

Environmental Change and Forced Migration: Evidence from Sub-Saharan Africa

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Abstract

Environmental degradation, desertification, and deforestation along with natural disasters like floods or droughts are all factors which result in migration as a coping strategy of households. Environmental changes are especially pronounced in Sub-Saharan Africa (SSA). Land degradation is nowadays of major concern to 32 countries in Africa; about 65% of the cultivable lands have degraded due to erosion and chemical and physical damage. The loss of forest annually amounts to more than 4 million hectares – twice the world's average deforestation rate. Over 300 million people in SSA already face water scarcity, and areas experiencing water shortages in SSA are likely to increase by almost a third by 2050 (UNEP 2008). Against this background, the question arises to what extent environmental factors currently and in the future are likely to trigger migration. To shed some light on the question, this paper provides latest figures and information related to environmental changes and migration flows in SSA. The evidence from different branches of the literature - environmental sciences, migration research as well as development economics - is analyzed. A more focus view is given from the perspectives of the four countries Ghana, Mozambique, Niger, and Senegal.

Keywords: Sub-Saharan Africa, migration, environmental degradation, natural disasters, vulnerability

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1 Introduction

As Suliman (1994) argues people begin to move “whenever land degradation is coupled with political pressure, armed conflict, ethnic tension, growing poverty, deteriorating services and infrastructure”. Socio-economic and political factors accelerate the chain of processes leading to migration and conflict. In Sub-Saharan Africa (SSA), most of these factors are very pronounced leading to migration flows of significant dimensions. However, little attention has been put on the question to what extent environmental factors currently and in the future are likely to trigger migration. Environmental degradation constitutes the African push factor for environmental migration. But environmental degradation can be also a cause and a result of poverty as well as of war and conflict.

In 2005, 34 of the 50 least developed countries were located in Africa (UNCTAD 2005). In 2004, 41% of the population in SSA lived in extreme poverty and 31% of the population had to live with insufficient food within the years 2001-2003 (UN 2006, 2007). Between 1993 and 2002, violent conflict prevailed in 27 out of 53 African states. Against this background it is not surprising that Africa which accounts for 12% of the world’s population, hosts around 28% of the world’s refugees and almost 50% of the world’s internally displaced persons (Crisp 2000). At the end of 2005, almost 20% of all African migrants were refugees (Kohnert 2007). But how many people migrated due to environmental reasons?

To shed light on this question, the paper concentrates on changes of different environmental factors like land degradation, severe droughts or floods as well as different aspects of migration in four selected SSA countries, namely Ghana, Mozambique, Niger and Senegal (Figure 1, Appendix). Its objective is to discover and describe the causes of forced migration in relation to environmental degradation occurring in these countries. To achieve this objective, relevant literature and statistics, drawing from diverse secondary sources and different disciplines, are considered. The structure of the paper is as follows: after the introduction, the second chapter starts out by giving an overview of socio-economic, cultural and political framework conditions in SSA countries. To analyze to what extent migration may be driven by environmental factors like severe droughts or flooding, the third chapter focuses on the environmental problems and policies given in the selected SSA countries, while the fourth chapter describes the resulting migration trends as well as migration policies. Chapter 5 concludes.

2 Background information

Sub-Saharan Africa is a region in constant transformation and with great country-specific diversities in performance. Several countries have sustained significant growth rates over the last ten years, and many have achieved progress in poverty reduction, life expectancy, and other Millennium Development Goals (MDGs). These are Ghana,

Senegal, Cape Verde, and Uganda, while others have experienced modest or even negative growth rates and increases in poverty (World Bank 2008).

In 2004, **Ghana** had a population of 21.7 million on a total surface area of close to 240,000 km². The population is concentrated along the coast and in the major cities Accra, Kumasi and Tamale. Due to North-South migration within Ghana, almost 20% of the people born in Northern Ghana are now living in the Southern part of the country (Ghana Statistical Service 2002). Close to 40% of the population is under the age of 15 in 2004 (UNDP 2006). About half of the population is Christian, about one-fifth is Muslim, and another one-fifth adheres to the traditional indigenous religions. Christian influences are dominant in the Southern part of the country, while Islam is strongest in the extreme North and in the larger urban centers. There is a large variety of subgroups (by language), with the Akan, Mole-Dagbani, Ewe, Ga-Adangme, and Gurma as the largest ones. Ethnic consciousness persists, and at times tensions have erupted, especially in Northern Ghana. But the general policy is to play down ethnic differences. The adoption of English as the official language has supported this effort (Encyclopædia Britannica 2008).

Ghana gained its independence in 1957. In 1966 it experienced its first military coup. After decades of corruption, mismanagement, and military rule that hindered growth, the state of affairs of Ghana began to show signs of improvement by the 1990s. Currently, Ghana is seen “as an example of successful economic recovery and political reform in Africa” (Encyclopædia Britannica 2008). The Ghanaian economy is experiencing a steady growth for the last few years, with an annual real GDP growth rate of 5.8% in 2005, strong growth of exports (5% rise in 2005), and an increase of imports (9% increase in 2005). In addition, the fiscal deficit continued shrinking (World Bank 2007). Despite the overall economic progress, it still faces significant development challenges, especially in the rural areas and the Northern part of the country. In 1990-2004, 45% of the population lived on less than US\$1 a day, and almost 80% on less than US\$2 a day. The Human Development Index (HDI) ranks 136 out of 177 countries (UNDP 2006; UK Foreign & Commonwealth Office 2007).

The population of **Mozambique** is estimated to amount to 19.8 million with 35% of the total population living in urban areas especially in the greater Maputo area (European Investment Bank 2007). The total surface area covers about 800,000 km². In 1998, 99.66% of the population was made up of indigenous tribal groups, including the Shangaan, Chokwe, Manyika, Sena, and Makua. Overall, there are ten major ethnic clusters. The largest, residing north of the Zambezi, is the Makua-Lomwé group, representing about 37% of the total population. South of the Zambezi, the main group is the Tsonga (about 23%), who have figured prominently as Mozambican mine laborers in South Africa. The Shona or Karanga (about 9%) dwell in the central region (Encyclopedia of the Nations 2007, CIA 2008). According to a census from 1997, almost 24% of all Mozambicans are Catholic, almost 18% are Muslim, another 18% belong to the Zionist Christians and close to 18% to other religious groups.

Mozambique became independent in 1975. Within a decade, it has successfully managed multiple transitions: from war to peace, from a one-party state to a multi-party constitutional democracy, from a socialist centrally-planned economy to a market-based

system (UNDP 2004). In 2004, the country enacted a new Constitution which expands the guarantees for full respect of citizen's rights and freedoms creating more sovereign state agencies and mechanisms for application of these guarantees. Currently, the country experiences a climate of peace that favors social, economic and cultural growth. It has become one of the fastest growing economies in Africa with a GDP real growth rate of 7.7% (World Bank 2008). Nonetheless, severe corruption in the public administration and the fragility of the judicial system are factors that impede socio-economic development. Thus, poverty is widespread, and Mozambique ranks with an HDI value of 0.390 as a low human development country on the 168th position. The life expectancy is averaged with 41 years (UNDP 2006). The prevalence of HIV/AIDS continues to be of great concern. The disease affects about 13% of the adult population and life expectancy has dropped to 40.9 years. It is estimated that one million children and adults are directly affected by the disease (WRI 2007).

The population of **Niger** is estimated to be 13.3 million (CIA 2008) on a total surface area of more than 1.26 million km². The settled populations are divided into several groups: in the Southwest the Songhai-Zarma, Hausa in the center, and Kanuri in the East. Nomad populations live mainly in the Northern part of the country and comprise the Tuareg (8%), and the Fulani (8.5%) (Encyclopædia Britannica 2008). The most densely populated regions are Maradi and Dosso that correspond with the narrow band of arable land in the South. The less densely populated areas are located in the two largest regions, Agadez (mostly desert) and Diffa. 86% of the population lives in rural areas. Urbanization has increased rapidly mainly due to demographic growth and rural exodus (UNDP 2006). About 80% of the population is Muslim, and 20% Christian among others (CIA 2008).

