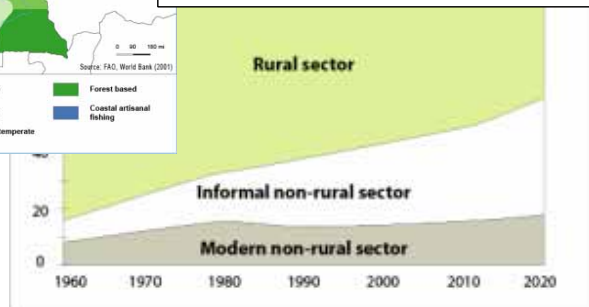
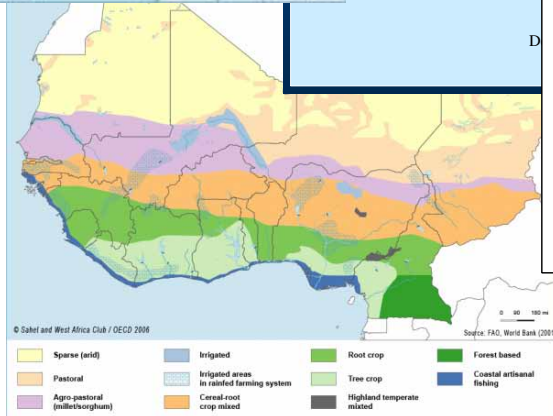
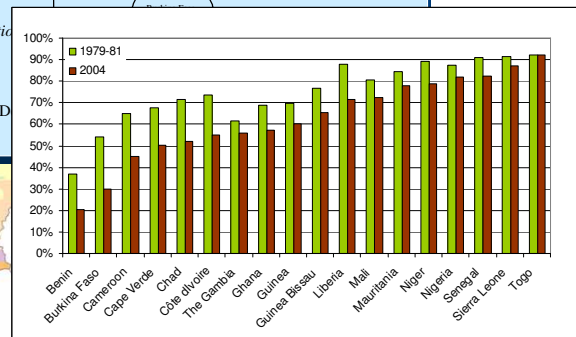
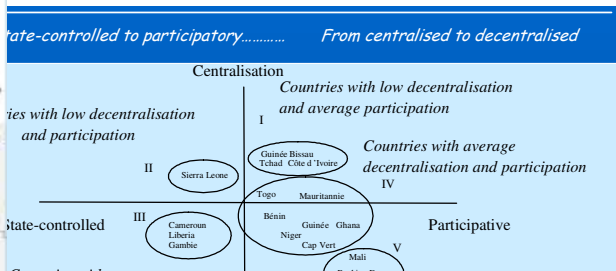
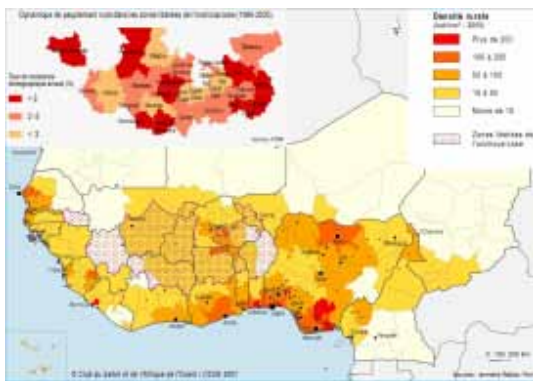




# Rurality in motion in West Africa



FOOD AND AGRICULTURE ORGANIZATION  
SUSTAINABLE DEVELOPMENT DEPARTMENT – RURAL DEVELOPMENT DIVISION  
ORGANISATION FOR ECONOMIC DEVELOPMENT AND COOPERATION  
SAHEL AND WEST AFRICA CLUB

March 2007



# Rurality in motion in West Africa

This document is the result of the joint work carried out in 2006 by the team at FAO's Rural Development Division<sup>1</sup> and the team at the OECD's Sahel and West Africa Club<sup>2</sup>. It falls within a dual framework:

- 1) The International Conference on Agrarian Reform and Rural Development (ICARRD), organised from 7 to 10 March 2006 in Porto Alegre, Brazil (see box). The participants particularly recommended working on rural development indicators. This report on the situation in West Africa provides an initial example of an exhaustive collection of data on a given region, with a framework for analysis that could be applied to other regions.



*A vision for the future*  
International Conference on  
Agrarian Reform and Rural Development

From 7 to 10 March 2006, the International Conference on Agrarian Reform and Rural Development (ICARRD) in Porto Alegre, Brazil, brought together 1,400 participants representing 92 FAO Member States, various international institutions and intergovernmental organisations and over 150 civil society organisations.

During the four-day Conference, the participants reviewed the various agrarian reform experiments introduced throughout the world, analysed their impact, the processes and the mechanisms used, examined the roles played by the different actors involved and, finally, discussed the proposals to be made for future action programmes. The ICARRD helped put the issues of agrarian reform and rural development back on the international agenda, thanks to a participatory approach involving all interested parties. One session of the conference specifically discussed « *Indicators and frameworks for the monitoring of Agrarian Reform and Rural Development* » and served as a basis for the preparation of this document.

For more information on the ICARRD and to consult the Final Declaration, see the Conference web site at: [www.icarrd.org](http://www.icarrd.org)

- 2) The Atlas of Regional Integration in West Africa, a joint initiative by the Sahel and West Africa Club and the Economic Community of West African States (ECOWAS). For further information: <http://www.atlas-ouestafrique.org> and <http://www.oecd.org/sah>.

---

<sup>1</sup> Coordinated by Jean Bonnal, with contributions by Geneviève Braun, Stéphane Jost and Valentina Spasiano. The authors would also like to thank the other FAO divisions and departments (AGA, AGL, ESS, Forests, SDRN, TCAS, FID) and the SWAC's Rural Transformation and Sustainable Development Unit for their contributions to this document.

<sup>2</sup> Coordinated by Christophe Perret.

# Table of Contents

INTRODUCTION.....	6
<b>PART 1 . HUMAN DEVELOPMENT AND RURAL LIVING CONDITIONS..... 8</b>	
1.1 West African population dynamics.....	8
a) <i>The persistence of sustained population growth</i> .....	8
b) <i>Urban growth and concentration in coastal areas</i> .....	8
c) <i>Rural dynamics that remain strong</i> .....	9
1.2 The conditions of existence: health and education.....	11
a) <i>Health</i> .....	11
b) <i>Education</i> .....	12
<b>PART 2 . THE SUSTAINABLE MANAGEMENT OF RESOURCES AND ECOSYSTEMS ..... 14</b>	
2.1 Uneven settlement .....	14
2.2 Land dynamics.....	16
a) <i>Land use and agro-pastoral potential</i> .....	16
b) <i>Land challenges</i> .....	17
c) <i>Impact on forest resources</i> .....	19
2.3 Climate impacts.....	20
a) <i>Climate change</i> .....	20
b) <i>Impacts on agro-pastoral production</i> .....	22
<b>PART 3 . THE PERFORMANCES OF RURAL ECONOMIES ..... 24</b>	
3.1 West Africa’s rural landscape .....	24
a) <i>West Africa’s economy characterised by the importance of the rural sector</i> .....	24
b) <i>Activities in rural area</i> .....	25
3.2 The performances of the « agricultural sector » .....	27
a) <i>Available regional production growing much faster than the population</i> .....	27
b) <i>Agricultural diversification and intensification</i> .....	28
c) <i>Livestock performance and challenges</i> .....	32
d) <i>Agricultural trade and markets</i> .....	34
<b>PART 4 . POVERTY REDUCTION AND FOOD INSECURITY ..... 38</b>	
4.1 Income dispersion, poverty and malnutrition.....	38
4.2 Changing consumption patterns.....	40

**PART 5. SOCIAL COHESION AND THE REVITALISATION OF RURAL COMMUNITIES ..... 43**

<b>5.1 Rural development policies .....</b>	<b>43</b>
<i>a) National rural development policies .....</i>	<i>43</i>
<i>b) Towards the definition of a regional policy .....</i>	<i>44</i>
<b>5.2 Decentralisation of rural development.....</b>	<b>46</b>
<b>CONCLUSION .....</b>	<b>50</b>
<b>ACRONYMS .....</b>	<b>52</b>
<b>BIBLIOGRAPHY.....</b>	<b>54</b>
<b>USEFUL LINKS .....</b>	<b>57</b>
<b>ANNEXES .....</b>	<b>58</b>
<b>Annex 1: Urban and Rural Population in West Africa .....</b>	<b>60</b>
<b>Annex 2: The main farming systems in West Africa .....</b>	<b>61</b>
<b>Annex 3: Agricultural land use in West Africa.....</b>	<b>68</b>
<b>Annex 4: Irrigation development perspectives in West Africa.....</b>	<b>69</b>
<b>Annex 5: Working population in the rural sector.....</b>	<b>70</b>
<b>Annex 6: Customs duties in ECOWAS zone and Mauritania.....</b>	<b>71</b>
<b>Annex 7: Geographic level and institutional structure .....</b>	<b>72</b>

# Introduction

Rural development has mainly been associated with agriculture, which is still the cornerstone of rural economies in West Africa<sup>3</sup>. However, while agricultural activity remains a major consumer of rural land and resources, it generates fewer and fewer jobs and the nature of the rural communities in this region is increasingly moving towards greater diversity in terms of land use and economic and non-economic activities. The pace and scope of these changes vary considerably across West Africa, where higher population density is observed around city and coastal development poles.

