

Chapter 5

Mapping cross border co-operation potential  
in West Africa

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Chapter 5 attempts to identify the areas in West Africa that have the greatest potential for cross-border co-operation. It is based upon research that maps seven environmental, socio-economic and political indicators, highlighting the existence of wide spatial disparities between West African regions. The research indicates that the zones with the greatest potential for cross-border co-operation are concentrated in southern Senegambia, along the borders of Burkina Faso, in the Accra-Lagos conurbation, between Niger and Nigeria, and in the north of Cameroon, as these regions present greater cross-border accessibility and border market density than others. In particular, they share natural, agricultural or pastoral resources, do not face significant linguistic divides, and poverty gaps are neither too wide nor too narrow, promoting synergies and movement between countries. From an institutional perspective, it is easier to roll out cross-border programmes in those areas where the relevant borders are well delimited.

### Key messages

- To identify the areas in which there is potential for cross-border co-operation in West Africa, seven regional integration indicators were analysed: agricultural and pastoral resources, languages, legal status of international borders, political stability, population, poverty and water resources.
- The Sahelo-Saharan zones are, broadly, those with the least potential, especially those struggling with security issues, such as the northern Mali-Niger zone.
- The Sahel is characterised by high co-operation potential, for example, in southern Senegambia, on the borders of Burkina Faso and between Niger and Nigeria, due to an abundance of border markets with high population potential and shared resources.
- The southern part of the region, on the coast of the Gulf of Guinea, is more heterogeneous, with unfavourable border co-operation potential in segments between Sierra Leone, Guinea and Liberia but high potential between Ghana, Togo and Benin, particularly in the Accra-Lagos conurbation.

## HETEROGENOUS BORDERS AND TERRITORIAL DISCONTINUITIES

Territorial discontinuities in West Africa are often exacerbated by government action. As far back as the colonial era, many investments in road and rail were carried out to reorganise regional trade within the colonies, forcing the main traders operating in the region's trade corridors to restructure their own networks (Howard, 2005). This territorial reorganisation was not fundamentally brought into question in the years following the independence of West African states and, as a result, many

countries have focused on investments within their capitals, encouraging the specialisation of national territory according to specific agro-climatic conditions, and prioritising infrastructure that connects them to the rest of the world rather than to their neighbours. Therefore, despite recent trans-African projects, the West African road network remains particularly poor with regard to cross-border connections: only four major paved roads cross the 1 497 km border between Niger and Nigeria, for example.

This reorganisation of West Africa, which contrasts with the fluidity of pre-colonial territories, intensified the heterogeneity of border areas. In southern Senegambia or on the periphery of Nigeria, the existence of agricultural subsidies and import bans led to the creation of warehouse states (Igué and Soulé, 1992) and generated a high level of informal cross-border activity. New markets such as Diaobé in Senegal, Sinkansé in Burkina Faso, and Gaya in Niger saw rapid growth, driven by small-scale contraband and regional re-export flows, as well as agricultural trade based on agro-climatic complementarities. Despite being located away from national decision making

centres, these markets attract small businesses and major traders, each operating at their own level to leverage the potential offered by trans-border differentials, develop transnational networks, and contribute to the integration of West African peripheral zones from the bottom-up. In other regions, however, the existence of national borders is far from sufficient to promote regional economic growth, even informal. The absence of specialised trading communities, the lack of economic complementarities and very small differences in legislation all accentuate the marginality of these regions (Box 5.1).

## ASSESSING THE POTENTIAL OF CROSS-BORDER CO-OPERATION

The heterogeneity of West African border spaces is a central issue in cross-border co-operation policy. Policy should be based on the resources of each region, in order to introduce cross-border initiatives that are adapted to local populations. Certain regional characteristics can be considered as favourable to the creation of co-operation structures, while others will hamper them. The existence, for example, of agricultural complementarities across several countries could be exploited to develop a common sector, while the absence of cross-border country roads in a region would handicap functional interaction between producers, traders and consumers.

In order to better understand where co-operation could take place in West Africa, the following analysis builds on seven indicators of regional integration which affect – though may not necessarily determine – the potential of cross-border co-operation: population, water resources, agricultural and pastoral resources, languages, legal status of international boundaries, political stability, and poverty (Table 5.1).

Without being exhaustive, these seven indicators cover a wide range of environmental, social, economic and political issues. They also relate to two fundamental dimensions of spatial integration: interaction, which refers to the relationships between socio-economic players, and convergence which describes the internal homogeneity of regions. The difference between interaction and convergence is important

for several reasons. First, some regions may become increasingly connected (interaction) without necessarily becoming more similar over time (convergence). This is frequently the case when a large, urbanised region borders a more rural one; despite commuting and migration flows between the two regions, their economic development follows different paths. Secondly, convergence between regions may be the result of internal dynamics that have little to do with cross-border interactions. The development of capital cities located close to borders, such as Lomé or N'Djamena, for example, is primarily explained by national rather than cross-border dynamics.

A positive and linear relationship is expected between the potential for cross-border co-operation and the majority of the indicators listed above: the greater the value of the indicators, the greater the assumed potential for cross-border co-operation. This is the case for the population variable, which measures the number of people that can potentially be reached from border markets considering the existing transport network, border delays and local terrain. Border regions with high population potential will be highly likely to engage in cross-border co-operation, because proximity increases interactions between policy makers, business transactions between traders, and information exchange within civil society. Water, agricultural and pastoral resources can also be mapped, assuming

Box 5.1

## Two approaches to West African borders

Over the past twenty years, the body of literature examining borders has expanded spectacularly, with a high proportion of works devoted to Africa, testifying to the immense potential of border dynamics when compared to other parts of the world (Nugent, 2012). There are two main schools of thought:

The first is inspired by econometric research carried out in the rest of the world (McCallum, 1995; Engel and Rogers, 1996; Fontagné et al., 2005) which examines the amplitude of border differentials in terms of trade and development (Aker et al., 2014). The result is that in West Africa, border discontinuities generally reflect major macroeconomic differences (Cogneau et al., 2015). For example, Côte d'Ivoire's border regions are less developed than Abidjan but are more so than the border regions of neighbouring countries. Where border regions are particularly distant from the capital, national redistribution is weaker, opening the door to dynamics that are more regional than national. Despite the dominance of the informal market and cross-border networks in West African economies, the discontinuities observed in border regions reveal the insulating impact of national boundaries in terms of the spread of economic development (World Bank, 2009).

The second school of thought is referred to as border studies (Wastl-Walter, 2011; Wilson and Donnan, 2012). Its proponents are

historians, political scientists, geographers, anthropologists and other specialists of the social and political sciences. It highlights the distinctive characteristics of border regions, their relations with the state, the consequences of the simultaneous opening and closing of borders, and the identities that arise from the relative marginality of these spaces (Bach, 2016; Igué and Soulé, 1992; Nugent and Asiwaju, 1996). This school of thought has gradually moved away from analysing the border itself to take into account border zones and actors, and the terms *borderlands* and *borderlanders* crop up frequently (Asiwaju and Adeniyi, 1989; Miles, 2014; Hüsken and Klute, 2010; Feyissa and Hoehne, 2010).

Rather than viewing West African borders as artificial obstacles or invisible lines between ethnic communities, border studies show how social partners exploit colonial partitioning, often in collaboration with governments. The study of trading networks (Dobler, 2016; Egg and Igué, 1993; Meagher, 2003; Twijnstra et al., 2014; Titeca and Herdt, 2010; Walther, 2015; Zeller, 2015) and their criminal equivalents (Korf and Raeymaekers, 2013) represent two particularly well-documented and inseparable dimensions of national peripheries. See the African Borderlands Research Network (ABORNE) website at [www.aborne.org/](http://www.aborne.org/) and the Journal of Borderlands Studies (JBS) website at [www.tandfonline.com/toc/rjbs20/current](http://www.tandfonline.com/toc/rjbs20/current).

that cross-border co-operation is easier when shared resources provide incentives to collaborate along value chain segments. Finally, the mapping of linguistic discontinuities is made on the assumption that a common language – whether it is vernacular, vehicular or of colonial origin – should facilitate the development of shared norms and values between stakeholders involved in cross-border co-operation.

From an institutional perspective, cross-border co-operation is also greatly influenced by the legal status of international

borders. Regions with clearly demarcated and delineated borders should be more favourable to cross-border co-operation than those where the exact location of the border is unknown or disputed. Another relevant indicator is political instability in border regions where it is assumed that political instability negatively affects the chances of building durable cross-border institutions. While it is true that the proliferation of violent transnational extremist groups in the region since the early 2000s may encourage countries to co-operate for security reasons,

Table 5.1  
Indicators of regional integration

Indicator	Definition	Type of integration
Population	Number of people who can potentially be reached from any border market in less than four hours	Interaction
Water resources	Existence of shared surface water and aquifers	Interaction
Agricultural and pastoral resources	Existence of shared agricultural production basins and transhumance patterns	Interaction
Languages	Existence of major discontinuities between languages	Convergence
Legal status of international borders	Existence of clearly demarcated and delineated borders	Convergence
Political stability	Existence of border disputes, conflicts and transnational violent extremist groups	Interaction
Poverty	Difference of poverty rates between contiguous regions	Convergence

the overall effect of such political instability is detrimental to cross-border co-operation because it disrupts trade networks, creates flows of refugees and diverts public resources that could otherwise be attributed to development needs.

For poverty rate differentials, which are measured as the difference between poverty rates between two regions, it is presumed that the relationship with cross-border co-operation potential is not linear but follows an inverted U-shaped curve (∩). Regions with relatively low and relatively high differentials for this indicator should have low cross-border potential. This

assumption builds on earlier work by Lundquist and Tripp (2013) in Europe, which showed that the highest potential of integration was achieved when two systems divided by a border were different but functionally close, i.e. differences between regions in economic performance and capability were small. Very small border differentials usually do not provide enough incentive for local, regional or national actors to co-operate with their neighbours, while huge differentials discourage them from engaging in joint initiatives due to the low likelihood of finding synergies.

## POPULATION POTENTIAL: THE ROLE OF BORDER MARKETS

The number of people who can be reached from border regions varies widely between different parts of West Africa. Some borders cut through dense, well-connected population basins; between Accra and Lagos, for example, while others have been drawn through vast swathes of sparsely populated land, like the Mali-Mauritania frontier. These regional differences have major repercussions on communications infrastructure, major facilities or the services developed for the border population. In order to represent this spatial heterogeneity, the indicator examined in this

section calculates the number of people who can be reached within four hours of each of the 135 border markets identified in West Africa (OECD/SWAC, 2014).

Border markets are key hubs of social and business exchange in border regions, with very particular characteristics owing to their specific location at the crossroads of the major trade flows through West Africa and on to the rest of the world (Dobler, 2016; Walther, 2014, 2015). Compared to other markets, border markets have a number of special features:

Box 5.2

## Calculating population potential

Seven datasets were combined to model travel times in the region:

- 1 European Space Agency (ESA) Land Cover: Global land cover maps at 300 m (10" arc seconds) spatial resolution, with a time series of five years. These maps were produced using a multi-year and multi-sensor strategy in order to make use of all suitable data and to maximise product consistency.
- 2 Open Street Map (OSM) Road: A collaborative project to create a free editable map of the world, with an emphasis on creating a high quality road network.
- 3 Global Roads Open Access Data Set (gROADSv1): Best available public domain roads data by country, using the United Nations Spatial Data Infrastructure Transport (UNSDI-T V2) as a common data model.
- 4 Shuttle Radar Topography Mission (SRTM) Height: Elevation models distributed in two levels (SRTM-1 with data sampled at one arc second intervals in latitude and longitude, and SRTM-3 sampled at three arc seconds).

5 Global Administrative Areas (GADM 2.8): A spatial database of the location of the world's administrative areas and boundaries.

6 LandScan™ 2014 Global Population Database by Oak Ridge National Laboratory: Considered the most precise global data source for population distribution, for both spatial resolution and temporal characteristics.

7 Africapolis (part of the e-Geopolis programme) – 2015 Update, comprehensive and homogenous database on urbanisation, covering 17 West African countries spanning the period 1950 to 2010. Its original methodology combines demographic sources, satellite and aerial imagery to provide population estimates and geolocation at the level of individual agglomerations, <http://stats.oecd.org>.

All datasets were converted to raster datasets with a spatial resolution of 10" arc seconds (~300 m) matching the ESA land cover data.

- First, border markets attract a very particular economic actor: major traders who know how to exploit the differences in exchange rates, taxes, prices, and national import and export regulations. These traders, who act as intermediaries between the different national markets, are able to provide the major West African consumer centres with agricultural and manufactured goods from all over the world. Their activity is a major factor in the prosperity of border marketplaces, which often experience sudden booms or rapid slumps when there are changes to national laws.
- In addition to the major traders, border markets also have a high number of small businessmen that operate on a local level in cross-border trade. They have often developed personal relationships with government representatives who are responsible for controlling the borders

which they cross every day, transporting consumer goods and agricultural products on their head, by bike or by bush taxi.

- Border markets are not just preferred locations for traders, but also outlets for locally grown produce such as onion, millet, sweet potato and maize, which are either consumed by the urban population or exported to other national consumer centres. Tradeswomen retailing fruit and vegetables are particularly active on these markets.

The indicator developed specifically for this report uses existing border markets to map the extent of the border regions' population pool (Box 5.2). Initially developed to calculate population potential in Europe (Van Eupen et al., 2012; Gløersen, 2012; Jochem, 2016), it was modified by the Alterra Institute at Wageningen University in the Netherlands and adapted to the

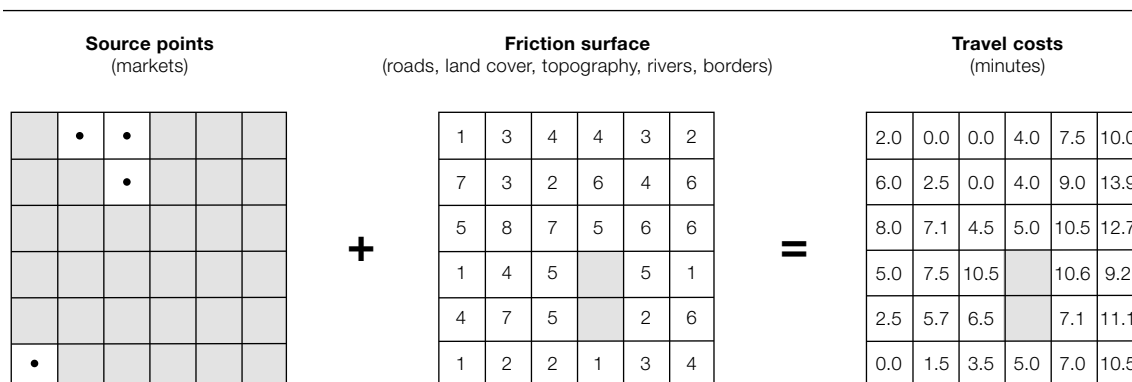
specificities of West Africa. The maps produced by the model show drive-time lines connecting all locations that can be reached at the same time (isochrones).

Travel times are calculated on the basis of “friction surface”, i.e. a grid that models movements between points depending on their average speed in any direction (Figure 5.1). After having divided the region into small cells, the time needed to cross each cell is estimated on the basis of a large variety of indicators that include existing road networks, land cover, topography, and rivers. To calibrate the model, the authors selected an average of 30 km/h as a reference travel speed for trucks and bush taxis, two popular means of transportation in the region. Land cover was used to simulate slower off-road speeds, taking into account the rough vegetation and slow speeds on existing small roads and tracks not covered by global road databases. Rivers and steep slopes are interpreted as potential obstacles that lower and restrain speed.

The most innovative geographic feature of the model is the introduction of national borders. The model calculates how many people could be reached from each border market with and without a border delay of one hour, which can be seen as the absolute minimum delay for a national border crossing in West Africa considering that waiting times of up to several days are common across the region (Ben Barka, 2012). The difference between the two values indicates what proportion of the population would benefit from the elimination of border delays. This is an approximation of the barrier imposed by borders on the international flow of people and products.

The model considers five types of daily mobility ranging from 30 minutes (close proximity to a market) to 4 hours (generally the maximum accepted market influence). These values differ significantly from those used in Europe, where average speed is much higher and private cars are used more often, resulting in a 45-minute threshold for daily commuting.

Figure 5.1  
Calculating the final travel cost to each source point using a friction surface

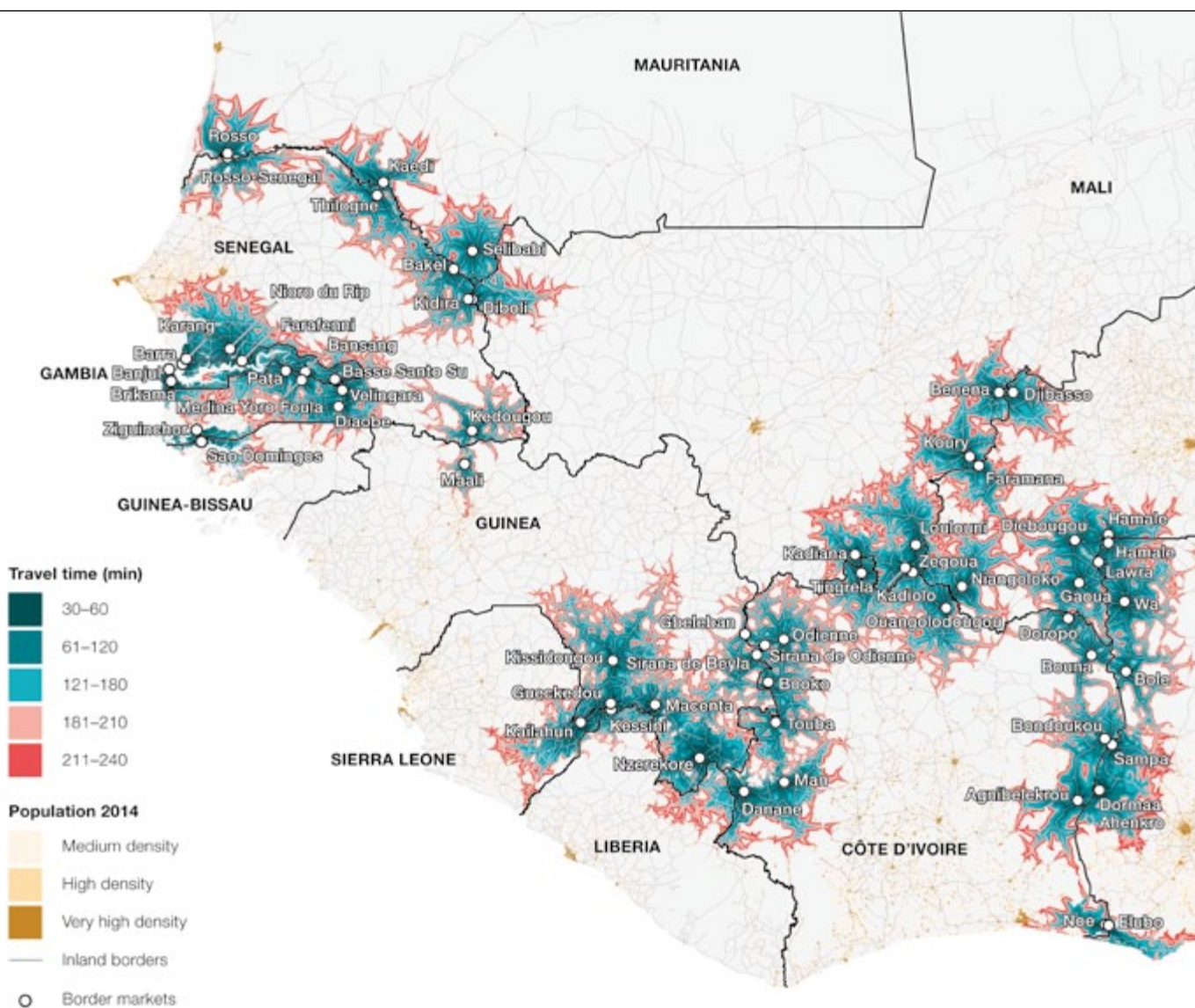


Source: ESRI 2012

Mapping the population potential of West Africa (Map 5.1) reveals the heterogeneity of border spaces. Some regions have clusters of markets (described in more detail in Maps 5.2 to 5.5), often organised as twin cities, while large stretches of border have none at all. From west to east, the densest markets are in southern Senegambia, in the central section of the Gulf of Guinea, between Niger and Nigeria, and in northern Cameroon. Conversely, border markets are rare in Fouta Djallon, Liptako-Gourma, between Liberia and Côte d’Ivoire, and between Niger and Mali.

Population potential analysis makes it possible to establish the spatial boundaries of functional border regions in West Africa, that is to say the areas in which socio-economic interaction is potentially intense. In the west, the regions that are potentially the most dense and accessible are those in southern Senegambia (markets of Ziguinchor, Farafenni, Diaobé) and along the Senegal River (markets of Rosso, Kaédi, Bakel), where a territorial continuity can be seen between the markets’ population basins. The borders

Map 5.1  
Population potential of West African border markets



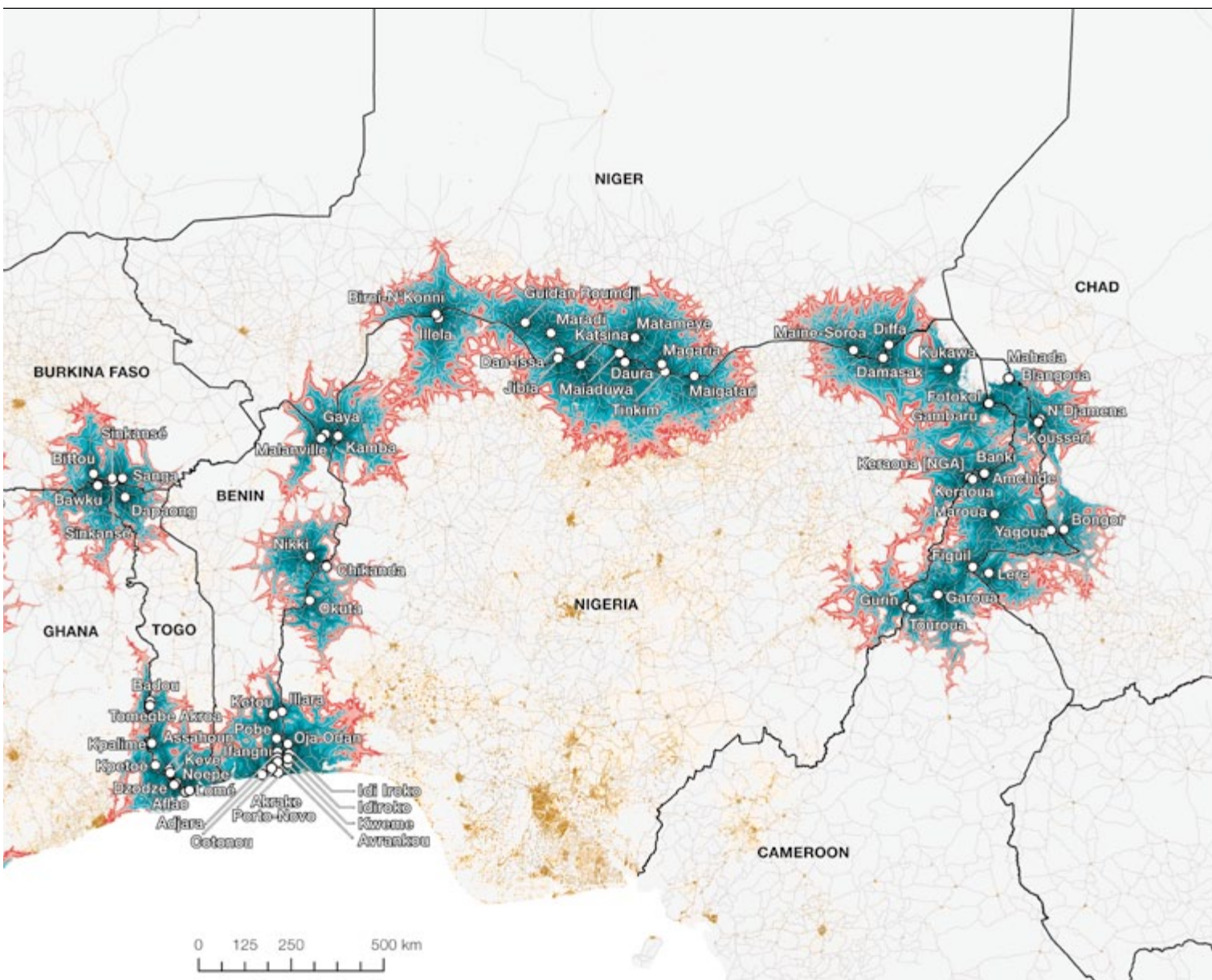
Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrichs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.



of Côte d'Ivoire also represent a focal point for regional integration, comprising three submarket clusters: between Kissidougou, Nzerekore, Man and Odienné in the west; between Kadiolo, Kadiana and Zégoua in the north; and between Wa and Agnibelekrou in the east (Maps 5.2 to 5.5). Remarkable territorial continuity can be seen between these potential population basins. There are three cross-border basins in northern Togo (Bittou, Dapaong, Sinkansé [Burkina Faso]), Borgou (Nikki, Okuta) and Dendi (Gaya, Malanville,

