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Article

Bialaba Migrants from the Northern of Benin to Nigeria, in Search of Productive Land—Insights for Living with Climate Change

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Abstract: The concept of Environmental Migration has been broadly discussed by the international scientific community. Especially developing countries will have to develop strategies to cope with a rising number of people migrating at national and international levels due to climatic changes and environmental degradation. This paper will critically analyze the term Environmental Migration and sets it in relation to a case study conducted in northwest Benin in August/October of 2013 with Bialaba, analyzing their temporary migration pattern to Nigeria. The aim is to reveal current discussions on the term "Environmental Migration"/"Environmental Migrant" and to discuss its conceptual limits. The qualitative study in this working paper was conducted in the form of 36 interviews with farmers in the Dassari watershed North of Benin and surrounding villages as well as with stakeholders of the local government and NGOs active in the research area. Research results are presented in the following paper to clarify migration motives for the Bialaba of northwest Benin towards Nigeria aiming to stimulate discussions on the topic and to promote new research pathways.

Keywords: Environmental Migration; Bialaba; Northwest Benin; Nigeria

1. Introduction

Climate Change, Environmental Migration and Conceptual Limits

Climate change and its influence on human mobility are broadly discussed in academic literature and within the international community. Due to their high vulnerability, the impact of climate change on developing countries has been a major point of interest. The Republic of Benin is highly dependent on the agricultural sector. Thus it is severely affected by changes in climate. It serves as a good example for a case study on the influence of climatic changes on migration. The term "Climate Change" in this paper refers to the definition given by the United Nations. In Article 1.2 of the United Nations Framework Convention on Climate Change (UNFCCC) it is defined as a

> "change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" [1].

Climate change is evident in extreme weather events, such as droughts and heat or shifting and shorter rain fall seasons. It thus causes problems for agricultural work. The impact of climate change on land degradation, fresh water availability and weather events, along with a lack of adaptation strategies to face these impacts can favour emigration [2] (p. 43). This climate induced migration is widely referred to as Environmental Migration or the people being displaced as "Environmental Refugees". Some conceptual limits in terms of these designations have to be made as they are often used without a precise definition [3] (p. 39) [4] [5] (p. 10). The concept of international migration includes all cross-border movements, as well as fleeing forced by environmental changes, if it exceeds state limits. A clear distinction must, however, be made towards refugees after the Geneva Convention defined as persons who

> "owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion, is outside the country of his nationality, and is unable to or, owing to such fear, is unwilling to avail himself of the protection of that country" [6] (p. 3).

Environmental change as a cause for forced movement is not covered by this paper. In individual cases of internal migration, which can be related to environmental changes, the right of Internally Displaced Persons (IDP) may apply. The Guiding Principles on Internal Displacement by the United Nations, established in 1998, provide a framework for protecting victims of natural disasters who do not cross an international border [7] (p. 1). These guidelines offer a set of legal standards for protection, but it is not clear if people who migrate due to gradual process of environmental degradation are covered by the definition. Since the Guiding Principles on Internal Displacement by the UN do not regard cross-border migration, the legal status of people crossing borders due to environmental changes remains uncovered. The Council of Europe suggested taking the IDP principles as a model to create a global guiding framework for the protection of displaced persons crossing international borders as a consequence of climate change and natural disasters [8]. So far no document has been prepared. Nonetheless, the Guiding Principles were used at the Kampala Convention for the protection of IDPs in Africa [9]. The African Union adopted it in 2009 and it went into force at the end of 2012 [10]. It is thus the first legally binding regional instrument in the world to enforce a responsibility of States to protect and assist IDPs,

including persons displaced by natural or man-made disasters [11] (p. 17). This may prove an impetus for the convention to consider cross-border migration caused by compelling environmental reasons in the future.

A variety of concepts and definitions of the term "Environmental Refugee" [12] or "Environmental Migrants" [4] exist. The International Organization for Migration (IOM) suggests the following definition for environmental migrants:

> "Persons or groups of persons who, for compelling reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad" [13] (pp. 1,2).

A variety of environmental reasons are mentioned for the emergence of environmental migration by the IOM, including slow-onset disasters as well as continuing environmental degradation. The latter can be seen in the form of desertification, reduction of soil fertility, coastal and soil erosion, soil salinity, water shortage and sea-level rise. A large number of people are expected to migrate due to a gradual deterioration of environmental conditions [14]. Nonetheless, definitions of Environmental Migrants remain broad and have been looked upon sceptically. On one hand it is hard to identify environmental change as sole driving force of migratory movements; on the other hand the emphasis on environmental factors disregards other factors for migration—for instance the socioeconomic context and conflict situations. Numbers on estimations of future climate induced migrants are available, but differ widely [15] (p. 6.). Nonetheless, environmental changes are already causing substantial population movements. The occurrence of storms, droughts and floods has tripled over the last thirty years [16] (p. 5). The IOM revealed 20 million people were displaced due to extreme weather events in 2007 [16]. In comparison, in the same year 4.6 million people were internally displaced by conflict and violence [16] (p. 9). Forecasts made estimating future Environmental Migrants, internal and cross-border migrants, vary between 25 million and 1 billion by 2050 [14].

Historically considered, environmental migration is not a newly occurring problem. However, the accumulation of environmental crisis, the complication of the cause-effect linkages and the fact that today more people are affected by environmental crisis due to the growth of world population give the problem new emphases. In the Republic of Benin, where the research was conducted, the yearly population growth is at 3 per cent [17]. This means within 25 years the population will double [17] (p. 20). In comparison, the annual population growth rate in Germany is at −0.2 per cent [18]. Thus, it becomes obvious that environmental disasters will have a severe impact on the present population in the studied area and an even more severe impact in the future.

2. Research Area and Socio-Cultural Characteristics of the Bialaba

The IOM released a Migration Profile of Benin in 2012 which showed an increased number of Beninese nationals migrating to other West African countries. Reasons stated in the report are "demographic growth, poverty, unemployment, increased living costs, difficult climatic conditions and dwindling natural resources" [19]. The International Organization for Migration (IOM) published a migration profile in Benin. According to the IOM report, about 4.4 million people, almost half of the Beninese

population, have migrated. A huge part went to neighbouring countries. Approximately 69% of those 4.4 million people migrated to Nigeria [20] (p. 48).

Ba and Kouton (2006) in cooperation with the European Union stated that improvement of the economic situation can be seen as the main objective for migration of Beninese nationals. Almost all migrants could be linked to the informal sector. The report further explains that while in the past mostly men migrated to neighbouring countries, nowadays there is a tendency towards a feminization of migration [21] (p. 14). About one-third of the Beninese population lives below the poverty line of US$ 1.25 per day. According to the authors, the migratory movements contribute to poverty reduction in Benin through remittances of migrant workers. Remittances between 2000 and 2009 are estimated to be roughly $28.9 million (US-Dollar), which represents 2.4 per cent of Benin's GDP [19].

2.1. Northwest Benin

The field research was conducted for three months, from mid-August until October 2013 in the Dassari watershed area in northwest Benin. The research time was especially chosen because it was within the rainy season of Benin. Temporary migrants return to their home villages in this period for crop cultivation that gives us also an opportunity to talk to them. Co-Author Papa Sow has spent several weeks there between 2010 and 2014, gathering information on rural migration. The geographical research sites are the villages of Pouri, Porga, Dassari, Materi and Natitingou in the northwest of Benin (shown in Figure 1 below). The research area is bordering Burkina Faso to the west, which is easily accessible by the Tanguieta-Porga Inter-State road.

The area of Materi in northern Benin was particularly interesting for the intended research, due to the drastic climatic conditions in the watershed area. The vegetation is a sparse cover of wooded savannah and shrub. The research site has herbaceous vegetation and crops. There are broadleaved forests as well as a closed and evergreen forest to its geographical west. To the east, gallery forest and wetland can be found. In the southeast there is also a 15 to 40 per cent occurrence of scrubland [22].