In 1960, Niger gained full independence. In 1999, following almost a decade of political instability, Niger successfully transitioned to a democratically elected Government. Currently, the political situation is considered as stable, and the Government has taken steps to strengthen relations with civil society. Earlier in 2006, the president also initiated regular consultations with opposition leaders in order to diffuse tensions and promote stability. Economic performance rebounded in 2005 and 2006 after slowing down in 2004, due to the negative impact of drought, a locust plague and also higher energy prices. From 2005-2007, Niger made significant progress in strengthening its economy with an average growth rate of 6% (World Bank 2008). However, unfavorable climatic conditions, a low level of food production, high malnutrition, insufficient basic structures, weak industrial performance, demographic growth and weak performance of social sectors still make Niger one of the Highest Poor Indebted Countries (UN 2005). With respect to the HDI, Niger ranks last out of 177 countries with a life expectancy of 44 years. It is the country with the highest fertility rate, namely 7.1 (2003), the lowest adult literacy (17%), and the lowest female literacy rate (9%) (UNDP 2006). In addition, since February 2007, the social situation in the deserted Northern region has deteriorated with the violent uprising led by Tuareg rebels who claim to be marginalized and who want to benefit from the uranium resources being extracted in the region. The Government has declared the Northern region a military zone (World Bank 2008).

Senegal has a population of an estimated 11.7 million in 2006 with a growth rate of 2.5% per annum (World Bank 2008). The total surface area amounts to close of 197,000

km². Density varies from about 77 inhabitants per km² in the west-central region to 2 inhabitants per km² in the arid Eastern section. The Senegalese national identity is characterized by cultural, ethnic and linguistic pluralism, the main ethnic and linguistic group being the Wolof, followed by Serer and Fulani (Pular). It is a predominantly Muslim society, with 95% of the population.

After independence in 1960, the country was highly visible in the international arena and for a long time maintained a relatively stable political and social environment. It is viewed as a good performer in Sub-Saharan Africa with its economy growing at a steady rate of about 5% since 1994. However, economic performance was weak in 2006, with a GDP growth rate projected around 3.3% and a significant increase in the fiscal and external deficits. Of the Senegalese GNP, about 57% are represented by services, 25% by industry and 18% by agriculture. The agricultural sector employs around 77% of the population. Poverty is prevalent in Senegal with an estimated 54% of the population living in poverty in 2005 (Nageeb et al. 2005). With respect to the HDI, Senegal ranks 156 out of 177 countries with a life expectancy of 56 years.

Comparing the four countries, Ghana has been found to be the best performer in terms of socio-economic characteristics. In 2004, its GDP per capita amounted to US\$ 2,240 (PPP) compared with Senegal (US\$ 1,713), Mozambique (US\$ 1,237), and Niger (US\$ 779). The same order is also found for the HDI ranks with Ghana on rank 136, Senegal 156, Mozambique 168 and Niger 177 (UNDP 2007). The political and social situation in all four countries is currently considered as relatively stable favoring investments and economic growth. All countries are characterized by ethnic, linguistic and cultural diversity. Niger is by far the largest country, followed by Mozambique and with some distance Ghana and finally Senegal. The population however, is the largest in Ghana, followed closely by Mozambique, and then Niger and Senegal.

3 Environmental Changes: Causes and Outcome

3.1 General Overview

Sub-Saharan Africa contains a wide variety of ecosystems with rich diversity in plant and animal wildlife. However, Africa's land resources continue to be degraded through poorly planned activities related to agriculture, forestry, and industry as well as by urban slums and infrastructure development. The five major human causative factors of land degradation are overgrazing, deforestation, agricultural mismanagement, fuelwood consumption, and urbanization (UNEP 2002). Natural hazards, such as cyclones and floods also result in land degradation. Overall, it is estimated that the annual loss of agriculture's contribution to GDP amounts to 3% due to land degradation in SSA (TerrAfrica 2004). Land degradation is a major concern to 32 countries in Africa, including Cameroon, Eritrea and Ghana (UNEP 2008). The most common forms of land degradation are water and wind erosion, desertification, soil compaction and salinization as well as chemical pollution of the soil. Desertification has occurred especially in Burkina Faso, Chad, Kenya and Niger. There is also a strong correlation between population density and soil erosion. The land is continuously cultivated because farmers have nowhere else to go and cannot afford to let their lands lie fallow. Soil erosion also

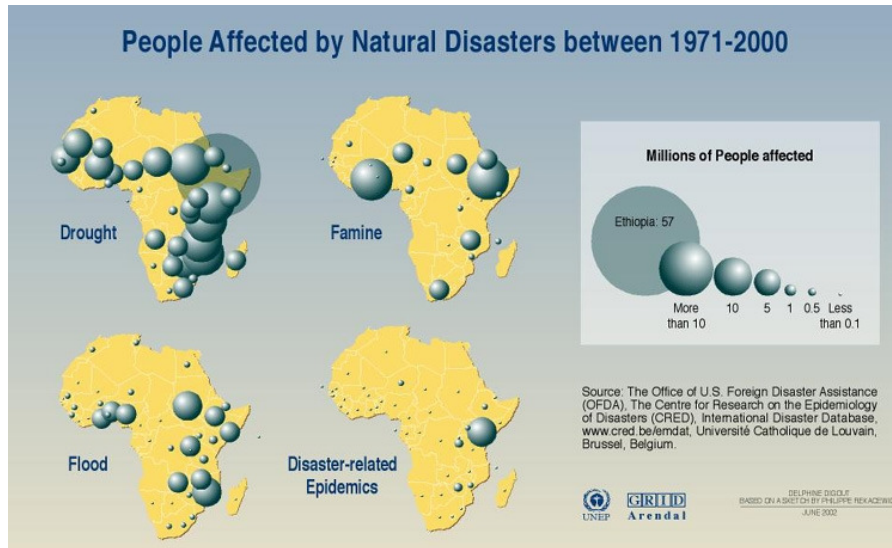
causes dam and river siltation. Erosion and chemical and physical damage have degraded about 65% of the continent's farmlands (UNEP 2008).

The change of forest area in Africa is the highest among the world regions, with the annual net loss estimated at 5.3 million hectares or 0.8% compared with the global average deforestation rate of 0.2% (FAO 2001). Primary forest is being replaced by extensive areas of secondary forests, grasslands and degraded lands. Between 1990 and 2000 Africa lost about 52 million hectares of forest. Southern Africa accounted for about 31% of the forest loss of the continent. Three countries (Sudan, Zambia and the Democratic Republic of Congo) accounted for almost 44% of Africa's deforestation (FAO 2003). Overall, loss of forest has become a major concern in 35 countries in Africa. Next to the Democratic Republic of Congo, also Malawi, Nigeria and Rwanda are mentioned in this context (UNEP 2008).

Sub-Saharan Africa experiences considerable climate variability. The El-Niño-Southern Oscillation (ENSO) affects Southern Africa, tending to bring either heavy rains often accompanied by severe floods as in 1999/2000 when Mozambique was exceptionally hard hit, or drought as in 1982/83 when much of Southern Africa was severely affected. Recent weather patterns in Southern Africa have been erratic with severe droughts recorded in 1967–73, 1981–83, 1986/87, 1991/92 and 1993/4. The severe drought of 1991/92 caused a 54% decrease in cereal harvest and exposed more than 17 million people to risk starving (Calliham, Eriksen & Herrick 1994). A hot and dry period from January to March 2007 caused a serious drought with extensive crop damages in Southern Africa. The 2004/5 drought was not only limited to Southern Africa and the Sahel, it also extended up the Eastern coast and many countries had food shortages from Tanzania in the South to Ethiopia and Eritrea in the North. In the Sahelian zone of Western Africa, the drought from 1972–84 was one of the worst on record. During this period, more than 100 000 people died, and more than 750 000 people in Mali, Niger and Mauritania were totally dependent on food aid in 1974 (Wijkman & Timberlake 1984). Eastern Africa has experienced at least one major drought in each decade over the past 30 years. There were serious droughts in 1973/74, 1984/85, 1987, 1992–1994, and in 1999/2000 and there is some evidence of increasing climatic instability in the subregion, and increasing frequency and intensity of drought (FAOSTAT 2000). They have had serious impacts including total crop failure which has led to increasing food prices and dependency on food relief in Burundi, Ethiopia, Kenya and Uganda (DMC 2000). Severe water shortages and rationing, continued reductions in water quantity and quality, increased conflicts over water resources, and the drying up of some rivers and small reservoirs contributed to death of livestock from hunger, thirst and disease, and increased conflicts over grazing belts.

