WEST AFRICAN FUTURES

SETTLEMENT, MARKET AND FOOD SECURITY

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HARMONISATION OF WEST AFRICAN SETTLEMENT DATA

An initial exploration of how settlement patterns can impact food security issues – *West African Futures* No. 1 – focused on urbanisation trends. In it could be found confirmation of West Africa's urbanisation – first rapid, then slower, the amount of progress differing from one country to another. However, such findings are meaningful only if measurements of the urban population conform to a standard definition, irrespective of other criteria, be they administrative, morphological or relating to urban functions. The underlying idea – which is inseparable from a regional policy – is that, beyond specific individual trajectories, the countries of the region exhibit sufficiently similar characteristics as to prompt comparisons between national situations. Such comparisons are possible only if the data are uniform. This note therefore calls attention to the need, within a regional approach, to pursue the consistency and harmonisation of settlement data.

ORIGINAL VERSION : FRENCH

1 SETTLEMENT AND FOOD SECURITY

The study carried out by the SWAC Secretariat on settlement patterns ascertains the spatial, economic and social consequences of population growth. Focused on human geography, this can only be tackled at the regional level, given the extent to which West African integration hinges on intense movement of persons and goods. Since these rapid and powerful settlement trends have major consequences for food security, it proved necessary to revisit current settlement patterns and projections. This was done at two levels: (see 1.) population size; and (see 2.) the breakdown between urban and rural populations. While these transformations (demographic transition and urbanisation) do not proceed at the same pace in the Sahelian and coastal countries, against backdrops of political or economic stability or crisis, the repercussions can be seen on a regional scale, in particular because of the great cross-border mobility.

1. This research lends substance, first of all, to the hypothesis that the total regional population may be overestimated. Analysis of a regional shift in the balance between urban and rural populations (an invaluable tool for understanding the food situation – see title 2) therefore requires a harmonisation of definitions and data for better targeted regional policy. Indeed, just to understand the term "urban population" as opposed to "rural population" poses methodological difficulties owing to the diversity of definitions and statistical approaches. The Africapolis study[1] (as well as the WALTPS[2]) sets out, among other things, to establish a standard definition of "urban" applicable to all countries and the region as a whole. This achievement of uniformity is based on cross-referencing between population assessments (the Africapolis study, official statistics), realistic harmonisation of natural growth rates and adoption of a single urban threshold for all countries. This necessarily entails reviewing the integrity of regional population data.

1 Africapolis: *Urbanization Trends 1950-2020: A Geo-statistical Approach. West Africa*. Paris, 2009. http://www.afd.fr
2 *West Africa Long-Term Perspective Study: Preparing for the Future, a Vision of West Africa in the Year 2020*, Club du Sahel/OECD, 1998.

2. More than the nominal size of urban population, what matters especially is the *level of urbanisation* in a country or region, and more specifically the ratio between the size

The ratio (U/R) is a major indicator in terms of food policy.

of its urban population and that of its rural population. This ratio (U/R) is a major indicator in terms of food policy because it provides a proxy for the ratio of non-producing food consumers (the majority of which are urban) to producers of these products (the majority of whom are rural). How this evolves over time and regional space alters food security issues: a decrease in the number of producers relative to non-producers, growth and concentration of the latter, a shift in the spatial relationship between the two groups. Over the timeframe of a generation, the U/R trend induces new characteristics of food insecurity and a questioning of agriculture's capacity to meet demand against a backdrop of population growth.

2 REGIONAL HARMONISATION

WAF Note No. 1 shows the substantial differences in urban populations between United Nations data and those of the Africapolis study. These differences, attributable in part to the diversity of definitions of "urban" used by the various countries and the scarcity of available data, need to be harmonised for the purposes of our study and if relevant regional policy conclusions are to be drawn.

The figure shows the trends in West African population and settlement patterns between 1950 and 2020. It indicates official estimates and growth projections[3] of the region's total population[4] (dotted black line). The

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3 Taken from UN data.
4 Total population of ECOWAS member states plus Mauritania. Chad was not covered by Africapolis. This figure therefore excludes the population of Chad for consistency's sake.

total population has been estimated at 237.8 million people in 2000.