Due to its latitudinal position, Dassari is marked by a unimodal rain fall pattern with two distinct seasons. On one hand it receives a dry season of variable length between the months of November and April. This season is marked by offshore winds as well as cool and dry winds coming from the Sahara called "Harmattan"—which usually arrives between November and February. It is further marked by a period of severe heat, between March and April, with a daily temperature between 34 and 40 degree Celsius. On the other hand there is the rainy season which essentially determines the local agricultural calendar. Precipitation usually covers the months of May to October. It actually settles in July and the highest rain fall is observed in the months of August and September. The normal precipitation is around 1000 mm per year. A poor distribution of rain fall is noted in terms of time periods and local distribution. The average temperature is about 27 °C with variations between 17 °C to 35 °C [23] (pp. 15,16).

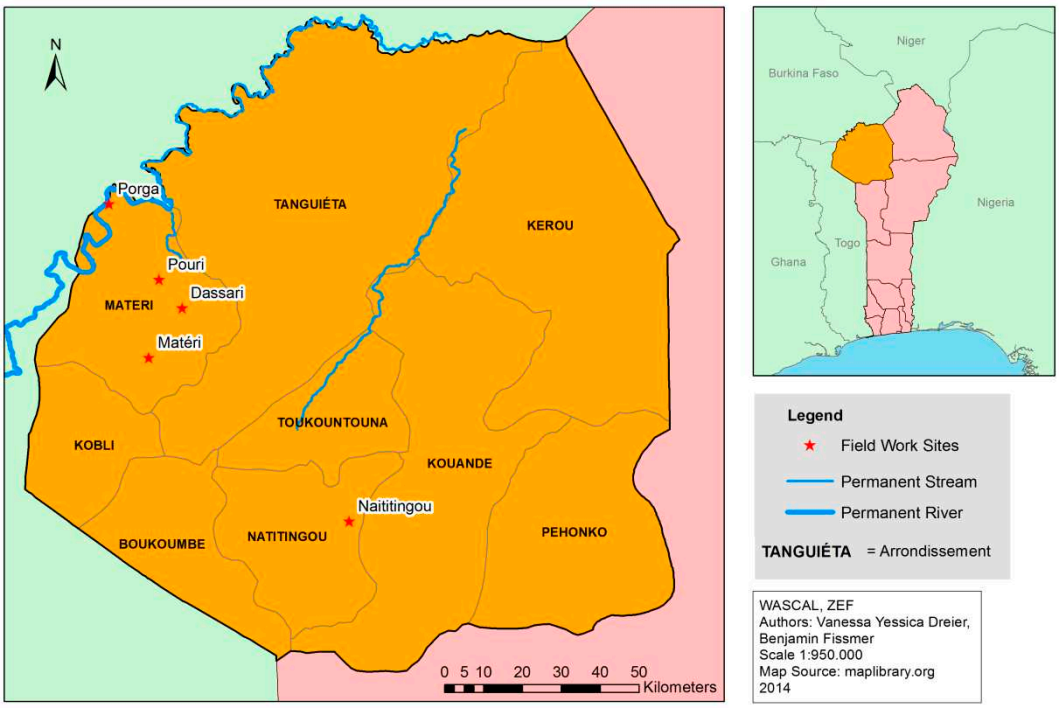

Figure 1. Field research sites in northwest Benin. Source: own survey; conception and graphic: V. Dreier, B. Fissmer (2013).

Different types of soils are available in the District of Atakora and the Dassari research area. There are soils of hydromorphic composition on fine sandy alluvial materials, which are located in the valley bordering the Pendjari River. Soils which are leached and indurated can also be found in the Dassari watershed. These soils are only moderately suitable for most agricultural crop growing. Their use requires appropriate cultivation techniques: light drainage, controlled ploughing and irrigation [23] (p. 16). During the rainy season, the vegetation is lush and varied - it offers enough forages for animals. By contrast in the dry season some of these species lose their leaves and become dead wood—which favours late bushfires. A large number of small rivers, Pendjari River and its tributaries, irrigate the territory of the area, but most of these rivers are temporary. In the dry season the rivers, except Pendjari River, are arid. During the rainy season, many rivers overflow and thus promote the cultivation of rice. Pendjari River is the only river forming a loop South, East, North and West. It joins a tributary of the Volta to the west of the town Materi and then continues to the region of Tampaga to form Oti River in Togo, before accessing the Volta River in Ghana [23] (p. 17).

The land is a fundamental element of agricultural production. All members of the community have equal access to it, with the exception of women. The land was sacred for the family and inalienable. These days, more and more land grabbing is operated and marks the beginning of individual land ownership [23] (p. 18). The environment and thus the inhabitants of Dassari and the neighbouring districts are facing various challenges today: encroachment of the desert and desertification; degradation of the plant cover and deforestation; silting of shoals and streams; loss of soil fertility in connection with small harvests because of inadequate agricultural cultivation practices and chemical pollution of soils and water with pesticides and fertilizer—to mention just few challenges. Polluted water severely affects people's health. Furthermore, chemical pollution caused by pesticides and deforestation lead to a loss in

soil fertility and reduces the harvests of agricultural crops. It also leads to a decrease of livestock population, fish stock and plant diversity and risks food shortages [23] (p. 17f.).

2.2. The Bialaba Ethnic Group

The Bialaba, also called Biali, are an ethnic group living in the Dassari region, Matéri and in Gouandé, to the geographical west of Dassari. They represent about 90% of the population in the area of Dassari and refer to themselves as natives [24] (p. 382). In archives and literature the opinion is prevalent that this ethnic group must have arrived from Burkina Faso a long time before the French colonization [25] (p. 533). Many of the Bialaba transited to Togo before finally settling in Benin, where part of the ethnic group can still be found [23] (p. 19). Nowadays, the Bialaba consist of about 100,000 people within the area of Atakora, according to INSAE (*Institut National de la Statistique et de l'Analyse Economique*) there are 689,646 people currently living in the district [26] (p. 60). The Bialaba are farmers and grow a variety of crops, mainly millet, sorghum and corn. Farming methods are basic, the hoe being the primary tool for cultivation.

The borders of the Bialaba language area can be roughly marked to the west with Togo and Benin and to the North and East by the national interstate road. Bialaba can also be found in Togo, Burkina Faso, Niger, Nigeria and in Central Benin. They have mainly left the area in search of productive farm land and thus should not be looked upon as separated communities. According to the numbers revealed by INSAE, the Bialaba form about 7 per cent of the population in the Atakora district [27] (p. 1f.). They have been permanently settled in the area over the last centuries, but have been forced into migration in search of productive land towards Nigeria and the centre of Benin, as will be further analysed in the research results. Peasants of the Dassari area and the Atakora district in general are especially affected by soil degradation [28] (p. 54). The high occurrence of migration in this area can be linked to climate variability and difficulties in agricultural production [24] (p. 382f.).

While churches and mosques can be found in the Dassari region and some Bialaba practise Christianity and Islam, the majority of the Bialaba practise animism or nature worship. Fetishes and wise men with mystical powers play an important role in Bialaba society. The phenomenon of polygamy is widespread in nearly all villages and among all ethnic groups within Benin and has nothing to do with being catholic. Polygamous marriages are allowed in Benin, but do not enjoy the same legal protections and benefits of monogamous marriages, especially concerning the right of inheritance [29].

3. Methodology

3.1. Research Design and Methodology

The conducted field research is based on qualitative methods. Semi-structured in-depth interviews and expert interviews with different stakeholders were chosen as main source for information and exchange. A total of 36 interviews were conducted throughout this research [30]. Thirty-two interviews were made individually with farmers in northwest Benin, returning from long- or short term migration to neighbouring countries and within West Africa. Also 14 of the respondents were women. During the interviews, the farmers were asked about their livelihood, their perception of climate and environmental change and personal migration experience. Furthermore four experts, representing different NGOs, and

the local government were interviewed. All interviews intended to gain a deeper understanding of the study area and the motivations and consequences of migratory movements in the area.

