

Assessing West African National Communications in Relation to Drought, Desertification and Mobility of People

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ABSTRACT

Since the Sahel drought in the 1960s - the first natural disaster in Africa to reach the general public in Europe and North America - the question of how climate change and desertification affect migration within Africa and to Europe and North America, and how to deal with environmentally-induced migration in Africa and worldwide, has been discussed in the media and in academia. This paper will use national communications in Nigeria, Niger and Ghana to examine the measures that have been taken to address desertification, drought and migration.

Keywords: Drought, Desertification, Migration, Africa, Nigeria, Niger, Ghana

INTRODUCTION

Ever since the 1960s drought in the Sahel - the first natural disaster in Africa to reach the general public in Europe and North America - the question of how climate change and desertification affect migration within Africa and to Europe and North America, and how to deal with environmentally-induced migration in Africa and globally, has been debated in the media and in academia (Afifi, 2011; Brown, 2008; Johnson & Krishnamurthy, 2010; Kellner, 2008; Kliot, 2004; Leighton, 2006; Renaud et al., 2008). Remarkable images of boat refugees fleeing from West Africa to Europe and of West Africans crossing North Africa to Europe has frequently appeared in the media since the implementation of the Schengen Agreement in the southern European states. These images can cause a hasty impression that climate change and desertification in West Africa will inevitably lead to a dramatic increase of refugee crossings to Europe and North America, especially if the negative climate change scenarios are realized. This

view implies that direct causal links can be established between climate change, desertification and migration. The existence of certain indirect, reciprocal links between climate change, desertification and migration has been demonstrated in some case and synthesis studies (Barrios et al., 2006; Findley, 1994; Gnisci & Trémolières, 2009; Hammer, 2004; Henry et al., 2003; Renaud et al., 2011). However, a possible direct causality of the connection between climate-change induced desertification and migration as well as, in particular, refugee crossings to Europe and North America must be put into perspective.

This paper will show what measures the countries of West Africa are taking against climate change, how they are shaping communication, and how social, economic and political factors are decisive in determining whether and how the people of West Africa react to climate change and desertification. The paper aims to embed the interrelationships between climate change, desertification and migration in West Africa in geo-historical contexts and, in particular, to show how environmental migration is to be evaluated in the context of demographic transformation and overall social change. It will also explain what experiences and challenges have been encountered in dealing with the management of environmental migration in West Africa. The first step is to show what the links are between climate change, desertification and migration, what the trends in environmental migration are, how they can be explained, how past experience with strategies to prevent and manage environmental migration can be assessed, and what future strategic priorities can be to address climate change in relation to environmental migration.

THE RELATIONSHIP BETWEEN CLIMATE CHANGE, DESERTIFICATION AND MIGRATION IN WEST AFRICA: A GEOHISTORICAL PERSPECTIVE

Before explaining the relationship between climate change, desertification and migration in West Africa, it is useful to divide West Africa¹ into four major geocological zones (Mertz et al., 2012), namely from north to south. Below, the zones have been categorized and described:

- In the Sahara zone, small-scale and periodic grazing is possible with sufficient rainfall, and irrigation is possible in depressions. This zone is sparsely populated but serves as a migration area for nomads and cattle breeders.

¹ In this article, West Africa is defined as the territory of the 15 states of the Economic Community of West African States (ECOWAS), Mauritania and the two states of Chad and Cameroon, which are often attributed to Central Africa. This description of the territory is chosen because, geographically speaking, Mauritania belongs to West Africa but is not a member of ECOWAS. Chad and Cameroon are connected to West Africa in many ways. They are often included in West Africa, for example by the Sahel and West Africa Club of the OECD, whose figures and studies are referred to in this article. In total, West Africa forms an area of 7.9 million km² with 316 million inhabitants. This results in an average population density of 40 inhabitants per km².

- In the Sahel zone, pastoralism, rain-fed, and irrigated agriculture are possible over a relatively wide area, depending on rainfall conditions. The Sahel zone is relatively sparsely populated in large parts.
- The Sudan zone is the actual fertile agro-ecological zone of West Africa with a high unexploited agricultural potential. This zone is also sparsely populated in large parts and in some cases, has a lower population density than the Sahel.
- The forest-coastal zone has rainforest-like conditions and is home to large plantation areas and major urban areas such as Abidjan and Lagos.