Economic factors continue to play an important role in the regional reorganisation process. However, the new development paradigm gives an equally important role to not only non-economic factors, such as individual and collective skills, living conditions, the accessibility of innovations, community vitality, openness to consultation and partnership, etc., but also to the promotion of an economy based on the sustainability of development and the quality of local products, taking advantage of the diversity of natural resources and the wealth of knowledge and know-how of the cultural, local and regional heritage of each part of the region.

## **Box 1: The concept of rurality in West Africa remains to be defined**

The concept of rurality is the subject of long-standing debate and controversy. From this debate, the OECD has selected three criteria defining rurality:

- Population density and the size of human settlements: typically rural areas have low population density and small, scattered human settlements;
- Land use and the predominance of agriculture and forestry; limited area covered by buildings;
- “Traditional” social structures and community identity and heritage issues.

The typology of regions is determined in relation to their degree of rurality (predominantly rural, significantly rural, or predominantly urban). The proportion of the population from basic rural communities (first level units) determines the degree of rurality of regions. The thresholds used to distinguish the typology of regions are generally over 50% for the “predominantly rural” typology and between 50 and 15% for “significantly rural” regions. It quickly becomes clear that these criteria respond inadequately to changes in rural societies and to their differences, whether in West Africa or elsewhere in the world. Agreement has yet to be reached in order to define and characterise rural areas and rurality in a coherent and uniform manner, with a view to understanding all the dimensions of rural development and building the basis needed for the development of related statistics and analysis.

<sup>3</sup> List of countries concerned by this study: Benin, Burkina Faso, Cameroon, Cape Verde, Chad, Côte d’Ivoire, the Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo.

Upheaval arising from globalisation puts rural development and the future of rural regions in a new perspective. It is no longer possible to talk of local development without taking into account the organisation and demands of global markets. The current challenges of free trade for rural areas are to increase their competitiveness and to face competition, while simultaneously ensuring environmental, economic, social and cultural sustainability. The integrated cross-sector approach fostered by rural policies specifically focuses on the ability of actors to generate and retain as much value added as possible in their region, by creating or strengthening links between sectors and pooling resources to promote the specific character of products and services.

In simplified terms, two levels of regional hierarchy are used in the classification and analysis specific to the rural environment. The first level identifies homogeneous rural areas that meet a set of structural and/or functional membership criteria – which are different to urban concentrations – by using small geographical units at the municipal or infra-municipal level as statistical reference units. This is, for example, the level that is used for censuses and household surveys. The second level is made up of larger geographical units (regions or sub-regions). It provides a means of analysing the functional relationships between their different entities along with the trends and dynamics generated by their incorporation within a single area.

The current shift towards the diversification of rural development policies means:

- **a move from the sectoral approach to the regional approach and**
- **priority is given to the coordination and integration of sectoral, regional and local policies.**

More specifically, it involves moving away from an approach based principally on the subsidisation of economic sectors that are declining or in difficulty, towards an approach based on the redeployment of investment to foster the emergence of new activities and the acknowledgment of the regional and local dynamics, specificities and vocations of each rural area concerned.

In this document, we will examine the different aspects of West African rurality. In order to do so, we will begin by reviewing the human and natural components that condition it (parts 1 and 2). We will go on to analyse the performances of rural systems (part 3) and their ability to meet demands for living conditions and food security (part 4), before examining social cohesion as a means of revitalising rural areas (part 5).

---

# Part 1.

## Human development and rural living conditions

### 1.1 *West African population dynamics*

#### a) **The persistence of sustained population growth**

1. Little information exists about the evolution of the African population in the past. Due to the slave trade and colonisation, it is believed that the African population stagnated or even decreased between the 15th and 19th centuries. The population began to increase as of the 1920s and especially during the 1950s due to improvements in sanitary and medical conditions. Mortality rates have fallen far more than fertility rates, which have remained high (falling from seven children per woman to less than six today). The continent, which represents 14% of the world's population, is currently experiencing one of the highest population growth rates in the world.
2. Following these trends, the West African population (29% of the total African population) has seen growth rates of almost 3% per year, increasing from 40 million people in 1930 to 290 million in 2005. This trend is expected to continue over the coming decades: the population of West Africa could reach 430 million people by 2020 and exceed 500 million by 2040.
3. The age structure of the population is largely a result of the fertility and mortality rates. The West African population is young and getting younger: the share of under-15s grew from 42.1% in 1950 to 44.1% in 2005. At the top of the pyramid, the over-60s are also more numerous than they were 50 years ago; however, the proportion of this category in the total population has fallen slightly from 5.1% in 1950 to 4.8% in 2005<sup>4</sup>.

#### b) **Urban growth and concentration in coastal areas**

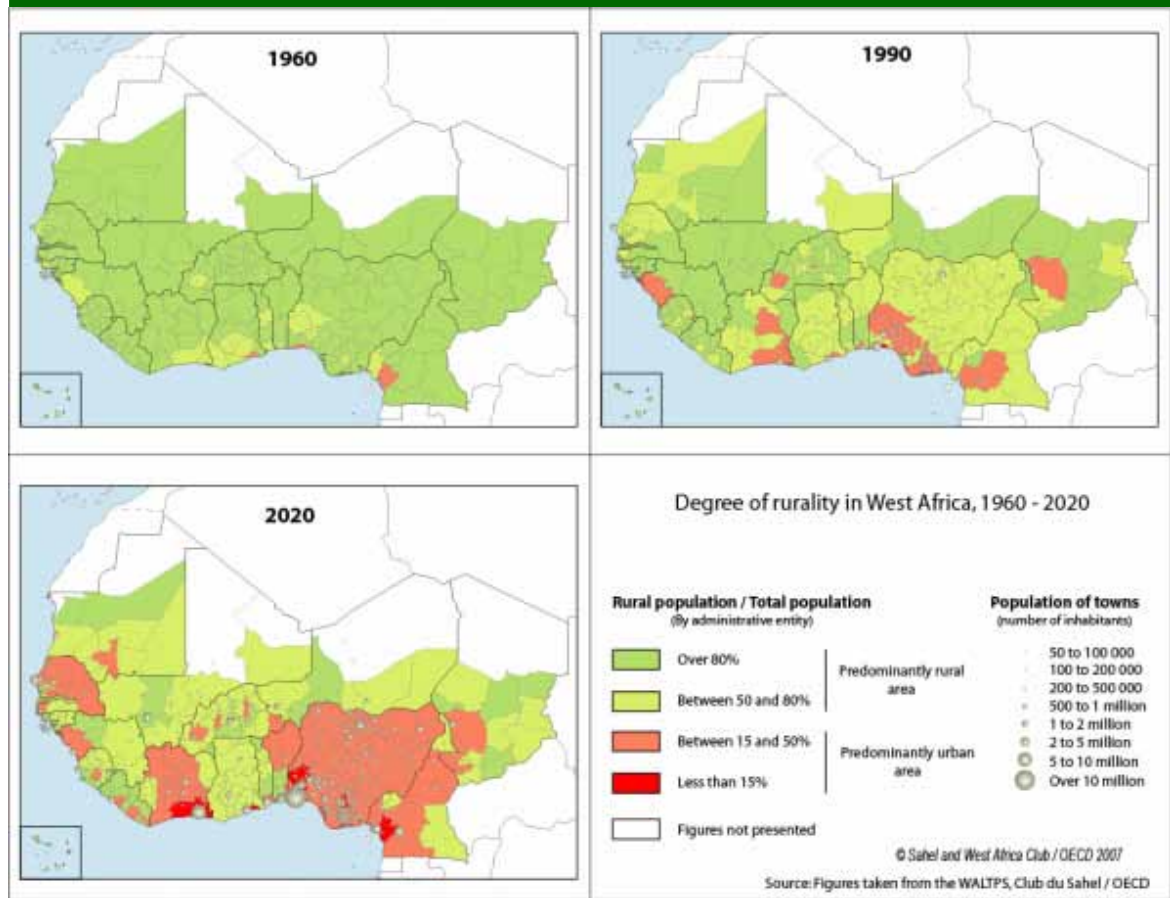
4. West African towns have absorbed 55% of the population growth recorded between 1960 and 2005. This urban growth was initially fed by population movements from rural areas. This is no longer the case: most (about 70% to 80%) of the population growth in West African towns is now due simply to births in urban areas. Today, West African towns are home to almost 45% of the regional population.
5. The urban population has concentrated around the coastal towns of the Gulf of Guinea, which have grown as a result of their connection to regional and international markets. This concentration goes a long way to explaining the clear differences that exist between countries: one in two Ivorians live in towns, while over 80% of the population of Niger live in rural areas.