Although some farmers that we interviewed spoke French, in most cases we had to rely on our guide Kiatti. The majority of the time we would pose the question in French and the guide would then translate it to the local language biali for the interviewed person. Afterwards, he translated the answer of the interviewees into French. The interviews thus needed more time and sometimes the guide was only able to summarize what the respondents had said before. Interviewees were chosen by snowball effect, all 36 interviews conducted were audio-recorded and later on transcribed in French. The quotes that can be found in this paper are translated quotes of the transcriptions made. Working with a field assistant and translator facilitated working in the field due to contacts and esteem, which the latter had in the community. People were willing to spend almost two hours of their time with us, analysing changes in society and environment and sharing their views with us. As we were especially concerned with interviewing an equal amount of men and women, we were often confronted with shy and cautious women, which could be linked to their position within Bialaba society. Women are representatives of the household and mainly act within the family, while men present the family outwardly. With young men it was a similar situation. Men that were already older in age and married, on the other hand, enjoyed sharing their views very much and seemed to be more used to exchanging their ideas. Being scientists from the "outside", we sometimes had the impression people interpreted us as being development worker and told us which equipment we could offer for the facilitation of their work. This did not influence the specific questions on migration and climate change.

It must be acknowledged at this point that the data evaluated was collected in Benin. Thus, only return migrants could be interviewed, which makes it hard to evaluate if temporary migration is representative of the overall Bialaba outmigration. Migrants who stayed in Nigeria for good could not be considered in this research.

3.2. Grounded Theory

The methodology of grounded theory is the driving force in this research. No theory development was made prior to the collection of data [31]. Guidelines for ethical research that were taken into account during the research were based on Friebertshäuser: the insuring of data privacy for respondents so as to cause the examinee no harm; the disclosure and explanation of the research intention at the beginning of the interviews; and the authorization by interviewees to conduct research on them. The handling of findings in consideration of the interviewees is also ensured [32].

This research was conducted with grounded theory (Glaser/Strauss 1967) and suggests a theory built on empirical findings [33] (p. 1f.). Glaser and Strauss were not aiming at the verification of known hypotheses, because they do not help to understand social transformation processes; nor do they provide an insight into hitherto unexplored areas of the social. What they aimed for was to generate new theoretical knowledge. This knowledge can be discovered through intensive examination of the empirical. Thus, the relation of theory and empiricism forms the centre of their considerations [34] (p. 2f.). There is a continuous dialogue between theoretical presumptions and the obtained data [35] (p. 93).

Grounded theory strives on the one hand for "planned flexibility", meaning hypothetical presumptions which are necessary and useful for a new research field. On the other hand it has to be flexible and open,

because presumptions can change in the research process [34]. The method of grounded theory aims at giving a middle range theory related to a clear area that will be useful in practice. Interview transcripts and observation protocols were systematically evaluated in order to generate a theory. It is considered to be the best methodological background for this particular research because it aims at developing a realistic theoretical approach that makes the theory applicable in practice. It is a research approach that helps to develop a theory based on empirically collected data. Categories and codes play an important role; the data collected was transcribed and key points were marked with a variety of codes. Those codes were ordered into similar concepts, which then led to the development of categories that were used to develop the hypothesis. Memos were made in order to pin down hypothesis and to reflect on relations and patterns the data might contain.

This method is well suited for framing and guiding studies of sub cultural fields, of "small social worlds", and the problems and perspectives of its members because of the interactive participation of the researchers. Data collection interaction between researcher and research partner does not take place in the territory of the researcher, but in the environment or in the milieu of the study partner [36] (p. 39). Furthermore, it is a good way to research a previously little studied area. Quantitative material is used to provide empirical support for the research.

After having given a differentiated introduction on Environmental Migration and embedding it in its current role for larger Africa, the specific research results will be revealed. It has to be acknowledged that all results from the research in northwest Benin presented in the following are only an excerpt of the raw qualitative data acquired during the field research. All names of the interviewees given in this report, except for experts interviewed, are devised to ensure anonymity of the respondents. The interpretation of the interview transcripts and the identification of similarities and structures based on grounded theory are presented with clarifying citation in the following.

4. Findings

4.1. Migration Movements of Bialaba

"The Bialaba are farmers, we grew up working on the field with our parents. We are farmers and also like hunting. Furthermore the Bialaba like to argue. Since the colonization we signed up for school and also started small businesses" [37].

Due to the ethnic dominance in the area where the research was conducted, all interviewees belonged to the Bialaba ethnic group. The Bialaba are mainly agricultural workers and define themselves as farmers and livestock breeders. Hunting also plays a role in their self-image. In the field it became quickly apparent that most of the out-migration of the villages observed went towards Nigeria. Other destination countries mentioned in the interviews were Ghana, the Ivory Coast, Burkina Faso, Niger and Mali. Internal migration mainly focuses on the centre of Benin.

All of the countries that were mentioned by the respondents are part of the Economic Community of West African State (ECOWAS), founded in 1975. ECOWAS and the West African Economic and Monetary Union (also known as UEMOA from its name in French, *Union économique et monétaire ouest-africaine*) promote the economic integration of the regional member states [38], but also guarantee free movement across borders of the participating states [21] (p. 11). This can be seen as a major reason

for migration movements to neighbouring countries. According to the IOM, 98 per cent of the Beninese migrants reside in countries of ECOWAS. While the IOM saw the majority of Beninese nationals migrating from rural to urban areas within the region and beyond [19], the results of this research show a prevalence of rural to rural migration from farmers in Dassari and surrounding villages to productive soils in the destination countries. The migration movements of the interviewees can be seen in Figure 2. The size of the arrows shows the number of migrants with the same destination.

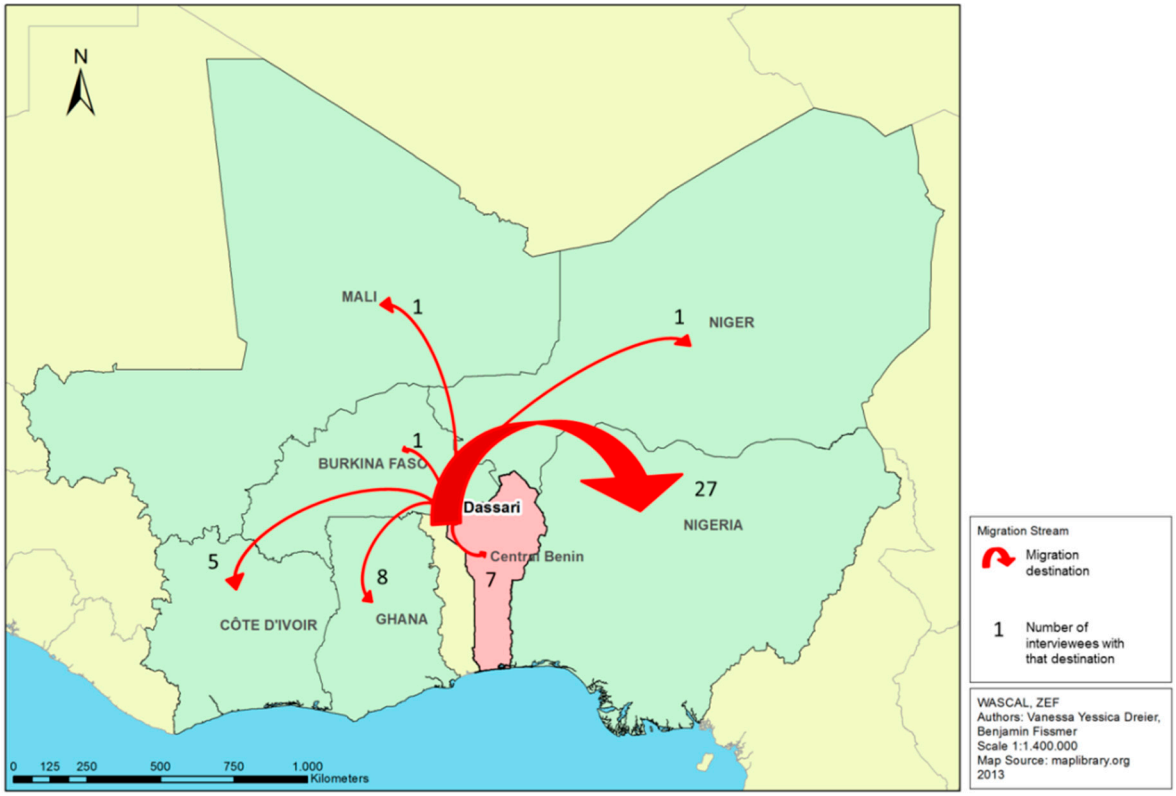

Figure 2. Bialaba Migration from the district of Dassari. Source: own survey; conception and graphic: V. Dreier, B. Fissmer (2013).