(Mertz et al., 2012)

In the context of the issue of climate change and migration, the designation of two further geo-ecological zones makes sense:

Firstly, the river deltas, estuaries, and coastal mangrove areas are characterised ecologically and in terms of food production for humans by a fresh-salt-water exchange (including rice and fish production). These areas have been inhabited for centuries and are directly threatened by global warming, rising sea levels, and the trend towards decreasing freshwater runoff. This paper will not elaborate further on this issue (but it should not be forgotten in the context of a holistic treatment of the relationship between climate change and migration in West Africa) (John & Lawson, 1990). The fifth ecological-zone is the river valley, inland delta and inland lake areas. West Africa has an extensive river system with inland deltas and inland lakes that also extend into the Sahel (including the Senegal, Volta, Niger and Lake Chad river systems). The depressions and valleys of these river systems and inland deltas are dominated by relatively fertile soils and an abundant water supply. Overall, the potential of the soils and water for the supply of humans and animals - especially in the Sahel - is only used to a very small extent (Adams, 1993).

Of these six geoeological zones, the Sahel and the northern Sudan zone are the actual problem zones with regard to the connection between climate change, desertification and migration (Mbow et al., 2008). The Sahel zone has been affected by long-term natural desiccation (aridisation) for around 10,000 years, which has since led to the creeping expansion of the Sahara desert (Foley et al., 2003). This natural desiccation and desertification (natural desertification = desertification) proceeds slowly, but over centuries it has caused affected areas to become unattractive to people and to be abandoned. This natural desiccation is expected to continue, so that in the long term, rain-fed agriculture and pasture farming in the Sahel, will be threatened. The northern Sudan zone is also increasingly suffering from droughts, which affect pastoralism and agricultural production (Ati et al., 2002).

In addition to this long-term natural climate change, two other climate phenomena have been observed and have contributed to the historically observed migration movements of people, especially in the Sahel. The first climate phenomenon concerns precipitation. Natural cycles of medium-term precipitation fluctuations include phases with years of strongly above-average precipitation as well as phases with years of strongly below-average precipitation. However, there have been more extreme deviations from the usual annual precipitation with a variability of 20 to 30%, one to multi-year phases of strongly below-average precipitation - so-called droughts –have been observed. These can develop into actual drought catastrophes with strong migration in the short term if the families are dependent on rain-fed agriculture and pasture farming and have no alternative income and survival options(Adger et al., 2003; Conway, 2009).

With the onset of multi-year strongly below-average precipitation, many families have had to migrate within their country, as rainfall is their only water source. Until only a few decades ago this migration was primarily characterised by a high degree of spatial mobility. Shifting cultivation, mobile cattle breeding, and nomadism were dominant. And spatially independent economic sectors in rural areas adapted to the changing climate and weather conditions(Lam et al., 2012). With the rise of sedentarisation, nation-building, population growth and many other factors, spatial mobility has become more restricted, as the dependence of supply systems on changing climate and weather conditions being significantly reduced for the majority of the population(Randall & Giuffrida, 2006). Accordingly, the vulnerability of family supply with water and food to adverse climate and weather events increased. While migration due to changing environmental factors was once a common problem-solving strategy for households, there are now limits to traditional forms of migration. For instance, refugees now face limited access to fertile soil. Most fertile soil of neighbouring regions are usually already occupied with rights of use (and are often not used or only extensively used). Furthermore, agriculture and pasture farming hardly yield enough to meet the increased demands of households compared to the past (Nshimbi & Moyo, 2020).

The second phenomenon that is now widespread in the Sahel, is desertification (this differs from desertification in that desertification does not occur as a result of natural changes, but as a result of human intervention) (Prothero, 1990). In particular, deforestation, bush clearing, field preparation and grazing have reduced the natural vegetation in large parts of the Sahel, and partly also in the Sudan zone, to such an extent that the soil has degraded or eroded and its original productivity has been reduced(Ribot, 1999). Agricultural tillage and use also reduced soil productivity in large parts. Thus, natural vegetation and soil structure in the Sahel tend in some places towards desert-like conditions with a limited use value for humans, in areas which, according to zonal-climatic classification, should not have a desert-like appearance per se