The Emergency Disasters Database (EM-DAT) shows that floods, droughts and epidemics dominate the list of top ten disasters ranked according to the number of people affected (Figure 2.1). Table 1 in the Appendix highlights the regions and people in SSA affected by different kinds of natural disasters in 2005-2007.

Figure 2.1: People in SSA affected by natural disasters, 1971-2000



3.2 Natural endowment, environmental degradation and disasters

Several “hot spots” of environmental degradation can be found in the four selected SSA countries. In addition, natural disasters like droughts or floods characterize the situation in the respective countries.

Ghana is a relatively well-endowed country with natural resources including fertile soils, and forests but also gold or diamonds. The climate is tropical and warm, with the North being more arid than the South. Availability of water has decreased over time due to rainfall variability caused by climate change, rapid population growth, increased environmental degradation, pollution of rivers and draining of wetlands. Ghana shares the Volta River Basin with Benin, Burkina Faso, Ivory Coast, Mali, and Togo. The total basin area covers 400,000 km², with Ghana’s share amounting to 43%. Surface water quality considerations are becoming increasingly important due to mining activities, urban and industrial pollution problems and agricultural development (Water Resources Commission of Ghana 2007).

Important environmental issues in Ghana are (i) deforestation, (ii) land degradation and coastal erosion, and (iii) overfishing and reduced water volume in Lake Volta. About one third of the land area is threatened by desertification (UNEP 2008). Ghana’s 2000 State of the Environment Report showed Ghana’s savanna areas increasing at an average rate of 1.2% per year from 1972 through 2000 (EPA, 2005). As the savanna has moved south so have bush fires, playing an increasing role in the destruction of tropical forests. Records of fire in Ghana’s tropical forest zone show a steady increase from 1970 with a peak in the early 1980s (UNEP 2007). Shifting cultivation, uncontrolled logging, wildfires, surface mining, charcoal production and increasing human population have placed enormous pressures on Ghana’s tropical forests. Some of the Northern reserves have been decimated and the Northern edge of the forest zone has moved south. In less than 50 years, the primary rain forest has been reduced by 90%, and from 1990 to 2005, the country lost 26% of its forest cover (UNEP 2008). Between 1957 and 1986 approximately 70% (1000 km²) of forest reserve land was illegally converted to cocoa plantations. Most of these plantations were replanted with timber species beginning in

1990 (Forestry Commission undated). In the late 1990s huge deposits of gold were discovered within the forest reserves. While in the past, mining in the forest reserves was restricted, since the launch of an economic recovery program in 1997, 17 mining companies have been granted permits to operate under guidelines in 16 forest reserves, five on active surface mining representing 2% of production areas of the forest reserves (FAO 2004b). In addition to large-scale mining, significant uncontrolled illegal mining activities occur as well.

Natural disasters also frequently happen in Ghana. According to the Emergency Disasters Database (EM-DAT 2007), a major drought occurred in 1983 affecting 12.5 million people, and a severe flood affecting 2 million people in 1991, followed by further floods in 1995 (700,000 people affected), 1999 (325,000), 2001 (144,000) and 2007 (333,000). Furthermore, epidemics hit Ghana in 1977, 1996, and 2001.

Mozambique is a large country with many sizeable rivers and lakes. It has vast natural resources of which only a limited part is being utilized: a coastal line of 2,500 km, huge forest areas and agricultural lands as well as energy and mineral resources. Environmental problems of erosion, soil degradation, deforestation and poor sanitation and water supply exist in the scarcely populated rural areas. Mozambique lost 7.7% of its forests between 1983 and 1993 (UNEP 2008). Fires also are an environmental challenge in Mozambique. It is estimated that 39% of the land area is affected by fire every year. The Northwestern and central parts of the country are the most affected – around 74% of these areas are burnt annually (UNEP 2007). The widespread nature of the fires suggests that they are intentionally used by people to clear land for cultivation or for house building or also for hunting. The increasing population in Mozambique has drastically increased the need for agricultural land.

Natural disasters such as droughts, floods and cyclones frequently strike Mozambique. Referring to EM-DAT (2007), droughts seem to be the environmental challenge that have affected most of the people in Mozambique (14 million) during the period 1956-2007, and they happen to be mainly in the Southern part of the country (FAO 2004a). Flooding made close to 50,000 people homeless. The floods happen to be mainly in central and Southern provinces (CIA 2008), with the central provinces surrounding the Zambezi river and the Southern provinces being dependent on the Limpopo. In the recent decade there were major floods in 1997/1998, 2000 and 2003 all of which are linked to the ENSO phenomenon. Flooding in 1997/1998 did not just damage infrastructure and buildings, but also led to epidemic diseases. Due to good breeding conditions malaria increased in this period, but mosquitoes also transmit other viruses, such as dengue and yellow fever (UNEP 2006). The flood in 2000 had a huge impact on agriculture when seed reserves and all field crops were destroyed in the Limpopo lowlands (UN OCHA 2004, UNICEF 2000). 2007 brought the worst floods in recent years (Zambezi basin) and six major cyclones hit the country hard.

Niger is the fourth-largest country in Africa, however, 65% of the territory lies within the Sahara Desert and is largely uninhabited. From the North to the South, the arid desert climate changes to semi-arid savannah and then to a small tropical zone. Niger shares the Lake Chad in the Southeast with Nigeria and Chad. Important environmental issues are (i) desertification and deforestation, (ii) threats to wildlife, as well as (iii)

environmental effects of mining (UNEP 2008). It is estimated that the desert expands by about 200,000 hectares annually (Mongabay 2006). Niger's forests are its most important buffer against desertification but they are also shrinking. Niger has lost one-third of its forests since 1990 (UNEP 2008). Forests and protected areas are subjected to threats not only due to recurrent droughts but also especially due to agricultural use and abusive use of fire to clear the land. In addition, every year thousands of acres of arable land are taken from pastoral and agricultural activities due to erosion. The areas cereal-growing areas of Maradi and Zinder are experiencing a drastic decrease in fertility due to a very weak return of organic substances, impoverishment of soil and a high demographic pressure (FAO 2004c). The most food insecure areas were the agro-pastoral regions of Maradi and Tillaberi and the pastoral regions of Tahoua and Zinder. The deterioration of livestock conditions, in conjunction with the depletion of natural resources, resulted in increased tensions between pastoralists and farmers (USAID 2005).

Human induced soil degradation around Lake Chad is also rated severe. The process has led to "virtually sterile soils", disappearance of valuable plant species and reduction of rain-fed and irrigated crops (Obada et al. 2006). As agriculture is the main economic activity of 60% of the 20 million people in the basin, vulnerability to soil degradation is definitely high. Two "hot spots" can be identified in the Lake Chad region, the shrinking water body and soil degradation. Severe droughts in recent decades caused the lake to shrink continuously. According to Coe and Foley (2001) the lake shrank by 30% between 1966 and 1975, but irrigation accounted only for 5% of the loss. As water demand increased between 1983 and 1994 the anthropogenic loss increased to 50%. This caused a significant decrease of the river inflows (47%) and the Sahel moved about 100 km to the South. In the same period water discharge for irrigation increased about fourfold (Obada et al. 2006).

Major natural disasters hitting Niger are particularly droughts: in 1980, 3.5 million people were affected by a drought. The next one occurred in 1988 (1 million affected), 1990 (1.63 million), 2001 (3.6 million) and 2005 (3 million). The latter one was accompanied by a locust plague (EM-DAT 2007).

Senegal is a flat country subject to seasonal flooding and periodic droughts in the semi-arid North. It is drained by four perennial rivers, and over 80% of the population lives within 200 km of the coast. Important environmental issues are (i) urban pollution, (ii) deforestation, and (iii) over-exploitation of coastal wetlands and fisheries (UNEP 2008). Forests cover around half of Senegal's land surface. Agriculture claims more than 80,000 hectares of forest each year, and wild fires which are used to clear the land, degrade an additional 350,000 hectares per year.