---

<sup>4</sup> Ouedraogo Dieudonné (2006) : *Démographie et développement*.



Map 1 – Degree of rurality in West Africa, 1960 - 2020)\*

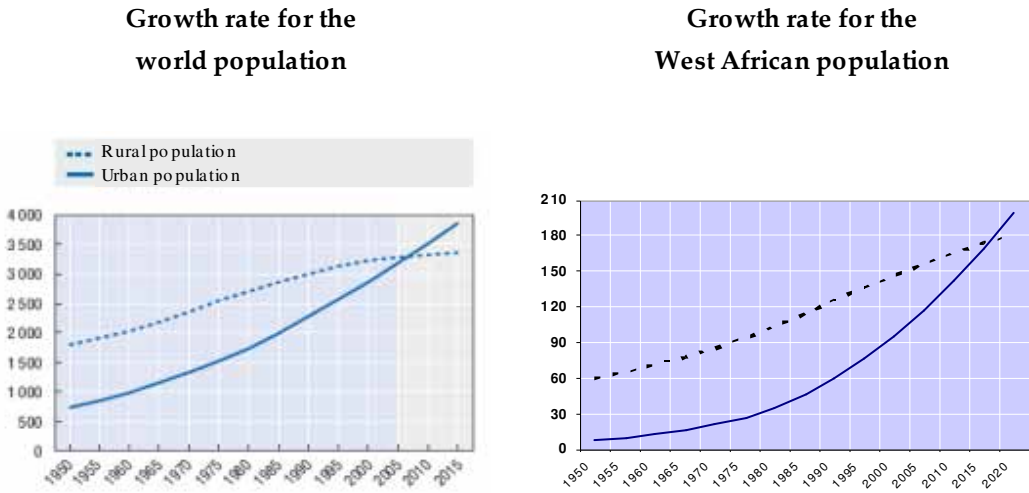


\* by administrative unit - region, department or province, according to the country.

### c) Rural dynamics that remain strong

6. Although urban growth is not as rapid as in the 1970s and 1980s, it will continue into the future. Projections show that in 2020, the urban population will be greater than the rural population in West Africa. At the international level, this shift took place in 2005.

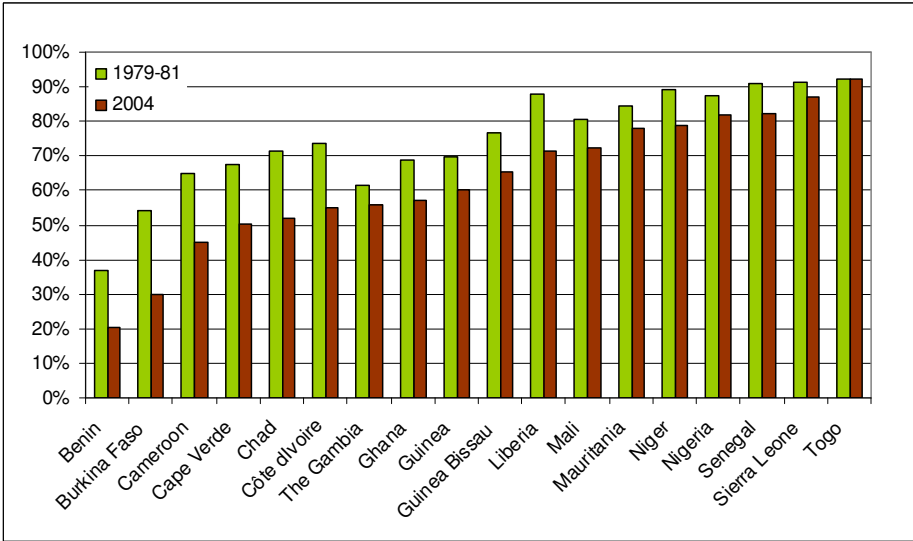
**Graph 1 – Urban and rural population (1950 - 2020)**



Source: United Nations (2006)

7. The rural population will also continue to grow, although at a slower rate than today. Between 1960 and 2005, the rural population of West Africa doubled, increasing from 70 to 155 million people. It is expected to rise to almost 180 million people in 2020, reflecting an annual growth rate of 0.6%, compared to 1.8% between 1960 and 2005.
8. The notion of rural and urban populations, which does not have the same definition in all countries, can be supplemented by that of agricultural and non-agricultural populations. The agricultural population is defined as all people making their living from farming, hunting, fishing or forestry (including all people conducting agricultural activities, along with their inactive dependants). This mainly involves only part of the rural population (who furthermore conduct other types of activities) but also includes populations deriving their livelihoods from peri-urban agriculture. According to FAO, the agricultural population of West Africa fell from 80% of the total population in 1961 to 51% in 2001. It still remains very large in all the Sahelian countries, except Cape Verde (See Graph 2).

**Graph 2 – Proportion of the agricultural population in West Africa**



Source: Statistical Yearbook, FAO (2004)

9. As a result of the rapid growth of major cities and secondary towns, the increase in infrastructure and means of transport and the development of radio and telephone networks, interaction between rural and urban areas has increased. Towns represent both a market and an opportunity in terms of jobs, as well as standing for new values. Far from being isolated, rural zones are affected by the development of towns. However, disparities remain, whether in terms of access to health or to education.