The Africapolis study estimates the urban population at 74.7 million in 2000 (red line), 17.5 million less than the United Nations. This estimate – the most reliable one currently available – is based on analysis of satellite/ aerial images and census data. While these figures differ significantly from

Population and settlement evolution in West Africa (1950 – 2020)
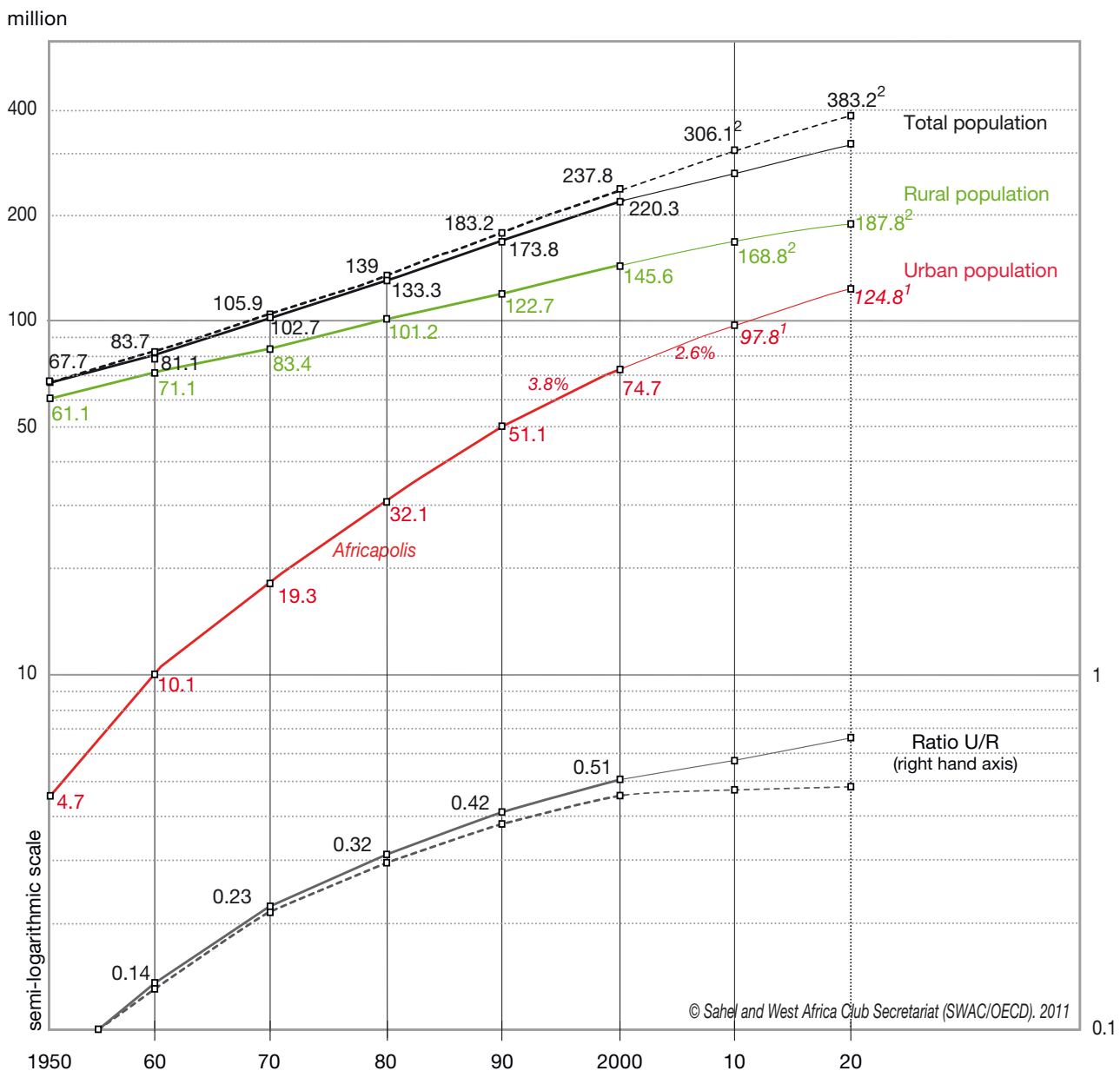
Sources: Africapolis; UN, *World Population Prospects: The 2009 Revision*; authors' calculations

1 Africapolis projections
2 UN projections

Urban population in 2000: UN and Africapolis data (in thousands)