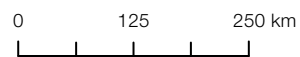
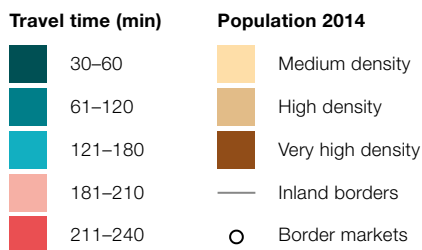
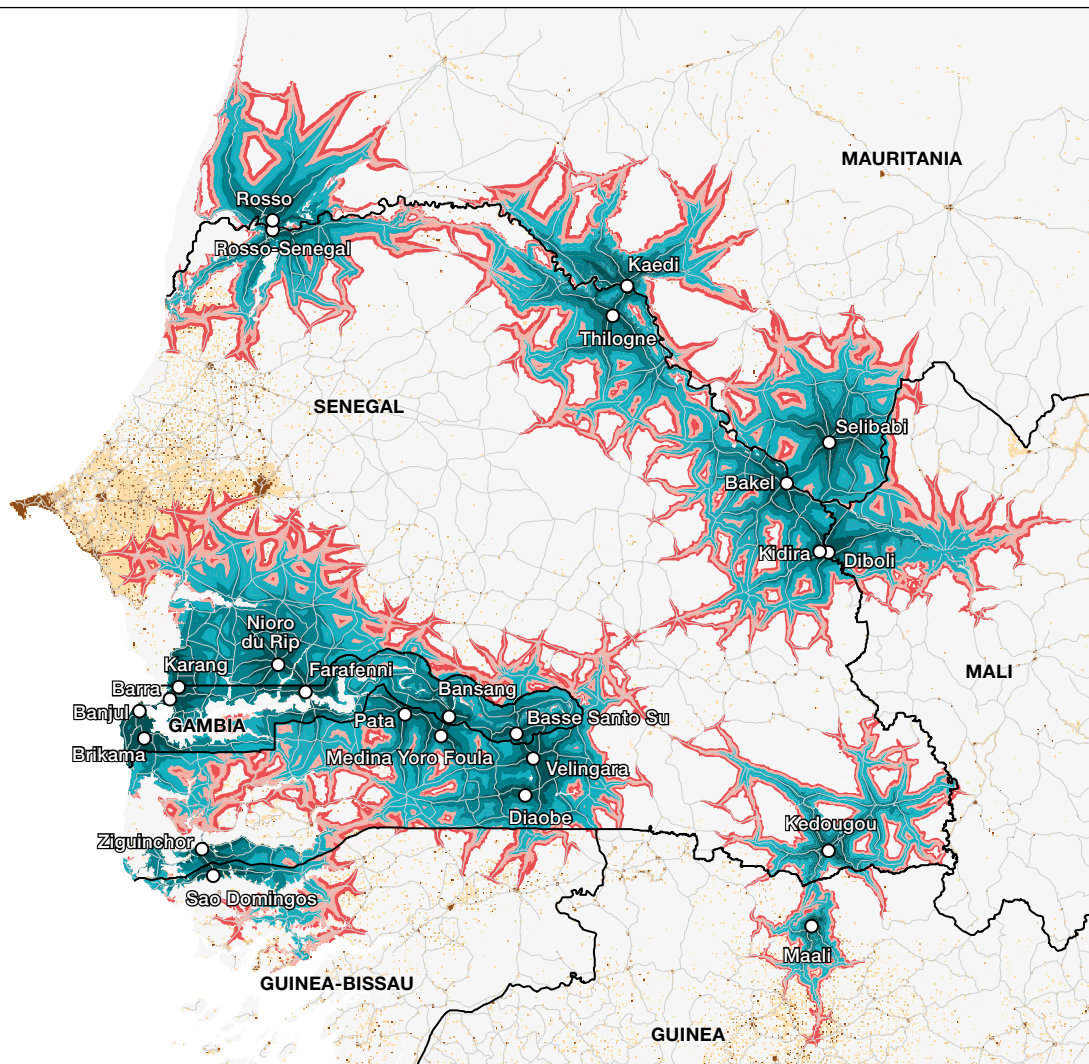
Kamba) that are relatively separate from others in the region.

Further east, the two biggest population potential zones are in northern Nigeria and around Lake Chad. The former, centred around the north of Hausaland, straddles the border over a wide area of the Niger-Nigeria border, and between Birni N’Konni and Maigatari. The latter is also vast, covering the far east of Niger, Lake Chad and northern Cameroon down to Touroua (Maps 5.6 to 5.10).



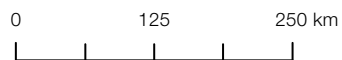
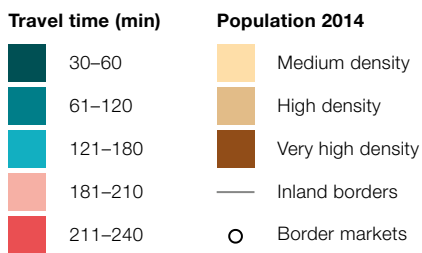
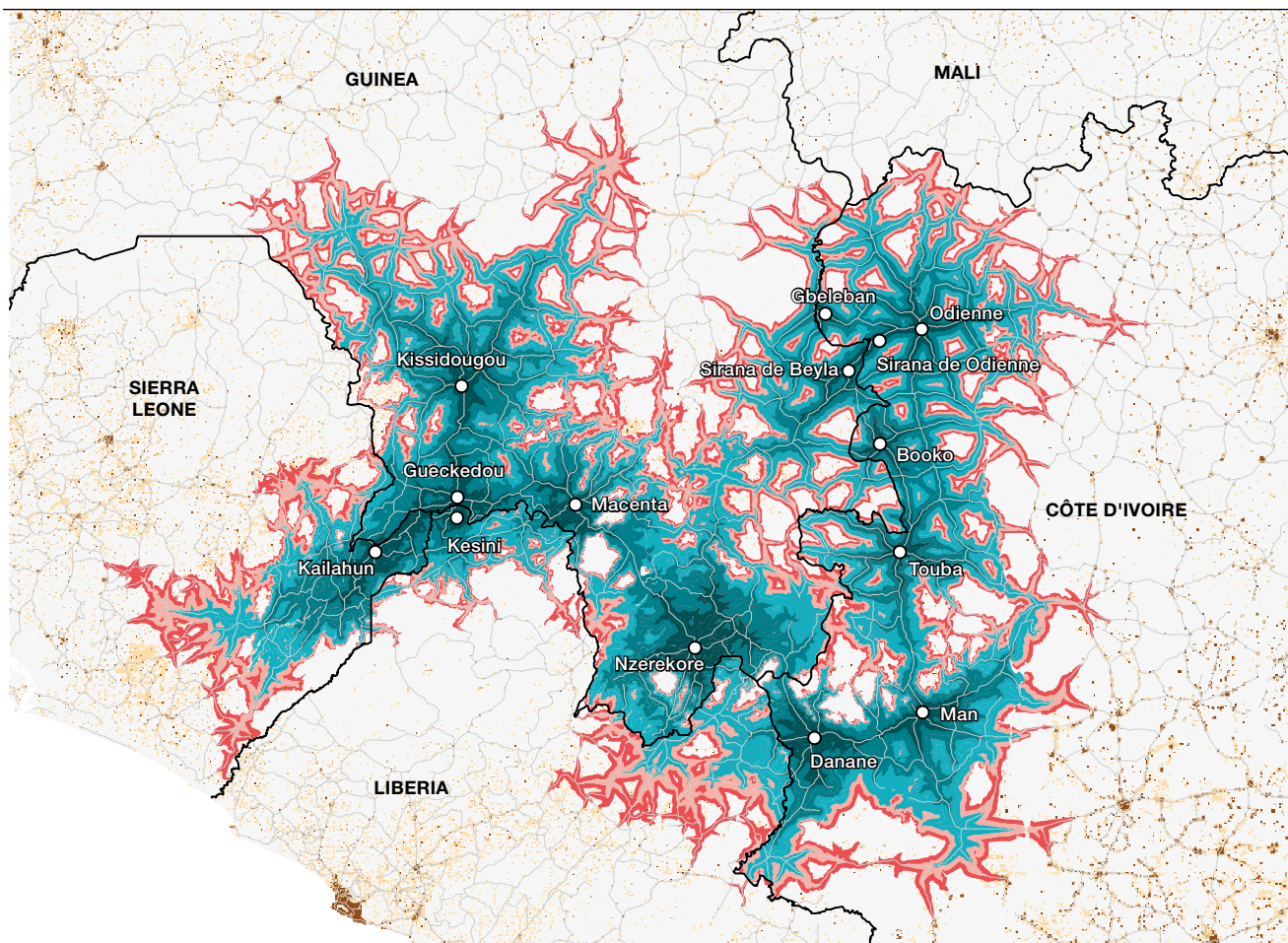
Map 5.2

Population potential of southern Senegambia, Rosso, Kaédi, Kédougou and western Mali



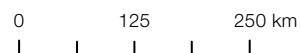
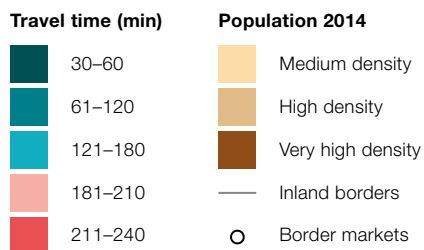
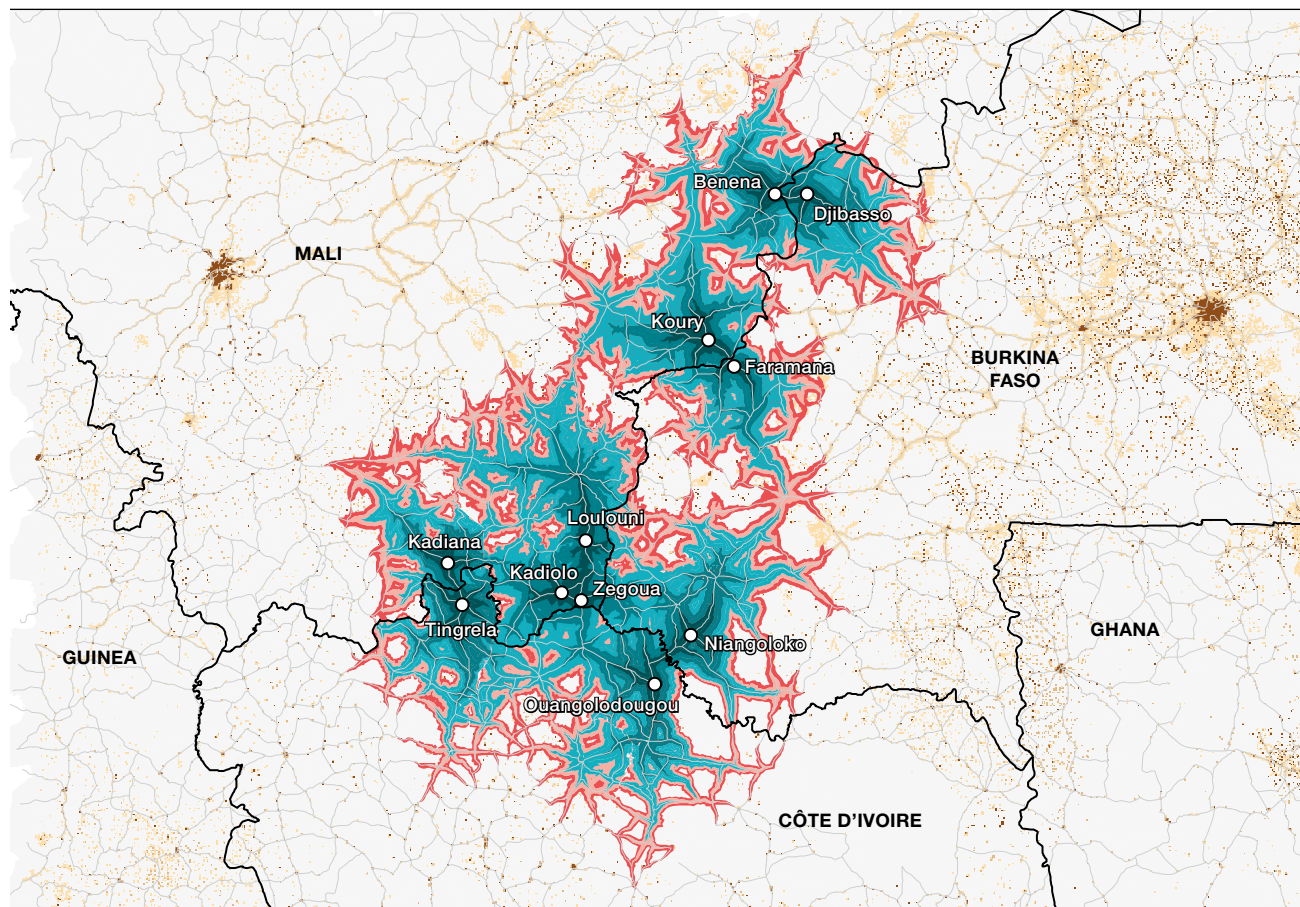
Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.3  
Population potential of eastern Guinea



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

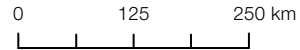
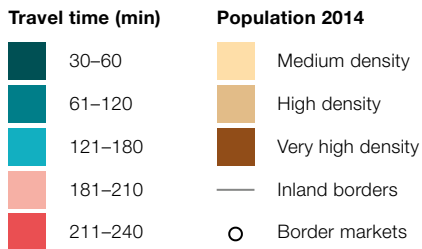
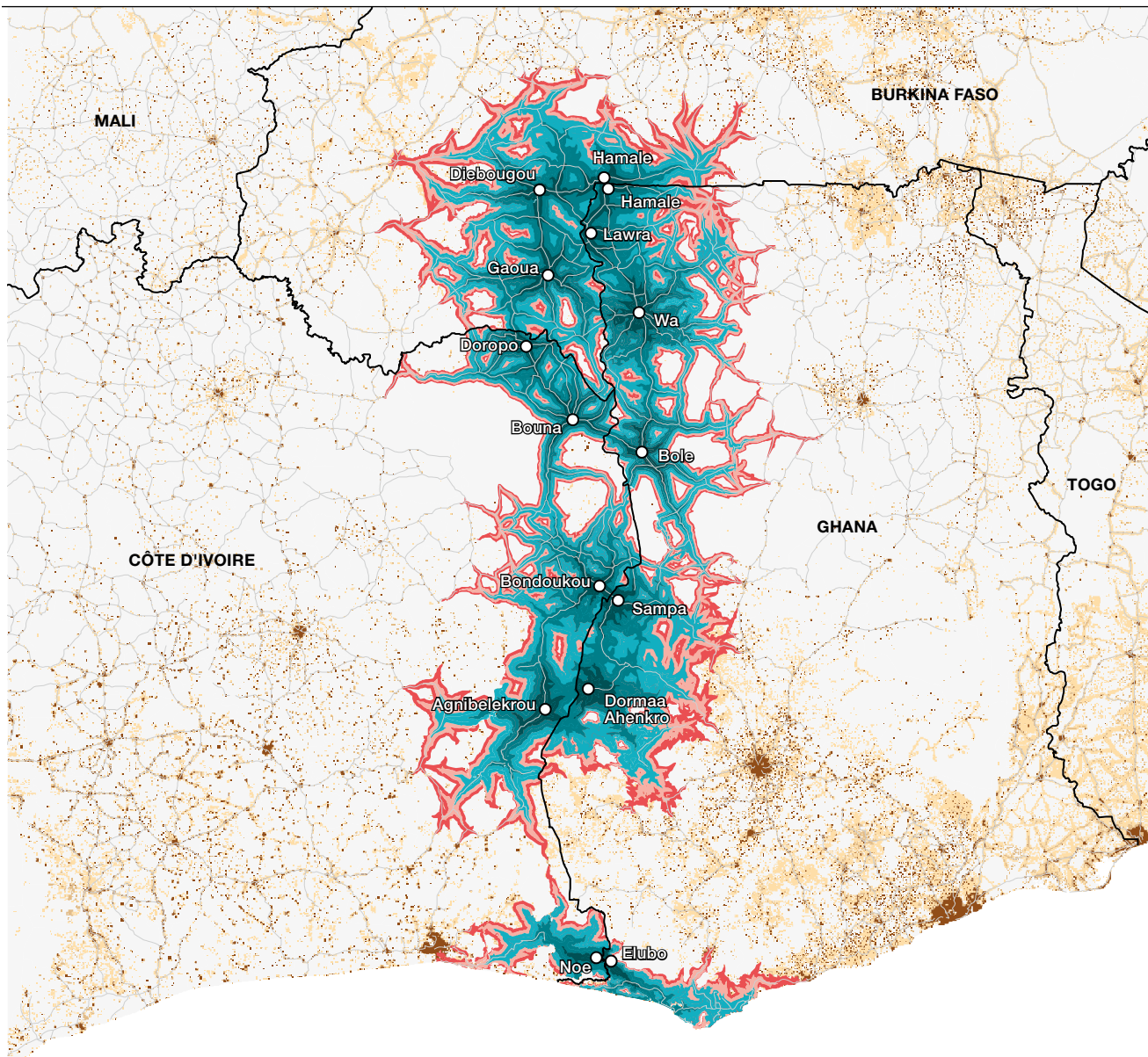
Map 5.4  
Population potential of southern Mali



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

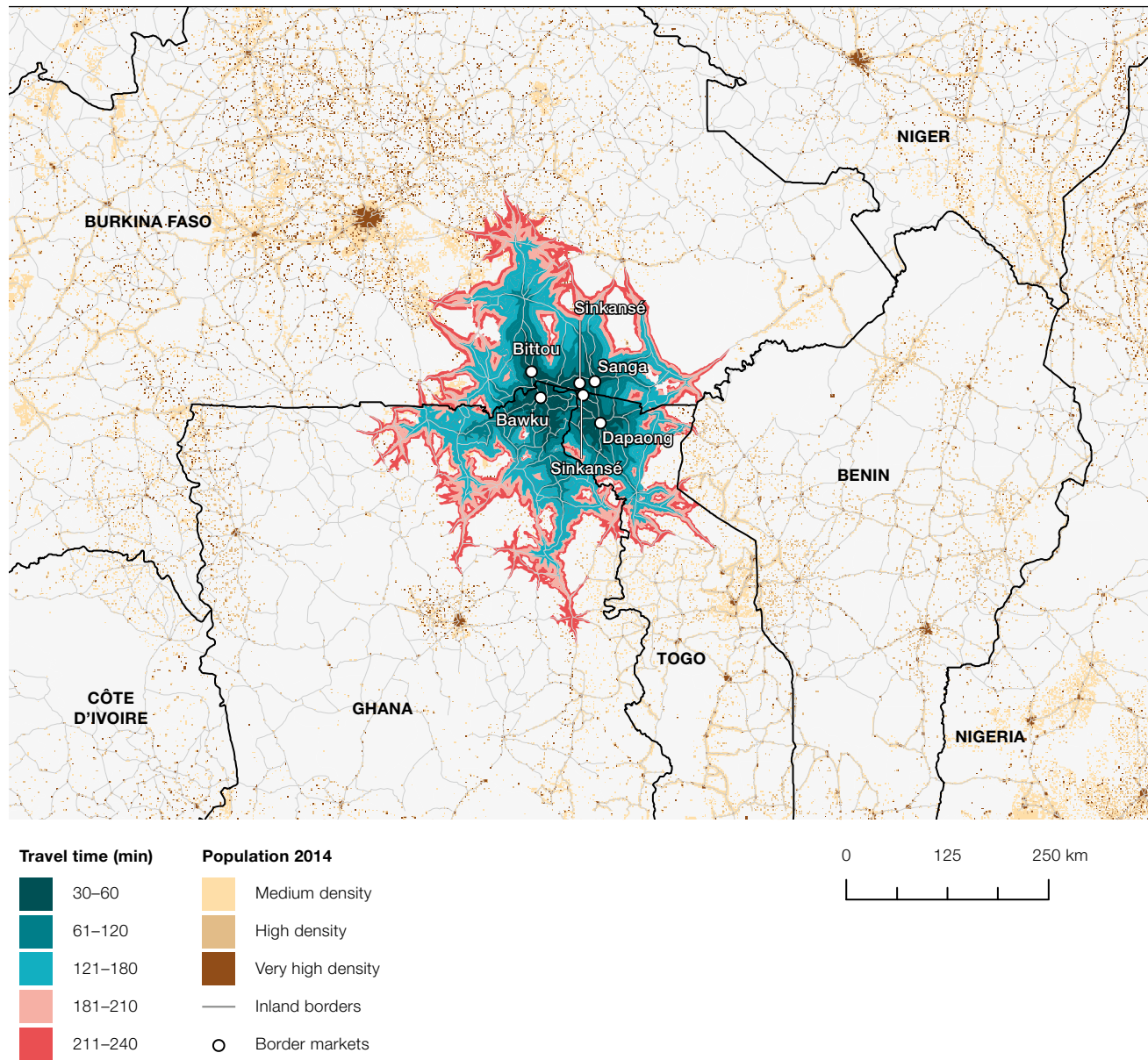
Map 5.5

Population potential of northern Ghana, Bondoukou and the Ghanaian Coast



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

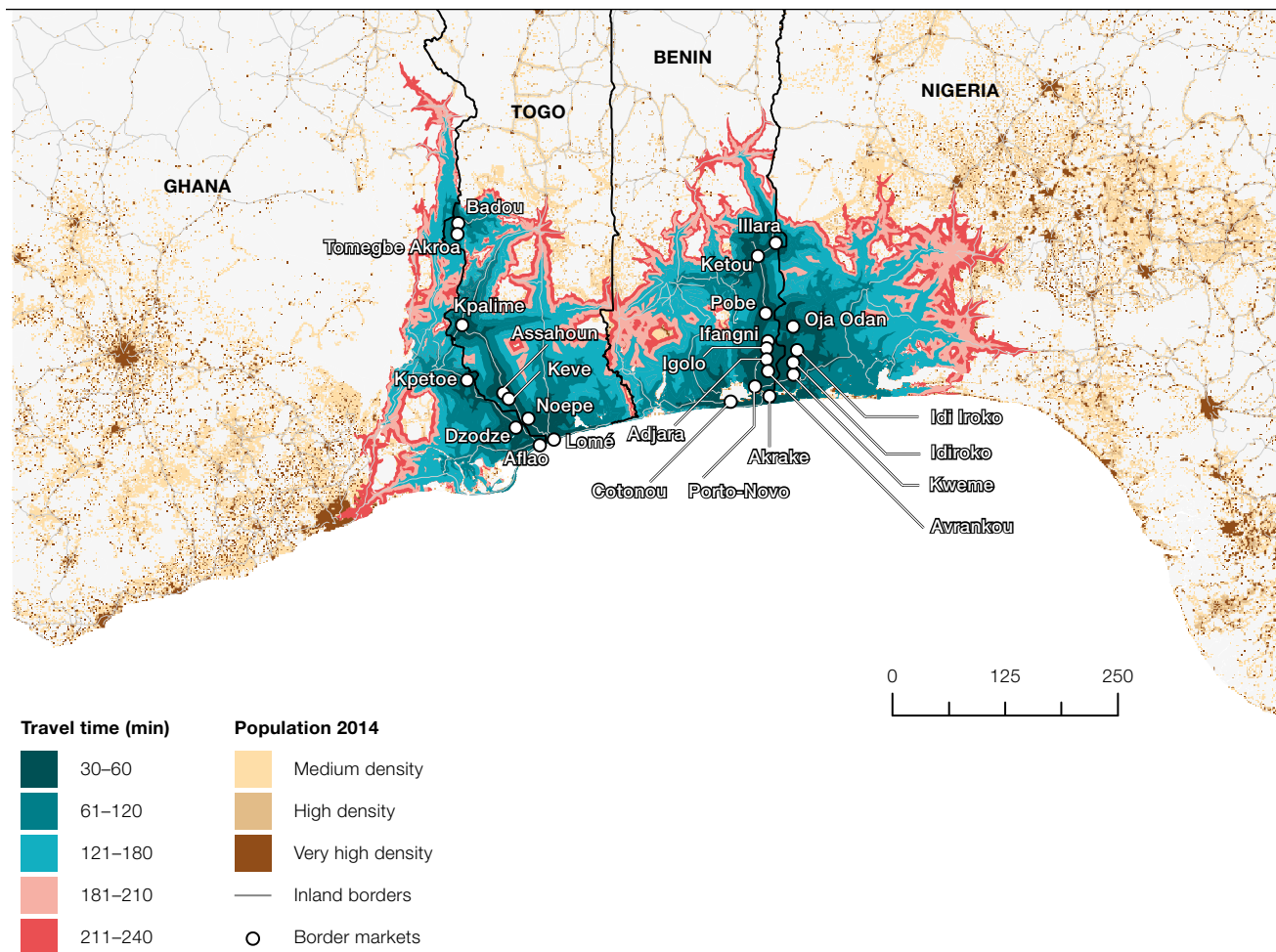
Map 5.6  
Population potential of northern Togo



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrichs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