## ***1.2 The conditions of existence: health and education***

### **a) Health**

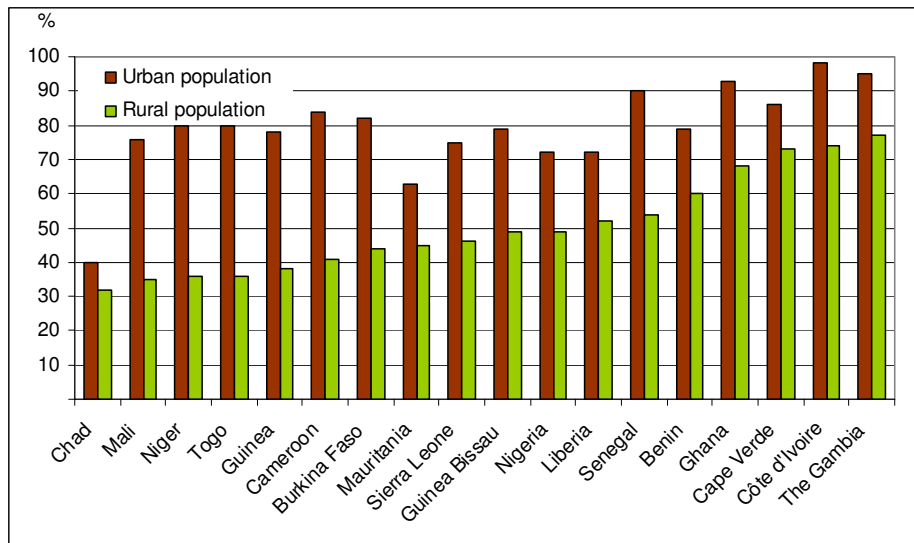
10. Public health in West Africa has undergone considerable change with the increase in the number and coverage of health workers (doctor and nurses), the improvement in immunisation coverage and a wider use of modern medicines, etc. But political and economic crises, conflicts, malaria and the prevalence of HIV/AIDS have been, and continue to be, important factors in the increase in mortality, especially since the 1980s. The life expectancy of the West African population fell from 48 to 46 years between 1990-1995 and 2000-2005; this fall is especially pronounced in Nigeria, Côte d'Ivoire and Togo.
11. AIDS has generally been considered and treated as an urban problem, but it seems to have increasingly more economic and social impacts on rural areas<sup>5</sup>: the latest statistics show that more than half of all people infected by the AIDS virus live in the rural areas. By 2020, up to 26% of the agricultural workforce could be lost in sub-Saharan African countries due to this disease. Given that it principally affects people between 15 and 49 years of age, the economic and social impact is all the greater<sup>6</sup>.
12. The pandemic is having a dramatic effect on the foundations of agricultural production and food security in certain West African regions: loss of productive labour, loss of income, health and funeral costs, lack of food stocks, and under-nutrition. According to the traditional roles of men and women, female farmers take care of the family members infected by the disease and the time devoted to agricultural activities is considerably reduced. This results in changes in agricultural systems and a loss of nutritional value.
13. Differences between rural and urban areas appear when examining sanitary indicators. Thus, 85% of the urban population and 45% of the rural population have access to drinking water. These figures reveal a slight improvement since 1990, especially in rural areas. As for hygiene, 58% of the urban population and only 28% of the rural population have access to improved sanitation facilities.

---

<sup>5</sup> Du Guerny, Jacques (1999): AIDS and agriculture in Africa: can agricultural policy make a difference?

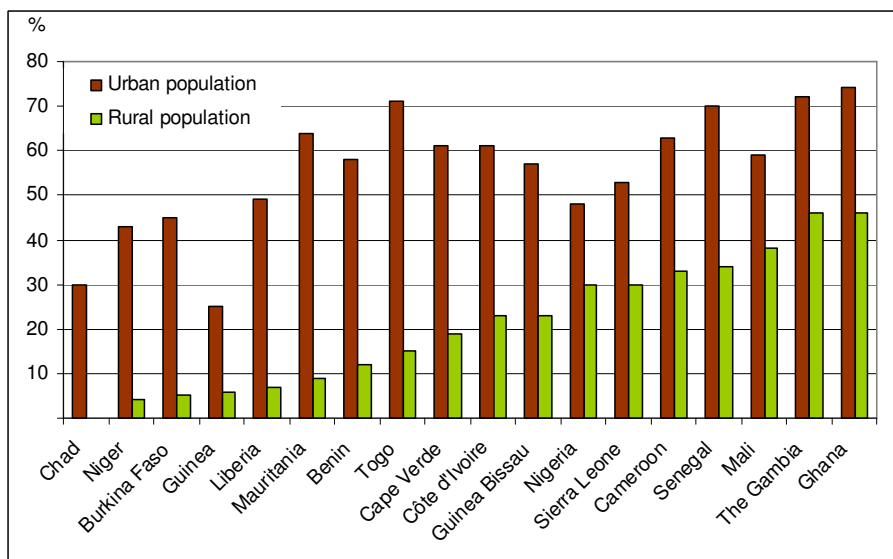
<sup>6</sup> Villarreal, Marcela (2001): The impact of HIV/AIDS on food security in Africa.

**Graph 3 – Percentage of the rural and urban populations with access to an improved water source (2002)**



Source: WHO (2006)

**Graph 4 – Percentage of the urban and rural populations with access to improved sanitation facilities (2002)**



Source: WHO (2006)

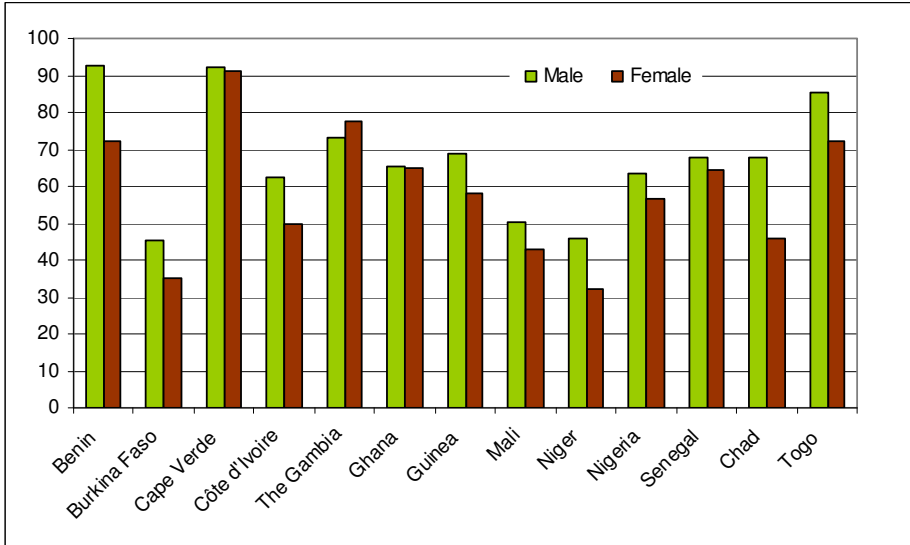
### b) Education

- Africa is still lagging behind regarding certain criteria defining education. The continent still counts almost half of the world's out-of-school children (38 million in 2004, of which 53% girls). Some 80% of these out-of-school children live in rural areas<sup>7</sup>. But in the long term, indicators concerning literacy and schooling are following positive trends. This is true of both West Africa and the rest of the continent, and also probably of the countryside.

<sup>7</sup> UNESCO (2006): *EFA Global Monitoring Report. Regional overview: Sub-Saharan Africa*.

- 15. Between 1970 and 2001, the illiteracy rate fell from 81% to 44%; this is especially evident among youth, where the rate fell from 68% to 25%. At the same time, the number of literate adults rose from 11 to 80 million people. This performance, remarkable when compared to that of other regions, is also striking for women. In 2001, half of all women were literate, whereas in 1970 only one West African woman in 10 was.
- 16. Access to primary and secondary education has expanded. In the West African region, the primary school enrolment rate rose from 42 to 77% between 1970 and 2000; secondary school enrolment rate rose from 6 to 25% over the same period<sup>8</sup>. This observation applies to young girls, although they leave school sooner than boys, which in turn results in a form of discrimination.
- 17. However, major disparities exist between countries. The land-locked Sahelian States, for example, have some of the lowest net primary school enrolment rates<sup>9</sup> in the region: from 39% for Niger to 57% for Chad, with 40% for Burkina Faso and 46% for Mali. The situation of countries in post-crisis situations, such as Liberia and Sierra Leone, is even more difficult.

**Graph 5 – Net enrolment in primary education in West Africa (2004)**



Source: UNESCO (2006)