Climate change hits Senegal with altering patterns of rainfall and droughts. Droughts affected more than 3.7 million people in Senegal in 1977. Other major floods occurred in subsequent years, namely 1979 (950,000 people affected) and 1982 (1.2 million). Later ones had comparatively less severe impacts: 1998 (300,000), 1999 (95,000) and 2002 (284,000). The strongest floods with the highest impact occurred in 1998 (300,000 affected) and 2002 (284,000) and 2005 (50,000). This mainly leads to soil degradation, but also increases the impacts of insect infestation and epidemics. Insect infestation by

desert locust is a periodic event, with the invasion in 2004 being unusually destructive (UNEP 2006).

There are large areas of human induced soil degradation in Senegal. In the main agricultural region the rating is very severe – also the peanut basin lies within this area. The lack of an appropriate management of organic and mineral fertilizers has led to enhanced mineralization and loss of organic matter (UNEP 2006). Groundnut production, once the most important cash crop in Senegal, is about to disappear (as already happened in Niger). The peanut basin, Senegal's major agricultural area, is widely abandoned. Many farmers quit after years of drought, a drop in world market prices for peanuts and the removal of agricultural subsidies (UNEP 2007). But the agricultural sector suffers not only from frequent droughts, but also from plagues of locusts – the last one in summer 2004 - and bad soil conditions. Periodically huge swarms occur in Northern Africa. In 2004 Senegal was one of the worst affected countries. Over 4 million hectares of crops and farmland were invaded leaving 2.5 million rural households at risk of food shortages. Good rains that support agricultural productivity ironically also provide ideal conditions for the locusts to breed (UNEP 2006). Cattle raising and the keeping of cows, sheep, goats and pigs is mainly done by nomads living in the North of the country. They especially have to struggle with the droughts, since advancing desertification cuts down their pasture land.

3.3 Environmental change and conflict

African culture is characterized by a vastly diverse patchwork of social values, ranging from extreme patriarchy to extreme matriarchy. Numerous tribes and ethnic groups exist side by side but this diversity has also led to many conflicts and wars over time. Political instability, armed conflict and civil war, corruption and mismanagement in handling food supplies, as well as trade policies that harm African agriculture and the effects of global climate change have made the food security situation in Africa tenuous.

War and conflict can be both a cause and a result of environmental degradation. Mass migration due to conflicts can also cause serious environmental damage and conflicts again in areas which receive migrants, putting severe stress on populations and natural resources like in the Sahel area (Lambert 2002). In the Sahel and the Horn of Africa, the combination of rapidly expanding populations, drought and competition between nomads and settled agriculturalists has resulted in violence along a number of fronts. Movement of the desert southwards is forcing tribes to relocate, and this is indirectly causing conflict again because it increases the competition over scarce resources (American University 1997).

There are also examples about links between conflicts and scarce natural resources from the four selected countries. In February 1994, a land rights dispute between the Nanumbas and the Dagombas in the Northern region of Ghana erupted into an ethnic conflict, leading to 2,000 deaths and the internal displacement of 150,000 persons. Many villages and large areas of cropland were destroyed before a state of emergency was declared and government troops were sent into the area. The state of emergency lasted until August of that year, and was followed by the signing of a peace agreement in

December and a period of relative calm. Many of the displaced had returned home by this time, despite the fact that the issue of land ownership, which had sparked the conflict, had not been resolved. In mid-March 1995, ethnic tensions once again erupted in North-Eastern Ghana. Near the town of Bimbila, fighting between Konkomba and Nanumba groups resulted in 150 deaths. Over 15,000 people fled from the area, all but a few of them Nanumbas. It has been estimated that the combined population displaced by the 1994 and 1995 violence amounted to 192,000 people in the region.

Land conflicts also occurred in many other parts of SSA. Land reforms in Southern Africa started movements of commercial farmers from Zimbabwe and South Africa to Mozambique that could potentially reduce forest cover in recipient countries (UNEP 2006).

In Mozambique, a long civil war and recurrent drought in the hinterlands have resulted in increased migration of the population to urban and coastal areas with adverse environmental consequences like desertification or pollution of surface and coastal waters (CIA 2008). Many of the underlying problems, notably regional disparities, remain unresolved and could lead to new conflicts between elites (Vaux et al. 2006).

When Lake Chad started to shrink in the 1960s people just moved with the shoreline. But soon migrants crossed national borders, because the lake has no boundary markers. This also affected Niger. A first crisis occurred in 1983 in combination with territorial disputes over emerging islands in the lake. Those problems have been solved by the Lake Chad Basin Commission (LCBC) and a joint patrol system was introduced in the region. But resource conflicts remain until today, due to the lack of integrated water and environmental policies. The main disputes are about water (upstream-downstream communities, irrigation), agricultural land (farmers encroaching pasture land) and fishing (challenging fishing regulations) (Obada et al. 2006). In addition, there are conflicts between ethnic groups. In 1997 e.g. clashes between Fulani herders and Djerma farmers occurred in the arrondissements of Téra and Birni N'Gaouré in Niger.

The severe changes in the Senegal river basin caused by the construction of the Manantali Dam led to tensions and several acts of violence between Mauritania and Senegal. Land use changes and inequitable land reform contributed indirectly to social upheaval and disputes over irrigable land resulting in a flow of thousands of Senegalese and Mauritians across their common border in both directions (UNEP 2006). With the water management plan and more sustainable land use, the situation probably improved in recent years. Furthermore, there were also a large number of migrants leaving the peanut basin. People left mainly into the bigger cities in Senegal, but also abroad (UNEP 2007).

3.4 Adaptation and state-capacities

Different policies and strategies have been followed by individual SSA countries. The negative environmental changes have been tempered by Africa's impressive *wildlife conservation record*, including a well-established network of protected areas and the region's commitment to multilateral environmental agreements. African countries also participate in many regional and sub-regional initiatives and programs. Notable

achievements include the 1968 African Convention on the Conservation of Nature and Natural Resources (currently being updated) and the 1991 Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Waste within Africa.

Ghana has adopted the Growth and Poverty Reduction Strategy (GPRS II) which is the national framework for policies and allocation of domestic and external resources targeted at poverty reduction. GPRS II covers the period 2006-2010 (Government of Ghana and UNDP undated). Ghana has also completed and adopted a National Wetlands Conservation Strategy and Action Plan, to be implemented over a period of ten years (2007-2016). The long-term goal of the country's National Biodiversity Strategy is to achieve the conservation and sustainable management of the country's biological diversity (CBD undated). The Government of Ghana has launched several projects that aim at achieving the 2010 target and include: development of the forest and wildlife policy; local participation on issues of sustainable use, benefit sharing and incentives; and promotion of species diversity. In addition, a Water Resources Commission was established to promote an efficient and effective water management system to achieve the sustainable development of water resources in Ghana. The Commission drafted a 'National Water Policy', which provides a framework for the development of Ghana's water resources (Water Resources Commission of Ghana 2007).

In **Mozambique**, the first National Action Plan for the Reduction of Absolute Poverty (PARPA), was completed in 2001, with the environment being an important issue. Also the Poverty and Environment Initiative (PEI) started in September 2005. The main activities of the PEI are among others development of indicators to monitor environmental goals, and outlining relevant policies, projects and institutional arrangements related to poverty and the environment. Also several other goals like raising awareness and capacity building on the linkages of the environment and poverty are pursued (UNEP 2006).

Mozambique is also quite active in promoting environmental issues and nature conservation. The Great Limpopo Transfrontier Park covers 35,000 km² and is one of the biggest conservation areas of the world. It connects Mozambique with South Africa and Zimbabwe and is stated as peace dividend, but brings also advantages to biodiversity. The "catchment2coast transboundary ecosystem program" is a pilot study to show the success of integrated freshwater and coastal ecosystem management in understanding the linkage between river and coast (UNEP 2006).

