into account the extent of the widespread community it is therefore comprehensible that also temporary (depending on the phase of life) or permanent avoidance behaviour or escape from the constraints of traditional values of the Nguith community occurs among individuals or families.

### 6. Conclusion

The example of Nguith indicates that, within the debate of the nexus between environmental change, climate and migration, questions relating to specific causal links are raised that are probably irrelevant,

following paradigms and setting priorities that blur more than they reveal. We have shown the importance of historical, sensitive and contextualized studies of migration as a social process. Although the Sahel is represented as a hot spot for environmental degradation, the realities of Nguith do not fit that paradigm. Therefore it can be concluded that the climate, environment and migration debate should be reconnected to migration theory to avoid simplistic frameworks and flawed concepts instead of approaching the issue as an isolated phenomenon. Employing theoretical-conceptual approaches that emphasize the role of social capital and bonds, migration networks as well as the temporal dimension and cumulative effects of migration allows for a perspective that helps to make more sense of the observed patterns and phenomena of contemporary movements. Therefore, we should focus less on proper migration causes than on the interplay between migration and processes of formation and maintenance of social structures and thus on the perpetuation of human mobility. Migration, as shown in the case of Nguith, must be understood as a social process that contributes to the formation of delocalized social phenomena, in our case the "Nguith identity", and not as a response to particular stimuli only.

We demonstrated that established migrant networks essentially shape the choice of destination and perpetuate and reinforce migration towards and between specific internal and international destinations. Circular movements not only contribute to continuously create, maintain and strengthen intertwining social bonds between people and to promote traditional values at multiple places, even across national borders, and shape translocal social spaces. Multidirectional movements, as shown for the case of Nguith, have become a substantial and necessary social practice and prerequisite for translocal livelihoods and development for a long time. The recognition of today's role and importance of migration and remittances in West African contexts, however, contradicts the sedentary bias inherent in the debate about climate, environment and migration that continues to frame migration first and foremost as an answer to a problem (or even a problem itself) rather than an ordinary element of people's lives. This does not mean that the fact that people in Africa do have to tackle serious problems can be ignored or negated but it reminds us not to conceptualize mobility differently 'here' and 'there' and to accept that migration must not always and necessarily be regarded as an adaptation strategy.

Note

<sup>1</sup> In contrast to the common UN migration definition (absence of at least one year) this World Bank survey defines a migrant as any person who used to live in the surveyed household and is absent for at least six months. More information on the survey methodology can be found in Plaza et al. (2011).

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