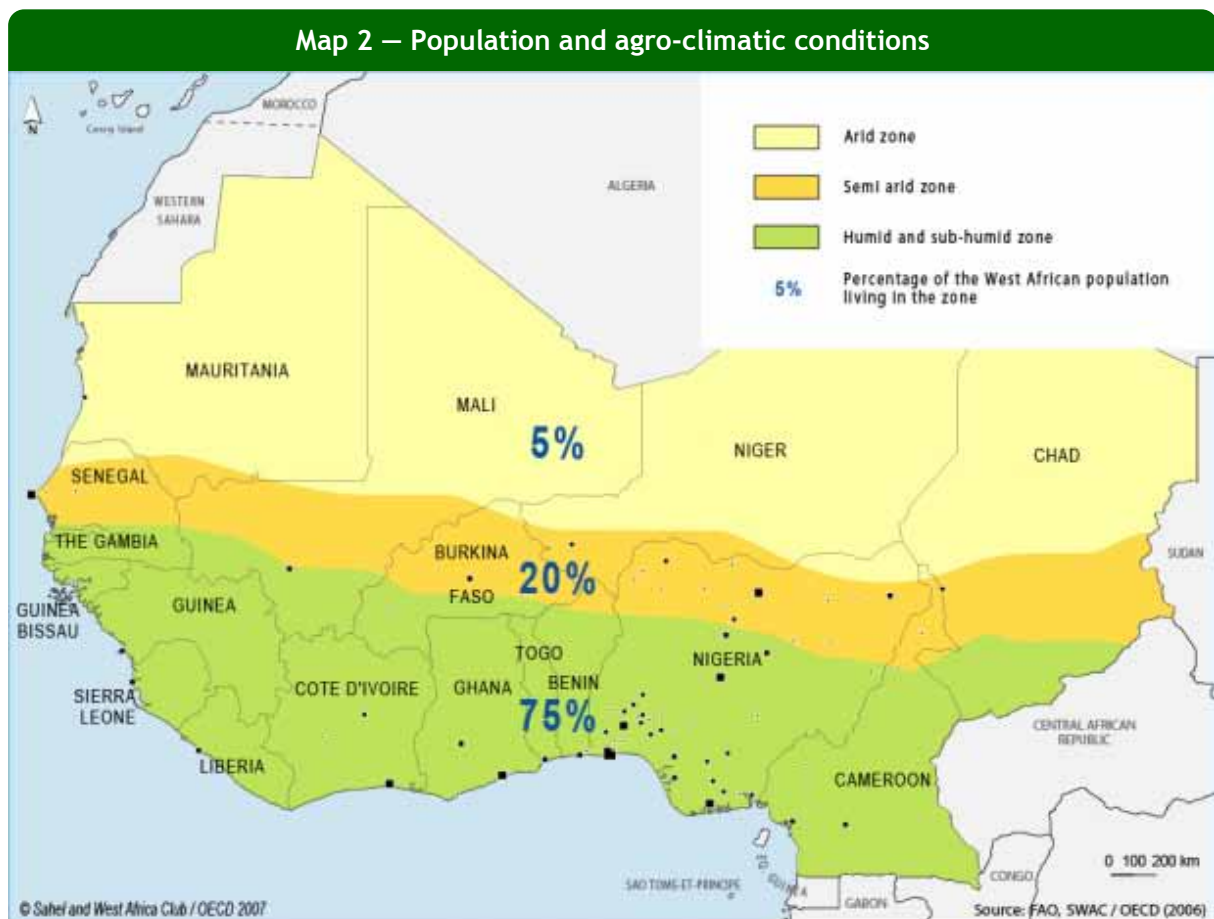
<sup>8</sup> Sahel and West Africa Club (2004): *Regional analysis of West African socio-economic indicators*.  
<sup>9</sup> The net enrolment rate represents the proportion of an official age group at a given level of education expressed as a percentage of the corresponding population.

## Part 2.

### The sustainable management of resources and ecosystems

#### 2.1 Uneven settlement

18. Settlement in West Africa is highly uneven. It is the result of several factors, including in particular the agro-climatic conditions (See Map 2). Today, three quarters of the West African population live in the humid and sub-humid zones and 20% in the semi-arid zone, which roughly corresponds to the Sahel region. Only 5% of the population live in the arid zone, which is unsuitable for rural activities, except near rivers or oases.

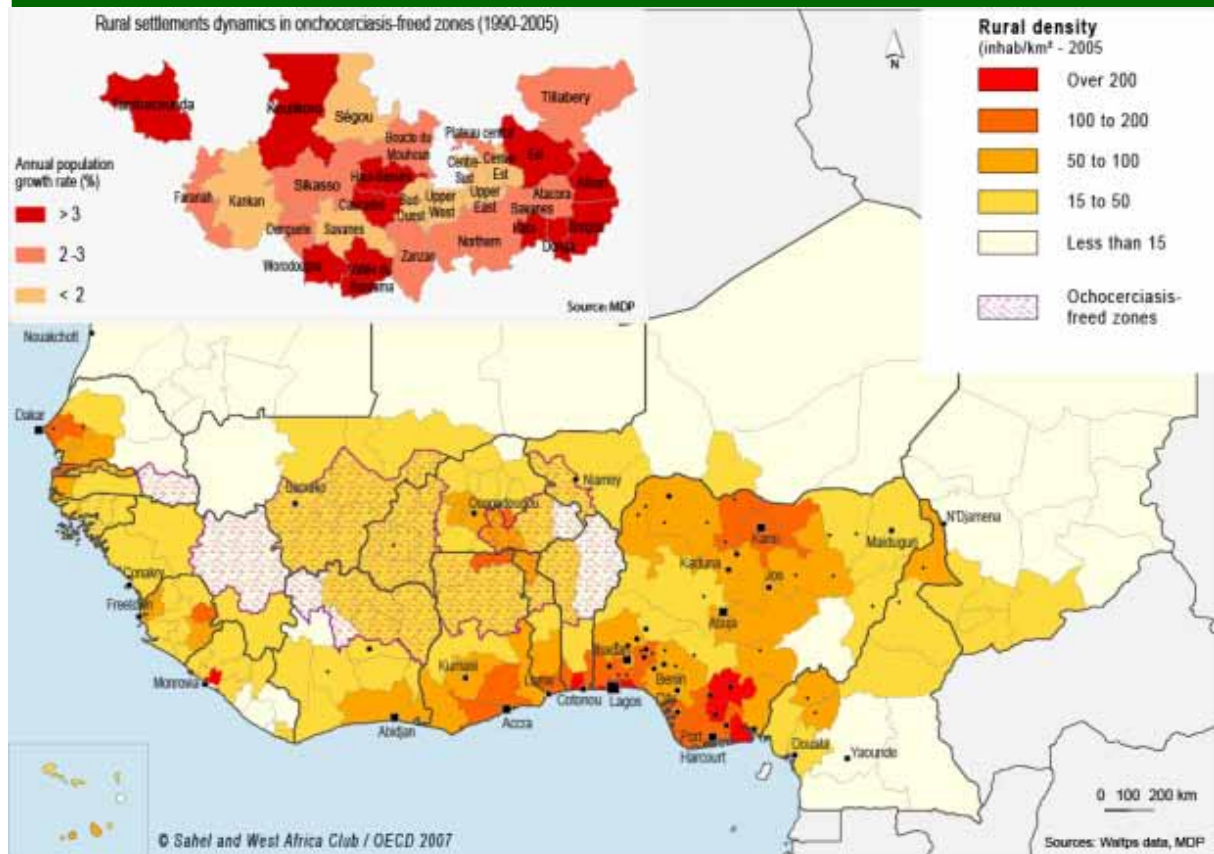


19. This map should be supplemented by that of the settlement areas that are the result of West African history, from the pre-colonial entities to today. Population distribution has taken place within two geographical areas that constitute the old settlement areas. The first lies in the Sudano-Sahelian region, stretching from modern-day Senegal to Lake Chad and Darfur. A significant number of empires and States developed there, such as those of Ghana, Mali, Songhai, Kanem Bornu and the Hausa and Mossi States. Further South was the coastal centre around the Gulf of Benin, between modern-day Ghana and the Niger Delta. This region includes several concentrations, including the Akan, Asante, Adja-Fon, Yoruba and Ibo.
20. This map should be supplemented by that of the settlement areas that are the result of West African history, from the pre-colonial entities to today. Population distribution has taken place within two geographical areas that constitute the old settlement areas. The first lies in the Sudano-Sahelian region, stretching from modern-day Senegal to Lake Chad and Darfur. A significant number of empires and States developed there, such as those of Ghana, Mali, Songhai, Kanem Bornu and the Hausa and Mossi States. Further South was the coastal centre around the Gulf of Benin, between modern-day Ghana and the Niger Delta. This region includes several concentrations, including the Akan, Asante, Adja-Fon, Yoruba and Ibo.
21. Current African settlement is partly structured around these old centres. It developed after the slave trade ended, then the colonial period fostered the shift from the settlement of the Sahel regions towards the coast. Three areas of high rural density (more than 50 people/km<sup>2</sup>), often close to urban areas, stand out today (See Map 3): the first is along the Gulf of Guinea between Abidjan and Douala; the second on the Atlantic coast is less homogeneous, as it is dotted with several areas of high rural density between Dakar and Monrovia; finally, the third, which is also heterogeneous, stretches from Ouagadougou to N'Djamena, within which three historical subsets emerge: the one in central Burkina Faso (the Voltaic centre), the one in northern Nigeria (the Hausa centre) and the one around northern Cameroon (the Kanuri centre).
22. Conversely, sparsely populated rural areas (less than 15 people/km<sup>2</sup>) are situated in principally hostile environments within the Sahelo-Saharan region or at the heart of primary tropical forests (southern Cameroon, eastern Liberia). Other "empty pockets" can be found in the middle belt of West Africa. The low population density in valleys affected by onchocerciasis was long believed to be due to this endemic disease. But it is only one of several historical factors and diseases, such as trypanosomiasis<sup>10</sup>, contributing to the low population density. Since these areas were freed of onchocerciasis, the settlement or re-settlement of inhabitants has begun. Certain regions where a good deal of land is still available have population growth rates exceeding 3% per year (above the regional average). Surely settlement areas are developing. This is the case in south-western Burkina Faso, where migrants are flowing in from the north and centre of the country, and even from Côte d'Ivoire as a result of the political crisis underway there.