Country	Urban population			
	UN (1)	Africapolis (2)	Deviation (1) - (2)	% Deviation from (1)
Benin	2 770	2 757	13	0
Burkina Faso	1 971	2 403	- 432	-22
Côte d'Ivoire	7 423	6 980	443	6
Ghana	8 856	7 201	1 655	19
Cape-Verde	234	171	63	27
Gambia (The)	639	546	93	15
Guinea	2 547	2 274	273	11
Guinea-Bissau	407	330	77	19
Liberia	1 666	1 041	625	38
Mali	2 787	2 145	642	23
Mauritania	1 026	836	190	19
Niger	1 801	1 667	134	7
Nigeria	**53 048**	**38 769**	**14 279**	27
Senegal	4 200	4 294	-94	-2
Sierra Leone	1 605	1 231	374	23
Togo	1 974	1 921	53	3
West Africa	**92 954**	**74 566**	**18 388**	**20**

Source: Africapolis and authors' calculations.

official statistics, they are the only data based on a uniform definition of the urbanisation threshold (10 000 inhabitants) and can therefore be used for comparison and aggregation at the regional level. They can also be used to monitor urban population trends retrospectively since 1950.

With regard to the rural population, insofar as no regional study provides tangible elements of harmonisation, we have used official estimates (145.5 million – green line). By simple addition, the total population can be re-evaluated at *a maximum*[5] of 220.2 million (black line), since there is no reason to believe that the apparent overestimation of the urban population could be attributable to an equivalent undervaluation of the rural population.

The calculation to account for the overestimation of the urban population in the total population has been done for the past five decades to preserve data consistency, which is necessary for our demonstration. First, it yields consistent urbanisation rates between countries having comparable development profiles. If the difference in the estimated urban population were not reflected in the total population, the resultant urbanisation rates would be in contradiction with trends noted elsewhere and incompatible with the scale of urbanisation levels by country. Second, the estimated U/R ratio is adjusted accordingly. The grey curve traces how this calculated ratio has evolved since 1950. Comparing it to the estimate that could be derived from Africapolis[6] (grey dotted line) reveals a growing distortion in estimation and outlook. While the authors of the Africapolis study would estimate it to

be 0.46 in 2000, our calculations put it at 0.51 (possibly rising to 0.66 in 2020). Therefore urban/rural parity could be reached sooner. This new reading could in turn affect demographic projections, since fertility diminishes with increasing urbanisation. The growth rate of the population should therefore slow down more sharply once urban/rural parity has been achieved. Here one sees the importance of harmonisation for the work ahead and the potential impact on co-ordinated management of food insecurity.

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5   Despite a lower urbanisation threshold (10 000 inhabitants) than the ones usually used in official statistics, Africapolis reports a smaller regional urban population. The potential overestimation of the total population is therefore *at least* 17.5 million people in 2000.

6   When computing urbanisation rates, Africapolis keeps the official figures for the total population and, in the case of certain countries such as Nigeria, yields especially low urbanisation rates that do not seem to correspond to the countries' urban reality.

3 NIGERIAN POPULATION DATA

Accounting for nearly half the total regional population according to official statistics, Nigeria is unquestionably the demographic giant of West Africa. Three quarters of the over-estimation of the regional urban population noted by Africapolis is also attributed to it (see table). Its case therefore warrants special attention. Moreover, a number of studies reiterate the difficulties involved in exploiting Nigerian population data.

Contested census findings[7]

Data for years prior to 2006 are incomplete, and census findings are frequently contested or cancelled. Also, the numerical threshold for the definition of "urban" is not always identical: 5 000 inhabitants for the 1953 census; 20 000 for the following ones (1962, 1963, 1973, 1991 and 2006).

The 1953 census, conducted under British colonial rule, estimated the population of Nigeria at 30.4 million inhabitants. The colonial administration used these findings and the breakdown between North and South to allocate seats in Parliament. The political implication of that decision prompted representatives of the South to contest the figures for the population of the North, which they suspected had been overestimated.

The first census to be conducted after independence, in May 1962, sparked controversy and was cancelled by a unanimous vote of Parliament. At the time of the follow-up in 1963, a number of sources reported substantial overestimations: a population growth rate of more than 82% in 11 years, equal to 7% per annum between 1952 and 1963; overrepresentation of the 20 to 45 year old group in the age pyramid.[8]

When the provisional results of the 1973 census were published, a number of reports deemed the figures over-estimated in a number of states, which led to the census being cancelled.[9] As from 1975, however, data in the *UN Demographic Yearbook* have been based on these estimates and a 3% average annual growth rate applied.

Estimates in the 1991 census revised population figures downward (to 88 million inhabitants, or 30% fewer than the expected 120 million). This led to a cancellation and scaled-back publication of data.