In **Niger**, important actions have been taken at the political level, particularly expressed in the Strategic Action Plan for Poverty Reduction, and more specifically in the Rural Development Strategic Plan, where the preservation and the durable management of natural resources is one of the fundamental points. In addition, the Government of Niger has reacted to the threat of land degradation and drought by implementing the medium term action plan 2006-2011. Amongst the strategies and the action plans the following have been highlighted:

- The national strategy and action plan for the biological diversity

- National action plan against desertification and the management of natural resources
- National strategy and action plan on climate change
- Strategy and action plan on production and commercialization of Arabic gum
- Strategy and action plan on fisheries and aquaculture
- Program on the implementation of the pasturage sector

The beneficiaries of the projects of the medium term action plan are principally the rural populations that are the most vulnerable to food crises. The goals of the enforcement of the local communities will include:

- Implementation on knowledge in natural resources and the capacity building of a long term plan for their management,
- Rehabilitation and/or protection of 15% of agricultural land;
- 200,000 acres of forests managed directly by the local communities
- energy economization of 7 million tons of wood with the construction of habitats without wood and the implementation of the use of alternative technologies
- rational management of the biodiversity in 3 humid prioritized areas and 5 areas for the fauna conservation
- the production of 10 000 tons of Arabic gum from the year 2006
- directions for the sustainable management of durable forest and pastoral resources
- significant reduction of industrial and urban pollution (UNDP 2005c)

Niger's National Action Plan to Fight Desertification and Manage Natural Resources was adopted in December 2000. There is for example also a 'Community Action Program', a poverty reduction initiative, to be implemented between 2004 and 2008 (Boko 2007). Already in 1964 the four riparian countries of Lake Chad established the "Lake Chad Basin Commission" (LCBC) to coordinate regional development and sustainable use of natural resources as water and land. In 2000, the LCBC declared Lake Chad as a transboundary Ramsar site of international importance and in 2002, LCBC and the Bureau of Convention of Wetlands signed the Memorandum of Cooperation reinforcing the role of wetland ecosystems for sustainable development (Obada et al. 2006). The Lake Chad Game reserve currently is the only protected area around the lake, but the establishment of a huge transnational area (7,000 km²) in Nigeria and Cameroon has been announced.

In **Senegal**, the 9th Economic and Social Development Plan (Plan d'orientation pour le développement économique et social: PODES) is the major national plan of the Government. In this plan, it is stressed that "Continuing the rational management of environmental resource for sustainable development" is the long-term goal. In addition, the strategy for reduction of poverty is elaborated in the Poverty Reduction Strategy Paper (PRSP).

With respect to the national environment and forestry sector, there are three major plans:

1. Senegal Forest Action Plan (Programme d'action forestier du Sénégal; PAFS)

2. National Environmental Action Plan (Plan national d'action pour l'environnement; PNAE)

3. National Action Plan to Combat Desertification (Programme d'action national de lutte contre la désertification; PAN/LCD) (Pacific Consultants International 2004).

In addition, Senegal ratified the United Nations Convention to Combat Desertification in 1995 (UNCCD 2008b).

3.5 Scenarios for the future

Despite some country-specific advances in soil conservation (Kenya, Ethiopia), small-scale agriculture (Nigeria, Zimbabwe), reforestation (Tanzania, Malawi), anti-desertification (South Africa), and population planning (Kenya, Zimbabwe, Botswana), the outlook for SSA is not promising. This is also reflected by the fact, that SSA is not on track to achieve any of the MDGs (UN 2008). The number of people in absolute poverty in SSA is predicted to grow from 1.3 billion to 1.6 billion. The 135 million people affected by severe desertification could well increase to 180 million. According to projections by the Intergovernmental Panel on Climate Change (IPCC), between 75 and 250 million people in SSA will be exposed to an increase of water stress (UN 2008). Ten countries are expected to be experiencing chronic water shortages or even acute water scarcity, affecting well over 400 million people. Some 20 countries with a projected population of 440 million are expected to experience up to 25% shortfall in food supplies, and a further eight countries with a projected 75 million people face more severe deficits (Myers 2001). Without greatly expanded efforts to tackle the region's lack of development, the per capita GNP is expected to stagnate in real terms at around US\$400, or be only little higher than in 1970 (Myers 2001).

Environmental decline and associated problems such as spreading poverty and population increase will make it probable that by 2010 there will be another 25 million such refugees on top of the 25 million in 1995. In fact, the increase could well be more than another 25 million because of increasingly degraded environments coupled with growing numbers of impoverished people. Myers (2001) has estimated that climate change will increase the number of environmental refugees six-fold over the next 50 years to 150 million. The IPCC has suggested 150 million environmental refugees would exist by 2050. In addition, there will be problems of global warming. Due largely to a sea-level rise and flooding of coastal-zone communities, but also due to increased droughts and disruptions of rainfall regimes such as monsoonal systems, global warming could threaten large numbers of people with displacement by 2050 or earlier. At least 50 million people could be at severe risk through increased droughts and other climate dislocations.

More than 60% of Western Africa's population depends on land for survival. Unsustainable agriculture and land use, deforestation and demographic pressures could lead to extreme land degradation including desertification, salinization and soil erosion. The effects of such a development would include:

- increased agricultural labor demand and material input for given levels of productivity
- declining animal productivity
- shortage of fuelwood

- declining water supplies with consequences for irrigated agriculture
- food shortages and famines in drought years
- disease and ill health
- migration to urban areas or to more fertile farming areas (UNEP 2006)

4 Migration Processes

4.1 Main migration patterns, trends and networks

Although Africans constitute only 12% of the global population, around 28% (i.e. 3.2 million) of the world's 11.5 million refugees and just under 50% (i.e. 9.5 million) of the world's internally displaced persons exist in Africa (Crisp 2000). A basic idea of the extent of environmentally forced migration¹ is also given by the UNHCR (2007a) which supported about 20.8 million people worldwide in 2005. In Africa, about 5.2 million people received assistance. One problem, however, is that the share of environmental migrants in Africa cannot be clearly identified, because there is no authorized definition and no central institution gathering the magnitude of environmental migration (Wöhlcke, undated).

The reasons for migration are diverse. Socio-economic reasons include e.g. finding employment, escaping famine or being close to the family. Political reasons are mostly related to war and conflict. Environmental reasons which are at the central focus here refer to environmental changes but also natural disasters like floods or droughts. Myers (2001) describes Sub-Saharan Africa as the prime locus of environmental migration (see also Wöhlcke 1991). However, there are also many interlinkages between the different factors. For example the political refugees frequently become environmental refugees when they use unsustainable agricultural practices in the resettlement areas for the internally displaced people (Schwartz and Notini 1995).

A significant proportion of environmental refugees are displaced in SSA due to land degradation, desertification and drought in the Sahel. This is a region that spans west to east across nine countries from Mauritania and Senegal into Sudan. Out of 25 million environmental refugees in 1995, there were roughly five million in the Sahel, where about 10 million people had fled from recent drought, only half returning home again (Myers 2001). Generally, there is a huge migration movement to the coastal and urban agglomerations, and to the coastal states (Hammer 2004).

In a study of the impact of climate change on drylands with an emphasis on West Africa, Dietz and Veldhuizen (2004) note that between 1960 and 2000, deteriorating situations due to rainfall decreases, land degradation, and violence in the arid and semi-arid areas of Senegal, Mali, Burkina Faso and Niger resulted in a rapid intra-country migration southward and in a swelling of the big cities like Dakar, Bamako, Ouagadougou, Niamey and Kamo. Estimates for Burkina Faso suggest that close to half of the adult population born there moved, at least for part of the year, to coastal states like Ivory Coast and Ghana (see Dietz et al. 2004). One of the most important mechanisms to adjust to

¹ A detailed discussion about this term has been provided by Renault, Bogardi, Dun and Warner (2007). They suggest a new classification of environmental migrants.

ecological changes in a continent characterized by poor soils, unfavorable climate changes and other natural adverseness has been for example also the pastoral way of life (Bascom 1995; Suliman 1994). In another study from Burkina Faso, Henry, Schoumaker & Beauchemin (2004) find that people from drier regions are more likely to migrate temporarily and permanently to other rural areas (rural–rural migration), compared with people from wetter areas. According to their results, long-term migration seems to be less related to environmental conditions than short-term moves.