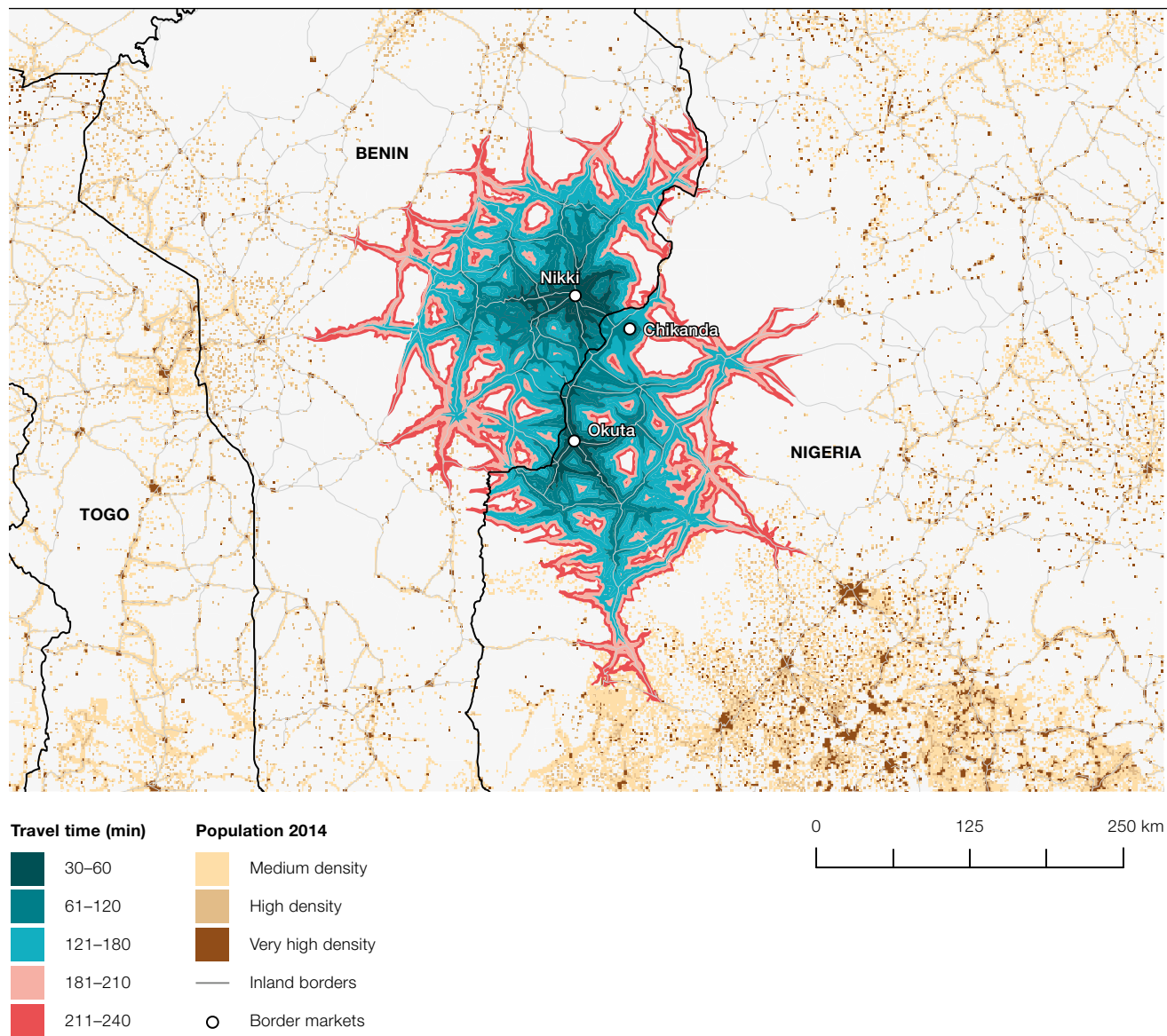
Map 5.7

Population potential of southern Togo-Ghana and southwest Nigeria



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.8  
Population potential of Nikki-Chikanda-Okuta

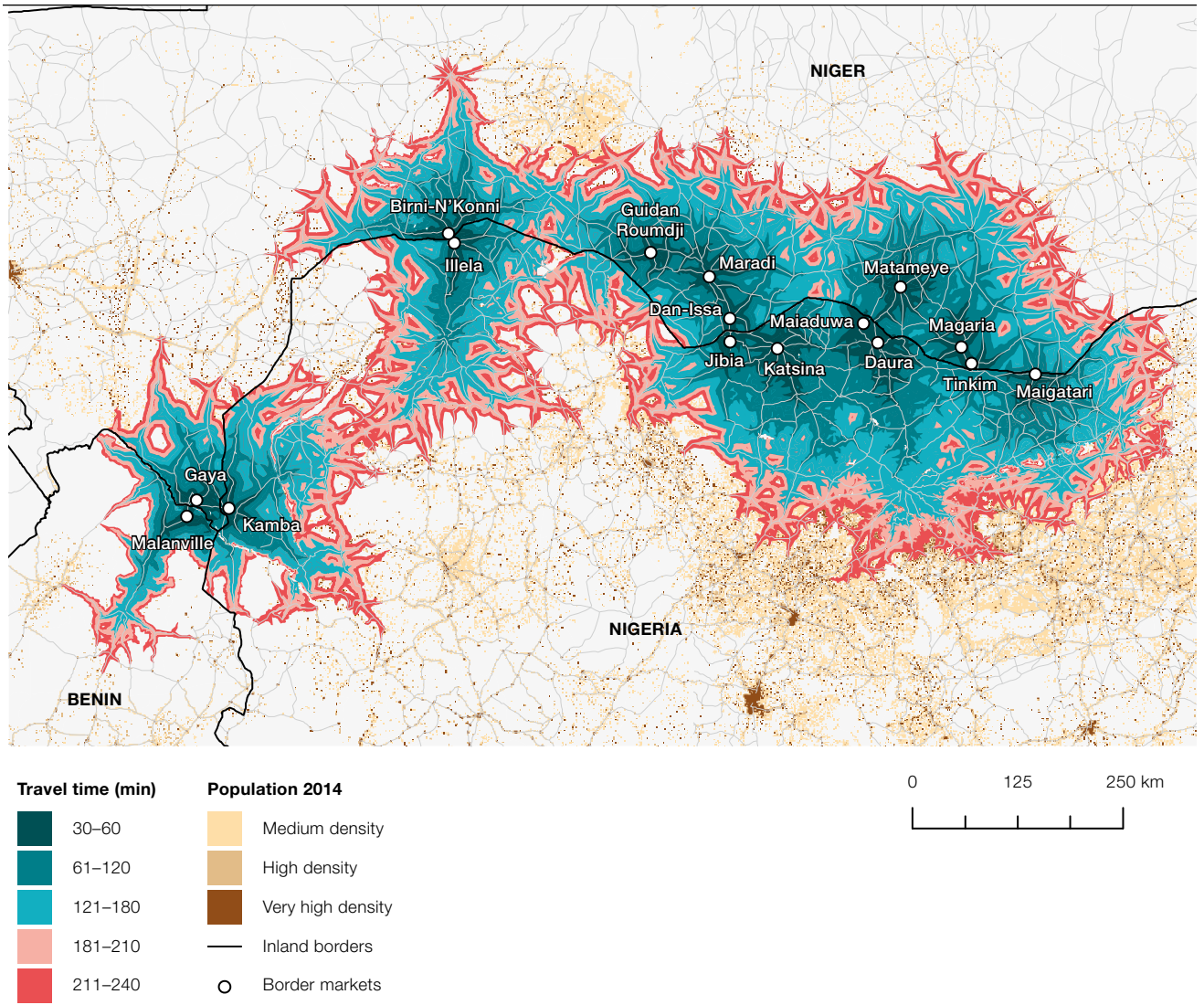


Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.



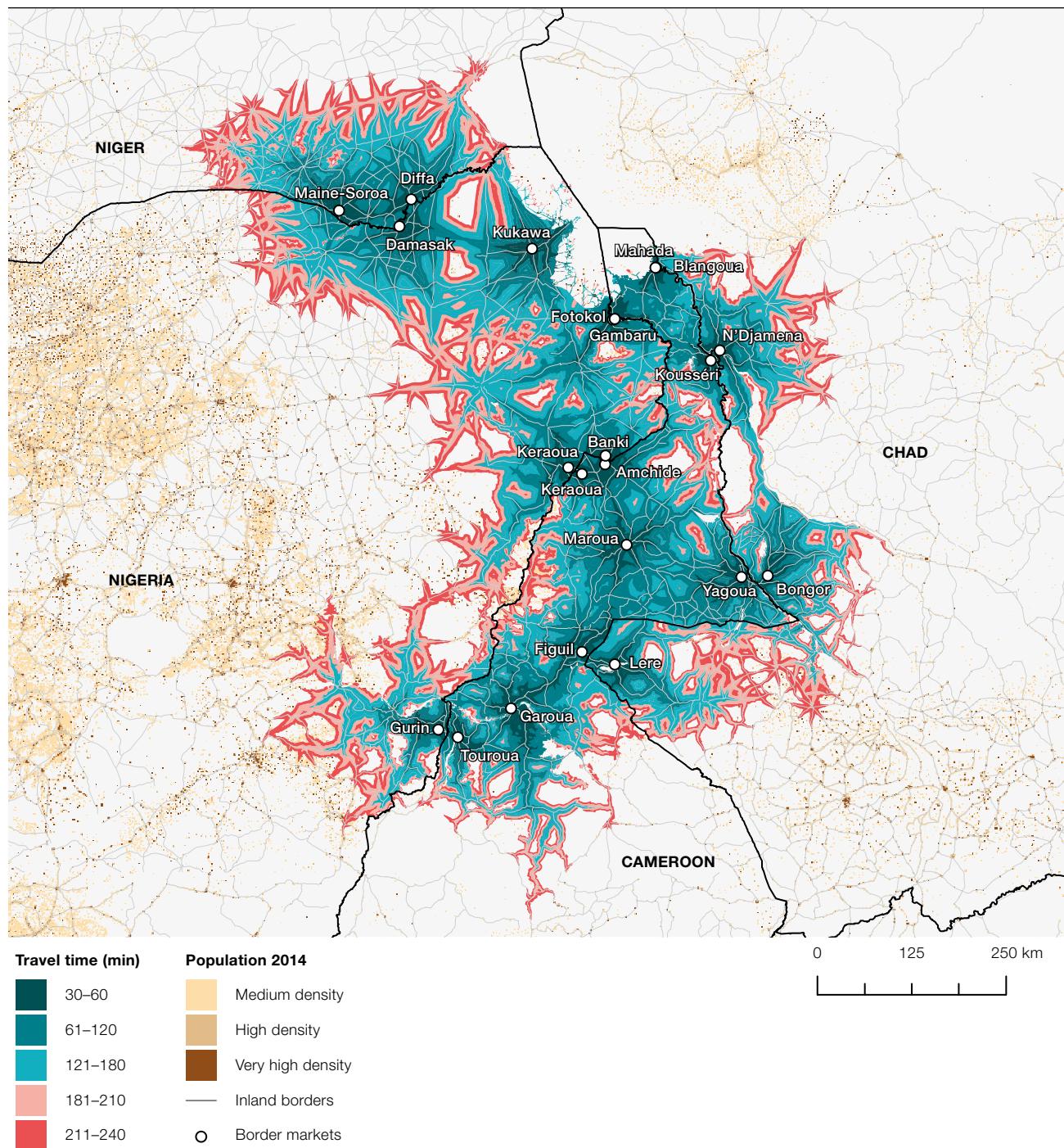
Map 5.9

Population potential of Gaya-Malanville-Kamba, Birni N'Konni-Illela and northern Nigeria



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrichs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.10  
Population potential of Lake Chad and northeast Nigeria



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinriqs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Nigeria’s borders have, without a doubt, the greatest population potential in West Africa, especially in the southwest and the north of the country (Map 5.11). In the Gulf of Guinea, the presence of very large urban centres such as

Lagos and Cotonou explains why some border markets (for example, Adjara) have a demographic potential of over 10 million people. In northern Nigeria, the demographic scale of the population basins is attributable to high population

density coupled with the presence of large urban centres such as Sokoto, Kano, Katsina, Maradi and Zinder. Compared with these two regions, the other West African population potential zones are substantially less populous, especially in the basins around Lake Chad and southern Senegambia, despite their vast size.

Mapping population potential is a way to both visualise the demographic pool of each market and to evaluate the border effect. Comparing the number of people who can be reached with or without a border delay, the indicator can calculate the border effect in each population area. In the Lake Chad zone, for example, 1.98 million people can be potentially reached within four hours of the Kousséri border market, close to N'Djamena. If there were no border delays, over 2.7 million people could be reached within the same timeframe, representing a gain of almost one-third. This additional population is particularly important towards Nigeria and northern Cameroon (Map 5.12).

The gain in population that could theoretically be obtained by eliminating border delays is greatest between Benin and Nigeria (the Kétou and Illara markets) and between Niger and Nigeria, where the Nigerien markets of Dan Issa, Matameye, Magaria and Tinkim have the most to win from the opening of Nigerian borders. In the rest of the region, demographic gains are smaller but often represent an increase of more than one-third, which is the case for the markets around Lake Chad (Gambaru, Mahada, Blangoua, Fotokol) and in the Dendi (Gaya and Malanville) (Maps 5.13 to 5.21).

The potential population gains from opening the borders are particularly striking when border markets are grouped by major functional regions. Table 5.2 shows how many people could be potentially reached within four hours from all markets in each region, with and without border delays. Since the population basins of markets overlap geographically, these figures do not represent absolute numbers of people, but the potential for all the markets within a given region. Consumers and merchants may therefore find themselves within a zone where several markets are present, presenting them with the opportunity to diversify the markets which they visit. Border markets located in southwest Nigeria, for example, are able to reach the urban populations of the major

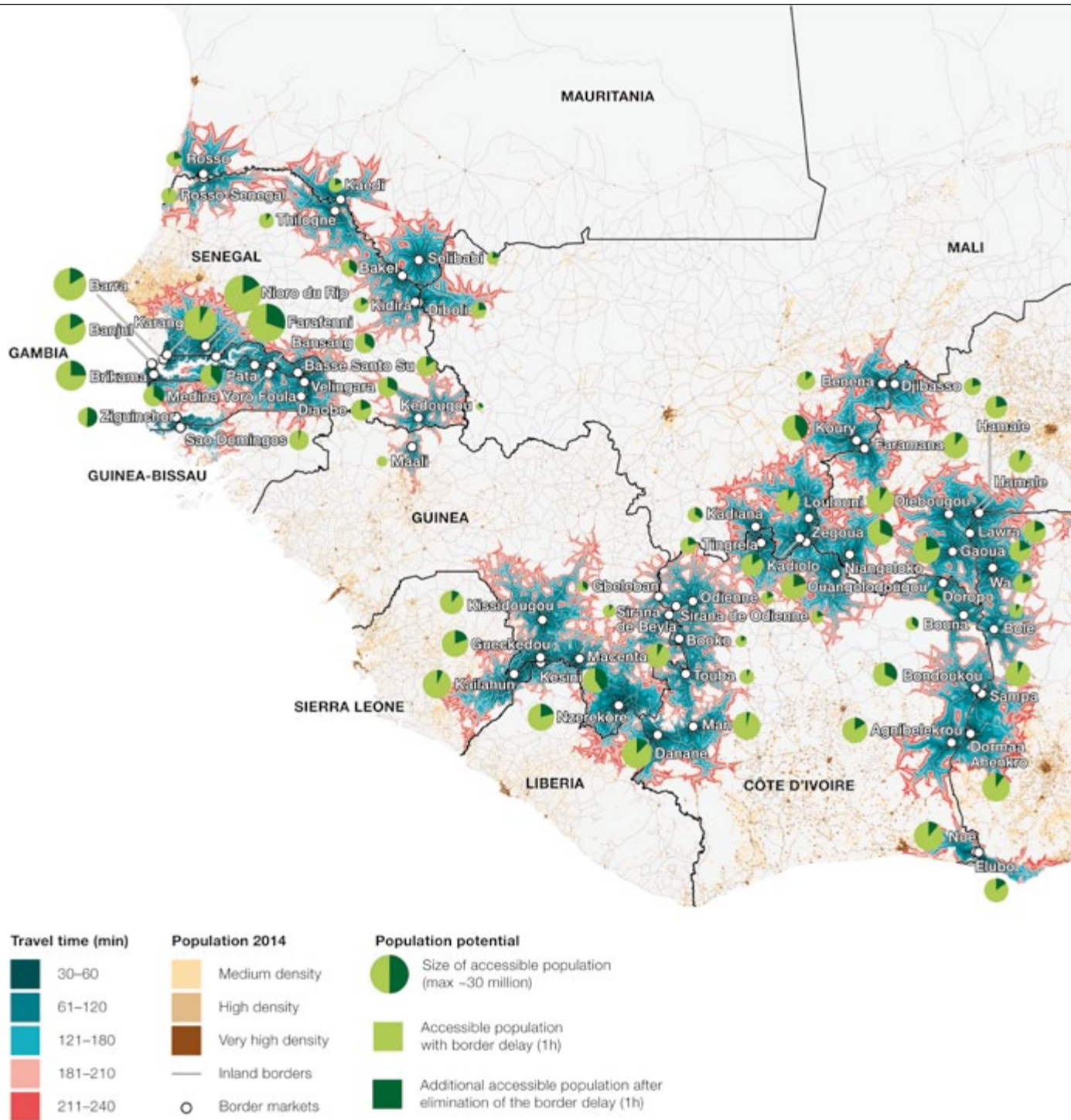
regional centres of Cotonou and Lagos, increasing the regional potential by a corresponding amount. The southwest and north of Nigeria are the two regions that would most benefit from a reduction in border delays, while significant gains could be made in Dendi (Gaya, Malanville, Kamba), around Lake Chad, in southern Senegambia, southern Mali and between Togo and Ghana. In the Lake Chad region, the potential gain from the elimination of border delays represents almost half of the population reached, whereas in Dendi, the west and south of Mali, and northern Nigeria, it is over one-third.

Population potential is strongly dependent on the density and quality of the West African road network. When the former colonies acquired their independence, concerted efforts were made to connect the handful of regions that had a dense network of paved roads in order to form a regional network. The major cities of the Sahel, isolated for many years, were gradually integrated into the coastal network, while some major regional centres such as Nouadhibou in Mauritania and Kayes in Mali were finally linked to their capitals. Fifty-five years after independence, the West African network is denser and better connected than ever, especially between Abidjan and Lagos.

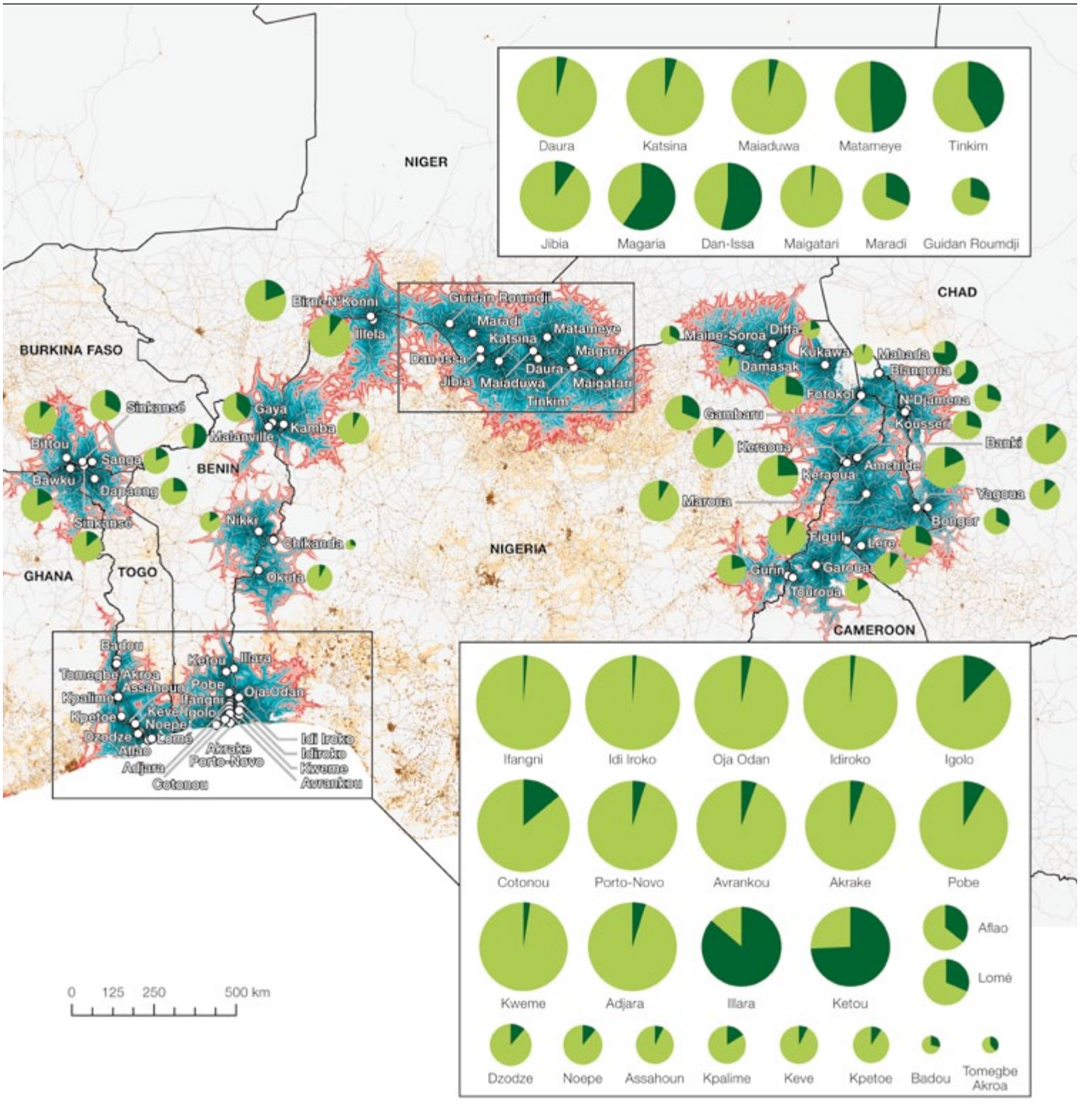
Despite these developments, road density in West Africa remains low compared to other regions in the world. Mali is larger than states of Texas and California combined but has only 5 522 km of paved road, compared to 1.72 million km in those two states. The West African network also remains firmly structured along national rather than regional lines: the major road corridors such as the Trans-Mauritanian Highway (Route de l'Espoir) between Nouakchott and Néma, the RN1 (Route Nationale 1) between Niamey and Diffa in Niger, and the trans-Mali road between Bamako and Gao all culminate in dead ends. Only Nigeria has a dense road network in all its regions. The low density of cross-border roads considerably distorts to population zones that can be reached from a given market. This effect is particularly stark between Sierra Leone, Guinea and Liberia; in the Senegal valley between Rosso, Kaédi and Bakel; and in northern Togo, where the major thoroughfares passing through Bawku and Dapaong run parallel to the border.