In 2006, the media declared the provisional findings to be false. The governor of the state of Lagos contested the estimated population of Kano (9.4 million), shown as being greater than that of Lagos (9.1 million, considered until then to be the biggest city of Nigeria). Similarly, using morphological reconnaissance of agglomerations, the study revealed inconsistencies between the number of inhabitants counted in the census and satellite images of urban areas. Whereas 14 agglomerations of between 500 000 and 1 million inhabitants are officially catalogued (having a combined population of 8.9 million), the Africapolis study counted only five (having a total population of 3 millions).

Urbanisation and data consistency

According to official data,[10] Nigeria had 144 million inhabitants in 2006 (see dotted black line). Using a 20 000-inhabitant threshold, the official statistics estimate the urban population at 68 million people, versus 42 million in the Africapolis study.[11] According to the latter, the differential could be attributed to an overestimation in the United Nations data of agglomerations of fewer than 500 000 inhabitants (in particular with regard to the first layer of 20 000 to 40 000 inhabitants).

For the sake of regional consistency and uniform data, the urbanisation criterion used here is the one set by Africapolis (10 000 inhabitants – red line). That study evaluates the urban population of Nigeria at 45.3 million in 2006.[12] Taking the same homogenisation approach that was used at the regional level, the total Nigerian population would come to 121.9 million. Applying the same reasoning to earlier years, the total population used by the SWAC study is calculated (black line). This brings the urbanisation rate up from 30% according to Africapolis to roughly 37% in 2006 – a level nearer to the United Nations data (47%) and countries in the region that have comparable development level. For its part, the U/R ratio (grey line) would rise from 0.46 to 0.59 in 2006. Moreover, the change in the urban/rural ratio should be faster than the one proposed by Africapolis (dotted grey line), and parity achieved sooner, with its consequences in terms of slowing population growth and food security.

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7   See the Africapolis study for a more detailed description.
8   Africapolis, 2009 and Ekanem, 1972, "The 1963 Nigerian census: a critical appraisal", Ethiope Publishing Cooperation, Ibadan.

9   Locoh, Thérèse and Omoluabi, Elizabeth, 1995, "Où sont donc passés les trente millions de Nigérians manquants ?", in *Éthique et démographie dans les conférences épiscopales des 5 continents* (1950-2000), L'Harmattan, 2008.
10   United Nations statistics.
11   To enable comparison with the 2006 census, Africapolis calculated the urban population of Nigeria for 2006 using the official threshold of 20 000 inhabitants.

12   At the 10 000-inhabitant threshold, the Africapolis study reports an urban population of 38.8 million in 2000 (red line) and postulates a 2.4% average annual rate of urban growth as from that date. Under these assumptions, the urban population in 2006 can be estimated at 45.3 million at the same threshold.