Doevenspeck (2011) analyzed internal migration movements in Benin and also came to the conclusion that migration on the national level is coined by rural-rural migration [28] (p. 55). For the Republic of Benin in general, as well as the researched area, Nigeria remains the number one migration destination with 69% of the emigrated population [19]. In the conducted interviews, multiple migration destinations were mentioned by single respondents. Nonetheless, 27 of the interviewees (as indicated on Figure 2) migrated to Nigeria at some point of their lives, representing about 84 per cent of the respondents. The prevalent migration pattern of the interviewees of this research was from the agricultural to the agricultural sector, migrating from rural areas in of the Republic of Benin to rural areas in Nigeria.

4.2. More Emigration than Immigration

The majority of the interviewees perceived a larger amount of people emigrating abroad than people coming to the area to settle down. People who migrated can be linked to the informal sector and

are mainly agricultural workers in search of employment in the agricultural sector. Although many Bialaba leave for Nigeria, they remain attached to ancestral practices and present a highly mobile group, often returning to Benin for family visits and obligations [24] (p. 382). Ba and Kouton (2006) also linked people leaving the country of Benin for neighbouring countries to the informal sector. For the global south they revealed that about 71 per cent of the people migrating belonged to the informal sector. In comparison, migrants of the informal sector migrating to countries in the global north only present 26 per cent [21] (p. 15).

> "There are people who immigrate, but their number is not as big in comparison to us who emigrate. There are the Fulani who come from Nigeria, but they are not numerous. They come for their small businesses, but not to settle down" [39].

Respondents stated that there are few people immigrating to the area, arriving from neighbouring countries [39–41]. They come for trade and small business, but not to permanently settle. The main group which settles in the Dassari area are return migrants. They worked and stayed in Nigeria for years and in time decided to come back to their home villages [42,43]. A group of people who started settling in the area of northwest Benin are migrants from neighbouring Burkina Faso. Inhabitants of Burkina Faso are facing problems with the productiveness of the soils at home and thus migrate to northwest Benin where soils are perceived as being more productive [44,45]. This migration pattern can be explained with the geographical location and accessibility of Dassari. It is located at the border with Burkina Faso in the far northwest of Benin.

On a national level immigrants from Burkina Faso play a rather small role, but they are very efficient in sectors such as trade and fishing. The largest foreign communities in the country of Benin are from Niger with almost 35 per cent, Togo with 22 per cent and Nigeria with 20 per cent other West African countries including Burkina Faso only amount to 11.6 per cent [19]. For the small number of immigrants, reasons for Benin as a country of destination are manifold and cannot only be linked to less productive soils in the migrant's home country [28] (p. 51). Immigrants in Benin mentioned the country's stable political system, growing GDP and improved economic activities as well as permeable borders as migration motivations [19]. It has to be acknowledged, though, that those reasons given by the IOM are more adequate for the coastal regions of Benin where industrially and economically relevant activities are concentrated. For migration to rural areas those factors hardly come into play - as will be revealed in the following.

4.3. Internal Migration

Migratory movements within the national borders of Benin play an important role for the Bialaba people. Seven of the interviewees migrated within Benin. In five cases, migration concerned adult farmers going to the centre and south of Benin to the areas of Borgou and Zou North to work on relatively productive soils as temporary migrants [24] (p. 382) [42,46–49]. The other two interviewees were male students. Their migration was directed to the same area, but for a shorter time period. The migration movements from northwest towards the centre of Benin can be explained with available soils in the centre, which was historically sparsely populated. In the past, central Benin served as a buffer area between the ethnic groups of Wasangari, Oyo and the Dahomey kings [28] (p. 55). Therefore, migration

patterns of the Bialaba from northwest Benin to Central Benin take place from rural to rural areas and are connected with paid agricultural work. All of the respondents migrated for a number of years and returned to their home villages at a later point of life to reinstall themselves there [42,48]. Doevenspeck (2011) analyzed migration on a national level and concluded it mainly consists of migration from the rural northwest to the rural centre of Benin [28] (p. 61f.). The Migration Profile for Benin reveals that regional migration flows within Benin have increased. Based on data from the 2002 Population and Housing Census, the number of regional migrants has increased from 78,000 in 1992 to 157,000 in 2002, revealing it has more than doubled [19]. No recent official data are available to observe the new trends as a new Beninese general census has been undertaken since 2012 and data is now being entered at the time this paper is being written. A second interesting group of internal migrants are the migrating students of Bialaba ethnic group. They migrate to the centre of Benin during the school vacation period. Working in the agricultural sector, they help farmers with their farm work [50]. The money they earn during this short-term migration is used to pay their school fees and those of their siblings [41,51]. The motives mentioned for internal migration are the availability of soils for agricultural production and the possibility to find paid work in the agrarian sector in Benin's centre [42,47,49,51]. Thus, it is caused by a mix of environmental and economic reasons. Social practises also come into play, as exposed by the example of migrating Bialaba students. Older siblings are responsible for paying the school fees for the whole family and migrate to earn the necessary money [41].

4.4. Cross-Border Migration to Southwest Nigeria

Emigration movements of the interviewees are mainly directed towards Nigeria. The town of Saki in the state of Oyo was mentioned as a primary migration destination [40,43,48,49,52–56]. But also other towns like Abeokuta the capital of Ogun, Issangue and Adjuba were brought up multiple times during the interviews. Respondents' destination states Oyo and Ogun are in southwest Nigeria. The naming of Saki as primary destination for migration can be explained by a variety of factors. Firstly, it is directly bordering Benin. The short distance to their home country makes Saki a favourable migration destination for interviewees [40,42].

Transportation costs also come into play, explaining migration movements to a certain area. Respondents mentioned they explicitly chose Nigeria due to relatively low transportation costs: "I also heard of Ghana, but because of the distance I could not pay for transportation costs for me and my two wives to go there. Nigeria is closer" [42]. Moreover, the infrastructure and transportation system to Nigeria is well developed. It can be reached through a paved street, either by private bus or taxi within one day [57]. Thirdly, all vehicles from northwest Benin reaching Nigeria have their first stop in Saki. From there, migrants chose their final destination, either by staying in the state of Oyo or by continuing their travels [40].

To analyse reasons for migration towards Nigeria more in detail, a differentiation was made between environmental, social, and economic factors, as revealed in Figure 3 below.