Map 5.11

Population potential by border market, with and without border effect

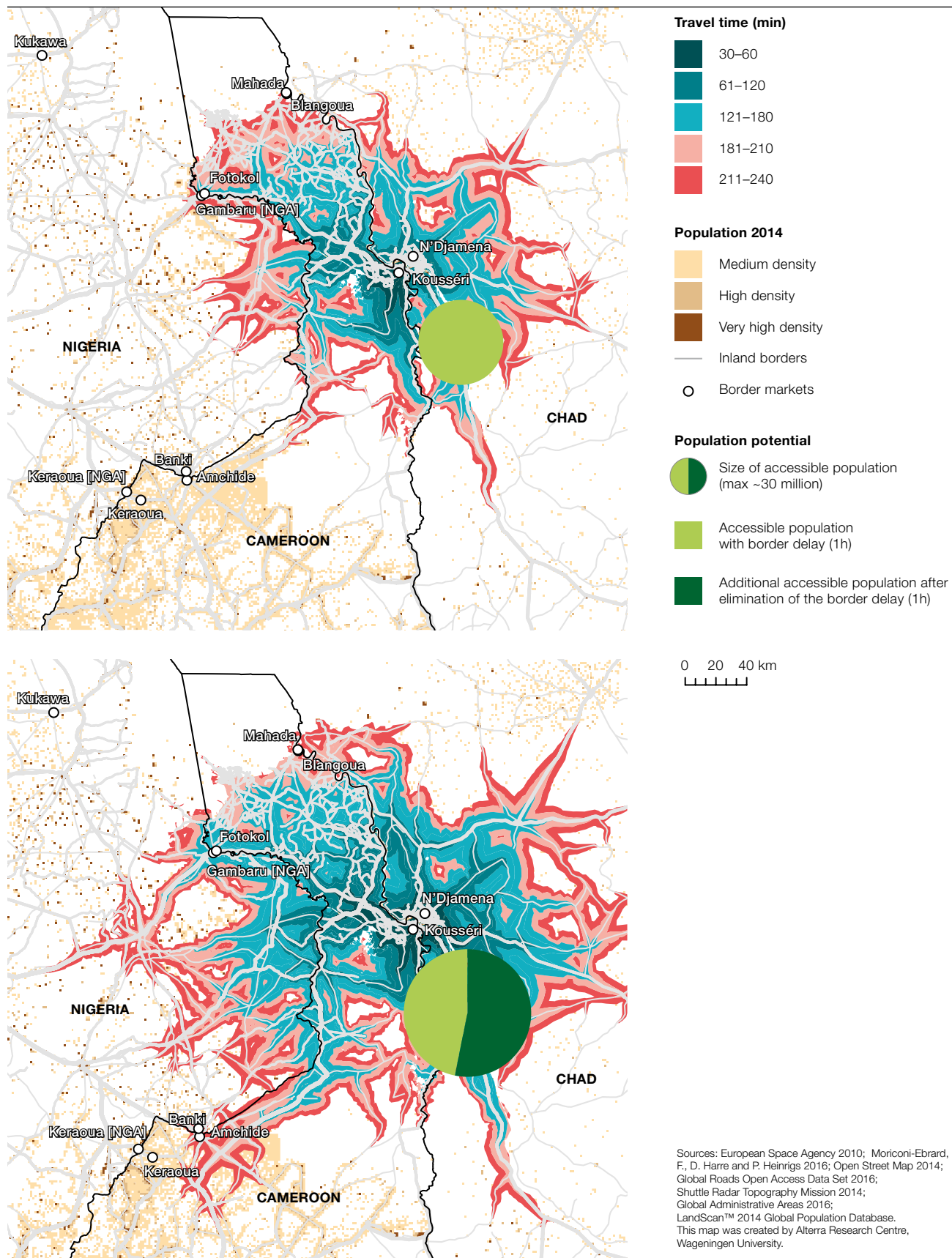


Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Hennigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

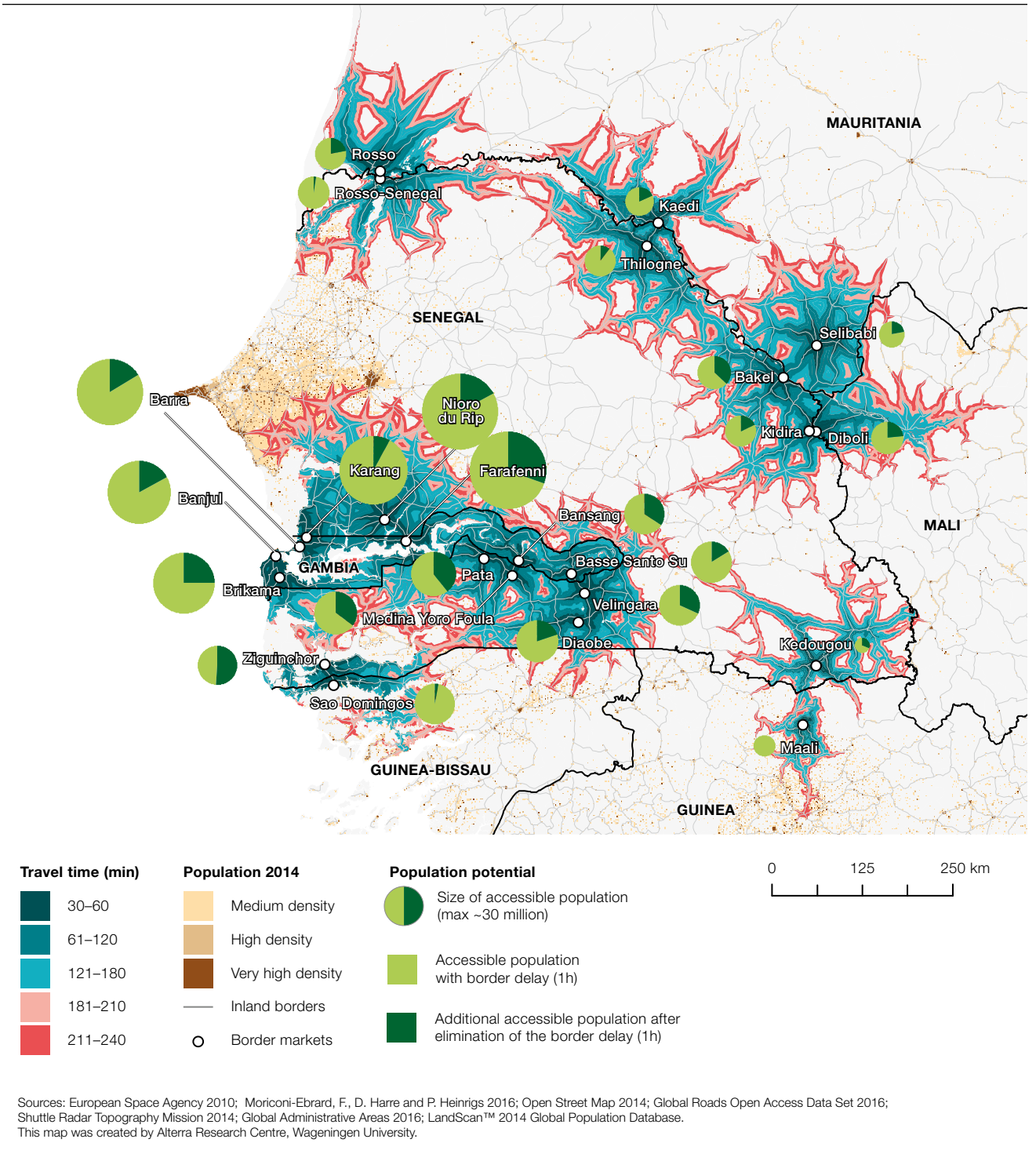


Map 5.12

Population potential of Kousséri (Cameroon) with and without border effect

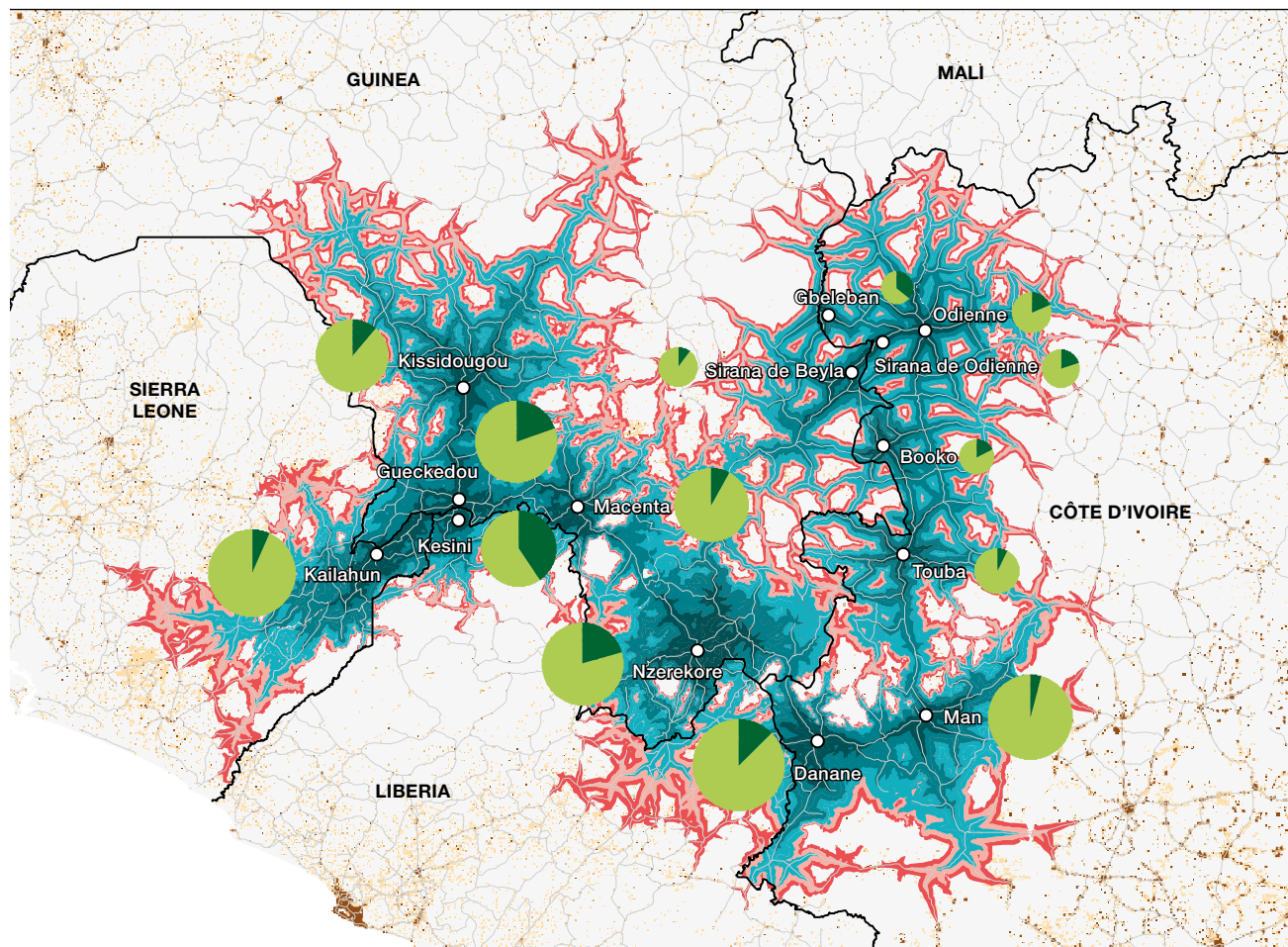


Map 5.13  
Population potential of Senegambia, with and without border effect

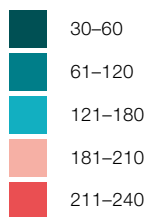


Map 5.14

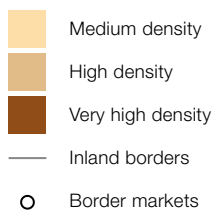
Population potential of eastern Guinea, with and without border effect



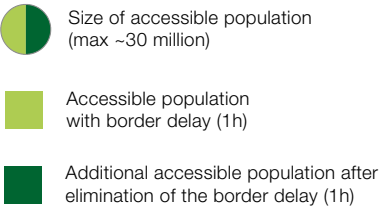
**Travel time (min)**



**Population 2014**



**Population potential**



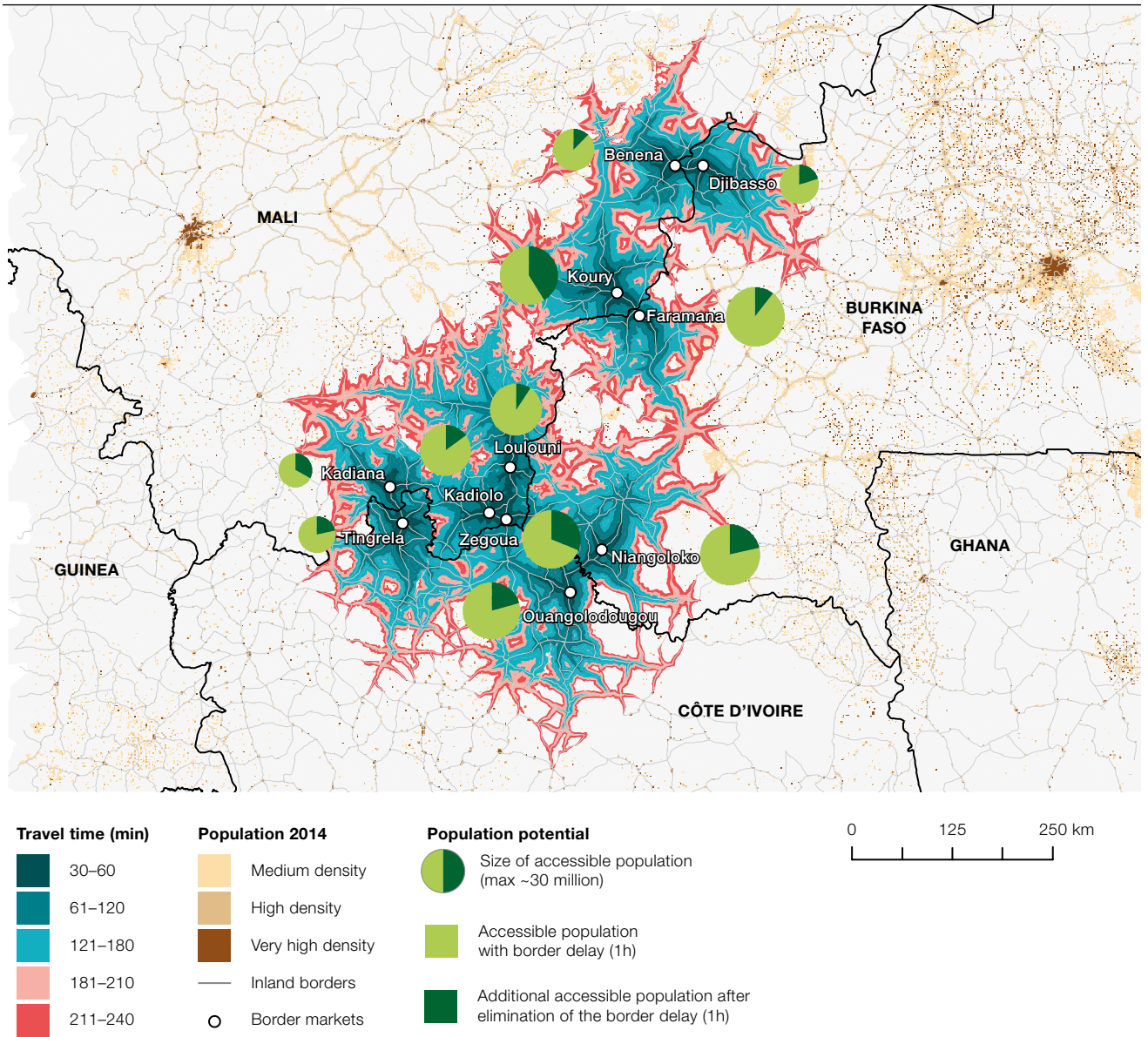
0 125 250 km

Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.



Map 5.15

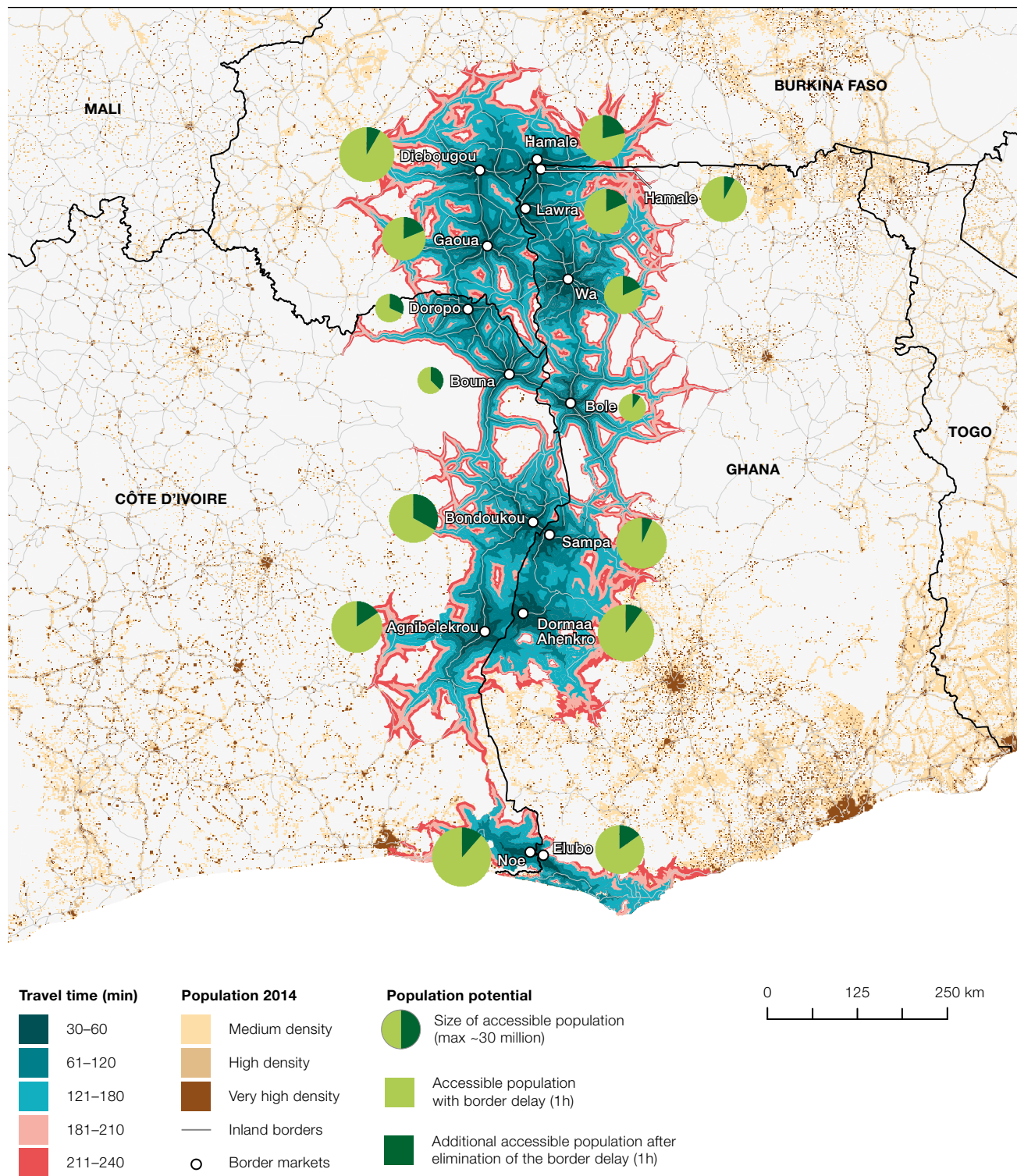
Population potential of southern Mali, with and without border effect



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.16

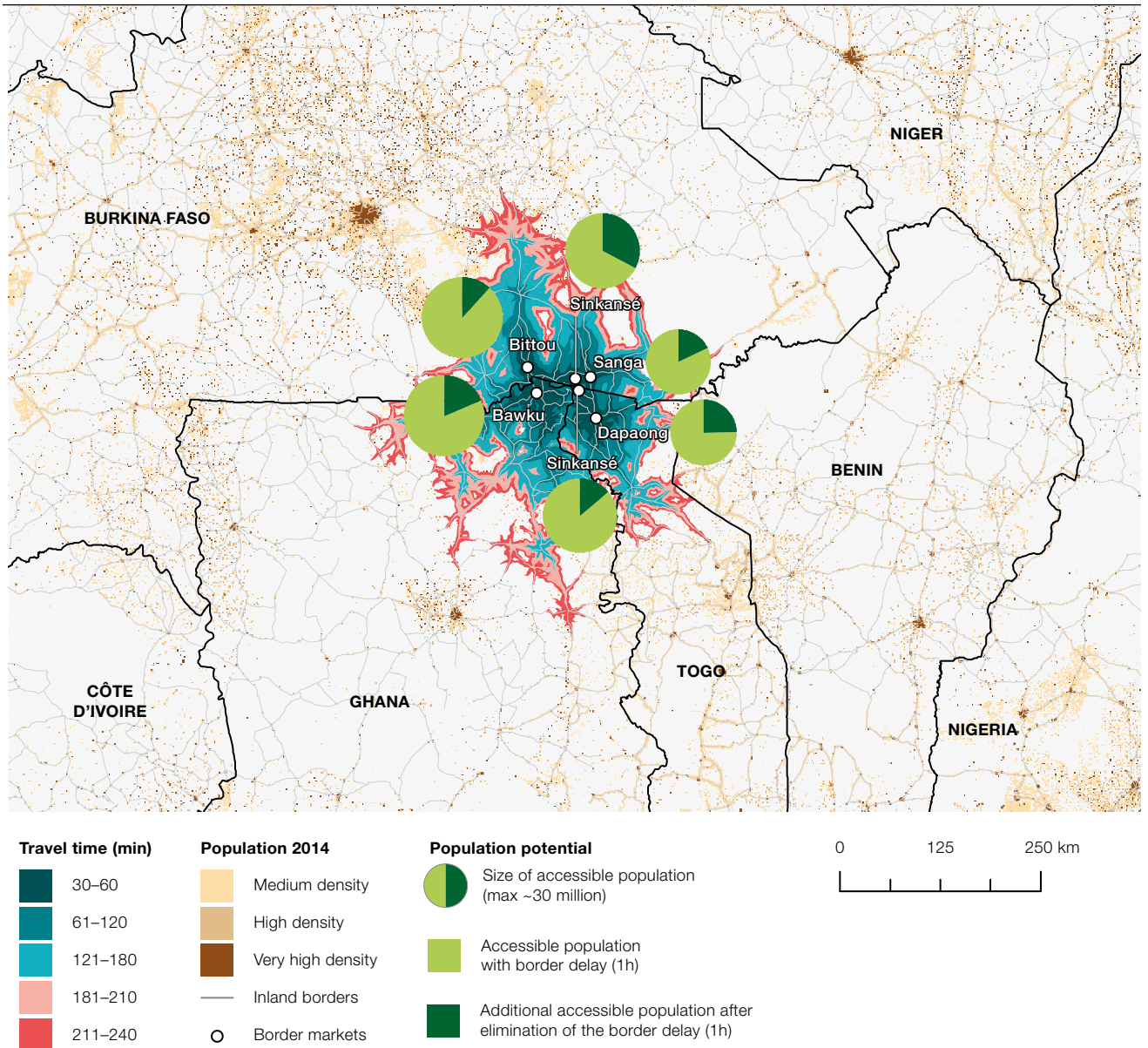
Population potential of the Ghana-Côte d'Ivoire border with and without border effect



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.17

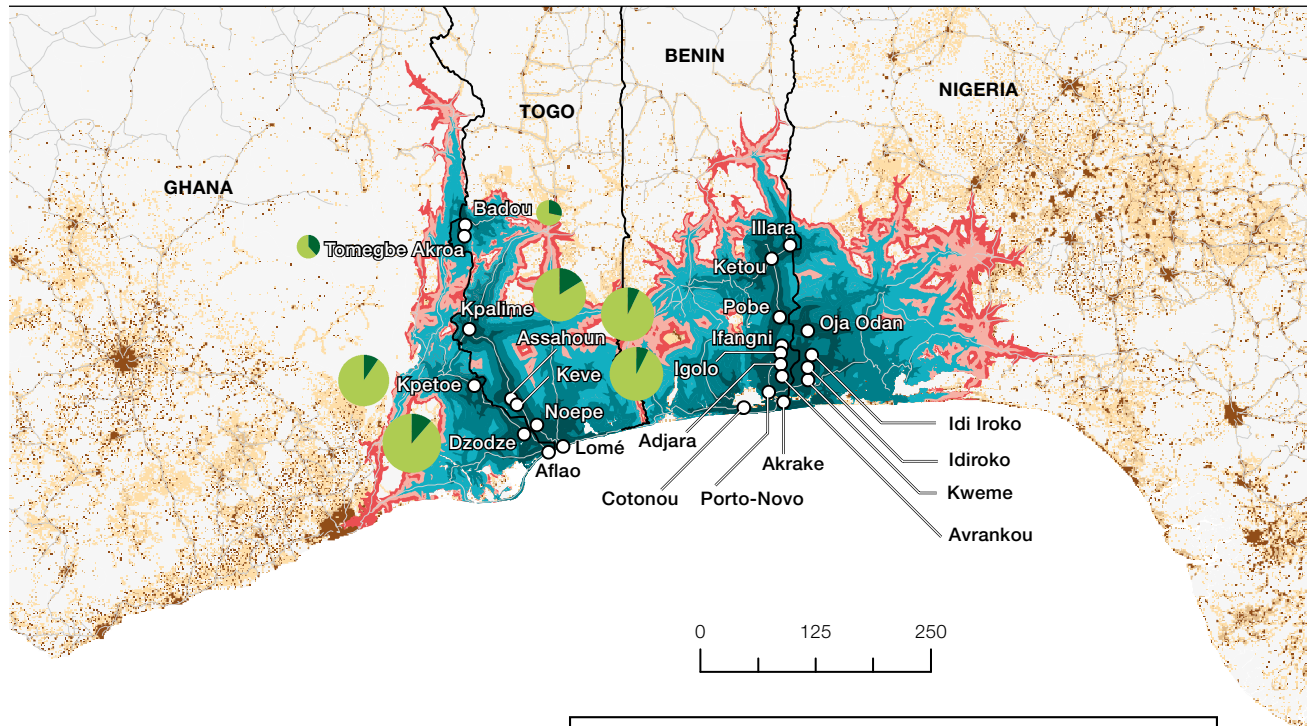
Population potential of northern Togo, with and without border effect



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.18

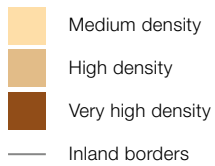
Population potential of southwest Nigeria, with and without border effect