(Babalola & Opara-Nadi, 1993). Desertification as a man-made reduction of biological potential has negative repercussions for man himself. Soil fertility decreases and without specific measures, food production is limited or no longer possible. Since many families do not have the means to take appropriate measures (including fertilisation, re-vegetation, combating soil erosion), they look for alternatives depending on social, economic, family and individual conditions: they extensify food production and overexploit resources even more (Pieri, 2012); they limit production and look for additional income in petty trade and small business; part of the family migrates seasonally to find additional income; part of the family migrates permanently, for example to another rural area or to the city, and supports the family members who stay behind financially (Rain, 2018). While traditional migration, which was also caused by climate and other environmental factors, took place primarily within rural areas, this (rural areas) has lost much of its attractiveness and importance as a destination since the 1970s. However, this is not only due to the trend towards decreasing rainfall and desertification. Despite the large agricultural potential available in many regions, rural areas are largely saturated due to a lack of infrastructure, the low technological level of agriculture and the widespread absence of an agricultural policy in favour of rural areas. Accordingly, especially since the drought of 1968-1973, migration is taking place less and less within rural areas and more and more into the cities (Yaro, 2008).

MIGRATORY MOVEMENTS IN THE CONTEXT OF ENVIRONMENTAL CHANGE AND DESERTIFICATION

In the context of environmental change and desertification, three main migratory movements can be distinguished since the 1970s, all of which affect rural areas and in particular the Sahel and the northern Sudan zone (Barrios et al., 2006; Hugo, 2008; Rain, 2018; Tiemoko, 2004):

Firstly, the temporary or circular migration of a part of the farming families to the cities within the country (circular internal migration) or to the cities and to the plantations in the forest-coastal zone (circular internal migration within West Africa). This mostly concerns young men who are absent for several months up to almost the whole year in search of additional income and often only return to their families for the agricultural work. Temporary or circular migration to North Africa and Southern Europe for the purpose of plantation work, among other things, has lost importance in recent years for various reasons (including strict implementation of the Schengen Agreement) (Tiemoko, 2004). Due to temporary or circular migration, a large proportion of young men in many villages in the Sahel are absent for most months of the year.

Secondly, rural migration within the country (internal migration) or to a coastal country (internal migration within West Africa) occurs when parts of the family or entire families migrate to other

rural areas. Two movements in particular are to be distinguished:

- a) migration to river valley areas, for example those that have been freed from onchocerciasis since the 1970s and have been prepared for the settlement of migrants within the framework of rural development projects, and
- b) migration to other rural areas, usually located further south, which have better rainfall conditions and better soils.

(Adepoju, 2003)

The third major migration movement is characterized by rural-urban migration within the country (internal migration) or to a city in a coastal country (internal migration within West Africa): This particularly affects young men and women who want to establish their own livelihoods in the city (Gaibazzi, 2015).

The third major migratory movement (rural-urban migration) seems to be most pronounced during and after droughts and in times of crisis. In general, a relatively high correlation between decreasing rainfall and rural-urban migration is found in sub-Saharan Africa and especially in West Africa (Barrios et al., 2006; Henry et al., 2003). This correlation is evidenced through studies done on the two major droughts of the past 40 years, that is, the drought of the late 1960s/early 1970s and the drought of the mid-1980s. The results of the studies showed that the droughts led to a drastic increase in internal migration, urbanisation processes and rapid urban growth (Döös, 1997; Findley, 1994).

CASE STUDIES – NIGERIA, GHANA AND NIGER

An examination will follow as to how West African countries like Nigeria, Niger and Ghana communicate on the issues of drought, desertification and migration

Ghana, Niger and Nigeria were chosen as case studies because the comparison between these two countries seems to be particularly fruitful and we have expected similar results in the research. Nigeria's president has a strong position in the executive branch of the political system and heads the cabinet, also called the Federal Executive Council. He is also the commander-in-chief of the armed forces (Campbell & Page, 2018). If one follows Maplecroft (2014) then **Nigeria** is classified as one of the ten most vulnerable countries according to the 2014 World Climate Change Vulnerability Index, ranked 18 of 135 countries. The intensity and frequency of severe weather events are expected to surge due to climate change. The rise in sea levels is likely to increase coastal inundation and flooding in low-lying regions, and many states like Nigeria lack the capacity to adequately respond to impacts of climate change (Ogbo et al., 2013).