In **Ghana**, internal, regional and international migration flows can be found. Internal migration in Ghana is predominantly North-South. Ghana's pattern of socio-economic development has created three distinct geographic identities: the most industrialized and urbanized coastal zone, the middle zone with its forest, mining and agricultural potential, and the Northern savannah zone (Northern, Upper West/East regions). Poverty in Ghana is concentrated in the rural areas of Northern Ghana, and many Northerners try to escape poverty by migrating to the South. For Northern Ghana, the 1990s were an era of environmental recovery after the droughts of the 1970s and early 1980s. Despite this partial recovery, migration from Northern Ghana to Southern Ghana accelerated in the 1990s. Furthermore, the high population growth rate in Ghana in the last three decades has been a main motive for migration, putting pressure on the available arable land (Anarfi & Kwankye 2003; Dietz, Ruben & Verhagen 2004).

There is a long tradition of movement of people within the region of Western Africa and beyond. Thus, historical and cultural ties have been the predominant factors determining the regional migration flows between Ghana and its Western African neighboring states (Bump 2006). Temporary and permanent migration opportunities have been expanded by the formation of the Economic Community of West African States (ECOWAS) in 1975. Studies show that the majority of the migrants from Ghana to neighboring states migrated from an urban centre, as their last place of residence (Bump 2006). However, Ghana has also been the destination for many forced migrants from other regions. According to UNDP data, Ghana housed an estimated 1.7 million migrants in 2005 (on a total population of 22.1 million). The UNHCR (2008) counted close to 45,000 refugees in Ghana at the end of 2006. Many forced migrants came from Liberia, Sierra Leone and the Ivory Coast (Bump 2006; Anarfi & Kwankye 2003).

Recent studies on migration from Ghana to non-African destinations show that inter-continental migrants come almost exclusively from Southern Ghana, especially the Ashanti, Eastern and Central Region (Asiedu 2005). The United Kingdom, due to colonial ties, houses the largest and longest-standing Ghanaian community in Europe. But sizeable populations are also to be found in Germany (20,600 in 2004), the Netherlands (18,000 in 2003 according to Statistics Netherlands, but according to researchers approximately 40,000) and Italy (32,800 in 2003). With the presence and settlement of Ghanaian communities in these countries and their contacts with Ghana, networks are developed that are also used for the movement of people. In Germany, most of them arrived between late 1970s and early 1990s, when Germany had a relatively liberal asylum procedure. In the Netherlands and Italy, the Ghanaians began to settle in the 1980s to escape the turmoil in Ghana. Also Canada (9,600 accepted for permanent residence in the period of 1995-2004) and the United States (US) (65,600 in

2000) accommodate sizeable Ghanaian communities. In the US, the number has grown rapidly between 1990 and 2000 (Bump 2006).

The Ghanaian Government is concerned about the brain drain, but also became aware of the importance of the diaspora. Remittances are the second most important source of foreign exchange after exports in Ghana (Bump 2006). The Central Bank of Ghana estimated that in 2004 \$1.2 billion of remittances flew into the country. And this is only half of the total flows according to analysts, because of remittances through informal channels. As Martin and Taylor (1996) argue, a temporary increase in migration – a so-called migration hump – has been a usual part of the process of economic development. The Government has developed policies to keep its citizens abroad engaged, for example by the Ghana Dual Citizenship Regulation Act of 2002 (Bump 2006).

In **Mozambique**, a severe drought in the Southern regions and the 17-years civil war after independence in 1975 led to significant migration to coastal and urban regions growing by over 4% annually (UNESA 2006). While hundreds of thousands of people were killed, over a million fled the country, especially to Malawi, and more than a million were displaced within Mozambique. Many rural people migrated to the cities, especially along the coast where the Government maintained control. By 1990, about 1,100,000 persons were displaced internally (Macassa et al. 2003), and by 1992, more than 100,000 civilians took refuge in neighboring Malawi (UNHCR 1993). In 2000 a severe flood resulted in the displacement of 250,000 people, with 950,000 in need of humanitarian assistance (UNICEF 2000). 2007 brought the worst floods in recent years (Zambezi basin) and six major cyclones hit the country hard. 435,000 people were affected (UN OCHA 2007a). The heavy rains and a subsequent discharge of water from dams have displaced approximately 120,000 people. An estimated 49,800 people have gone to accommodation centers and resettlement centers that were established after the 2001 floods (WHO 2007).

The World Bank estimated a stock of 4.1% (803,261 people) of the population that have been emigrating out of Mozambique in 2005, mainly to South Africa, Tanzania, Malawi, Portugal, Swaziland, United Kingdom, Germany, United States, Zambia and Spain. On the other hand, 2.1% (405,904) people have been immigrating to Mozambique in 2005 mainly from South Africa, Portugal, Zimbabwe, Lesotho, Cape Verde, Tanzania, India, Malawi, Pakistan and Zambia. The World Bank estimates the remittances inflow amounting to US\$ 80 million in the year 2006 and an outward remittance flow of US\$ 26 million in the year 2006; in 2000 the outward remittance flow is estimated to have been US\$ 156 million. The data includes officially recorded remittances. The true size of remittances, including unrecorded flows through formal and informal channels, is however believed to be larger (World Bank 2006).

Migration is also a widespread phenomenon in **Niger** (World Bank 1996). Rural poverty and food insecurity has accelerated population migration, from the rural areas to the cities in the Southern part of the country (UNDP 2006).

In the mid-1970s severe droughts in Mali and Niger forced thousands of young Touareg men to emigrate to neighboring Libya and Algeria. In the 1980s many returned with their Governments promising them resettlement assistance, but in Niger the

assistance never materialized. This and other grievances led to increased tensions between returning Touaregs and the Nigerian Government (UCDP 2006).

Temporary migration of part or the whole household is a coping strategy during periods of drought and seasonal migration. 80% of working age males migrates seasonally from interior areas of South Sahara to coastal cities (Migration News 2007). Poor migrants seek employment in unskilled jobs such as making small crafts or selling water and tea. Sometimes they go back to their village with some “gifts”- watches or radios- that they sell to be able to leave again. Some “come back with only an illness”, AIDS or venereal diseases. Young men stay away for 2.3 or 4 years and people say they hope to return with about 100.000 CFAF (World Bank 1996). Remittances are a major source of income for many poor Nigerian farmers. They are used for taxes and marriage dowries, and are invested in cattle and luxury goods (World Bank 1996).

Destination countries for Nigerians are the ones along the coast and increasingly also Libya and Saudi Arabia (UNDP 2006). Niger and especially the city of Agadez is the Central Sahara key route for migrants coming from Ghana, Cameroon, Chad, Nigeria, Mali and directed towards Libya and Tunisia with destination Canary Islands, Spain and Italy.

Having gained independence in 1960, **Senegal** was initially primarily a country of destination for African migrants and not a country of origin. Immigrants in Senegal originate from neighboring Guinea, Guinea-Bissau or from Mauritania, Mali and Gambia. In recent years Senegal has accommodated approximately 23,000 refugees and asylum seekers on the basis of the OAU² Refugee Convention. The majority comes from Mauritania (20,000) but some also come from Sierra Leone, Liberia, the Ivory Coast and the Democratic Republic of Congo. There is, however, evidence of a turnaround since the 1990s, with Senegal becoming more and more a country of emigration and new target regions emerging for Senegalese migrants (Gerdes 2008).

According to the World Bank, about 463,000 Senegalese (or 4% of the population) were living abroad in 2005 (Ratha and Xu 2007). The results of a household survey carried out by the Senegalese Ministry of Economy and Finance (2004) show that 76% of urban households and 70% of households nationwide have at least one family member abroad. A total of 46% have gone to Europe, with Italy, France and Spain being the most important countries of destination. A further 8% have gone to North America. Within Africa, the most important destinations for migrants from Senegal are the neighboring Gambia, the Ivory Coast, Mali and Mauritania. The Gambia's population includes about 300,000 Senegalese. Before the crisis in the Ivory Coast in 2002, there were about 125,000 Senegalese citizens living in that country. The majority of these have returned to Senegal since the war started in 2002. The number of Senegalese in Mauritania is estimated at 50,000 to 60,000, while Mali accommodates about 30,000. As mentioned above, the flow of thousands of Senegalese and Mauritians across their common border in both directions was caused by disputes over irrigable land in the Senegal River basin.

² Organisation of African Unity

Remittances sent to Senegal increased dramatically between 1998 and 2004 from US\$ 91 million to US\$ 563.2 million. In 2005, remittances from abroad were estimated to represent 7.6% of the country's gross domestic product (Ratha and Xu 2007). The effects of remittances on the standard of living appear to be inconsistent.