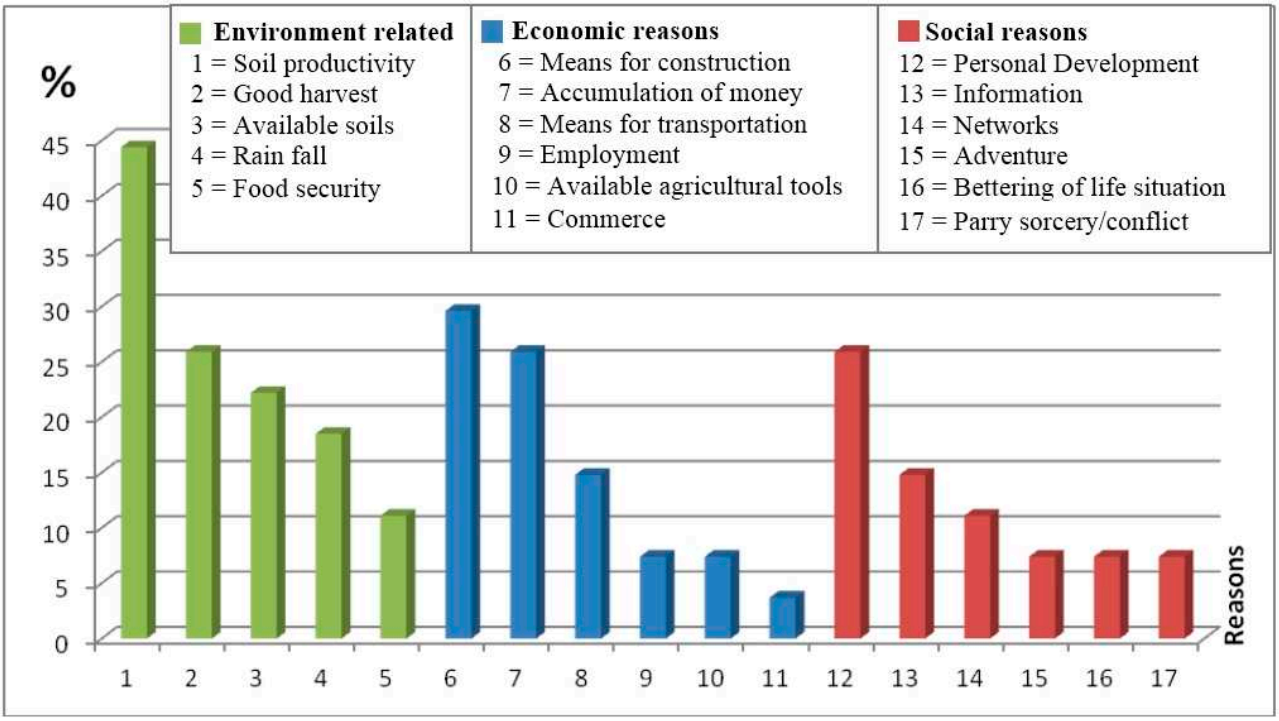

Figure 3. Bialaba' reasons for migrating to Nigeria (multiple statements permitted). Source: own survey; conception and graphic: V. Dreier (2014).

Nigeria's soil productiveness was the main motive mentioned for choosing Nigeria as country of destination. It was mentioned in almost 45% of the interviews. In contrast to the Republic of Benin, respondents perceived dense vegetation and trees in Nigeria. Beninese soils are described as dry and full of laterite [37,54,57–60]. The productiveness of Nigerian soils supports successful cultivation and harvesting - being the second environmental related reason for migration [40,42,59]. Available soils in Nigeria also play an important role, as land in northwest Benin is very limited. The soils are described as argillaceous and more nutritious and it is noted that they can be ploughed by hand [39,60–62]. The usage of fertilizer for corn cultivation is not common in Nigeria. Moreover, regular rain fall which facilitates cultivation, is often cited. All of those factors further guarantee food security, which is not a given in northwest Benin. As economic reasons for migration to Nigeria, about 30 per cent of the interviewees state the goal of construction. They migrate to Nigeria and return with means for building their own houses in origin at the end of their stay. Migration for the accumulation of money also is a very important factor for the Bialaba. The migrants then return to Benin with the money they accumulated during their stay. The money is used for manifold purposes—from livestock to buying crops. The acquisition of means for transportation is another reason related to migratory movements. In general these vehicles are bikes and motorcycles.

The prospect of finding agricultural work is also a factor favouring migration to Nigeria—due to its productive soils. Landowners in Nigeria are looking for low-skilled agricultural workers to cultivate their fields. Migrants who go to Nigeria usually start a relationship with a landowner, called *tenure system*. The newly arrived migrants start working on the landowner's field. In compensation the migrants share their harvest at the end of the season with the landlord [42,55,59]. Jean-Pierre Chauveau also realized this phenomenon for the area of southern Benin. He reveals a considerable number of young

migrants from the Adja plateau arrive and seek for land for cultivation [63] (p. 11). What has been described as tenure system would be similar to Chauveau's category of "lema contracts" [63] (p. 12), where a laborer works for the plantation owner in the morning, while cultivating his own field in the afternoon and sharing the outcome at harvest time.

Moreover, the lack and cost of agricultural tools in northwest Benin were revealed as reasons for migration to Nigeria. It is stated that in Nigeria tools are available, but are not needed as urgently as in Benin [39,43]. Commerce can also be seen as a reason for migration movements, but only plays a marginal role [46,55,64]. Apart from environmental and economic reasons, a variety of social factors influenced the decision of Bialaba to migrate. A quarter of the interviewees saw personal development outside of the Bialaba community and family bonds as cause for their migration. Information that spreads in the area of Dassari about possible emigration destinations is concentrated on Nigeria and further favours migration movements. The same is valid for social networks. People in the villages where the interviews were conducted often had family members or friends who had already migrated to or were currently in Nigeria. Thus, a relation with the destination country had already been established over the years and awareness of conditions elsewhere also enters the evaluation process for migration [65] (p. 51). Moreover, available resources in Nigeria were mentioned as pulling factors for migration movements [41]. The working and living conditions in Nigeria thus attract many immigrants [42,47,56,57,66].

Respondents revealed that 20 to 25 years ago police controls at the villages would prevent young people from migrating. In order to circumvent those restrictions, people planning to migrate would walk until Natitingou, which is about 75 km away. From Natitingou they continued by taxi. Presently, none of the interviewees were aware of any restrictions that would prohibit migration to neighbouring countries [39,50,67]. Recently, migrants who cross the border to Nigeria have had to pay a residence permit. In two interviews the price for this permit was mentioned as 2500 CFA, about 4 Euros [57,64].

> "Everyone without exception migrates to Nigeria, it is not only the Bialaba. All countries are represented there. Everyone is there because it is good and easy" [53].

It has to be acknowledged that it is not only Bialaba migration that takes place to Nigeria. Other ethnic groups and even other countrymen also go there, because of its good reputation in terms of access to land. The reasons for migration to Nigeria in this chapter seem to be representative for the migration of other Beninese ethnic groups as well. The IOM identified poverty, difficult climatic conditions, dwindling natural resources and demographic change (discussed in chapter 6.5.1) as main motives for Beninese emigration. Those points were mentioned in the research area as well. A motive which was mentioned by the IOM, but not by interviewees, was the increase of living costs [19].

Migration to neighbouring countries other than Nigeria plays a secondary role in the analysis of cross-border migration of Bialaba. Nonetheless, motives for migration movements to these other neighbouring countries are presented in the following paragraph. The country of Ghana was mentioned eight times as destination area for the interviewed Bialaba migrants. The majority of interviewees migrated to Ghana to do agricultural work and linked it to poor soil conditions and harvests in northwest Benin, but also for enjoyment [52]. Whereas migration to Nigeria was seen solely as labor migration, "in the city of Encoco in Ghana I worked in the cocoa business, but I went there to develop and enjoy myself. I went to Nigeria to really work" [49]. Migration to Ghana to a smaller extent also took place to work in areas outside the agricultural sector, for example as seller or tailor [46,56]. Niger and Mali were

mentioned as destination for migration linked to trade activities [46]. Ivory Coast was associated with good land and prosperous economic activity; Bialaba emigrants who migrated here worked in the agricultural sector [45,52,56,68]. No explicit reason was mentioned for migration to Burkina Faso [69].

In relation to the migrants' responses, the availability of productive land and the opportunity to save money and buy materials through emigration have to be considered as main drivers for migration among the Bialaba. Migration is caused by a fusion of different aspects where "reasons of [...] progressive changes in the environment" [13] can be seen as the major factor, but not as the sole driving force for Bialaba migration.

Two of the respondents stated that there was also a change in the rain fall pattern and harvest outcome in Nigeria these days. They cited a drop in precipitation in Nigeria as leading to a cut of the harvests there. Although this was only mentioned by two interviewees and also displayed as not being as severe as in northwest Benin, it has to be considered as significant for future migration movements of the Bialaba [53,56].