Population and settlement evolution in Nigeria (1950-2020)
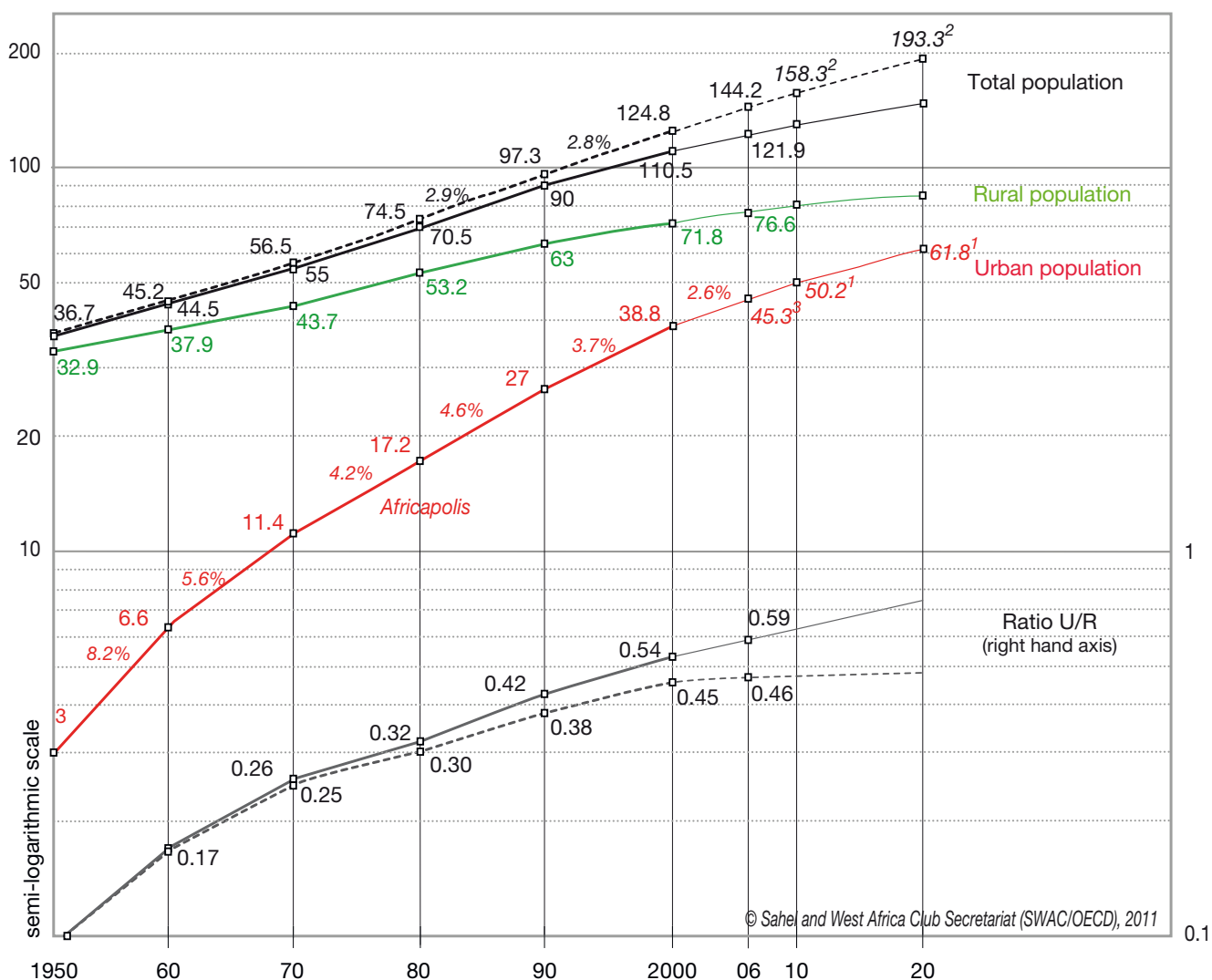
Sources: Africapolis; UN, *World Population Prospects: The 2009 Revision*; authors' calculations

1   Africapolis projections
2   UN projections
3   Authors' calculations

4 SETTLEMENT DYNAMICS AND PERSPECTIVES

Powerful settlement dynamics are at work in West Africa, and their rapid changes mean that data must be updated regularly. In Mali, population growth is not slowing down, but is accelerating, according to a recent study by Guengant *et al.* (2011).[13] Based on the provisional findings of the April 2009 census, the study concludes that the total population of Mali has reached 14.5 million, versus 9.8 million in 1998 – a far higher estimate than had been expected on the basis of previous censuses. These results credit the agglomeration of Bamako with a population of 1.8 million, whereas Africapolis had projected its population at 1.5 million in 2010. Such a change cannot be attributed to natural growth (fertility and mortality) alone. The factors explaining this growth could be political (return of expatriate Malians, in particular from Côte d'Ivoire, and a slowdown in migration to those countries, and perhaps to Europe as well), or they could be economic (acceleration of economic growth).

The factors explaining this growth could be political and economic.

13   Guengant J.P. *et al.*, "Comment bénéficier du dividende démographique ?" Paris, 2011.

Similarly, Niger has experienced an acceleration of its population growth. Attributable for the most part to an especially high fertility rate, this trend is a reminder that Niger is one of the least urbanised countries in the region. It is therefore important to take account of the impact of living conditions, since a drop in women's fertility begins in the cities before spreading to rural areas. What are the consequences of this high birth rate on urbanisation and migratory flows? It has already been observed that the

rate of natural population increase (birth minus death rates) exceeds the actual growth rate, thus confirming the existence of migration dynamics.

These latest findings reveal the need to approach the issue of demography in general and urbanisation in particular through the prism of its economic and political determinants. The total or urban population, and thus the U/R ratio, does not evolve in line with natural growth alone: in particular, migratory phenomena appear to be