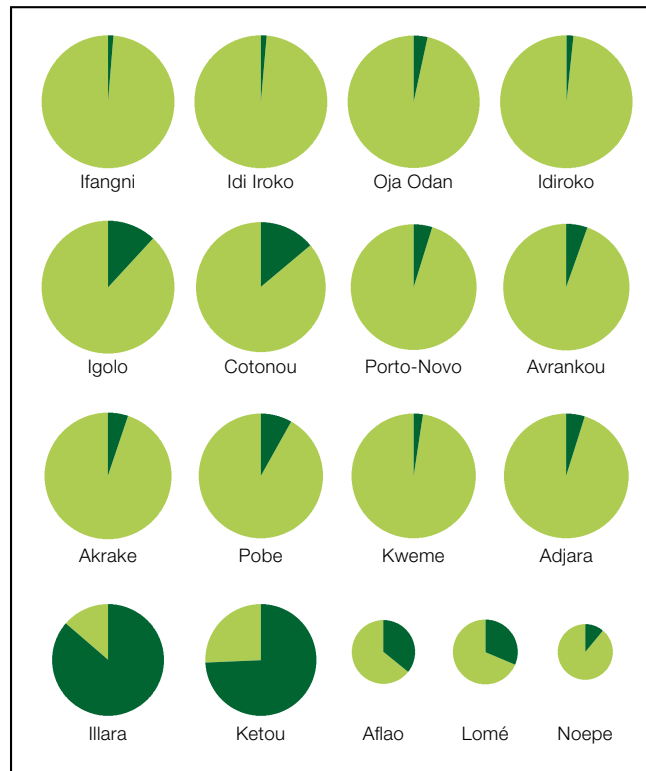
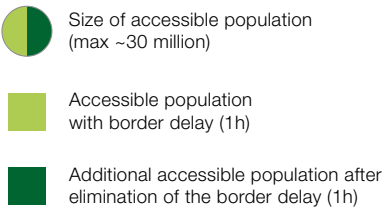
**Travel time (min)**



**Population 2014**

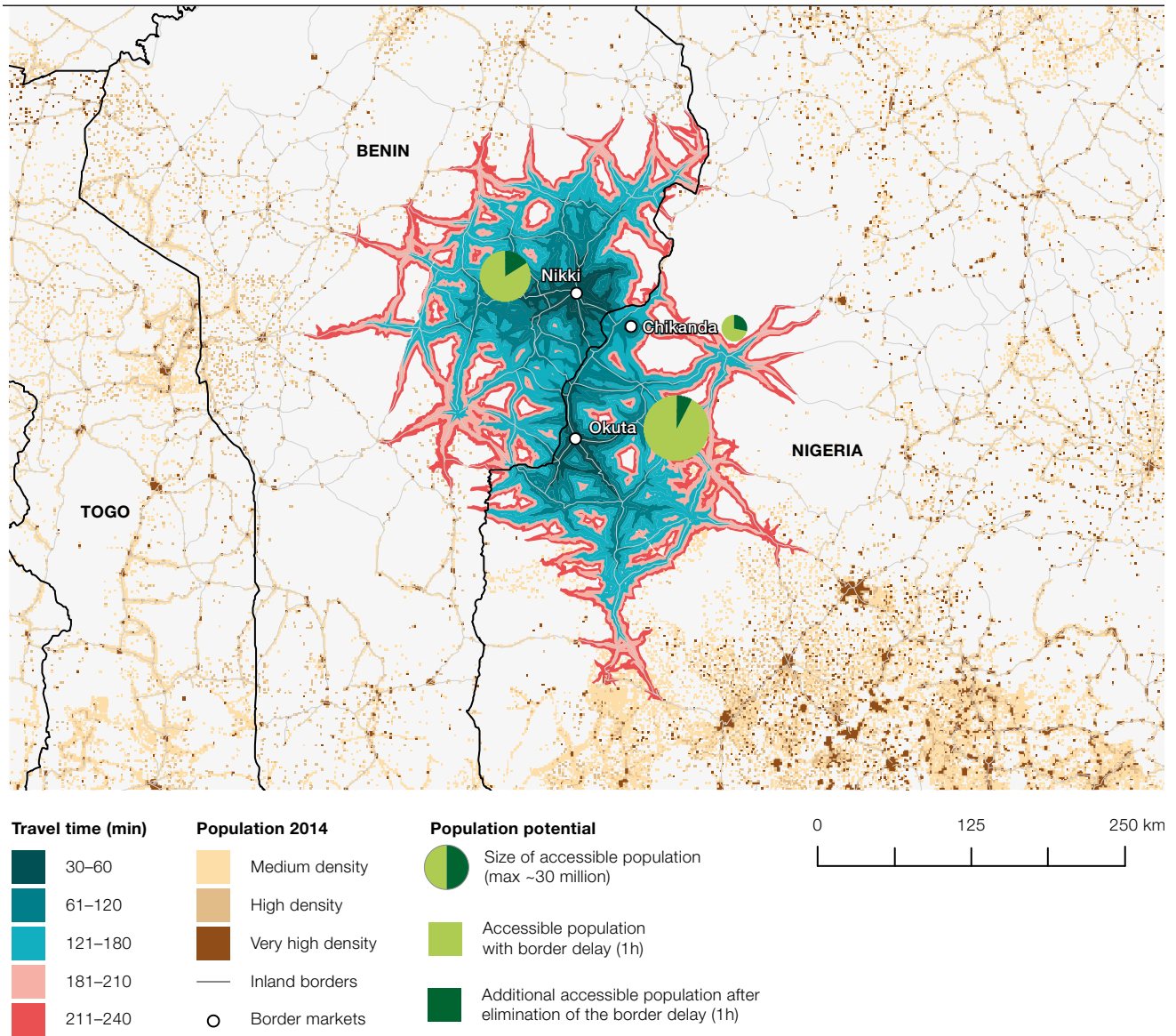


**Population potential**



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

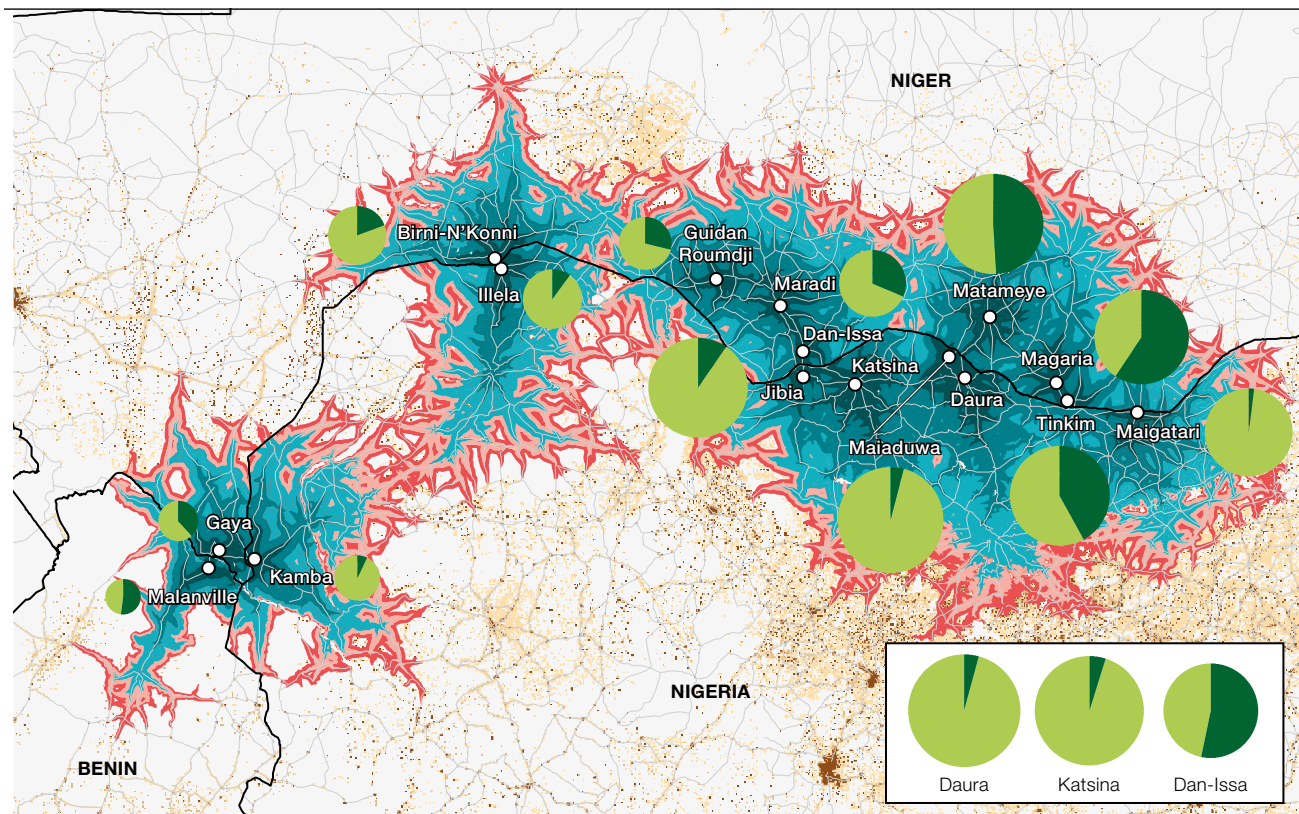
Map 5.19  
Population potential of Borgou, with and without border effect



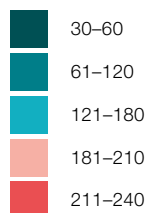
Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.20

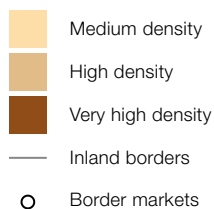
Population potential of northern Nigeria, with and without border effect



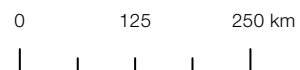
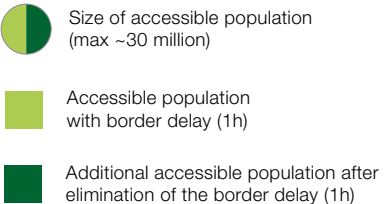
**Travel time (min)**



**Population 2014**

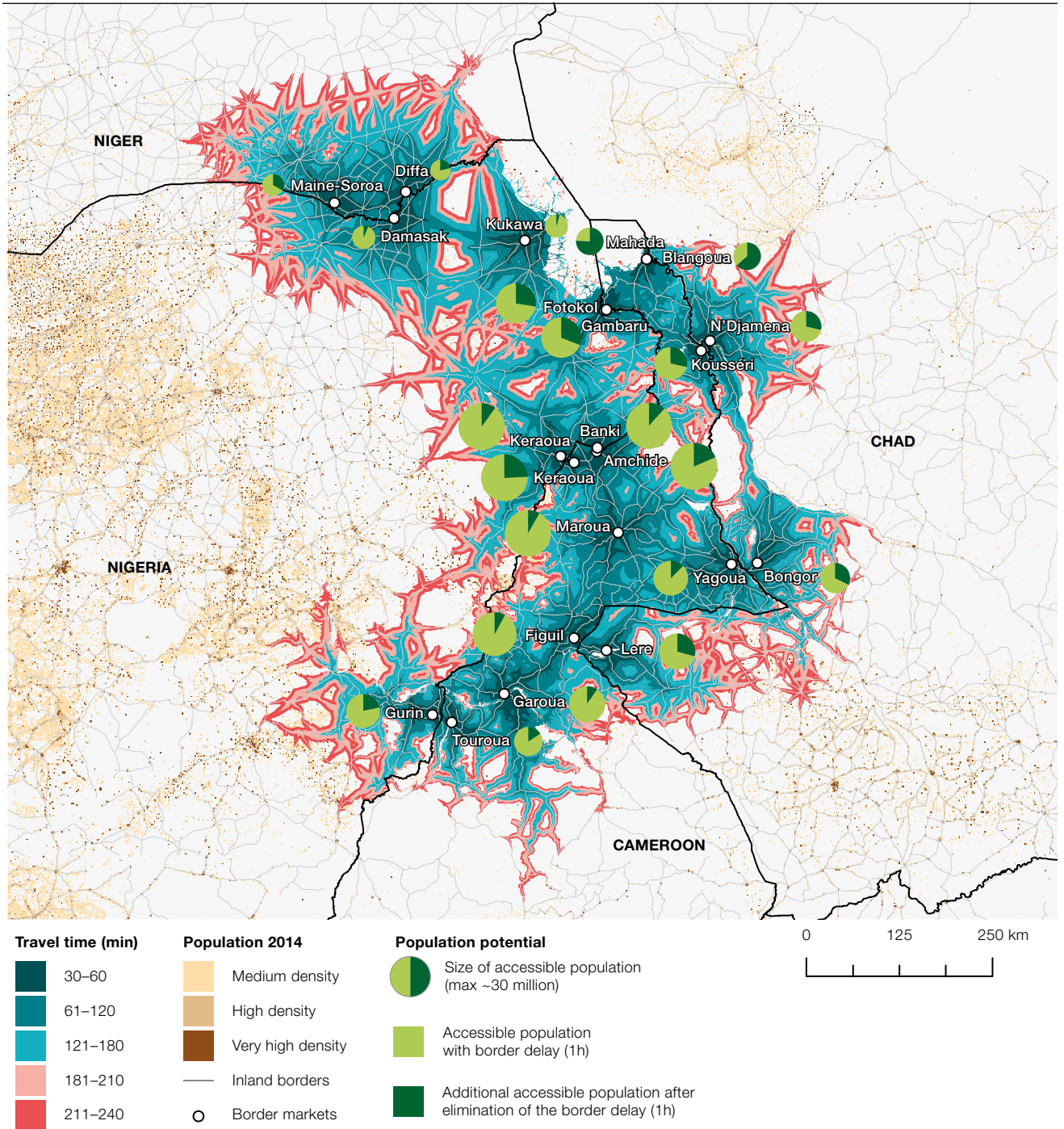


**Population potential**



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrichs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Map 5.21  
Population potential of Lake Chad, with and without border effect



Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrichs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database. This map was created by Alterra Research Centre, Wageningen University.

Table 5.2

Population potential by functional region

Functional regions	Population reachable without border delays	Population reachable with border delays	Difference	Difference %
Lake Chad	22 282 186	14 961 224	7 320 962	49
Gaya-Malanville-Kamba	8 149 907	5 797 864	2 352 043	41
Western Mali	2 539 195	1 889 360	649 835	34
Northern Nigeria	166 854 100	125 388 053	41 466 047	33
Southern Mali	13 695 146	10 485 904	3 209 242	31
Southern Senegambia	30 451 205	23 760 542	6 690 663	28
Northern Togo	18 043 115	14 388 356	3 654 759	25
Southern Togo-Ghana	45 063 704	36 555 445	8 508 259	23
Northern Ghana	10 087 579	8 347 133	1 740 446	21
Bondoukou	7 342 882	6 138 438	1 204 444	20
Eastern Guinea	18 509 359	15 558 879	2 950 480	19
Birni N'Konni-Illela	11 456 374	9 665 866	1 790 508	19
Northeast Nigeria	46 077 213	38 885 407	7 191 806	18
Kaédi	1 202 762	1 018 115	184 647	18
Southwest Nigeria	372 341 544	319 190 771	53 150 773	17
Ghanaian Coast	4 041 408	3 468 159	573 249	17
Nikki-Chikanda-Okuta	3 965 936	3 433 079	532 857	16
Rosso	1 326 804	1 167 236	159 568	14
Kédougou	473 857	426 233	47 624	11

Note: the population indicated is not an absolute figure but an aggregate potential for all markets in each functional region.

Sources: European Space Agency 2010; Moriconi-Ebrard, F., D. Harre and P. Heinrigs 2016; Open Street Map 2014; Global Roads Open Access Data Set 2016; Shuttle Radar Topography Mission 2014; Global Administrative Areas 2016; LandScan™ 2014 Global Population Database.

## SURFACE AND GROUND WATER RESOURCES

Natural resources, when shared between countries, are generally favourable to international regulation and do not exacerbate border tensions (Brunet-Jailly, 2015), whereas situations of extreme resource asymmetry as seen around the Great Lakes, for example, can often worsen conflicts. The reason for what would appear at first to be a paradoxical observation, is that countries which share resources recognise the intrinsic

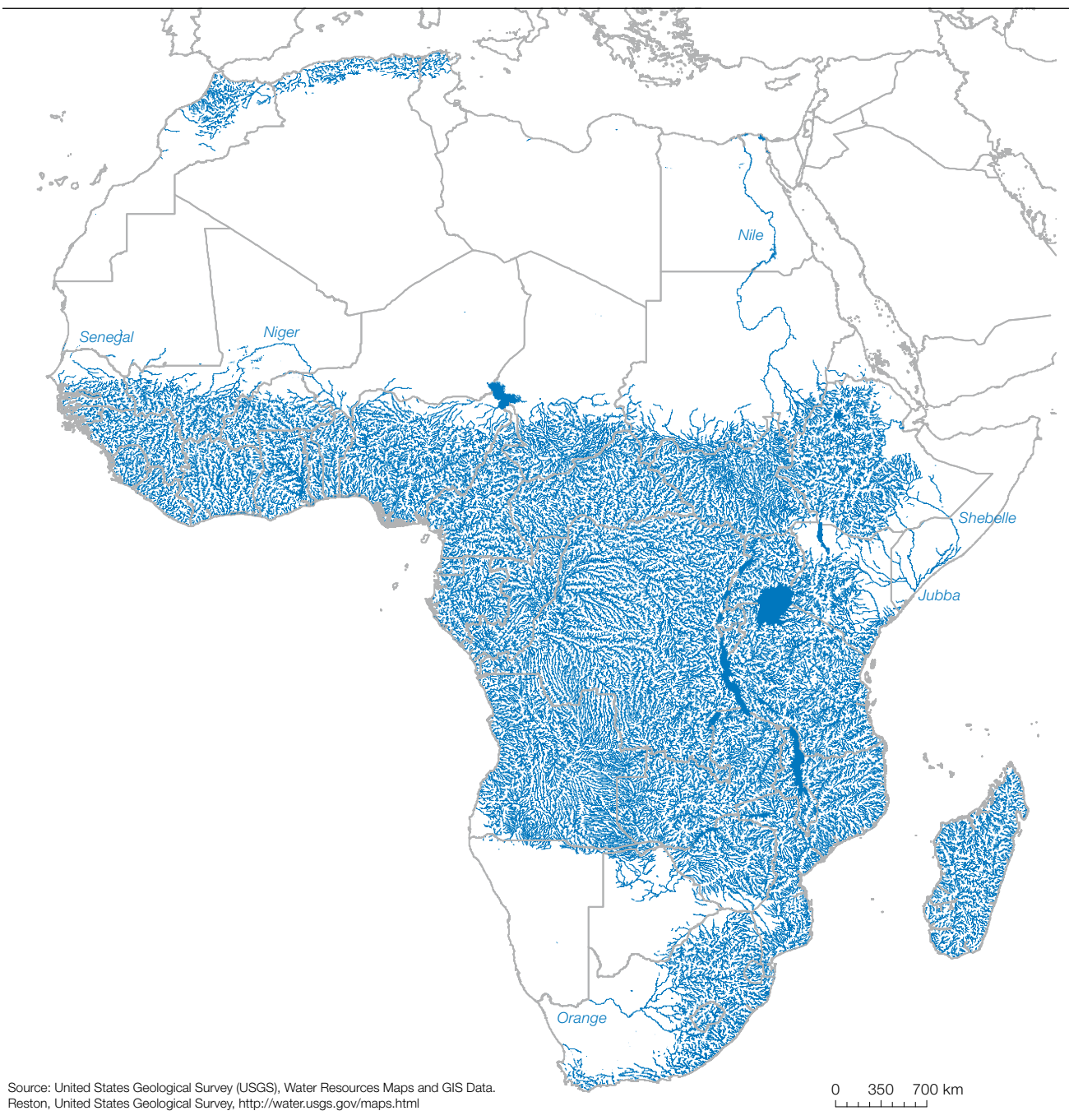
value of the border regions where these resources can be exploited, usually resulting in consensus with their neighbours. This is the case for the water resources examined by this indicator, which have in most cases led to co-operation between African states. As in the rest of the world, conflicts over water are rare in Africa.

However, few indicators reveal a more contrasted vision of Africa than its river



Map 5.22

## Surface watercourses in Africa



systems (or watercourses). Shown according to their permanent or seasonal character, the continent's watercourses appear to divide the landmass into a series of uneven zones (Map 5.22).

North of the equator, the Atlas Mountains protect a narrow band of humidity above the Sahara which stretches out over almost one-third of the continent and whose many

*wadis*, which dried before the end of the Neolithic era, flow only intermittently. South of the Sahara, most watercourses are perennial, except in the Horn of Africa and the Kalahari Desert. Only a handful of rivers originating in the Great Lakes region (the Nile), the tableland of Ethiopia (the Jubba and the Shebelle) and the Drakensberg (the Orange) manage to overcome arid conditions. In the Sahel, the



major permanent rivers – Senegal, Gambia, Niger and the Lake Chad system – originate in the wet tropical regions and flow along the fringes of the Sahara.

West Africa has no fewer than 28 cross-border catchment basins (Map 5.23). The Lake Chad drainage system is the largest, covering 2 380 000 km<sup>2</sup> including its inactive area in the Sahara, while the Niger River basin incorporates the greatest number of countries (11 including its inactive area). Other cross-border catchment basins of regional significance include the Volta, which is shared between six countries, and the Senegal, which is shared by Mauritania, Senegal, Mali and Guinea. The countries around the Gulf of Guinea cover catchment areas that are less extensive, such as the Cavalla between Liberia, Guinea and Côte d'Ivoire, but which are just as vital to the local populations for their water resources.

Such is the importance of cross-border catchment basins that West African countries have set up a number of regional organisations to manage the environment since the 1960s. No fewer than six basin organisations are currently responsible for promoting cross-border governance and investment: the Senegal River Basin Development Organisation (OMVS) and the Gambia River Basin Development Organisation (OMVG), its Gambian counterpart; the Mano River Union (MRU); the Volta Basin Authority (VBA); the Niger Basin Authority (NBA); and the Lake Chad Basin Commission (LCBC) (Chapter 5). Despite these initiatives, the number of hydraulic projects in West Africa remains low by international standards. With the exception of Burkina Faso, which has developed an earth-fill dams policy, most West African countries have invested very little in dams until recently (Table 5.3). Only the Akosombo, Kossou, Kainji and Manantali dams, built between 1965 and 1980, have a capacity of over 1 billion cubic metres (FAO, 2016a).

The as yet largely untapped potential of the region's water resources prompted the Economic Community of West African States (ECOWAS) to set up a Water Resources Co-ordination Unit (WRCU) to protect and develop water resources (ECOWAS, 2011, 2012). This initiative records the impact of the

Table 5.3  
Number and capacity of West African dams

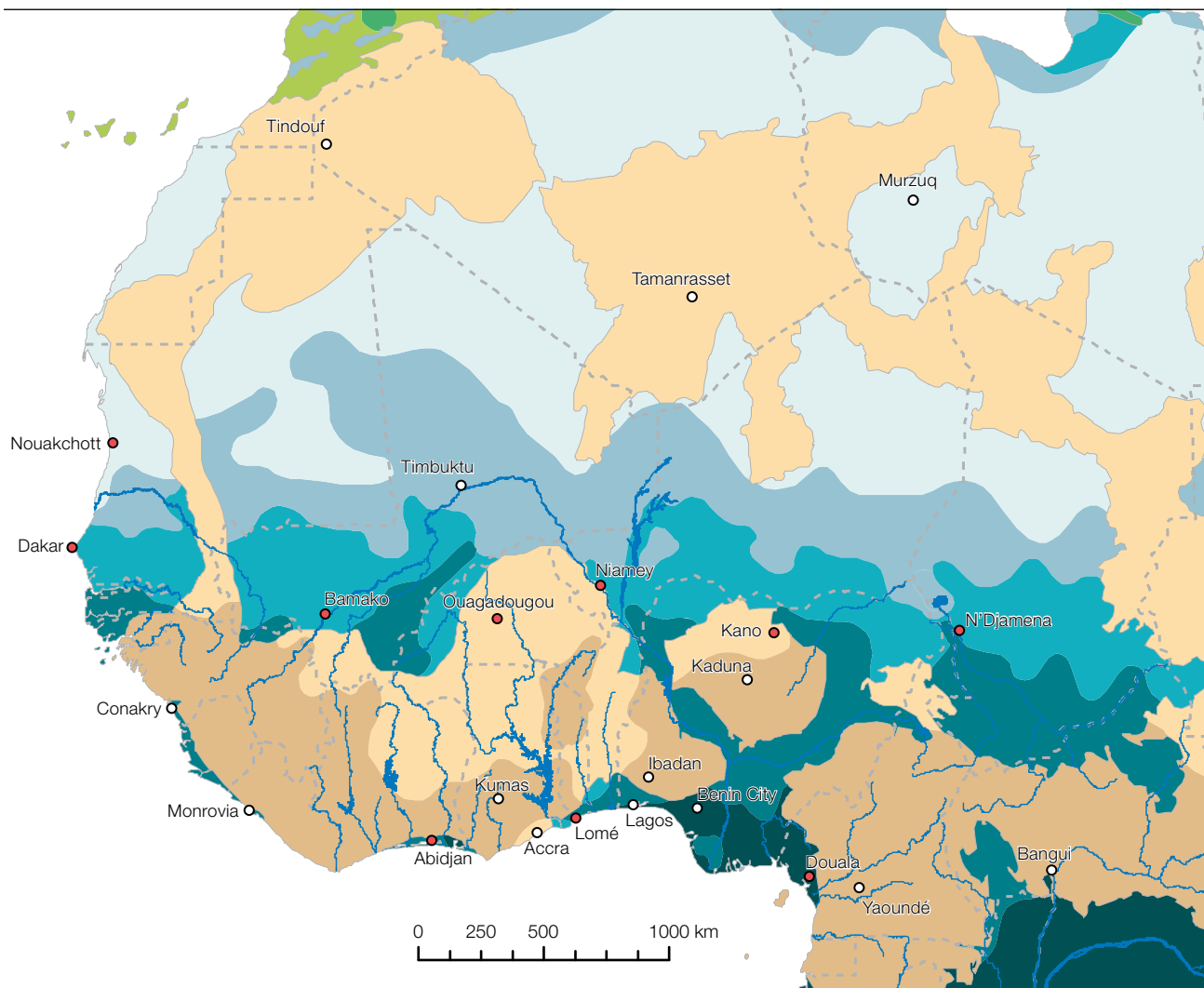
Country	Number of dams	Reservoir capacity (million m <sup>3</sup> )
Benin	7	4 154
Burkina Faso	145	5 338
Cameroon	20	23 121
Côte d'Ivoire	33	37 244
Gambia	1	0
Ghana	31	148 504
Guinea	22	1 837
Liberia	8	239
Mali	14	20 595
Mauritania	1	500
Niger	31	1 694
Nigeria	89	45 631
Senegal	5	250
Sierra Leone	8	220
Togo	6	1 717
<b>Total</b>	<b>421</b>	<b>291 043</b>

Source: FAO 2016a

investments made to date and identifies the regional projects with the greatest development potential. These efforts have helped to rekindle the region's interest in dams since the turn of the millennium. The most ambitious projects concern the Niger River basin and, to a lesser degree, the Volta and the Gambia. The Republic of Niger, for example, has launched work on the Kandadji Dam, 200 km north of Niamey, which should eventually help control the erratic flow of the Niger River, supply water to the capital, enable irrigation for local agriculture and generate electricity.