4.5. Profile of Male Migrants

Through the evaluation of the data, several profiles of migrants emerged. It became obvious that migration movements from the Dassari watershed area towards Nigeria are mainly characterized by male migration. The interviewed women predominantly stated that the decision to migrate was made by their husbands. The majority of male migrants were unmarried and without children during their first migration, but multiple migrations are very common among the Bialaba. Doevenspeck's study on Environment and Migration in North Benin underlines this migration pattern. He conducted interviews in a destination area for migration in the centre of Benin. The largest part of the interviewees he consulted did not directly arrive from their home villages to his study area, but migrated numerous times throughout their life course [28] (p. 61). In comparison to his study, we are aiming at analyzing cross border movements between Benin and Nigeria. Migration to Nigeria among the Bialaba respondents of this research took place primarily in the age group between 20 and 45 years. Temporary migration plays a significant role in the analysis of Bialaba migration. The journey to Nigeria is often limited to the dry season in Benin.

> "There are many people who emigrate. There are still more people who migrate in the dry season to work abroad and return afterwards. They go abroad to do agricultural work and return with motorcycles and building material. My children also went abroad, that's why I have a zinc roof on my house. Many go to Nigeria at the moment. The Ivory Coast is a bit too far, but there are also people who go there. In recent years, many more people have gone to Nigeria in search of a better life, because the rain was not sufficient here" [58].

It was revealed in the interviews that Bialaba migrants who go to Nigeria are able to work a second harvest there. While Benin has a long dry season from November until April [23] (p. 15f.), Nigeria still has rain fall during that time. So instead of staying in Dassari not being able to cultivate, Dassari men chose to temporary migrate to Nigeria and return to their home villages in Benin when the rains arrive [43,64]. The rainy season starts in February or March in the coastal and south-eastern regions of Nigeria. In the far north it only commences by June or July. The states of Oyo and Ogun, which were

mentioned as primary destination regions, are located towards the southwest and coastal regions of Nigeria. In the Climate Change Knowledge Portal of the Worldbank, the rain season for the two states of Oyo and Ogun has been documented to commence in April in average in the years between 1990 and 2009 [70].

In August, a dip in rain fall is perceived, but it is rarely completely dry in Nigeria. This dip is even considered useful for agricultural work. Due to the brief drier period grain harvesting is possible. From December to February the Harmattan winds arrive in Nigeria. Thus, migration patterns from northwest Benin to southern Nigeria could be explained as deriving from fewer natural restrictions for cultivation. The dry season in Nigeria is significantly shorter and strong winds are not as present in the south of Nigeria as in northwest Benin [71].

It is also remarkable that Bialaba migration never takes place individually. All migrants interviewed were accompanied by somebody to Nigeria and other migration destinations. They were mainly "escorted" by friends or siblings who had migrated to the destination areas before. It was stated that no Bialaba can leave by himself, which seems to be a culturally instituted practice [67]. Very common also is the desire to return to the village of origin to pass one's final years of life at home. Most migration movements take place for a goal - the construction of roofs of sheet metal or earning and accumulation to pay bulls, tractors, mills, school fees or even for daily necessities. With the achievement of their goals or the coming of old age, the former migrants return to their villages to settle down.

> "When I left, I did not leave to stay. I left for a purpose. And as I reached my goal and got older...My goal was to build a house, have a mill, a bicycle, a motorcycle...I got it all" [67].

Other interviewees linked their decision to return simply to family and environmental bonds, "every migrant who went out always wants to be at home after a while" [47]. The opinion that it is favourable to die at home rather than to die abroad was also mentioned as a reason [49,72]. Another important reason for the Bialaba to return to their home villages is the death of a family chief. There upon the responsibility for the family falls in the hands of the oldest son. In the event he has migrated, the eldest son returns to his village of origin, settles in his father's house and takes charge of family obligations. Eric and Romaric returned from Nigeria to their villages in Benin for that specific reason [61,69].

4.6. Profile of Female Migrants

In comparison to the male migration profile presented previously, a profile of female migrants also emerged. Although the research aimed at interviewing an equal amount of male and female migrants, finding female migrants in the Dassari area was much more difficult. Among the interviewed female migrants, three types of women who migrate were identified. The first type represents widows or women who have been left by their husband and decide to migrate. Secondly, indicating the majority of cases in this research, there is female migration based on women who migrate with their husbands. The third type which became obvious in the study are women, who migrate with the widows or divorced women to work in bars, sell drinks or work as a maid or servant.

> "There are women who have already been there [in Nigeria]. Now they return and take girls, widows, or women who have been left by their husbands to work as domestics or in bars" [56].

A problem associated with female migration was revealed in the interviews. Women who migrate without their husband are socially stereotyped and have a similar status to prostitutes within the Bialaba community with a position on the edge of the society [55]. Certain male migrants being asked about female migration go as far as stating some female Bialaba migrants prostitute themselves to get by in the destination country [49]. Grier also revealed this perception of unmarried women migrating to urban areas being regarded as prostitutes and social misfits [73].

On a broader picture it has to be considered that female migration has become more significant over the past decades [50]. Not only for the ethnic group of the Bialaba, but also for other ethnic groups within Benin a rise in migration movements of females has occurred [21] (p. 4). Ba and Kouton (2006), who analyzed migration patterns on a national level, revealed that the majority of Beninese women who migrate can be located in the employment sectors of catering and domestic work. The authors see this prevalence as an extension of the women's domestic activities in their country of origin [21] (p. 23). Moreover, they emphasized that the most significant reason for female migration is accompanying their husband. The authors found out that 60 per cent of female migration can be explained with family reunification and family migration [21] (p. 14).

Surveys conducted in the framework of REMUAO (*Réseau Migrations et Urbanisation en Afrique de l'Ouest*) in 1997 have shown that migration in countries such as Mali, Senegal and Niger is characterized equally by female and male migration. In neighbouring Burkina Faso migration from rural to urban areas is especially a female phenomenon [21] (p. 14). Adepoju also revealed in one of his studies on West Africa that the emigration of unaccompanied married females had blossomed and links this "feminized migratory movement" to a major survival strategy in response to severe and aggravating poverty in the sub-region [74] (p. 2). Esther W. Dungumaro, Gael le Jeune and the ACP Observatory on Migration also analyzed this phenomenon in further case studies for the countries the specific countries of Tanzania, Burkina Faso and Senegal, supporting Adepoju's observation and giving further details on motivation motives and consequences [75–77].

In some contexts in rural West Africa, as is the case for the Dassari research area, it is still not perceived as acceptable for women to engage in productive labor outside home. Migration away from their environment as wives and mothers is an option rarely contemplated [78]. A factor that did not become obvious in the interviews but was revealed by Ba and Kouton (2006) among others is that of illegal migration and human trafficking of women and children across Beninese borders today [21] (p. 7f.) [79,80].

4.7. Insights for Living with Climate Change in the Dassari Watershed Area

After analyzing migration movements towards Nigeria and giving a profile of the Bialaba migrants, the causes for this specific migration pattern will be set in relation to climate change perceived in the region. This approach shall allow a deeper insight into motivations for migration and help to distinguish between different drivers for migration.

> "There is a significant change in climate. The soils are degrading, heat is attacking us now and rain is becoming a rare occurrence. Nowadays the rain does not fall in the same way it did during the time of our grandparents" [49].

When interviewees were asked about their insights on climate change in the region, they often compared their present situation with the time of their grandparents and the way they lived. Nature worship plays an important role for the Bialaba. Tribal elders are responsible for the execution of rites to gain nature's favour. Sometimes the role of those elders called "wise men" was mentioned as a possible cause for climate change. The Bialaba believe loss of respect towards the so-called "sage" and generally negligent cultural practices could be the cause of changing climatic conditions in the area they inhabit [41,45,49]. Fetishes to ask for rain and good harvest can still be seen across agricultural fields in the area. Wise men place them during ceremonies for offerings by land owners.

Overall, every person interviewed saw a rapid change in climate during the last thirty years. In particular, the changing beginning and duration of the rain fall season was often mentioned. Droughts and heat were perceived as occurring more often in the region and interestingly some of the interviewees mentioned that strong destructive winds came along with rain in recent years. It has to be considered though that no scientific evidence was available to contextualize the inhabitants' perception of changing wind strength.