---

<sup>10</sup> CICRED (1999): *Population Dynamics in Rural Areas Freed from Onchocerciasis in Western Africa*.

Map 3 – A picture of rural settlement in West Africa (2005)



## 2.2 Land dynamics

### a) Land use and agro-pastoral potential

23. Due to demographic pressure, urbanisation and population movements, land tenure is facing several problems linked to the availability of land, its quality and access conditions. While land is available in abundance, production is developed exclusively through the extension of cultivated areas. Over the last 40 years, cultivated areas have increased from 8.4 to 11.8% of all land in West Africa. Land for grazing, on the other hand, has remained stable during this period, although in certain Sahel regions, transhumance corridors have disappeared or have been turned into farmland.



Table 1 – Land Use in West Africa (1961 - 2002)

	Area of land (1000 ha)	Arable land <sup>11</sup> (%)			Land under permanent crops (%)			Pastures (%)		
	2002	1961	1980	2002	1961	1980	2002	1961	1980	2002
<b>West Africa</b>	<b>790,000</b>	<b>7.6</b>	<b>8.1</b>	<b>10.3</b>	<b>0.8</b>	<b>1.1</b>	<b>1.5</b>	<b>28.8</b>	<b>28.8</b>	<b>29.2</b>
World	13,432,000	9.5	10	10.4	0.7	0.8	1.0	23.2	24.1	25.6

Source: FAO Statistical Yearbook 2004

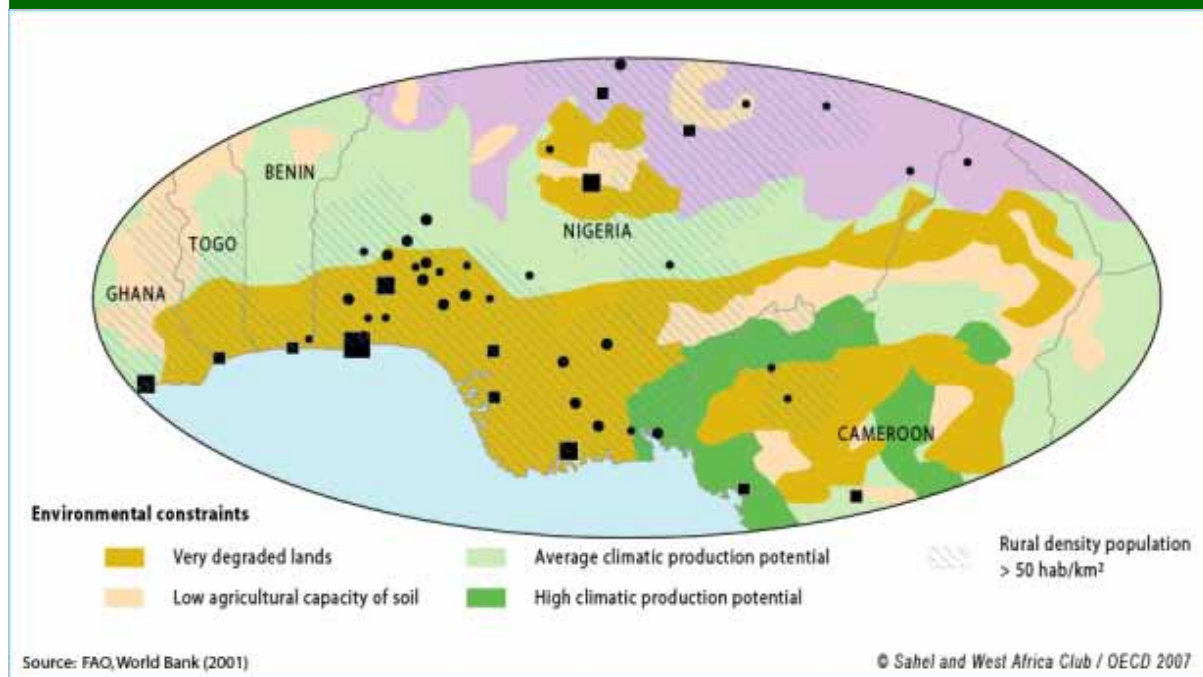
24. Agricultural extension should not mask the fact that there is still considerable potential cropland in West Africa. Cultivated areas represent 36% of the region's agricultural potential. In coastal countries, this potential is lower. On the other hand, less than 30% of potential cropland is used in Chad, Mali and Niger, which together make up over a third of West African agricultural potential.
25. The land pressure arising from rural settlement, measured by the ratio between the agricultural population and arable land or land under permanent crops, is relatively moderate. In West Africa, this ratio has reached 1.4 people/ha in recent years, compared to 1 person/ha in the 1960s. This figure remains lower than in developing countries, where the current pressure of the agricultural population on arable land and permanent crops stands at around 2.3 people/ha.

#### **b) Land challenges**

26. However, this global vision deserves clarification in order to outline some unique sub-regional characteristics. When demographic pressure is high, land challenges can be approached from the viewpoint of land degradation. This is the case, for example, of rural areas close to the urbanised coast of the Gulf of Guinea (See Map 4). Long natural fallow periods, which were the basis of soil fertility management, are shorter and cultivated plots are increasingly exploited. This leads to soil deterioration resulting in lower productive capacity, and therefore a reduction in potential yield. Farmers are obliged to use more input, such as fertilisers or manure, to maintain their yield, or they may temporarily or permanently abandon certain plots.

<sup>11</sup> Arable land refers to land under temporary crops (double-cropped areas are counted only once), temporary meadows for mowing or pasture, land under market and market gardening and land temporarily fallow (less than five years). Abandoned land resulting from shifting cultivation is not included. (see FAOSTAT glossary).

Map 4 – Principal environmental constraints in the coastal area of the Gulf of Guinea



27. Land challenges also include the issue of access to land. The West African environment has considerably modified the way in which land resources are socially perceived and used<sup>12</sup>. Population growth means land becomes rarer and increases in value. In some cases, it becomes the object of increasing commodification: this is true in Mali and Burkina Faso, where population pressure and the emergence of land transactions are closely related. Population growth is far from the only factor of this commodification<sup>13</sup> (another being the increase in the value of irrigated land, for example). In the future, more and more urban buyers will enter this market and, conversely, a shift will be seen towards the de-capitalisation of the poorest social categories. The risks of land saturation could also increase the number of land disputes: this could be the case between herders and farmers, for example, over the issue of access to water and pastures.
28. These risks require increased political awareness of the need for national land reforms. But they concern politically sensitive local and national issues. The process of national reforms began 20 years ago, with varying degrees of progress and success. In any case, the participatory approach is needed to take better account of the complexity of rights and actors in this respect. Furthermore, land policy must be addressed from a regional and cross-border viewpoint in order to better integrate common problems linked to the management of shared natural resources (drainage basins), transhumance livestock production and displaced populations, etc.

<sup>12</sup> Sahel and West Africa Club (2006): *A study on the land reform process in West Africa*.

<sup>13</sup> IIED (2006): *Changes in Land Access, Institutions and Markets in West Africa*.