In addition to surface water, Africa also has considerable groundwater reserves, amassed thousands of years ago when the climate was more clement. In West Africa, these reserves are generally located in Sahelo-Saharan areas

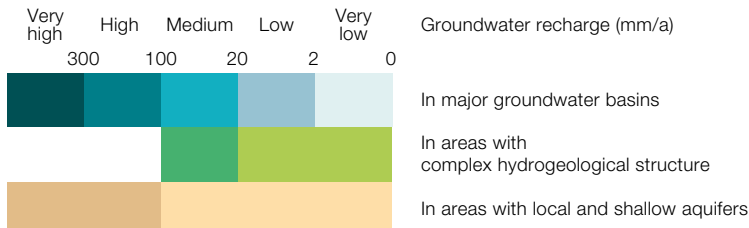
Map 5.24  
Main aquifers in West Africa



**Geography**

- Selected city
- Selected city, largely dependent on groundwater
- - - Country boundary
- ~ Major river
- Large freshwater lake

**Groundwater resources**

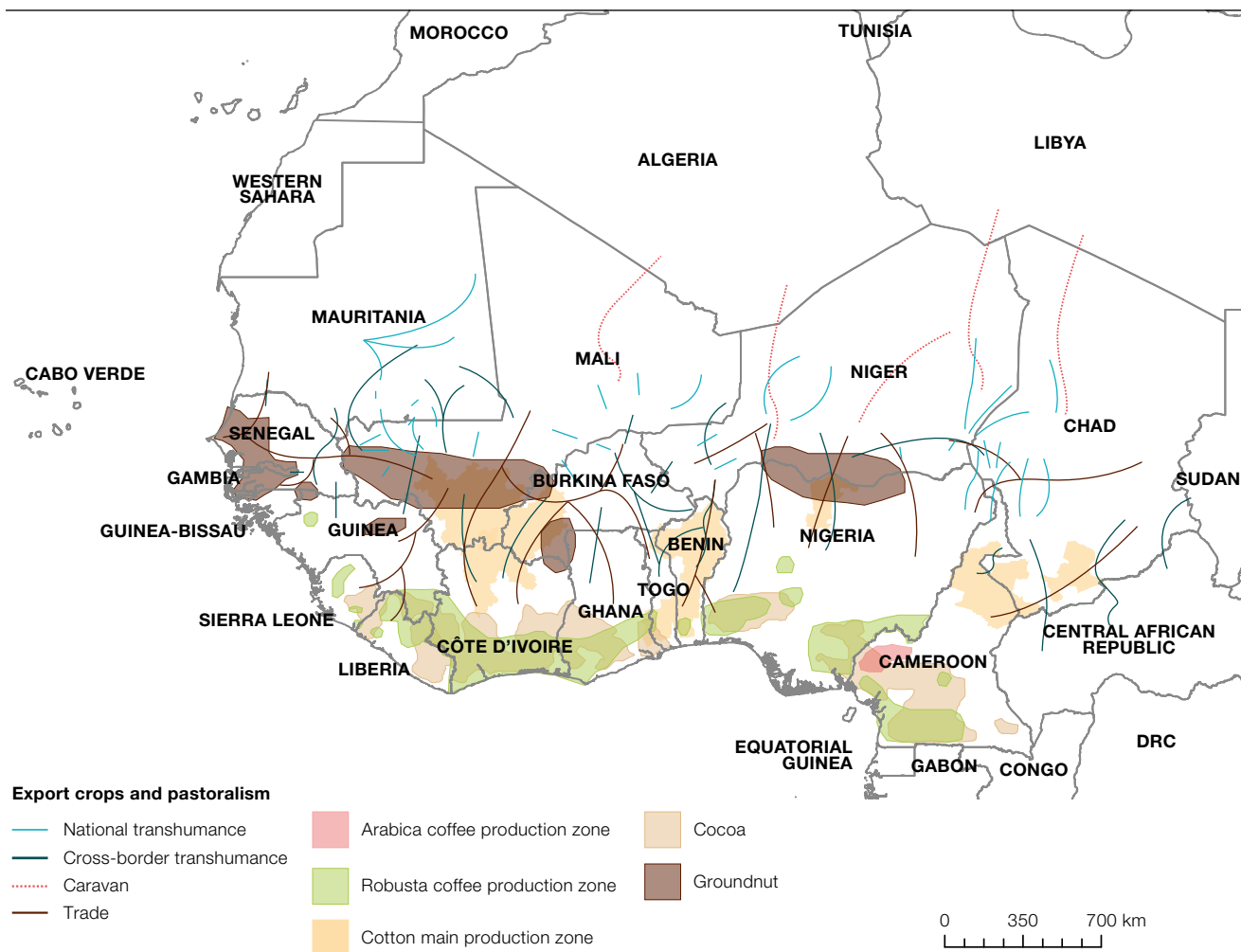


Source: Reproduced and adapted with the permission of BGR/UNESCO (2008), "Groundwater Resources of the World 1:25 000 000", Hannover and Paris.

(Map 5.24), where most of the sedimentary basins are found: the Senegal-Mauritanian basin, the Taoudenni basin in the north of Mauritania and Mali, the Iullemeden basin between Mali and Niger, and the Chad basin. The northern parts of these basins correspond to arid areas which have seen very little human habitation

in the past 10 000 years. Fossil waters in the sedimentary basins remains largely untapped, but are the subject of growing interest in Sahelo-Saharan countries looking to organise shared and sustainable management of this resource (OSS, 2008, 2014).

Map 5.25  
Export crops and pastoralism



Sources: FAO-CIRAD 2012; ICAC 2005; OECD/SWAC 2009; AFD/CIRAD/CILSS/IFAD 2009; Pourtier 1995

## THE NEED TO COMBINE AGRICULTURE AND PASTORALISM

In West Africa, agricultural and pastoral activities are often practised together, either by populations tending both land and livestock or because West African terrain sustains crops and herds at different times of the year. Another factor is that the main agricultural basins and transhumance routes cross national borders.

The main West African export crops introduced under colonisation are unambiguously transnational (Map 5.25). The Gulf of Guinea is dominated by the production of coffee and cocoa from Sierra Leone to Ghana, and again from eastern Nigeria to Cameroon. Groundnut basins cover several countries in the Sahel region, from Senegal in the west to Hausa country in the east.

The same is true of cotton, whose main production zones are found in Senego country between Mali, Burkina Faso and Côte d'Ivoire; between Togo and Benin; and between Cameroon and Chad. Cotton is cultivated from the south of the Sahel almost as far down as the Gulf of Guinea, making it the ultimate West African “cross-border crop” (OECD/SWAC, 2009). Cotton drives the engine of a thriving regional economy of growers, ginning plants, carriers and local tradespeople. Because of competition from Chinese and Indian producers and the massive import of second-hand clothes, however, the majority of West African cotton that is not used by local tradespeople,

but is exported as fibre rather than processed locally. The industry has also been struggling since the collapse of the market in the mid-2000s, caused by global overproduction, large-scale sales of cotton stocks by China, flat yields connected to technological and climatic factors, and by competition from countries where cotton-growing is subsidised (Figure 5.2 and Box 5.3).

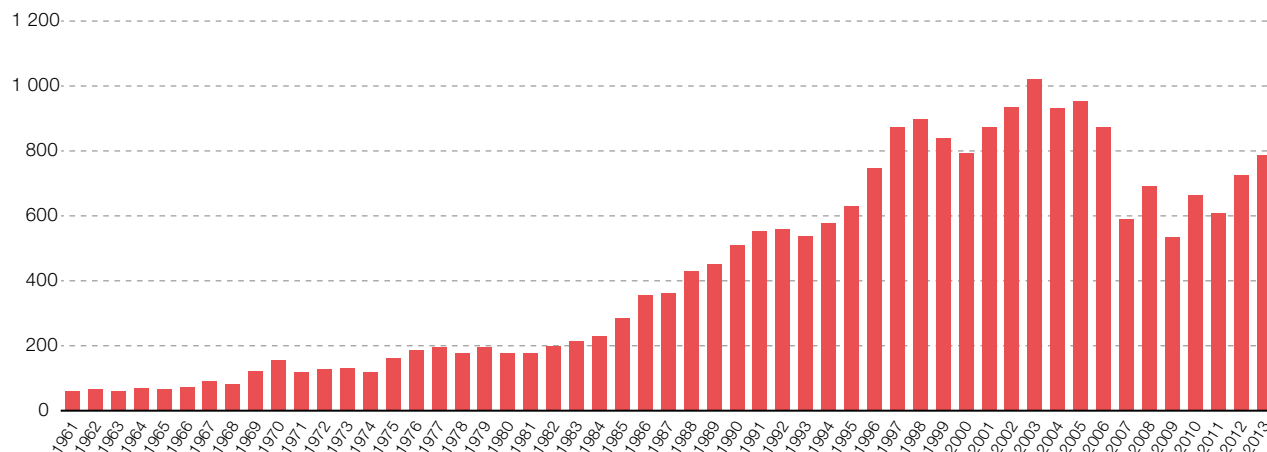
The broad outline of regional flows – whether caravan routes or long-distance pastoral routes – also cross national borders. West Africa can be divided into four main Sahelo-Saharan areas of movement, each of which gravitates around a densely settled nucleus in the Sahel (Senegambia, the Niger bend, Hausa country, Lake Chad) and fans out towards the mountains, salt mines and pastures of the Sahara (Retaille and Walther, 2011). Similarly towards the south, the zones in which livestock travel are not confined to national borders. Because of rising demand for meat in coastal cities, Sahelian herds are driven on foot and by lorry along the major cross-border thoroughfares, sometimes over several months. Between Burkina Faso, Niger, Togo and Benin, for example, there are several itineraries for leading herds to the major consumer markets.

Demand in West Africa is growing not only for export crops, but also for agricultural products, driven by the region's strong demographic growth: the population of West

Africa grew from 73 to 317 million between 1950 and 2010 (OECD/SWAC, 2014). At the same time, the spatial distribution of the population changed significantly, with cities growing by a factor of 25 in 60 years, from 5 to 133 million inhabitants. In 1950, no country had a level of urbanisation greater than 20%, but by 2010 this figure had reached 42% across the region as a whole. Six countries, including Nigeria, had an urbanisation level of 45% or more by 2010. Cities are growing in both size and number. Urban growth is expressed not only by concentration in the largest cities, but also by the development of a network of medium and small towns: in 1950, there were 152 West African agglomerations of over 10 000 inhabitants; in 2010, there were 1 947. Urban border agglomerations, which represent 20% of the regional urban population within a 50 km radius of a border and 53% within a 100 km radius, are part of these regional changes as they tighten the links between rural and urban spaces beyond national boundaries (OECD/SWAC, 2014).

Markets are focal areas for the concentration, sale and distribution of regional farming produce. Their growth follows the increase in import-export flows between Africa and the rest of the world and the increase in consumer demand for locally produced foodstuffs. Continuous urban growth complements the integration of the rural space into this market economy and is therefore one of the

Figure 5.2  
Annual production of cotton fibre in West Africa, 1961–2013 (1 000 tonnes)



Source: FAO 2016b

main drivers of the transformation of agrifood production systems and production growth.

The expansion of food markets can be measured against changes in the non-agricultural population. Urbanisation implies a decrease in the proportion of households engaged in agricultural activities both in urban and rural areas, as other services and activities take off. As 50% of the West African population is no longer engaged in farming activities, the acquisition of food has changed: in cities, consumers buy most food on the markets, with over 90% of their purchases on average made within various distribution circuits (OECD/SWAC, 2013). In rural areas, the share of market supply came to an estimated half of the economic value of food consumption in 2010. At regional level, according to estimated figures, at least two-thirds of food needs are now met by markets.

The real value of intra-regional trade in agricultural production is often underestimated in West Africa because the greatest number of transactions are informal and do not appear in official statistics. Trade in small quantities is particularly common and often cross-border, and the exemption of local products from import duties further complicates the task of

record-keeping. Research in this field (Soulé and Gansari, 2010) shows that the five main grain market basins are cross-border (Map 5.27):

- In the west, the Senegambian basin, centred around Senegal, is mainly concerned with flows of local rice, millet and sorghum.
- In the centre, the basin covering Côte d'Ivoire, Ghana, Togo, Mali and Burkina Faso is dominated by maize.
- In the east, Nigeria is a major centre for the production and consumption of farming produce and a crucial market for its neighbours in Benin, Niger and Chad. It accounts for 60% of total intra-regional flows and its major products are millet, sorghum, maize, cowpeas and re-exported rice (from Benin to Nigeria).
- In the Gulf of Guinea, the Ibadan-Lagos-Accra conurbation, which encompasses several agglomerations in Nigeria, Benin, Togo and Ghana, is another basin of regional significance, with maize flows of 300 000 tonnes and re-exported rice amounting to 500 000 tonnes.
- The Sahel belt comprising Mauritania, Mali, Burkina Faso, Niger and northern Nigeria mainly produces millet and sorghum.

Box 5.3

## Cotton in West Africa

Cotton is an important part of the West African economy. While the region's share of global production is modest, ranking sixth overall, the commodity contributes a noteworthy proportion to the GDP of the region's largest cotton-producing economies (ICAC, 2016). According to national statistics, the value added of the cotton sector in Benin, Burkina Faso and Mali comprises between 2.4% and 4.3% of GDP (FAO, 2016b). Including Côte d'Ivoire, these four countries are known as the C-4 countries of West Africa as a notable proportion of their populations are dependent on the crop. Cotton is the primary economic activity for over 2 million of these countries' farmers and provides livelihoods for more than 10 million households (USAID, 2015).

The cotton sector is also a vital source of export revenues and precious foreign exchange for the region. Earnings from cotton exports represent as much as 16% of total export revenues in the C-4 nations, and up to 60% of the value of their agricultural exports. The majority of cotton exports are destined for the textile industries of East, South and Southeast Asia, with China buying over a quarter of West Africa's total cotton exports in 2013, valued at USD 430 million, followed by Indonesia, Malaysia, Singapore, Bangladesh and India, making the West African region the second largest exporter worldwide. However, the large volume of unrecorded cross-border trade in West Africa suggests that the origin of exports described in official figures may not be fully accurate.

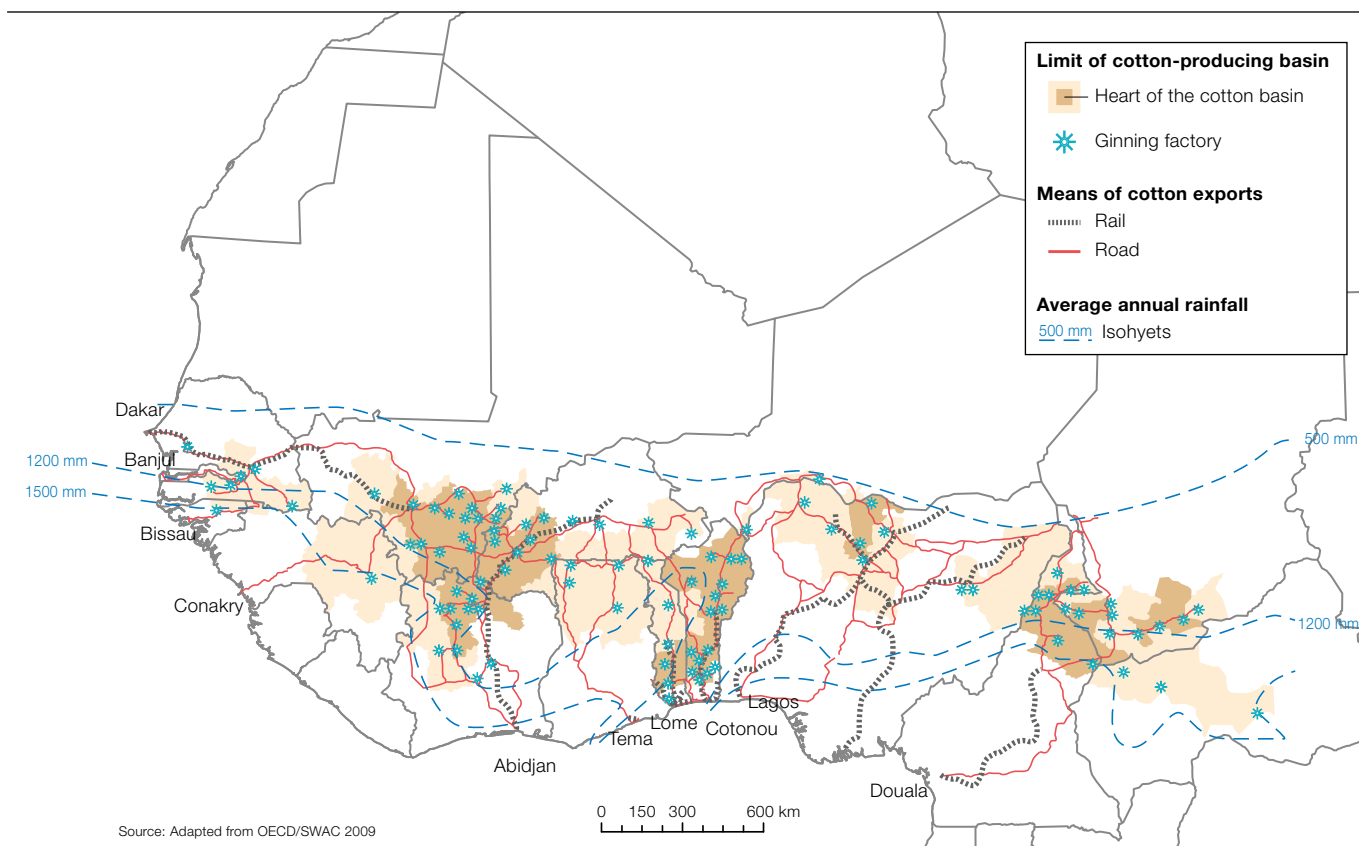
The location of production basins in West and Central Africa makes the cotton industry a pertinent sector for cross-border co-operation. Rain-fed cotton is the dominant production tech-

nique in the region, concentrated in the tropical zones where dry seasons and humid seasons alternate. Thus the five main cotton-production basins evident today were developed on the most suitable land that lies on and below the 15° line of latitude, receiving between 500 mm and 1 500 mm of rainfall per annum on average, as can be seen on [Map 5.26](#). This area spans 14 different countries from Senegal to southeastern Chad and into the heart of the Central African Republic. Production of cotton lint in 2014 was particularly sizeable on the borders of Burkina Faso, Côte d'Ivoire and Mali, at approximately 625 000 metric tonnes, as well as Burkina Faso's borders with Benin and Togo, amounting to around 375 000 metric tonnes, while almost 250 000 metric tonnes were produced between Nigeria, Cameroon and Chad.

However, the extent of the development of West Africa's cotton sector varies widely as a result of different policies towards the commodity over time and between countries. These differences are particularly evident in the variations between the organisational structure of value chains, the involvement of the state in the sector and the location of activities. Indeed, cotton producers have varied access to extension, training, input supply and marketing services depending on which side of the border they are situated. Nigeria, for example, has a notably more advanced sector for transforming cotton from its raw form into textiles and clothing than many other countries in the region (Gazanfer, 2007). Whilst Benin, Burkina Faso, Côte d'Ivoire and Mali have also developed strong ginning facilities, Nigeria has a much larger capacity for transforming this cotton lint into textiles and clothing due to the factories that were largely developed during the 1980s, a time when the



Map 5.26  
West Africa's cotton zones, ginning factories and exports

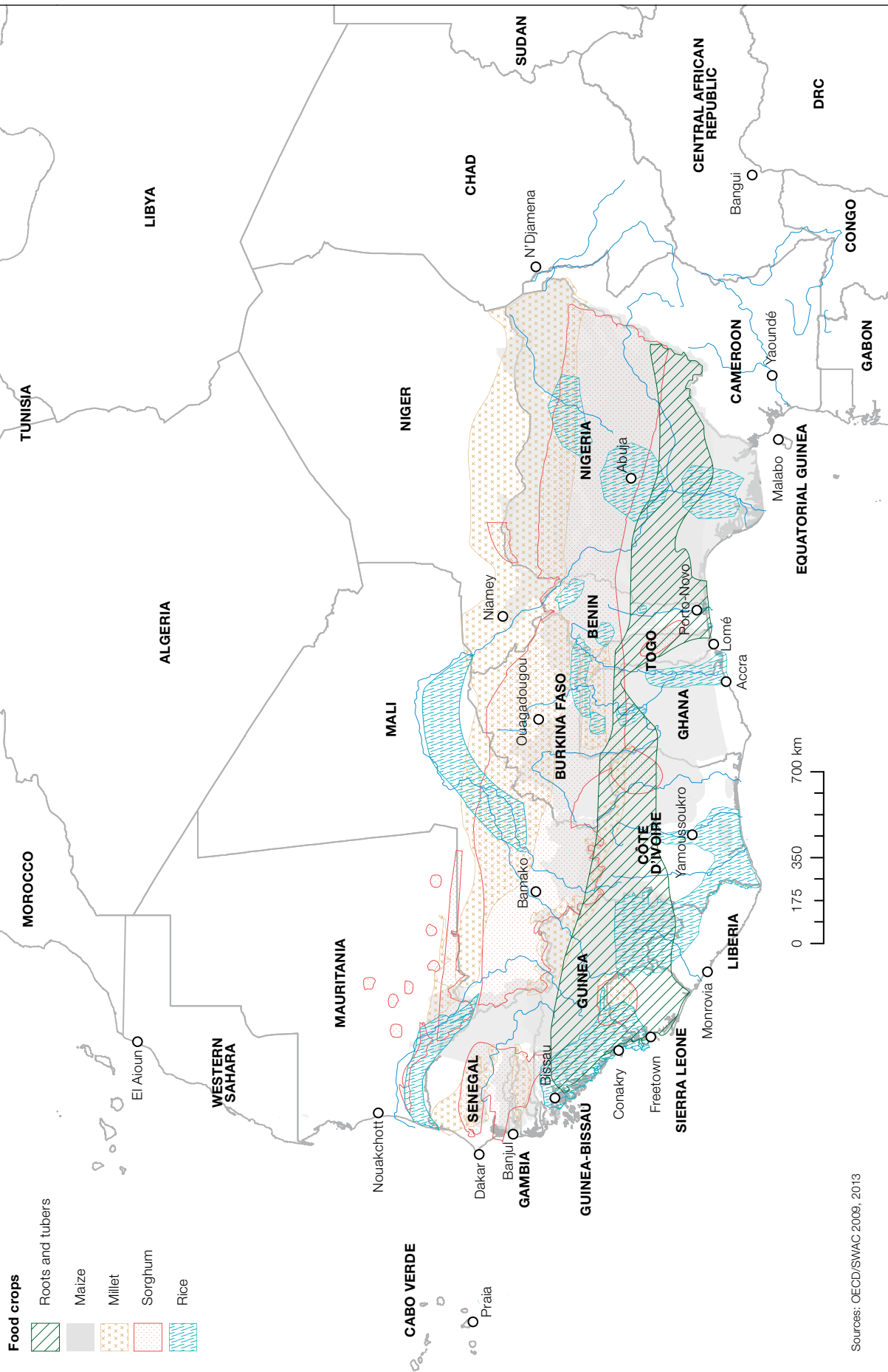


industry provided around 500 000 direct jobs with over 250 functional factories (TAP Cotton, 2016). While the sector was only operating at 55% capacity in 2014, this has risen from below 30% in 2010 and a recent government textile strategy hopes to push this number further upwards (Nigerian Investment Promotion Commission, 2016).