4.8. Precipitation

Numerous interviewees stated that rain has become a rare occurrence in the Dassari watershed [53,55,59,64]. Moreover, it is remarked that once the rain arrives it does not last long [40,43,44,48,55,64]. According to the respondents, the rain fall used to begin in April more than ten years ago and lasted for a period of six months [45,68]. The rain period was known in the village and ancestors were aware of the best starting point for sowing [39,60]. Nowadays this is not the case anymore, the rain fall has become irregular and predictions for the arrival of rain and best cultivation periods are hard to make [50]. Currently rain fall starts between the end of June and middle of July. In case of the research performed in 2013, regular rain fall only began in early August. Two extremes are perceived in the region, sometimes the rain starts so late that the plants are not able to grow, or the rain cuts in the middle of the rainy season with the same result. On the other hand, at times the rain lasts longer than expected and thus destroys the plants [43,52]. In both events, harvests are damaged, and the reap is not enough to support the farmers and their families.

Maps produced by the Climatic Research Unit (CRU) of the University of East Anglia (UEA) and provided by the World Bank, compare the mean historical monthly temperature and rain fall in Dassari for the years 1960–1990 and 1990–2009 [81,82]. Unfortunately, the rain fall maps of the World Bank are only available until year 2009. While the first heavy rain fell in March in the years between 1960 and 1990, the first important rains were recorded in April in the time period between 1990 and 2009. This presents a rain fall shift of one month for the given periods. At the same time the rain period shortened. While it lasted eight months from March to October in the years 1960 until 1990, from 1990–2009 it had already reduced to a seven-month rain fall period (April–October).

Moreover a change in precipitation was noted. In the time of highest rain fall—in the month of August - there was on average 240 mm from 1960 to 1990. In the years between 1990 and 2009 there averaged only 210 mm in August. According to the Communal Development Plan of Materi, precipitation presently covers the months of May to October, but the Worldbank data reveals precipitation was already documented in April by CRU. The highest rain periods are in August and

September according to the Communal Development Plan, but the Worldbank figures suggest that rain is most prevalent in July and August. The annual precipitation in the region was specified with 1000 mm per year, this is confirmed by the Worldbank data, where precipitation adds to about 910 to 1000 mm [23] (p. 15f.).

The occurrence of rain accompanied with wind also plays a very important role in the watershed area. Respondents mentioned that strong winds were perceived to have arrived within the last ten years. While according to the majority of interviewees wind arrived separately from rain in the past, nowadays they come together [37,49,83]. Houses made of loam are especially vulnerable to the destructive force of rain and wind [50]. Figure 4 shows a traditional Bialaba house made of loam, which was destroyed through a heavy rain fall accompanied by wind during the research period in the village of Dassari. One interviewee goes so far as to say that in former times there was no such wind. "Rain came alone; today rain and wind come together and destroy everything" [83]. At other times, heavy clouds are perceived along with heavy winds, but it does not rain at all [62].

Figure 4. House destroyed by rain and wind in Dassari. Photo by: V. Dreier (2013).

4.9. Droughts and Heat

Interviewees agreed that heat has become more severe in the region. Some respondents link their higher perception of heat with the lack of rain: "there is no rain, and because there is no rain, there is a lot of heat, the two go together" [43]. The heat the Bialaba cope with today is regarded as a true drought in the region—plants and crops hardly grow under the climatic conditions [48,50,62,84]. Other respondents see a change in temperature over time and reveal it becomes more intensive.

> "Life has changed and so has temperature. Nowadays it is hotter than before. There was heat before, but it was followed by rain and wind that allowed us to breathe. Today the wind is dry, it is unbearable. Rain is scarce and heat becomes more and more intense" [39].

The Worldbank data reveals that there really has been a change in temperature. While the highest temperatures between 1960 and 1990 were in March and April at around 31.5 degree Celsius, it was above 32.5 degree Celsius in the same months between 1990 and 2009. Farmers in Dassari also see influences of climate change on their harvests. Many farmers state they are obliged to work bigger surfaces than their grandparents. At the same time the harvest is less than that of their ancestors [55,64,83]. Interviewees explain that their expectation of a harvest at the beginning of the cultivation season is often not fulfilled. They complain that the harvest does not correspond with the work done on the field, which was the case before. Lack of rain is seen as a major reason for the harvest reduction [55,59,83].

Apart from missing rain, farmers also see the lack of productive agricultural land in the region, demographic change and the excessive use of fertilizer as reasons for difficulties in the agricultural work and production processes. A minority of interviewees explain the expansion of the cultivation area with a different approach. They explain that their grandparents only worked for their food. Nowadays people in the area work greater surfaces to have a bigger harvest than that of their grandparents. Farmers today want to sell part of their harvest to afford other goods [83]. One interviewee stated that the world today had changed. Priorities now were amusement and the earning of money—becoming the absolute value for society [47].

An expert from the Agricultural Regional Centre mentions that people migrate because they do not understand the climate in their living environment anymore. At the same time they hear it always rains in Nigeria and there is a humidity that allows cultivation at any point [66]. In the district of Atakora, doing agricultural work is simply impossible during the dry season [55,68,83].

> "People migrate, because they do not understand the changing climate. The change in climate is not favourable to agricultural work anymore. It is now said that it is favourable in Nigeria, therefore many farmers leave for the latter country" [66].

Respondents mentioned that it changed in addition to climate variability over a comparable time period by comparing it to past generations, which is underlined by the data given by CRU.

4.10. The Water Resource

The role of the water resource for the farmers living in the Dassari area is very fundamental in their day-to-day life. Water is needed for drinking but also for agricultural work, to wash, to clean, to cook, and so on. In the rainy season, water is available at the local pump of the village. Due to the shortening rain season in the district of Atakora as revealed above, the extension of the dry season aggravates the water situation, because the area is not toted of enough water reservoirs. In the dry season there is barely enough water to fulfil the people's needs in Dassari and the surrounding villages. Water is only available limitedly at the public local pump during the dry season: "It's a fight during the dry season. If you're not strong enough, you will not find water" [83]. The disputes arising among the population concerning the spare water resources available during the dry season sometimes even get physical: "There are always fights about it, and people beat each other on it" [83]. Many inhabitants have to buy water in the dry season from private fountains or search for water after several kilometers

elsewhere [56,59,83]. The respondents explain that during the dry season they have to make sacrifices to fetch potable water and invest about seven hours per day to get it [39].

Former migrants state that in their opinion, people would not decide to migrate if water was available at all times. If there were retained water resources or dams to preserve water from the rainy season for the dry season, inhabitants would be able to work in the dry season [46,47,50]. An observer reveals that there was a natural backwater in Dassari around thirty years ago which contained water during the dry season. Today, it has become dry [84]. It is mentioned that Burkina Faso in comparison preserves water for the dry season and people there are thus capable to cultivate vegetables in certain areas [58].

News recently drawn from the Dassari watershed pointed out that an irrigation project is anticipated in the specific research area. It was made public in November 2013 by the General Directorate of Water Resources of the Ministry of Mines, Energy and Water Resources (MMEH), shortly after this research was conducted [85]. It shall be implemented in the Atakora district, but it is not yet clear which villages will have access to the project and when and how exactly it will be realized. It therefore remains an open question as to whether the implementation of such an irrigation system can reduce water and food insecurity issues for the inhabitants of the area during the dry season.

5. Discussion and Conclusions

The main findings of this study help to understand patterns of Bialaba out-migration. It showed that the Bialaba migrants are mainly male and below the age of forty-five. A tendency towards a feminization of migration has also become apparent for northwest Benin. Moreover, the migration pattern analyzed took place from rural northwest Benin to rural southwest Nigeria in search of employment in the agricultural sector and productive land—predominantly during the dry season of Benin. Environmentally related causes for migration were mentioned as driving factors in almost half of the cases looked at. These factors were revealed in the form of climatic changes present in irregular rain fall, increased temperature and the occurrence of strong destructive winds. Furthermore, diminishing soil productivity and difficulties in cultivation as well as a lack of soils were perceived by the inhabitants of the research area in northwest Benin. All of these factors lead to reduced harvests, thus causing food insecurity in the region. Therefore, it could be looked upon as Environmental Migration, as Figure 5 suggests.