an important adjustment mechanism in regional settlement patterns and exhibit special relationships with political events and economic growth, just as urbanisation trends have an impact on population growth.
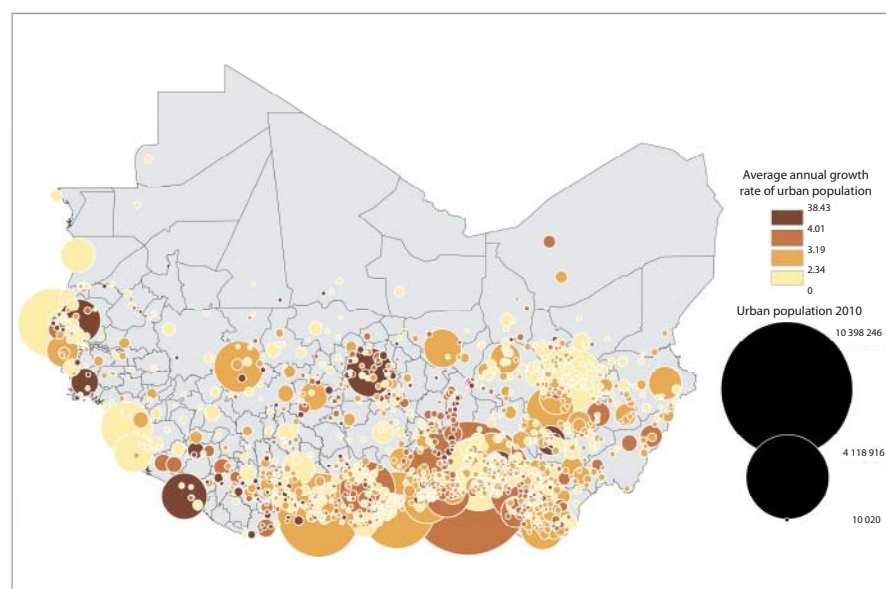
> ▶ *An exploration of urbanisation and its underlying factors will be proposed in a* **future WAF note.**

Agglomeration with more than 10 000 inhabitants in 2010 and average annual growth rate 1990-2000
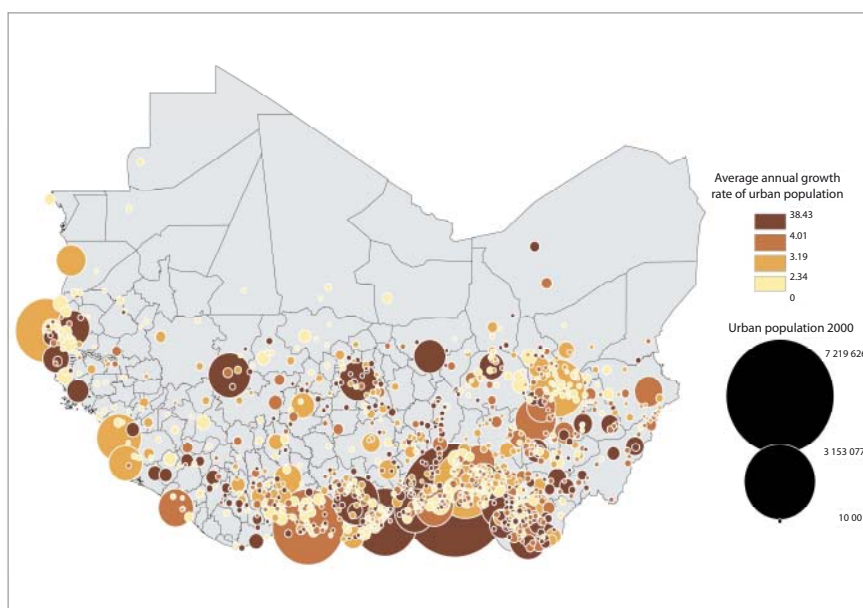
Source: Africapolis-AFD/SEDET - 2008
Produced with Philcarto

Agglomeration with more than 10 000 inhabitants in 2010 and average annual growth rate 2010-2020

Glossary

→ **Agglomeration**
Continuous built-up area. Density can be measured in terms of number of inhabitants per unit of surface or in terms of maximum distance separating constructions.

→ **Morphological criteria**
Can be used to estimate size of population of urban agglomerations by analysing physical structures, patterns of movement, land use, occupation, etc. based satellite and aerial pictures, comparison of historic maps.

→ **Rate of natural population increase**
The crude birth rate minus the crude death rate of a population.

→ **Ratio urban / rural (U/R)**
The ratio between urban population and rural population, a non-constraint indicator (contrary to an urbanisation rate that cannot exceed 1, i.e. 100%), can be used as a proxy for the ratio of non-producing food consumers to producers of these products (and hence also for market-size, etc.).

→ **Urban growth**
Increase in the population defined as urban.

→ **Urban population**
Population living at a given moment in centres defined as urban by the size of their populations (agglomerations).

→ **Urbanisation rate**
Share of the population living in urban areas at a given moment in total population.

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