It has been suggested that the process of liberalising national sectors will gradually eliminate policy disparities, but there have been occasions when liberalisation programmes have been conducted without detailed dialogue

between neighbouring countries. Existing policy disparities can limit the economic potential of countries in the region, and thus effective implementation of cross-border co-operation strategies could help harmonise national policies. Indeed, ECOWAS has stated in the past that it intends to promote the “development of cross-border co-operation ties among the different national cotton companies in order to harmonise their strategies and methods of intervention, reduce costs of inputs, develop synergies and reduce costs of collection, ginning and transportation to the ports” (ECOWAS, 2004).

Map 5.27  
Grain production basins



## VERNACULAR, VEHICULAR AND COLONIAL LANGUAGES

Though guidance on cross-border co-operation best practices does exist (SWAC/OECD, 2007), the everyday work of cross-border actors consists in exchanging tacit information, i.e. information that is hard to codify and pass on, as opposed to documented information such as laws and regulations. Exchanging information requires a large number of interactions, during which the form and content of cross-border action can gradually be defined. Some crucial issues discussed by cross-border actors deal with where to set up new structures, the allocation of human resources, and the co-financing of projects – questions for which there are no standard responses. The process of constructing a cross-border region resembles an apprenticeship, insofar as the production of the standards and values on which the cross-border co-operation will be based takes place at the same time as the process of passing on the relevant information.

These exchanges are facilitated by the existence of a common language. The European experience shows how language barriers are among the most enduring obstacles to regional integration (Bartz and Fuchs-Schündeln, 2012). Even in regions where the public sector has been involved in cross-border co-operation going back to the 1960s, language barriers between people with different native languages still have considerable influence over the way in which information is exchanged (Walther and Reitel, 2013). In West Africa and in other regions of the world, cross-border co-operation also relies on the ability of people separated by national borders to understand one other.

West Africa is unique for having a great many languages. There are 886 spoken languages, of which 501 are used regularly by all age groups. The spoken languages of West Africa represent 41.4% of all languages on the continent, a figure that belies its relative population of just 29.8%. The list includes a certain number of vehicular languages, or *lingua franca*, which have developed through political structures, precolonial trading, migration, or trans-national pastoral groups. Vehicular languages play an important role in Africa because vernacular languages are so fragmented between regions. West Africa also

has three languages imported during colonisation: French, English and Portuguese, which are widely used by political elites and administrations. Many countries have one or more official and national languages, recognised by law (*de jure*) or by usage (*de facto*) (Table 5.4).

There are three main African language families in West Africa: Niger-Congo, Nilo-Saharan and Afro-Asiatic. With almost 437 million speakers and 1 524 spoken languages, the Niger-Congo family is the biggest in the world (21.5% of the world total). It covers most of sub-Saharan Africa, with the exception of the south, which falls into the Khoisan family. In West Africa, the Niger-Congo family has several subgroups: Atlantic, Mande, Gur, Igbo, Benue-Congo, Kru and Kwa (OECD/SWAC, 2009).

The Nilo-Saharan family has 199 spoken languages (2.8% of the world total) and around 43 million speakers. It includes Kanuri, spoken around Lake Chad, and Songhay, spoken around the Niger bend. The Afro-Asiatic family numbers 366 spoken languages (5.2% of the world total) and around 381 million speakers, mostly in Arab countries and North Africa and, to a lesser extent, in West Africa. It includes languages such as Arabic and its Mauritanian and Chadian variants, Tuareg and Hausa.

A great many main languages are spoken exclusively or predominantly in a given country, such as Wolof in Senegal, Susu in Guinea, Mende and Temne in Sierra Leone, Mossi in Burkina Faso, Ashanti in Ghana, Yoruba, Igbo and Kanuri in Nigeria (OECD/SWAC, 2009). A connection can be drawn between linguistic discontinuities and national borders in around ten West African regions (Map 5.28). The significance of these discontinuities should not be overestimated, however, insofar as language groups do not form sharply delineated, homogeneous blocs but flexible areas with blurred edges, which can overlap according to the language skills of their speakers, the mobility of pastoral groups and trading diasporas. Map 5.28 was simplified to present the most widely spoken languages, in order to illustrate the major transition zones between language families rather than a strict demarcation of what is actually rather fluid.

Table 5.4

Official and national languages by country

	Official language(s)		National language(s)	
	<i>de jure</i>	<i>de facto</i>	<i>de jure</i>	<i>de facto</i>
Benin	French		All indigenous languages	
Burkina Faso	French		Mossi, Jula, Fulani	
Cameroon	French, English			
Cabo Verde	Portuguese			Cabo Verdean Creole
Côte d'Ivoire	French			
Gambia		English	All indigenous languages	
Ghana		English		
Guinea	French			Fulani, Mandingo
Guinea Bissau		Portuguese		Crioulo
Liberia		English		
Mali	French			Bambara
Mauritania	Arabic		Arabic, Fulani, Soninke, Wolof	
Niger	French		All indigenous languages	Hausa
Nigeria		English		
Senegal	French		Wolof, Serer, Jula, Mandingo, Soninke, Fulani	Wolof
Sierra Leone		English		
Chad	French, Arabic			
Togo	French		Kabye, Ewe	

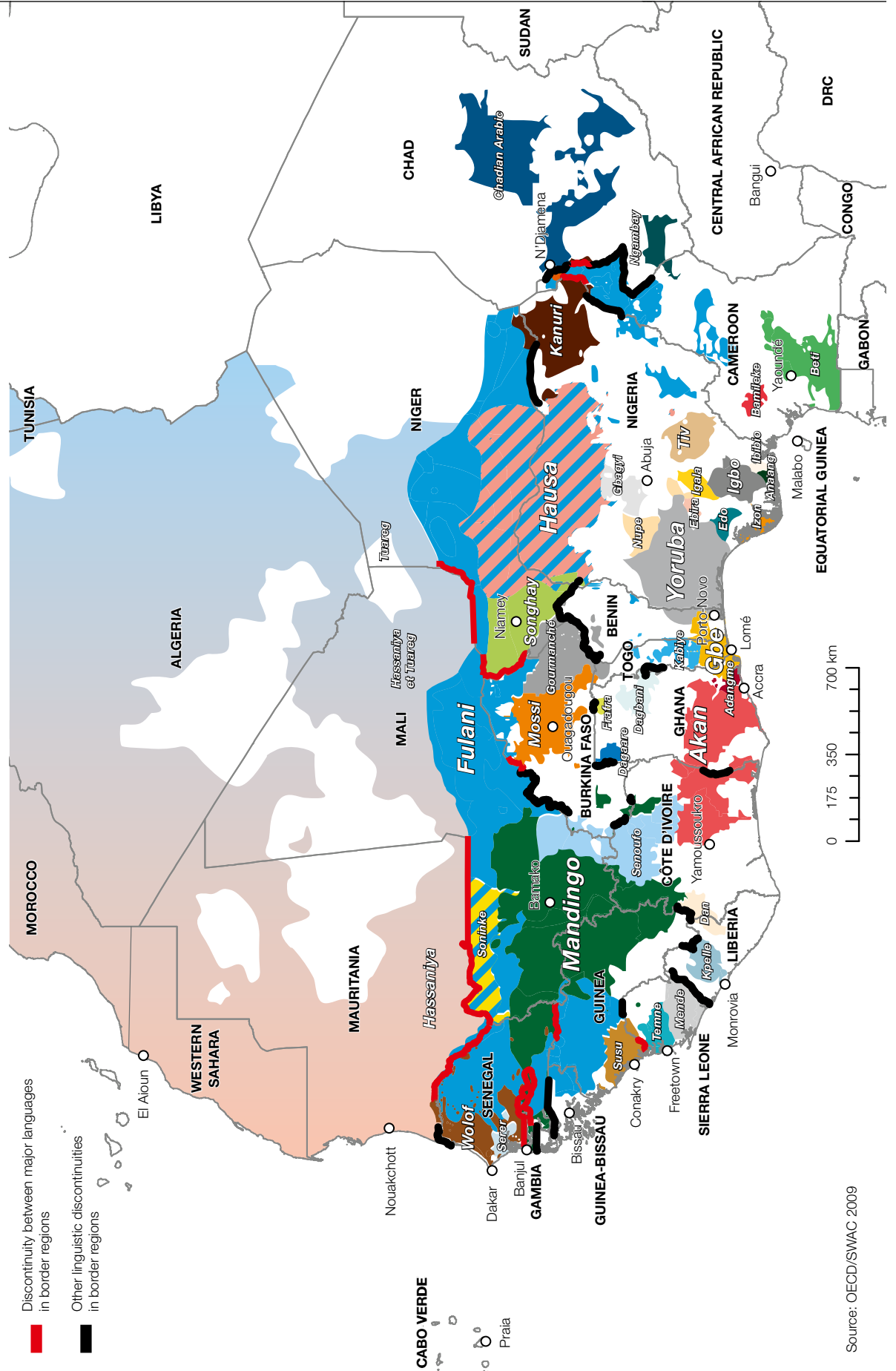
Sources: OECD/SWAC 2009 and Statistiques mondiales 2015

Between Senegal and Mauritania, for example, the valley of the Senegal River is a transition zone between populations speaking languages of the Niger-Congo family, such as Wolof and Fulani, and those from the Afro-Asiatic family who speak Arabic. The border between Mali and Mauritania also gradually separates speakers of Fulani and Soninke from Arab speakers. Further south, the Senegal-Gambia border also roughly corresponds with the linguistic discontinuity

between Wolof and Mandingo, whereas the Guinea-Sierra Leone frontier divides Susu from Temne. In the west of Niger, clear breaks can also be seen between Fulani, Songhay and Gourmanché speakers, and the borders drawn across the Lake Chad basin split up the Kanuri, Fulani and Arabic languages, representing the three main language families: Nilo-Saharan, Niger-Congo and Afro-Asiatic.

As well as marking out the discontinuities between the major vernacular languages, this

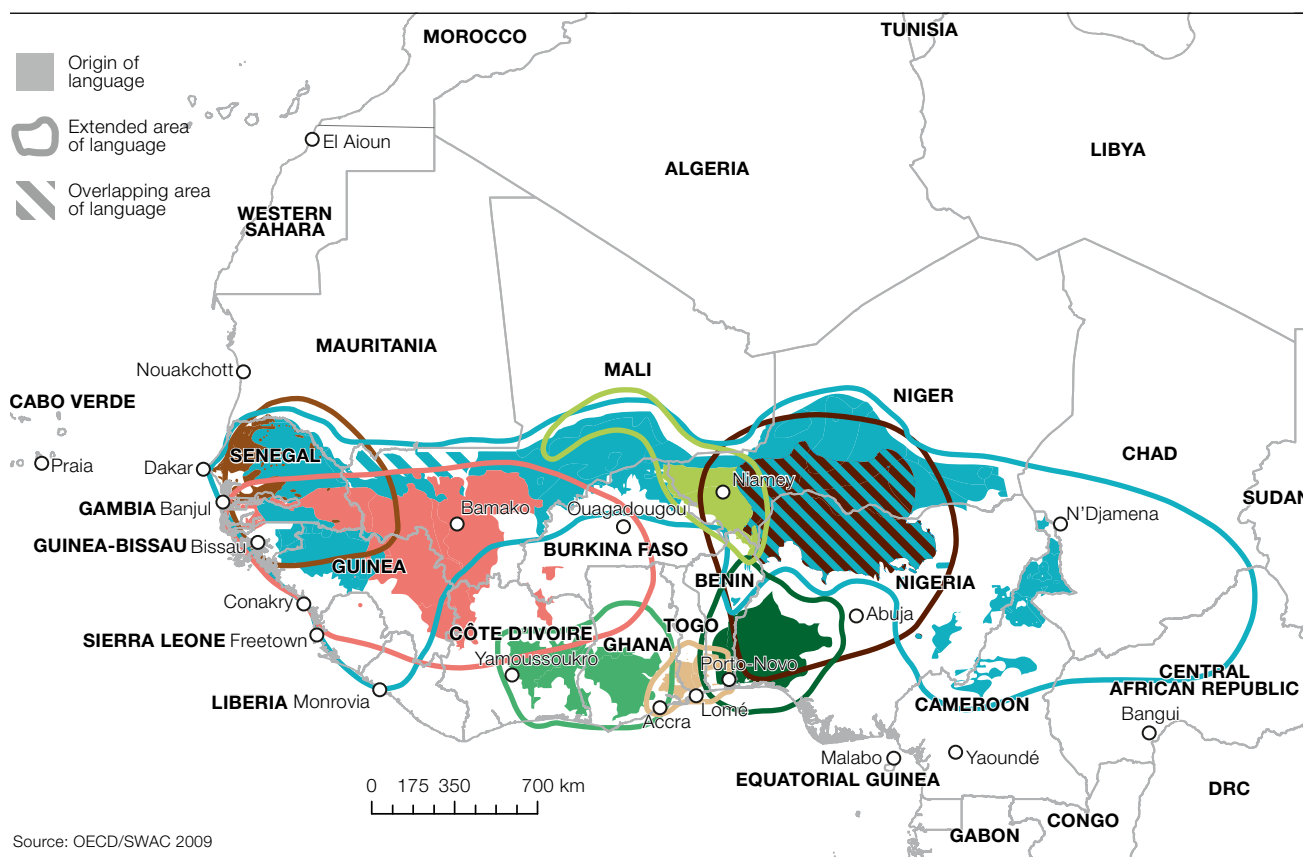
Map 5.28 Vernacular languages in West Africa



Source: OECD/SWAC 2009

Map 5.29

## Vehicular languages in West Africa



map shows cases in which a major linguistic group extends right up to the national border without coming up against another major group. For example, this is the case for the Mende language in eastern Sierra Leone, the Fulani language in the north of Cameroon, and some small language groups in northern Ghana speaking Dagaare, Frafra or Dagbari.

Paradoxically, the three regions with the starkest language discontinuities between West African countries have also launched regional cross-border initiatives: the Senegal valley with the OMVS, the west of Niger with the Integrated Development Authority of the Liptako-Gourma Region (ALG) and the Lake Chad basin with the LCBC. This apparent contradiction is explained by the fact that discontinuities in indigenous languages cannot be seen as a restrictive factor in cross-border interaction, as the presence of vehicular and colonial languages also needs to be taken into account.

Mapping the six vehicular languages usually recognised by linguists – to which

Wolof and Songhay can be added – shows that above all, West Africa is remarkably well integrated from a linguistic point of view (Map 5.29). This is most striking in the Sahel, where Wolof, Mandingo, Fulani, Songhay and Hausa play a vital cross-border role from Dakar to N'Djamena. Akan, Gbe and Yoruba play the same role in the central part of the Gulf of Guinea. A second feature of vehicular languages in West Africa is that they overlap, especially in Senegambia (Wolof, Fulani, Mandingo) and in western Niger (Songhay, Fulani, Hausa), providing greater opportunities for communication between speakers of different mother languages. The importance of vehicular languages is a legacy of precolonial structures, such as the Mali and Songhay empires, and evidence of the vitality of modern trade networks, which rely on cross-border diaspora. Hausa, for example, allows its speakers to do business all the way from Agadez, situated at the gates of the desert, to the Gulf of Guinea.

After vernacular and vehicular languages, there are the colonial languages: French, English and Portuguese. There are few instances in West Africa where the exchange of information is hampered by the fact that a neighbouring country speaks a different colonial language. This situation only concerns Cabo Verde, Guinea-Bissau, Gambia, the border between Sierra Leone and Guinea, that between Liberia and its neighbours Guinea and Côte d'Ivoire, Ghana and Nigeria (an exception is made for the English-speaking part of Cameroon). In other cross-border regions, the official or de facto national language can serve for the purposes of cross-border communication. This is the case for Sahelian countries such as Mauritania, Mali, Niger and Chad which can use French or Arabic to communicate with their neighbours in the

Maghreb; other former French colonies such as Senegal, Guinea, Côte d'Ivoire, Burkina Faso, Togo and Benin (French); and Sierra Leone and Liberia (English). This situation facilitates regional co-operation: in that: "the regional level therefore fully reflects the national practices in which the colonial language is considered, de facto or de jure, as an official language" (OECD/SWAC, 2009). Colonial languages are widely used in regional organisations in West Africa: English, French and Portuguese are the official languages of ECOWAS, and French is the language of UEMOA. French is also spoken by Mali, Mauritania and Senegal in the OMVS; and by Niger, Burkina Faso and Mali in the ALG. In the Lake Chad region, French and English are used in the LCBC.

## BORDERS IN THE PROCESS OF DEMARCATION

The legal status of borders is a strong factor in determining the nature and degree of cross-border co-operation between states. The most propitious situation is one in which the borders are clearly delimited (recognised by international treaties) and demarcated (visibly and undeniably marked on the ground). In many West African regions, however, the status and location of colonial borders remain vague, which can be the cause of tension between states. Following independence, many border disputes arose between West African states, despite the principle of the intangibility of borders adopted by the Summit of Heads of State and Government of the Organization of African Unity in Cairo in July 1964, to ensure political stability. Nine border disputes have been settled by the International Court of Justice in The Hague since 1975 (Table 5.5).

To solve the problem of the continent's inexact borders, the African Union Border Programme (AUBP) was created with the aim to unite and integrate Africa through peaceful, open borders while protecting and promoting the interests of the people living in these zones. Set up in 2007 and funded by the German Agency for International Co-operation (GIZ) between 2008 and 2015, the project facilitates delineation and demarcation operations for fifteen partner countries in Africa.

It is developing operational support for local, regional and institutional (skilled staff, organisational development) cross-border projects. The adoption of the Niamey Convention on cross-border co-operation (2014) at the Summit of Heads of State and Government represents a major step forward in terms of recognising the need to adopt relevant legislation for the development of cross-border activities. At the local level, the AUBP is working on the creation of joint border commissions like the South Sudan-Sudan Joint Border Commission (2012). It also has a memorandum of understanding with ABORNE on the sharing of information and expertise relevant to African borders. Despite major progress in the definition and demarcation of borders, the AUBP has to tackle the task of preserving peace just as cross-border trafficking and terrorism are once again on the rise, while regional organisations and states are faced with the challenge of enacting the directives contained in the Niamey Convention on cross-border co-operation.

During the course of the last ten years, the combined efforts of West African states, the International Court of Justice and the African Union have encouraged border demarcation and delineation. Disputed border segments are now limited to the edges of the Western Sahara, whose status is still not unanimously recognised,

Table 5.5

Border disputes brought before the International Court of Justice, 1975–2016

Case	Status	Major decisions
Border dispute between Burkina Faso and Niger	Judgment of 16 April 2013, recognised by both parties.	Disputed region divided between the parties.
Border dispute between Benin and Niger (#125)	Judgment of 12 July 2005, recognised by both parties.	Niger's claims in relation to the Niger River accepted. Benin's claims in relation to the Mékrou River accepted.
Land and maritime boundary between Cameroon and Nigeria (#94)	Judgment of 10 October 2002, challenged by the Nigerian Senate.	Transfer of sovereignty from Nigeria to Cameroon.
Maritime delimitation between Guinea Bissau and Senegal (#85)	Judgment of 12 November 1991 and Order of 8 November 1995, recognised by both parties.	Senegal's claims in relation to Cape Roxo accepted (1989). Maritime area managed by a bilateral agency (1993).
Territorial dispute between Libyan Arab Jamahiriya and Chad (#83)	Judgment of 3 February 1994, recognised by both parties.	Chad's sovereignty over the Aouzou Strip restored.
Territorial dispute between Burkina Faso and the Republic of Mali (#69)	Judgment of 22 December 1986, recognised by both parties.	Burkina Faso takes sovereignty over the contested rivers and Mali over the contested villages.
Case concerning the continental shelf between Libyan Arab Jamahiriya and Malta (#68)	Judgment of 3 June 1985, recognised by both parties.	Delimitation suggested by the Court. Just one part of the contested area is covered by the judgment.
Case concerning the continental shelf between Tunisia and Libyan Arab Jamahiriya (#63)	Judgment of 24 February 1982, contested by Tunisia.	Parties' claims rejected by the Court, which delineated two adjacent segments.
Advisory opinion on the Western Sahara (#61)	Advisory opinion of 16 October 1975.	Territorial sovereignty not recognised by the Court. The existence of long standing ties of allegiance does not override self determination.

Source: OECD/SWAC 2014

and the border between Burkina Faso and Benin, where tensions remain around the Koalou village on the Pendjari River. The delineation of Senegal's borders has been the subject of much discussion with Gambia, Guinea, Guinea-Bissau and Mauritania. The border dispute between Burkina Faso and Niger was settled by the International Court of Justice in 2013, and Guinea and Sierra Leone agreed in 2012 to settle their

dispute over the town of Yenga, occupied by Guinean troops since 2001 in order to help Sierra Leone's army fight the rebels of the Revolutionary United Front (RUF). Progress has also been made in establishing the Burkina Faso-Mali border, achieved in 2009 (AU, 2013), the demarcation and delineation between Nigeria and Chad which is in the process of finalisation, and the delineation between Benin and Togo.



## POLITICAL STABILITY: BORDER VIOLENCE AND TRANSNATIONAL EXTREMIST GROUPS

Political violence in West Africa is overwhelmingly contained within national borders. Border disputes and open conflicts between states, such as Mali and Burkina Faso (Agacher Strip War, 1985–86) or Chad and Libya (Aouzou Strip War, 1973–87) remain rare, as do conflicts between states and non-state actors whose claims are, for the most part, essentially national rather than transnational. While it is true that the number of countries affected by Islamist violence has risen in the last ten years, its space for action is being reduced as African states and the international community react. The spatial concentration of activity, confirmed by a reduction in the number of locations targeted by extremist groups and in the average distance between violent events, points more towards opportunistic relocation than to an escalation of conflicts in the region (Dowd, 2016).

The two large regions that continue to be affected by transnational violence include areas of the Sahel-Sahara where different groups affiliated with Al-Qaeda are present, and the northeast of Nigeria which is plagued by Boko Haram. Mali's borders are another major focus of political instability, particularly in northern Liptako-Gourma, in the north of Kidal and to a lesser degree with Mauritania. This instability can be explained by the presence of groups such as Al-Qaeda in the Islamic Maghreb (AQIM), Ansar Dine, the Movement for Unity and Jihad in West Africa (MUJAO), Al-Mourabitoun and the Signed-in-Blood Battalion, have gradually moved from northern Algeria, where the Salafist Group for Preaching and Combat (GSPC) was historically based, towards the Sahel (Map 5.30). Having established reliable relations in the Sahel region, especially in northern Mali, they carried out multiple operations from Mauritania to Chad until 2011. In 2012, the launch of a combined offensive between armed groups affiliated with Al-Qaeda and separatist militants in the National Movement for the Liberation of Azawad (MNLA), resulted in a spatial concentration of violent events between Bamako and Tamanrasset. The military counter-offensive co-ordinated by France and its African partners from 2013 was followed by the relocation of some groups from Mali to

Libya, the emergence of new groups in central Mali, and attacks against international forces and the region's capital cities.