4.2 Migration Policies

There are no doubts that the presence of refugees can have serious consequences on the local stability from different points of view: social, political, environmental and economic. However, this cannot justify a discriminatory approach; it rather calls third country Governments and international donors for an intervention in order to both share the security burden and help host countries with development programs (Boano 2003).

Regionally, the most important immigration-related agreement for **Senegal** and **Ghana** – the Protocol on Free Movement of Persons, the Right of Residence and Establishment – was signed in 1979 by the members of the ECOWAS. One of the main objectives of ECOWAS is to facilitate freedom of movement, residence, and employment within the ECOWAS region (Bump 2006; Anarfi & Kwankye 2003). From all the clauses contained in the Protocol, only visa-free entry for citizens of the Community has been implemented to date. The Senegalese, however, are not particularly restrictive with regard to the right of residence. When required by an employer, work permits can be granted to foreigners, although indigenous people have priority for jobs (Law No. 71-10 dated 25 January 1971) (Gerdes 2008). Senegal and Ghana have also ratified the UN Convention on the Protection of the Rights of All Migrant Workers and Members of their Families (1990). This Convention aims at protecting migrant workers and their families, a particularly vulnerable population, from exploitation and the violation of their human rights (UNESCO undated).

Recent policies in Ghana seek to attract its citizens abroad to return; thus, the Ghana Dual Citizenship Act 2002, the Homecoming Summit in 2001, and a Non-Resident Ghanaians Secretariat (NRGS) in 2003 were instituted. Government actions and various programs attempted to decrease the migration of professionals, and especially trained medical personnel from Ghana. The Ghana Immigration Service - an agency of the Government - has been established to advise on and to ensure the effective implementation of all laws and regulations pertaining to immigration and related issues.

Given the increased role of remittances for the national Senegalese economy, the topic of migration has gradually found its way into the political debate. The Senegalese Government has an essentially positive attitude to migration. Internationally it supports an increase in legal opportunities for migration to Europe. However, in response to the large number of migrants attempting to reach the Canary Islands, Senegal has entered into talks with various European countries and the EU. In 2006, Senegal signed agreements with France and Spain that provided for the faster deportation of irregular migrants in exchange for making it easier for professionals etc. to enter legally or an increase in development aid.

Matters of immigration have been of low importance in Senegalese politics. Instead of creating a comprehensive legal framework for regulating the immigration and integration

of foreign migrants, the Government has generally pursued a hands-off approach (Gerdes 2008). The most significant domestic emigration policy effort in Senegal has been devoted to the establishment of the Ministry of Senegalese Abroad (*Ministère des Sénégalais de l'Extérieur*). It aims at convincing Senegalese abroad to make productive investments in the country. As a result, France financed for the first time in 1983 a program of vocational training for, and lending to, migrants abroad who wanted to return. In addition, in 1987, France and Senegal established the Bureau of Reception, Orientation and Follow-up of Actions for the Reinsertion of Emigrants (*Bureau d'Accueil, d'Orientation et de Suivi des Actions de Réinsertion des Émigrés*, BAOS), which is meanwhile under the auspices of the foreign office. The BAOS attends above all to smaller projects concerning returning emigrants, but is little-used due to administrative deficiencies, insufficient funding, and migrants' lack of confidence in the organization (Gerdes 2008). In 2000 the Investment Promotion and Major Works Agency (*Agence pour la Promotion des Investissements et des Grands Travaux*, APIX) was founded. APIX coordinates all of the administrative procedures necessary for founding a company, including import formalities, and also carries out feasibility studies. Furthermore, it assumes responsibility for managing projects in which loans are used to assist the return of emigrants from France and Germany. In contrast to the BAOS, APIX focuses not only on migrants, but also on investors in general. It also attends to more financially complex projects. Overall, the success of both state agencies appears to have been limited, due to general deficiencies in the Senegalese administration.

No specific migration policies seem to exist in **Niger** and **Mozambique**: Niger's policy supports emigration and is in favor of returning migrants. It appears to have no intervention in reducing emigration flows (UN 2007). The Mozambican Government has approved a new law which will make human trafficking a crime punishable with long prison sentences (All Africa 2007). But since the post civil war repatriation work of the UNHCR there does not appear to be any formal organized international migration programs of significance in Mozambique. It should be mentioned in this context, that since the 2000 floods, the Government has established accommodation centers and resettlement centers for approximately 50,000 people.

5 Conclusion: Environmental Degradation and Migration

Africa is the continent which is most affected by desertification. Water stress and scarcity, and land degradation are major environmental issues in the region. Two thirds of Africa is covered by desert or drylands (UNCCD 2008a). The rising costs of water treatment, food imports, medical treatment and soil conservation measures are not only increasing human vulnerability and health insecurity but are also draining African countries of their economic resources. The expansion of agriculture into marginal areas and clearance of natural habitats such as forests and wetlands has been a major driving force behind land degradation. The loss of biological diversity and resources translates into loss of economic potential and options for commercial development in the future.

Long-term strategies of prevention in Ghana should address environmental damage as a potential contributor to refugee flows. There is no comfort in the fact that today only a minority of environmentally displaced people need international protection. The

international community has every interest in responding to the need to preserve and rehabilitate the environment before degradation leads to violence and persecution – and a mass of displaced people who easily meet the conventional definition of refugees (UNHCR 1993).

There is a long-standing debate about whether people migrate because of environmental pressure, lack of farmland or for other reasons (see e.g. Kasanga & Avis 1988), but rarely have these discussions been sustained by good data (van der Geest 2007). Further investigation is needed to understand the internal displacement caused by environmental catastrophes.

Even though Mozambique is one of the fastest growing economies in Africa, it is still considered to be a country with low human development (HDI 2007) and faces an immense problem of human poverty. After the civil war which ended in 1992 Mozambique managed to recover quite well but the 2000 and the 2007 floods and cyclones have posed significant challenges to the further development in Mozambique. Therefore floods and tropical storms seem to be a major problem in particular if – like in recent times - flooding and storms catastrophes have happened in close succession to one another limiting time for recovery.

Desertification is a great concern in Niger. This phenomenon determines chain factors that result in great impoverishment of resources and an increase of the population's poverty. Poverty has always been a determinant factor in pushing Nigerians to migrate, and since the desert does not seem to halt its expansion, the impression is that slowly the pressure on small parts of (not eternal) arable lands may be too much to bear. New conflicts are likely to arise which again may trigger degradation and migration as a consequence.

Environment and poverty are the two interlinked concerns of a country. In fact, the probability of achievement of the MDGs appears to be very low due to: persistence and increase of natural shocks, weak level of the education of the population, strong demographic pressure, extensive rearing and agriculture, insufficient knowledge of the vulnerabilities of locations, absence of the valorization of water and abusive use of resources. These are all factors that could determine the risks of: acceleration of desertification and environmental degradation, acceleration of migratory movements, loss of potential productions, exacerbation of conflicts, increase of poverty and compromise the sustainable development.

In this context it should be mentioned that remittances of African migrants have considerably contributed to the reduction of poverty and promotion of development on a regional or even national level (OECD 2006; Gubert 2005; Sall 2005; de Haas 2005b).

To achieve a sustainable development, environmental concerns have to be taken into account by decision makers. To decrease vulnerability to extreme weather events (i.e. droughts) early warning systems have to be implemented. Water management is essential for food security and synergy of adaptation and mitigation activities (land stabilization, improving water storage, and biodiversity conservation) have to be evaluated (UNEP 2006).