Nevertheless Nigeria has developed the right policies, strategies and action plans to achieve its adaption priorities.

Ghana is a presidential republic in which both the parliament and the president are directly elected by the people. Each election lasts four years, and the president is only entitled to serve two terms. In what is now the fourth republic, the president is both head of state, head of government and supreme commander (Anaman & Bukari, 2019). If one follows Okyere et al. (2013) then **Ghana** has experienced many climate hazards over the past five decades. The climate hazards comprise at least three droughts and nineteen floods, which have cumulatively affected over sixteen million people and resulted in at least four hundred and forty-four deaths – excluding the undocumented numbers of deaths resulting from droughts. Given Ghana’s reliance on rain-fed agriculture, drought poses a significant threat to the agricultural sector, with the most immediate consequence being a decrease in the production of staple crops – especially sorghum, millet, maize, and groundnuts. These losses negatively impact the livelihoods of smallholder farmers, particularly in the northern savanna zones (Toulmin, 1986)

The constitution in Niger, approved by referendum in 2010, is modelled on the French semi-presidential system of government with direct election of the president (every five years). The president is the head of state and commander-in-chief of the armed forces and has extensive powers. He appoints and dismisses the government under the chairmanship of a prime minister (Tamekamta, 2021). If one follows Brouwer et al. (2001) then **Niger** can be described as a landlocked country with a total land area of 1,267,000 sq km. It lies between 12 and 23° N. It is at the junction of North Africa and Sub-Saharan Africa on the one hand and of West and Central Africa on the other hand. It is bordered in the North, by Algeria and Libya, in the East by Chad, in the South by Nigeria and Benin and in the West by Burkina Faso and Mali, and it belongs to the group of continental countries of the Western sub-region. Niger is very far from the costal line (1,900 km from the Atlantic coast and about 700 km from the Gulf of Guinea (distance from Gaya and Niamey) where the ports of Tema and Cotonou are located (BROUWER et al., 2001)

Drought

Nigeria

- Agriculture: Adopt improved agricultural systems for both crops and livestock (for example, diversify livestock and improve range management), Increase access to drought-resistant crops and livestock feeds, adopt better soil management practices, and provide early warnings, meteorological forecasts and related information

- Freshwater Resources, Coastal Water Resources, and Fisheries: Initiate a national program for integrated water resource management at the watershed level, Intensify programs to survey water quality and quantity for both ground and surface water

(Nigeria, 2021)

Ghana

As the number not only of flooding but also droughting has increased the ministry of health has established the following management measures:

- Strengthening systematic observation, climate services, and early warning systems • Modernisation and automation of weather observation networks. The Ghana Meteorological Agency (GMet) has added ten automatic weather stations to beef up the existing stations.
- The National Disaster Management Organisation (NADMO) has established emergency operation centres for early warning and communication for priority hazards in 10 sites to benefit nearly 6 million people.
- Water Resources Commission has invested over US\$ 4 million in flood and drought hazard assessment in White Volta and Oti River basins.

(Frimpong-Boateng, 2020)

Niger

- After the droughts in the 1970s, major reforestation programs were implemented in order to reverse the trend towards environment degradation. Land clearing for agricultural purposes is a major utilization of forest resources. In fact, land pressure due to population growth resulted in extensive clearing of land to expand cultivated areas, cultivation of marginal land, and shorter or no fallow period.
- the development of efficient early warning systems, particularly for extreme events such as droughts and floods;

(Ousmane, 2009)

Desertification

Nigeria

The frequency and intensity of severe weather events are expected to surge due to climate change. The rise in sea levels is likely to increase coastal inundation and flooding in low-lying

regions, and many states lack the capacity (in terms of infrastructure and resources) to adequately respond to the impacts of climate change. A rise in temperature has been recorded over the past three decades, and projections have shown an obvious increase in the temperature across all the ecological regions in the country. The decline in precipitation and rising heat have rendered the North-East and North-West regions the most vulnerable, and have compounded aridity, drought, and desertification, as well as causing the shrinking of wetlands, a decrease in surface water, and the reduction in fauna and flora in many ecosystems across the northern part of the country (Nigeria, 2021).