### c) Impact on forest resources

29. Rural land use also concerns forest cover. West Africa includes 17% of African forest resources<sup>14</sup>, made up of closed forests, open or fragmented forests and other woodland. The dry zone is made up of steppe vegetation, bush and open savannah woodland. The more productive humid zone is characterised by savannah woodland, semi-deciduous tropical forest and tropical rainforest.
30. The natural forests of West Africa have undergone considerable change, especially since the 1970s. It is estimated that between 1990 and 2005, forest cover in West Africa diminished at a rate of 1.2 million hectares per year, which is far higher than the average for the continent. This reduction went hand in hand with a fragmentation of cover, especially in the humid zone: a shift from closed forest to open forest and then to woodland. According to FAO estimations, over 10% of closed forests were transformed into open forests between 1980 and 2000 and between 3 and 7% of fragmented forests became woodland over the same period.
31. The reduction in forest cover is essentially linked to agriculture (cacao, coffee, etc.), forestry (wood energy and log exports<sup>15</sup>), mining activities, the development of infrastructure, and fires. This process is characteristic of an economy structured around extensive agricultural development. In the longer term, will the population be able to continue consuming the forest for energy and agriculture at such a pace? Should other strategies be considered in this respect? In the Sahel region, the degradation of forest cover is a decisive element of desertification, in addition to climatic factors.

#### **Box 2 — Urbanization consumption of wood fuel and charcoal in West Africa**

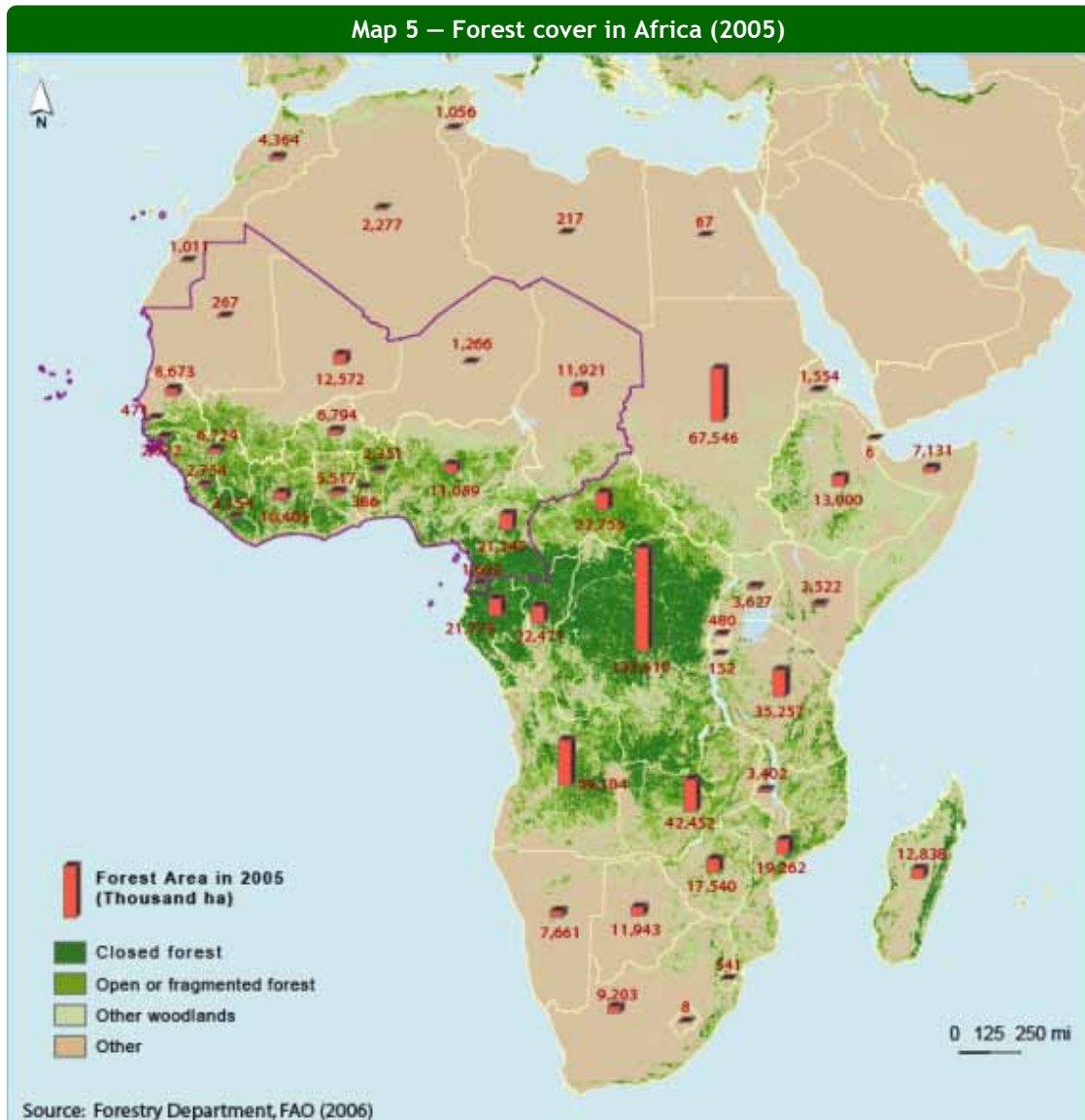
In many West African towns, especially in peri-urban areas, obtaining wood fuel and charcoal is more difficult: resources are being depleted and it is necessary to go further afield. For example Ouagadougou currently obtains wood fuel from about 150 km away. Intensive wood fuel and charcoal harvesting for the Dakar market has pushed the current area of supply as far as 400 km away. Lagos is supplied with charcoal originating from an even greater distance.

Source: FAO (2003): *Forestry outlook study for Africa*. Sub regional report for West Africa.

---

<sup>14</sup> African forest cover stretched over 635 million hectares in 2005, or 16% of world cover. The countries of central and southern Africa have the largest forests on the continent.

<sup>15</sup> A total of 90% of the productive use of West African forest cover was for household energy purposes in 2005, compared to 86% in the 1980s. The production of industrial round wood remains more modest and is increasing more slowly than the population.



## 2.3 *Climate impacts*

### a) Climate change

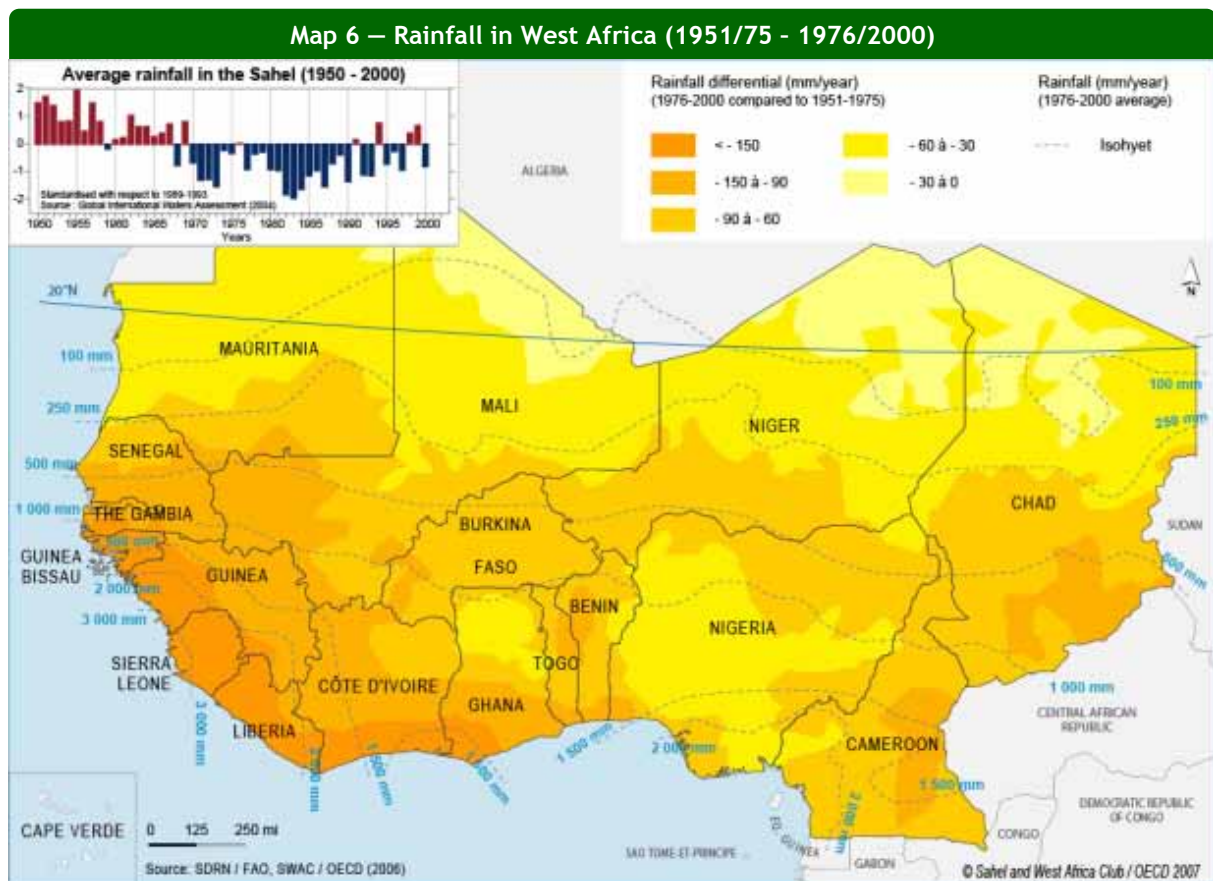
32. The African climate is affected by the equator and the two tropics that cross it, and also by its two major deserts (the Sahara in the northern hemisphere and the Kalahari in the southern hemisphere). Highly varied climates are therefore juxtaposed, ranging from very dry arid to humid equatorial, via more temperate climates