Because of the uncertainties mentioned above about future regional climate predictions for Africa, initial steps to reduce vulnerability should focus on improved adaptation to existing climate variability

Figure 1: Focus on four SSA countries: Ghana, Niger, Mozambique, Senegal

Political Map of Africa



Source: UNEP 2008

Figure 2: Agricultural Potential in SAA

Source: UNEP 2008

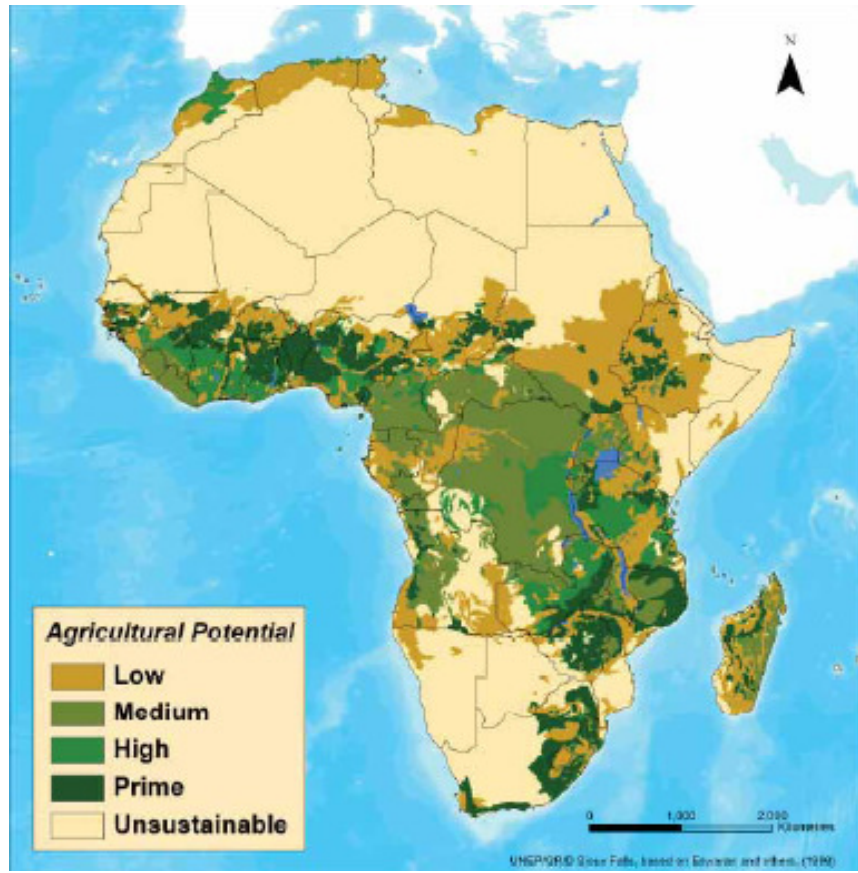


Figure 3: Vulnerability in SAA

Source: UNEP 2008

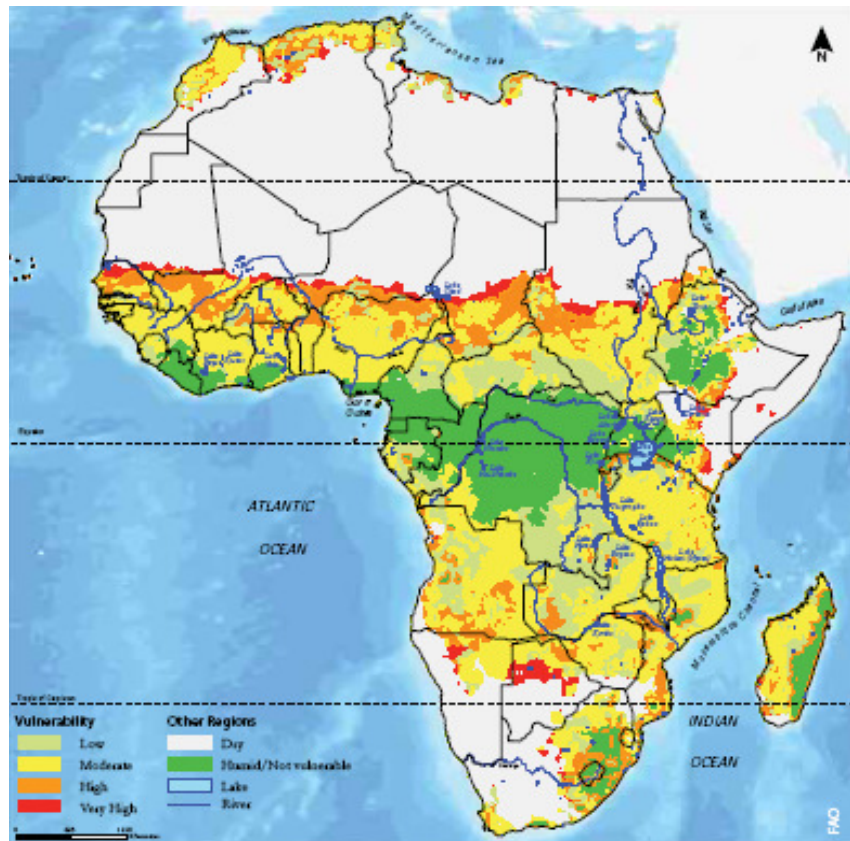


Table 1: Regions and people in SSA affected by disasters, 2005-2007

Country	Date	Cause	Displaced / Affected	Institution
2005				
Uganda	March	Drought	600.000 affected	CREC
Madagascar		Floods		IRIN/ 2005/03
Angola		Disease		OCHA/2005/04
Djibouti		Drought		OCHA/2005/04
Somalia		Floods		OCHA/2005/05
Zambia	June	Drought	1.2 million affected	CREC
Mozambique	May/June	Drought	1.4 million affected	CREC
Central African Republic		Floods		OCHA/2005/08
Sierra Leone		Floods		OCHA/2005/08
Central African Republic		Floods		OCHA/2005/09
Sierra Leone		Floods		OCHA/2005/10
Sudan		Floods		OCHA/2005/10
East Africa		Earthquake		OCHA/2005/12
2006				
Kenya	Jan	Drought	2,5 million people food security problems	CWS/ 2006/01/23
Namibia	Feb	Floods	14.000 evacuated; 2100 people displaced	OCHA/ 2006/02/28
Algeria	Feb	Floods	no exact figures given	OCHA/ 2006/02/13
Mozambique	Feb	Earthquake	thousds fled into the streets	OCHA/ 2006/02/23
Zimbabwe	Feb	Earthquake	no data	OCHA/ 2006/03/03
DR Congo	March	Tomado	no data	OCHA/ 2006/03/17
Kenya	March	Drought	no data	IRIN/ 2006/03/09
Kenya	May	Floods	thousands displaced	IRIN/ 2006/05/04
Ethiopia	August	Floods	more than 10.000 affected	IRIN/OCHA/ 2006/08
Somalia	August	Floods	hundreds displaced	IRIN/ 2006/08
Sudan	August	Floods	thousands displaced	IRIN/OCHA/ 2006/08
Niger	August	Floods	15.610 people affected	OCHA/ 2006/09
Cote d'Ivoire	September	Toxic waste	44.000 people to hospitals	IRIN/OCHA/ 2006/09
Ethiopia		Floods	145.048 displaced	IRIN/OCHA/ 2006/09
Nigeria		Dam Collapse	1.000 displaced	IRIN/ 2006/10
Kenya, Somalia, Ethiopia		Floods	refugees into Kenya, thousands affected	CWS 2007/01/04
Ethiopia		Floods		OCHA/ 2006/11
Somalia		Floods		IRIN/OCHA/ 2006/11
Kenya		Floods		OCHA/ 2006/11
Congo		Floods		IRIN/ 2006/11
DR Congo		Floods	thousands homeless	IRIN 2007/01/25
Kenya		Floods		OCHA /2006/12
Somalia		Floods		OCHA /2006/12
Ethiopia		Floods		OCHA /2006/12
2007				
Southern Africa		Floods	1 million displaced	IRIN 2007/04/05
Madagascar		Floods, Cyclone	450.000 affected	ibid.
Mozambique		Floods, Cyclones	285.000 affected, additional 150.000	ibid.
Zambia		Floods	295.000 affected	ibid.
Angola		Floods	30.000 people displaced	ibid.
Namibia	Feb	Floods	15.000 people displaced	ibid.
Mozambique		Explosion	10.000 displaced	IRIN 2007/03/30
Eritrea, Northern Somalia, Sudan	March	Locusts	try to contain the scale of the expected migration	IRIN/FAO 2007/03/26
Kenya	May	Floods	7.600 displaced	OCHA 2007/06/11

Appendix 1: Regions and people affected by disasters (2005-2007)

Source: Own combination of data available at: <http://iys.cidi.org/disaster>; <http://www.em-dat.net/publications.htm> (CREC).

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