To slow down or even stop desertification, Nigeria has launched the “Great Green Wall Projects”: This project involves projects and initiatives such as the following:

- Coastal zone management
- Shoreline protection
- Sovereign Green Bond
- Creation of green jobs
- Ecosystem Restoration Projects
- Climate-smart drainage systems
- Space Programme on Climate Resilience
- Pollution control projects
- Funding and support for adaptation actions
- Hospital Waste Intervention Scheme
- Flood and erosion control

(Nigeria, 2021)

Ghana

Although Ghana does not officially implement any measures to prevent desertification, our research has shown that it is mainly local farmers who are trying - with year-round irrigation - to slow down or stop desertification. However, since agriculture in Ghana is very dependent on rain, these measures are only successful if there is enough rainfall. This again highlights the problem that the rainy season is often absent due to climate change (Owusu, 2012).

Niger

Following the publication of its Initial Communication, Niger carried out a certain number of activities, such as the development and implementation of the National Self-assessment of

Capacity Building Needs for managing global environment (ANCR). The objective of this project was to assess the needs for capacity building and come up with a strategy and a plan of action to implement capacity building activities in connection with Conventions on Desertification Control, Biodiversity and Climate Change.

Migration

Nigeria

In the case of migration, Nigeria has taken the following measures:

- Strengthen rural settlements in order to reduce migration.
- Strengthen capacity to anticipate disasters and impacts on internal migration and security.
- Strengthen rural infrastructure and the availability of jobs to discourage out- migration.
- Strengthen capacity to anticipate and respond to disasters and impacts on internal migration and security
- Integrate migration and human displacement issues in national climate change planning.

(Nigeria, 2021)

Ghana

The changing climate is a threat to energy and food security and rural livelihoods. The already harsh ecological conditions coupled with adverse climate change impacts in Northern Ghana could accelerate migration toward the southern cities. Most migrants tend to live in slums and urban-stressed areas that are prone to recurrent floods. To learn why internal migration occurs in Ghana a mixed-method of surveys (qualitative/quantitative) was established to Examine why populations would continue to live in places where environmental thresholds have been exceeded and how migration has been used as an adaptation to climatic impacts. Besides of surveys Ghana is doing “On-going” research on climate impacts and cocoa production, climate change and migration, climate change, and water resource management (Frimpong-Boateng, 2020)

Niger

In 2001 Niger population was estimated at around 11.000.000 inhabitants. According to the trend scenario, based on national statistics, the population will reach 17.3 million inhabitants in 2015 and 24.1 million inhabitants in 2025 (Ousmane, 2009).In Niger, 63% of the population live in extreme poverty with less than \$US 1 per day. As a result, the Government of Niger endorsed the Millennium Development Goals, with the objective of: “Reducing by half the proportion of people living in extreme poverty by 2015”.As a member of the African Union, Niger has also

joined NEPAD. The objective of the energy component of this initiative is to "improve from 10 to 35% access to energy for African populations, i.e. 60 to 300 millions people in the next twenty years" (Ousmane, 2009).

CONCLUSION

In this paper one have tried to highlight the different approaches of the West African countries Nigeria, Niger and Ghana to the problems caused by climate change, such as internal migration, desertification and drought. This research has shown that Nigeria is addressing the problems most intensively, as it has a package of measures for each of the above-mentioned phenomena: For example, there is a programme to prevent drought, but also to prevent internal migration and to prevent desertification. Here, the "Green Wall Project" deserves special mention, as it is - in our opinion - best suited to stop the progressive desertification in Nigeria. Ghana takes a completely different approach in this respect and leaves the desertification to the local farmers, who try to keep the soil fertile with year-round irrigation. Since Ghana has been repeatedly hit by floods and droughts in recent years, the Ministry of Health has adopted a whole package of measures for this weather phenomenon. The issue of migration was also dealt with differently by the countries studied: Nigeria tries to strengthen rural areas so that migration does not happen in the first place, while Ghana tries to evaluate "why migration happens". Niger is trying to reduce poverty in the country and is trying to achieve the Millennium Development Goal (to reduce poverty by half). This study has shown that the countries of West Africa are basically on the right track to mitigate the effects of climate change, but much - international - cooperation will still be needed to improve and strengthen the living conditions for all inhabitants.

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