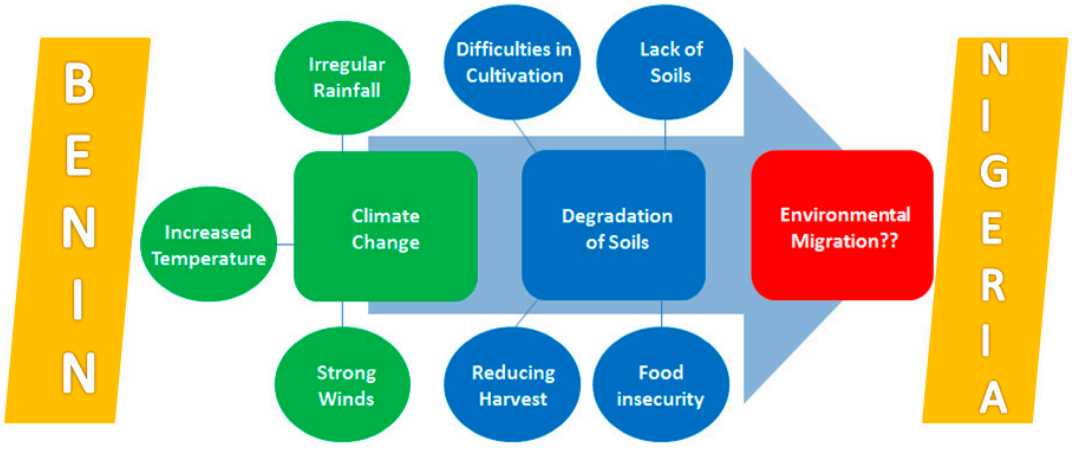

Figure 5. Possible Environmental Migration caused by Climate Change in the Dassari watershed area. Source: Conception and graphic by V. Dreier (2014).

Nonetheless, the results of this study clearly show that beside environmental degradation, social structures and economic factors impact migration decisions. Moreover, the interdependency between environmental change or crisis and economic consequences on the one hand and social, cultural and political conditions on the other, makes it difficult to achieve a clear distinction of motives. And as Lonergan points out:

> "It must be recognized that the degradation of the environment is socially and politically constructed; only through a structural understanding of the environment in the broader political and cultural context of a region or country can one begin to understand its 'role' as a factor in population movement" [86] (p. 12).

In the case of the Bialaba in northwest Benin other significant driving factors which favoured migration can be found outside the environmental sector. In particular, economic reasons and a lack of materials and tools to undertake a profitable agriculture seem to encourage many young Bialaba to migrate. Moreover, missing employment opportunities favoured often the movement. Social factors also played a significant role in the decision progress. Limited space for personal development in the villages of origin as well as information exchange and social connections to communities in the destination area resulted in migration. Additionally, witchcraft and family disputes influence the decision of respondents to migrate.

It was revealed that not only dissatisfaction at home causes migration. Favourable climatic conditions in Nigeria attract many Bialaba and support them in their wish to migrate. Such driving factors identified were available productive soils in the destination regions in West Nigeria. Moreover, favourable climatic conditions in the form of regular rain fall and longer rainy periods, facilitating agricultural work, attract many Bialaba. Through a tenure system of subleasing of productive land from Nigerian landowners, the Bialaba migrants are able to cultivate great surfaces. In return they offer a part of the harvest made on the surface to the landowner. Due to better harvest results in Nigeria it allows the migrants to store a part of the harvest. This gets either taken home to Benin at the end of the dry season or it is sold and the money is sent or brought to Benin through informal channels. Thus, the opportunity for crop and money accumulation is another driving factor towards Nigeria.

It has to be acknowledged that even the definition of the IOM revealed in the introduction of this paper remains very vague and is only one of many definitions that exist. Therefore, a terminological ambiguity exists to begin with. Moreover, the voluntary circumstance to migrate which is granted by the IOM definition, stating Environmental Migrants are emigrants who "are obliged to leave their habitual homes, or choose to do so" [13] (p. 1f.) makes it very difficult to clearly distinguish Environmental Migrants as one group and to link certain rights to their status. It is impossible to identify a migration stream as solely environmentally induced [87]. Interestingly the analytically weak concept is very prominent on the agendas of powerful organizations. It remains without a clear definition or strategic approaches for a common agenda to face the challenge and can thus be evaluated as being often politically instrumentalized.

For the study, environment alone cannot explain cross-border migration from northwest Benin to Nigeria. Migration remains a selective process driven by factors on different levels. For the Bialaba it was a mixture of demography, economy, environment and society that led to their decision to migrate. Moreover, persistent immigration itself causes and enforces social and economic change in the region

and consequently brings about new migration, which is explained by the Judex model [88] (p. 142). Judex demonstrated land-use dynamics in Central Benin and revealed that considerable immigration of farmers leads to deforestation and decreasing soil fertility.

Transmigration has to be considered instead of a unidirectional perspective on migration from northwest Benin to Nigeria. Although the inhabitants of the area revealed more people were emigrating than immigrating to the research area, temporary migration played an important role in the migration process. Many interviewees only migrated during the dry season and returned for agricultural work during the rainy season of Benin. Other interviewees stayed in Nigeria and other neighbouring countries for years to work in the agricultural sector to accumulate money and returned to their home villages. For the Bialaba social networks also had a substantial part in the migration pattern towards Nigeria. Almost all of the interviewees had social ties in the form of friends or family to Nigeria and eighty per cent even got support in form of money or agricultural goods through those channels. These ties also shape and encourage migration movements from one country to another. Furthermore, migrants from other countries settling in northwest Benin should be analyzed concerning their number and impact on the region. In particular, immigrants from Burkina Faso, Mali, Niger and Togo, settling in the watershed area were continuously mentioned.

Although environmental destruction is hardly the only reason for migration, the developing consequences of climate change will affect a large number of people and lead to national and transnational migration. The UNHCR and the IOM identified two types of Environmental Migrants, which could be a first approach towards a common definition and understanding of the term. Firstly, there are environmentally motivated migrants, defined as persons who "pre-empt the worst by leaving before environmental degradation results in devastation of their livelihoods and communities. These individuals may leave a deteriorating environment that could be rehabilitated with proper policy and effort" [89] (p. 23). This movement can either be temporary or permanent. Environmental forced migrants on the other hand are defined as persons who are "avoiding the worst. These individuals have to leave due to a loss of livelihood, and their displacement is mainly permanent. Examples include displacement or migration due to sea level rise or loss of topsoil" [89]. This differentiated definition could be useful for policy action and with this distinct classification, it would only be a logical step to include environmentally forced migrants or "Environmental Refugees" into the United Nations Convention Relating to the Status of Refugees. On an international level, consequences of climate change for human migration are considered in the Cancun Adaptation Framework of 2010 in paragraph 14f [90] (p. 5).

Low income countries are especially affected by the upcoming challenges climate change poses. The case study on the Bialaba serves as a good example of the impact of climate change on the West African region and how it influences social structures, because in most of West Africa—including the research area—the majority of the workforce is involved in agriculture [91] (p. 18). At the same time, it is the most vulnerable sector to climate change. The region will especially have to find strategies to cope with the degradation of the local environment—including desertification and droughts—in order to sustain livelihood for its population and to preserve its biodiversity. Climate change may also lead to deeper socio-economic and political problems, since it favours migration, because people cannot continue living in the area of origin. The question is, for how long the migratory trends and routes of Beninese, from the North of Benin towards Nigeria, will last.

Supplementary Materials

Supplementary materials can be accessed at: http://www.mdpi.com/2071-1050/7/3/3175/s1.

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Author Contributions

Vanessa Dreier addressed the subject in her Master thesis at the University of Bonn in cooperation with the Centre of Development Research. Papa Sow was her tutor and helped her develop the research design. Vanessa Dreier performed the research in Benin and discussed and analyzed the data with Papa Sow. The paper was written by Vanessa in cooperation with Papa Sow.

Conflicts of Interest

The authors declare no conflict of interest.

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