### Box 3 — Global warming in West Africa

Studies show that the African continent has been warming through the 20th century at the rate of about 0.05°C per decade with slightly greater warming in the June–November season than in December–May. By the year 2000, the five warmest years in Africa had all occurred since 1988, with 1995 and 1998 being the two warmest years. This rate of warming is similar to that experienced globally, and the periods of most rapid warming – the 1910s to 1930s and the post-1970s – have occurred simultaneously in Africa and the rest of the world.

United Nations Environment Programme (UNEP). See: <http://www.grida.no/climate/vitalafrica/english/01.htm>

33. In West Africa, the climate is influenced by the north/south movements of the inter-tropical convergence zone, the meeting point of moist air masses from the south and dry air masses from the north. Between July and August, the inter-tropical convergence zone and the moist air masses from the southwest move northwards, reaching latitudes between 18° and 22° N. This therefore corresponds to the period of greatest rainfall. In arid, semi-arid and sub-humid zones, the rainy period is concentrated in a single season of two to five months. Countries along the Gulf of Guinea, on the other hand, have two seasons and an average rainfall exceeding 900 mm/year.

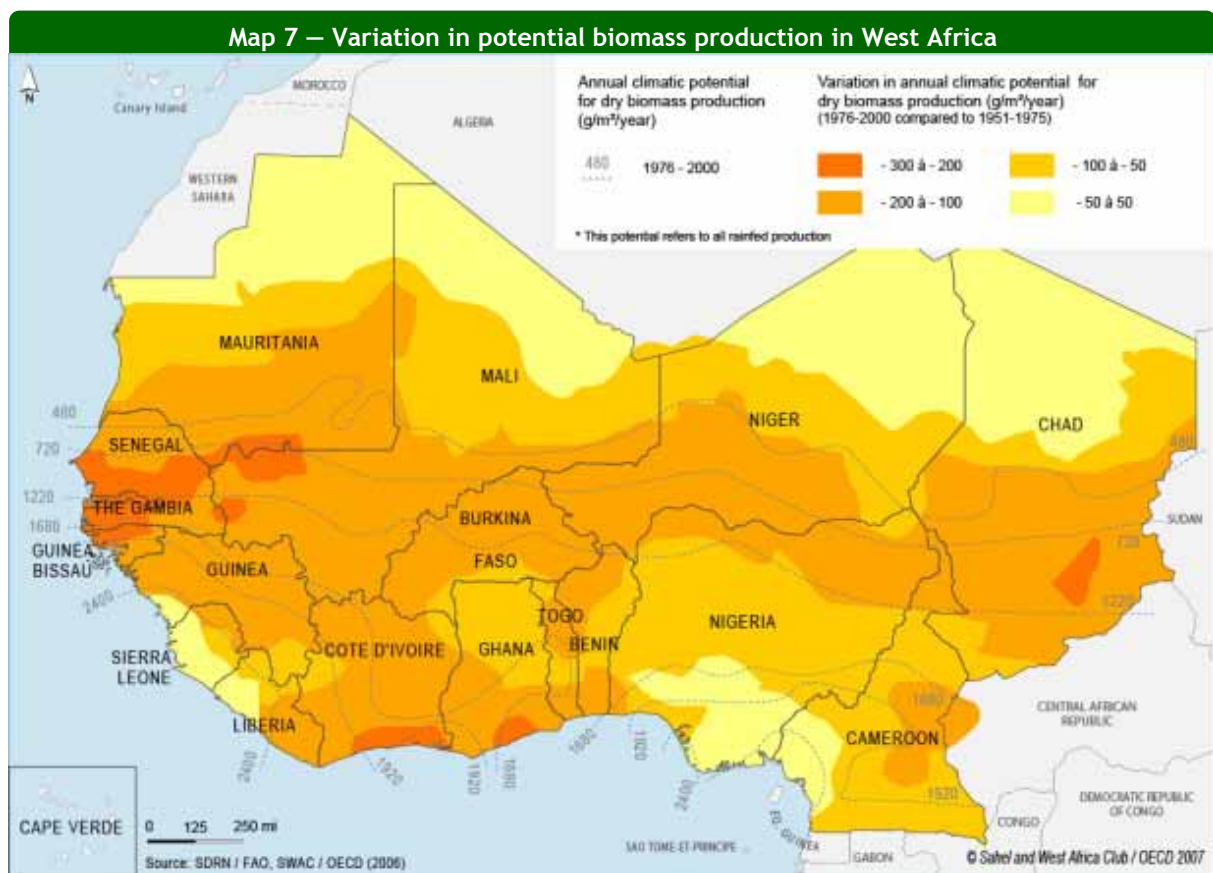


34. Looking back, two major climatic periods can be observed in West Africa: a “wet” period from the 1950s to the early 1970s, followed by a dry period characterised by the two great droughts of 1973 and 1984. Between 1951/1975 and 1976/2000, a reduction in rainfall to varying degrees was recorded across the whole region. This reduction was greater in the coastal areas between Ghana and the Gambia, but rainfall there reaches between 2,000 and 3,000 mm/year. In the Sahel region, the reduction in rainfall, which reached between 60 and

90 mm/year, was felt more acutely: it represents a reduction of 15 to 35% of rainfall in this area (See Map 6). This vision, which is frozen due to the comparative periods, has certain limits. For Sahelian countries, for example, the dry periods lasted from the early 1970s until the early 1990s. Since then, rainfall has increased, although it remains highly variable<sup>16</sup>.

## b) Impacts on agro-pastoral production

35. The reduction in rainfall, whose impact was more pronounced in the Sahel region, has resulted in a desertification process, fluctuations in cereal production, the descent of herds towards the south and a drop in river flow, etc. These impacts have been assessed according to various indicators. Some estimations show that the levels of the rivers Senegal and Gambia dropped by almost 60% in the 1970s and 1980s. The river Niger dropped by around 15%<sup>17</sup>.



<sup>16</sup> Atlas on Regional Integration in West Africa (2006): The ecologically vulnerable zone of Sahelian countries.

<sup>17</sup> IUCN (2004): *Reducing West Africa's Vulnerability to Climate Impacts on Water Resources, Wetlands and Desertification*.

36. The theoretical impacts on biomass and hence on potential agro-pastoral production are relatively serious. FAO estimations show that between 1951/1975 and 1976/2000, the reduction in rainfall resulted in a reduction in dry biomass production of between 100 and 200 g/m<sup>2</sup>/year in the Sahelian regions of Mali, Burkina Faso, Niger, Chad and northern Nigeria; this reduction reached between 200 and 300 g/m<sup>2</sup>/year in Senegambia.
37. Although it is difficult to translate into agro-pastoral production terms, the decrease in potential production of dry cereals (millet, sorghum and maize) or fodder for livestock is clear. It must be recalled that the droughts in Africa and particularly in the Sahel affected fodder production and consequently the animal population. During the 1982/84 period, for example, the cattle population fell by almost 60% in Niger, either because herds were decimated, or because they moved southwards.