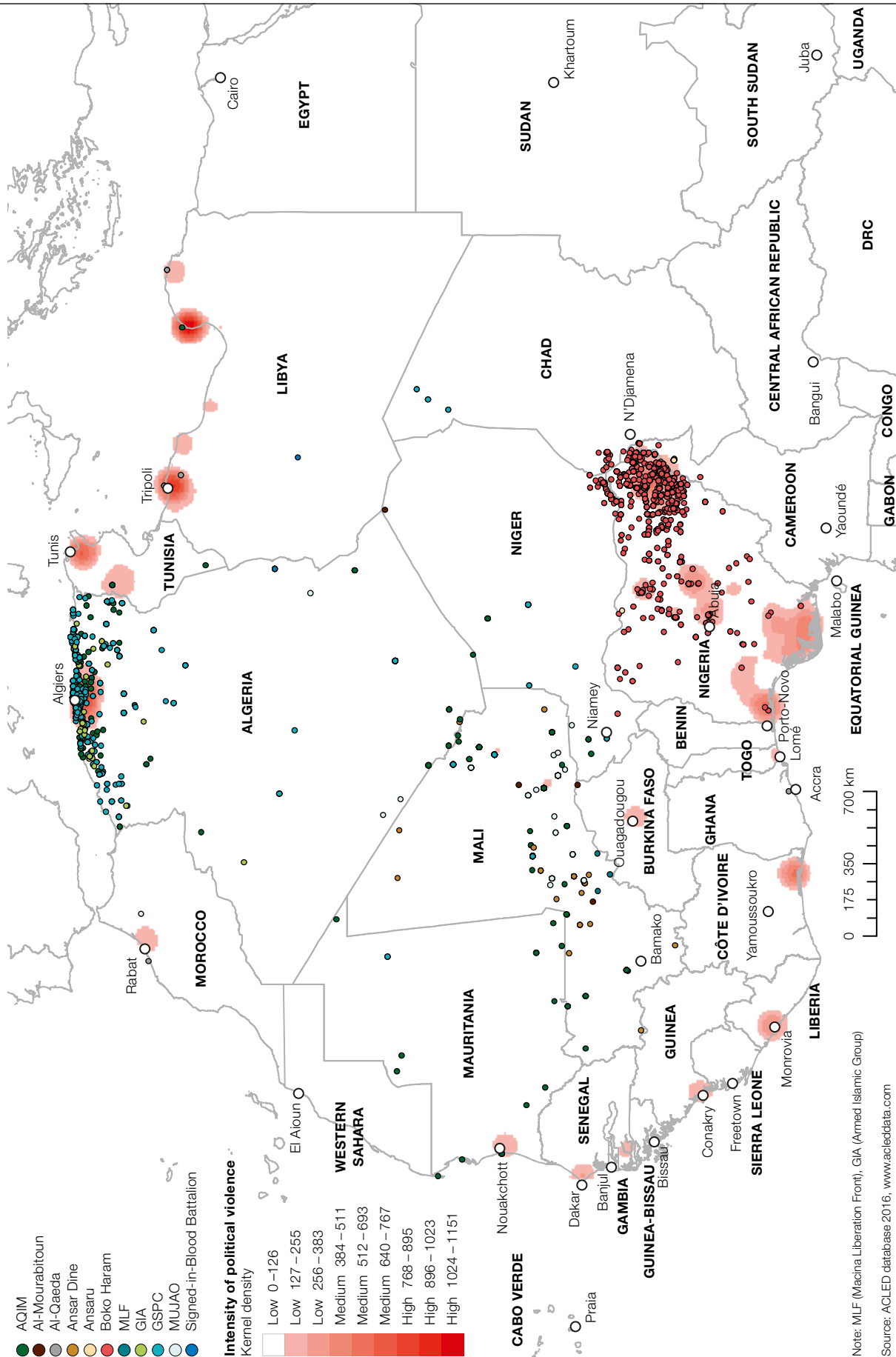
The Boko Haram group has moved from its historic heartland in Maiduguri outwards to the rest of Nigeria. Its operations, which are particularly deadly, only began to spread into neighbouring countries in 2013 when the group attacked Niamey prison, following which there were numerous attacks in Cameroon, Niger and Chad. Despite these events, Boko Haram continues to focus on Nigeria, which has been the target of over 86% of its attacks since 2003.

Given the level of violence against civilians and government forces by Boko Haram, Lake Chad is without a doubt the region most affected by political instability in West Africa. In 2015, Boko Haram claimed more lives than any other terrorist organisation world wide (IEP, 2015), triggering an exodus of over 2.2 million people within Nigeria and causing over 220 000 refugees to flee to neighbouring countries (UNHCR, 2016). Acts of violence committed by the group have had a lasting impact on trade networks, damping activity in markets which are the favoured targets of suicide bombers, and leading to a reduction in cultivated land in the region around Lake Chad (Van den Hoek, 2016) (Map 5.31).

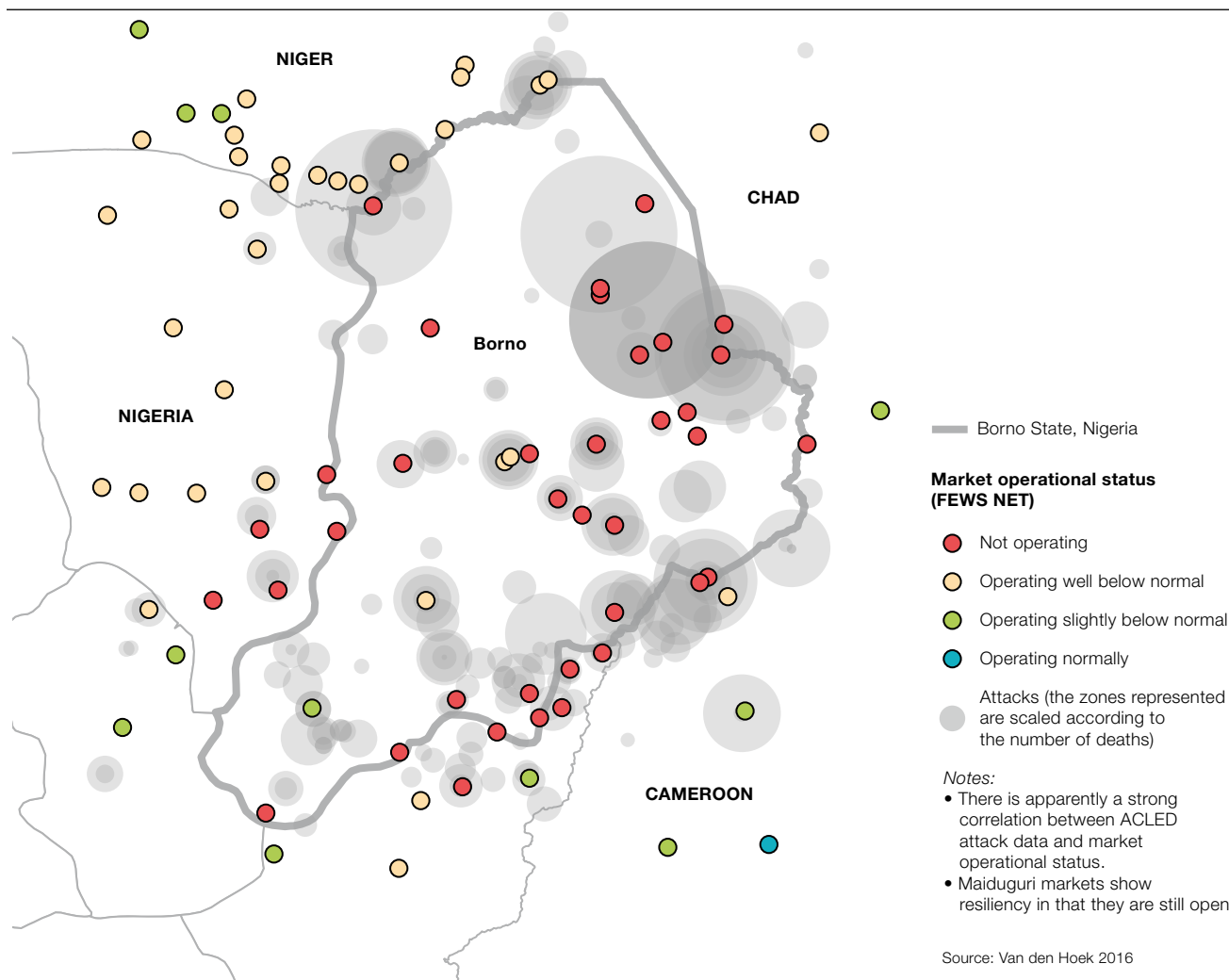
Peace seems largely to have returned to southern Senegambia, where separatist rebels from the Movement of Democratic Forces of Casamance (MFDC) were fighting government forces until 2009. In other border regions, the violence seen over the last ten years was chiefly linked to riots or tensions between land and livestock farmers, two causes that are not likely to fundamentally threaten cross-border co-operation.

The political instability generated by radical groups has raised fundamental questions concerning the co-operative bodies responsible for the region's security. Several co-operation entities and "Sahel strategies" have been developed. Some – such as the Joint Operational Army Staffs Committee (CEMOC) created in 2010 in Algeria and the African Union's Joint Fusion and Liaison Unit (2010) and Nouakchott Process (2013) – are focused

Map 5.30  
Political violence, 2003–15



Map 5.31  
Market activity and attack sites in northeastern Nigeria (2014–15)



on security. Other initiatives combine governance, security and development, like the European Union’s Strategy for Security and Development in the Sahel (2011), the United

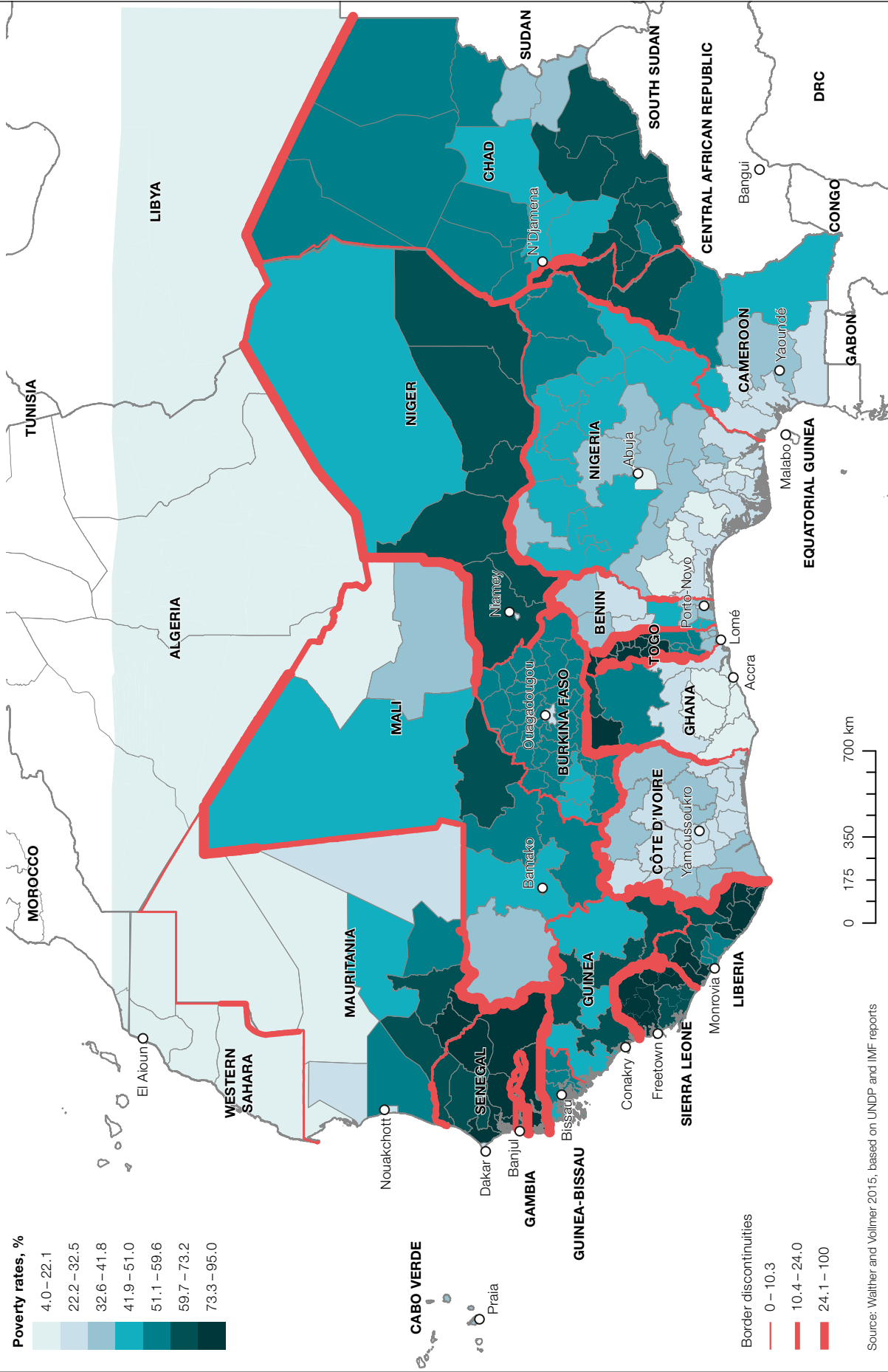
Nations Integrated Strategy for the Sahel (2013), the ECOWAS-UEMOA-CILSS Strategy for the Sahel (2014), the African Union’s Strategy for the Sahel Region (2014) and the Sahel G5 (2014).

### THREE WAYS OF REPRESENTING POVERTY

The average poverty levels in each of West African’s regions provide a valuable indicator of the spatial heterogeneity of development in the region. Cross-border co-operation benefits when poverty gaps are average, rather than very high or very low, which can promote synergies between regions. To illustrate the paradoxical relationship between poverty rate differentials and cross-border co-operation potential, poverty rates are presented three

different ways: a territorial mapping of regional poverty rates, a linear mapping of poverty rate differentials, and a network analysis. [Map 5.32](#) is perhaps the most conventional representation of a territorial indicator, where each border region is represented as a zone to which are assigned a value class and a specific colour. The map confirms the unequal distribution of poverty in West Africa. With a regional poverty rate above 80%, disadvantaged regions in dark

Map 5.32 Regional poverty rates and border discontinuities



blue are particularly numerous in the northern parts of Ghana, Togo, as well as in Niger, Sierra Leone, Liberia and Senegambia. By contrast, low poverty rates are found along the Gulf of Guinea as well as in the Saharan regions of North African countries.

The second way to represent poverty rate differentials is to consider the boundaries themselves. On [Map 5.32](#), the main cross-border discontinuities are indicated by red lines: the thicker the line the greater the gap between two border regions. The sharpest contrasts can be found between North African countries and their Sahelian neighbours. In West Africa itself, large poverty differentials exist between northern Togo, Benin and Ghana; between Côte d’Ivoire and Liberia; and between Mali and Senegal. In contrast, many regions have low poverty differentials, such as between Mali and Burkina Faso, or Guinea and Liberia. The Gulf of Guinea, from western Côte d’Ivoire to Cameroon, is also characterised by low poverty differentials ([Table 5.6](#)). The potential for cross-border co-operation is in theory highest when poverty differentials are medium (between 10.4 and 24.0), which is the case between Senegal and Gambia, Senegal and Mali, Côte d’Ivoire and Burkina Faso, Burkina Faso and Benin, in the Hausa Country, in the north of Lake Chad, around most Nigerian borders, and in the southern part of the Ghana-Togo-Benin border.

The third, and probably less common representation, is to consider border regions as nodes and poverty differentials as links between neighbouring regions. While territorial mapping highlights the attributes of regions or their border effect, network analysis focuses on the structure and content of the links between border regions. This approach highlights border potentials and constraints, as border regions are not only influenced by their own attributes or by their immediate neighbours but also by their position within the region. In [Figure 5.3](#), node colours represent countries and link widths represent poverty differentials between regions. The size of the nodes is proportional to the number of connections each region has, a measure known as degree centrality.

The location of the regions on the figure roughly corresponds to their geographic location, with Senegal on the left-hand side, Mauritania at the top, and Chad on the

**Table 5.6**  
Top five lowest and highest poverty border differentials in West Africa

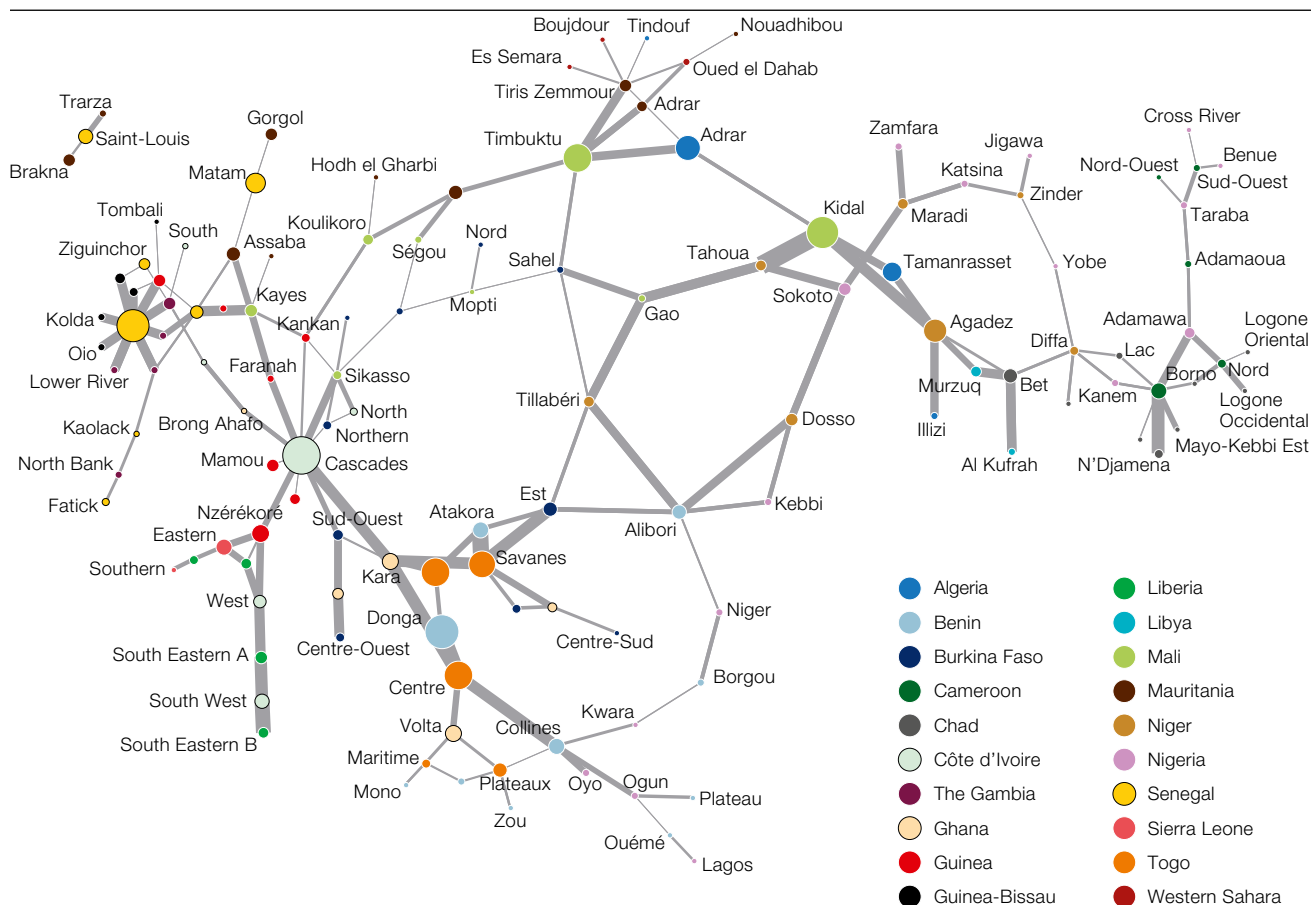
Rang	Region (country)	Region (country)	Poverty differential
1	Cascades (BFA)	Sikasso (MLI)	0.0
2	Ouémé (BEN)	Ogun (NGA)	0.2
3	Gorgol (MRT)	Matam (SEN)	0.2
4	Boucle du Mouhoun (BFA)	Sikasso (MLI)	0.6
5	Nord (CMR)	Logone Oriental (TCD)	1.0
162	Donga (BEN)	Tchamba (TGO)	53.7
163	Donga (BEN)	Tchaodjo (TGO)	53.7
164	Volta (GHA)	Centre (TGO)	54.0
165	Atakora (BEN)	Savanes (TGO)	59.0
166	Kidal (MLI)	Tahoua (NER)	65.6

Source: Walther and Vollmer 2015, based on UNDP and IMF reports

right-hand side. The figure clearly shows that some regions such as Donga and Atakora in Benin, or Kidal in Mali, are connected to many others through high border differentials, while other zones such as the ones between Dosso and Diffa on the Niger-Nigeria border, have low poverty differentials. Both clusters share similar levels of poverty across countries.

The number of neighbours to which each border region is connected also varies greatly across West Africa. Donga (Benin), Kolda (Senegal), Savanes (Togo), Kayes (Mali) and Agadez (Niger) are among the most connected regions. This positioning offers potential advantages as being adjacent to many other regions allows for flexibility in intensifying cross-border co-operation. When developing cross-border projects, border regions with many neighbours can choose which partners present the best accessibility to markets, the most interesting complementarities or the closest institutional frameworks. The potential for collaboration is more limited for those regions that are structurally peripheral and depend on a single neighbour to engage in cross-border co-operation.

Figure 5.3  
Network of West African border regions



Note: The size of a node is proportional to the number of connections it has (degree centrality).  
Source: Walther and Vollmer 2015, based on UNDP and IMF reports

## A REGIONAL VISION OF CROSS-BORDER CO-OPERATION POTENTIAL

In order to understand every region's cross-border co-operation potential, the information contained in each of the seven integration indicators developed for the entire West African region has been summarised (Table 5.7). A number of points are attributed to each border segment according to the intensity – high, medium or low – of the cross-border co-operation potential observed. For example, co-operation potential is considered to be at its maximum if a region has borders that are clearly delineated and demarcated (3 points). If just one of these conditions is met, the potential is considered to be medium (2 points) and borders that are neither delineated nor demarcated are considered to indicate low potential (1 point). In terms of poverty, co-operation potential is at its maximum when inequalities

between border regions are neither too wide nor too narrow, and regions are therefore distributed between two categories rather than three as for the other indicators. The attribution of standardised scores for the indicators allows for all border regions in West Africa to be compared, identifying which zones are potentially the most promising for co-operation.

Specific variations in the indicators which measure cross-border co-operation potential (Maps 5.33–5.39) are particularly accentuated in West Africa.

- The regions with the greatest population potential are in southern Senegambia, on the borders of Côte d'Ivoire, between Accra and Lagos, in Hausa country and around Lake Chad, where high population and

border market densities promote border accessibility.

- In terms of water, the combination of shared surface and ground water resources is particularly promising in Senegambia, between Burkina Faso and Mali, between Niger and Nigeria, between Niger and Mali, and around Lake Chad.
- In southern Senegambia, the north of Côte d’Ivoire, the east of the Gulf of Guinea and in Hausa country, the combined presence of major agricultural basins and vast livestock circulation networks may be favourable to cross-border co-operation.
- Because there are no border regions in West Africa where common vernacular, vehicular or colonial languages are absent, the language indicator is not particularly discriminating. It is worth noting, however, that Sahelo-Saharan regions rank particularly highly, as does the north of Côte d’Ivoire.
- Border regions where the border status is most conducive to co-operation are located around Senegal, in the north of Burkina Faso, between Niger and Nigeria and in the Saharan reaches of Mali and Niger due to clear delineation and demarcation.
- Political stability is strongest in the border regions along the Gulf of Guinea, which suffer less from radical Islam than their Sahelo-Saharan neighbours.
- Poverty differentials are especially good for co-operation in a very large number of West African regions, notably between Senegal and its neighbours, to the west of Côte d’Ivoire, in southern Burkina Faso, between Niger and Nigeria, around Lake Chad and along the Gulf of Guinea.

A region’s potential for cross-border co-operation cannot, however, be calculated on the basis of a single indicator. It is the result of a combination of social, economic and political factors which, taken together, provide information about the opportunities for developing co-operative relations at a regional level, and all seven of the indicators described above need to be factored into the overall picture of each region’s potential.

Mapping the combined cross-border co-operation potential confirms the spatial

heterogeneity of the West African region (Map 5.40). At the level of the region itself, the most promising areas, represented by thick lines, are very unevenly distributed through the territory.

- The Sahelo-Saharan zones are, broadly, those with the least potential, especially those struggling with security issues, such as the Mali-Niger zone. This situation owes much to its low population, scarce agricultural resources and political instability, especially in Mali since the beginning of the millennium with the appearance of religious extremists and separatist claims.
- The Sahel is characterised by high co-operation potential, for example, in southern Senegambia, on the borders of Burkina Faso and between Niger and Nigeria. The Sahel boasts the highest scores in the region: the eastern tip of Gambia, the border between Senegal and Guinea, the north of Côte d’Ivoire bordering Burkina Faso, the Koury region in Mali, the north of Togo, the eastern part of the Niger-Nigeria border and the area around N’Djamena. These sectors boast an abundance of border markets with high population potential. They share water, agricultural and pastoral resources, promoting the establishment of cross-border production and commercialisation channels. They are, moreover, relatively homogenous from a linguistic point of view, and generally spared from political instability. Poverty gaps are average, rather than very high or very low, which can promote synergies and movement between countries. From an institutional point of view, the presence of borders recognised by states and demarcated on the ground further assists cross-border co-operation.
- The southern part of the region, on the coast of the Gulf of Guinea, is more heterogeneous. Although many border segments in Sierra Leone, Guinea and Liberia appear rather unfavourable to cross-border co-operation given a low density of border markets, uncertain border statuses and a relative lack of shared resources, other regions score very high marks, such as the boundaries between Ghana, Togo and

Table 5.7

## Cross-border co-operation potential

Indicator	Potential		
	<i>High</i> 3 points	<i>Medium</i> 2 points	<i>Low</i> 1 point
Population potential	Number of people who can be reached within 0–120 minutes	Number of people who can be reached within 121–240 minutes	Number of people who can be reached within 240 minutes
Water resources	Shared surface and ground water	Shared surface or ground water	No shared surface or ground water
Agricultural and pastoral resources	Shared agricultural basins and pastoral itineraries	Shared agricultural basins or pastoral itineraries	No shared agricultural basins or pastoral itineraries
Languages	No discontinuities between vernacular, vehicular and colonial languages	Some discontinuities between vernacular, vehicular and colonial languages	Strong discontinuities between vernacular, vehicular and colonial languages
Status of borders	Borders clearly delineated and demarcated	Borders clearly delineated or demarcated	Borders neither delineated nor demarcated
Political stability	No border conflict or transnational extremist groups	Occasional political instability in border regions	Border conflicts or major transnational extremist groups
Poverty	Limited differential (10.4–24.0)		Very small or very wide differentials (0–10.3 and 24.1–100)

Benin. The Accra-Lagos conurbation, for example, appears to be particularly favourable to cross-border co-operation.

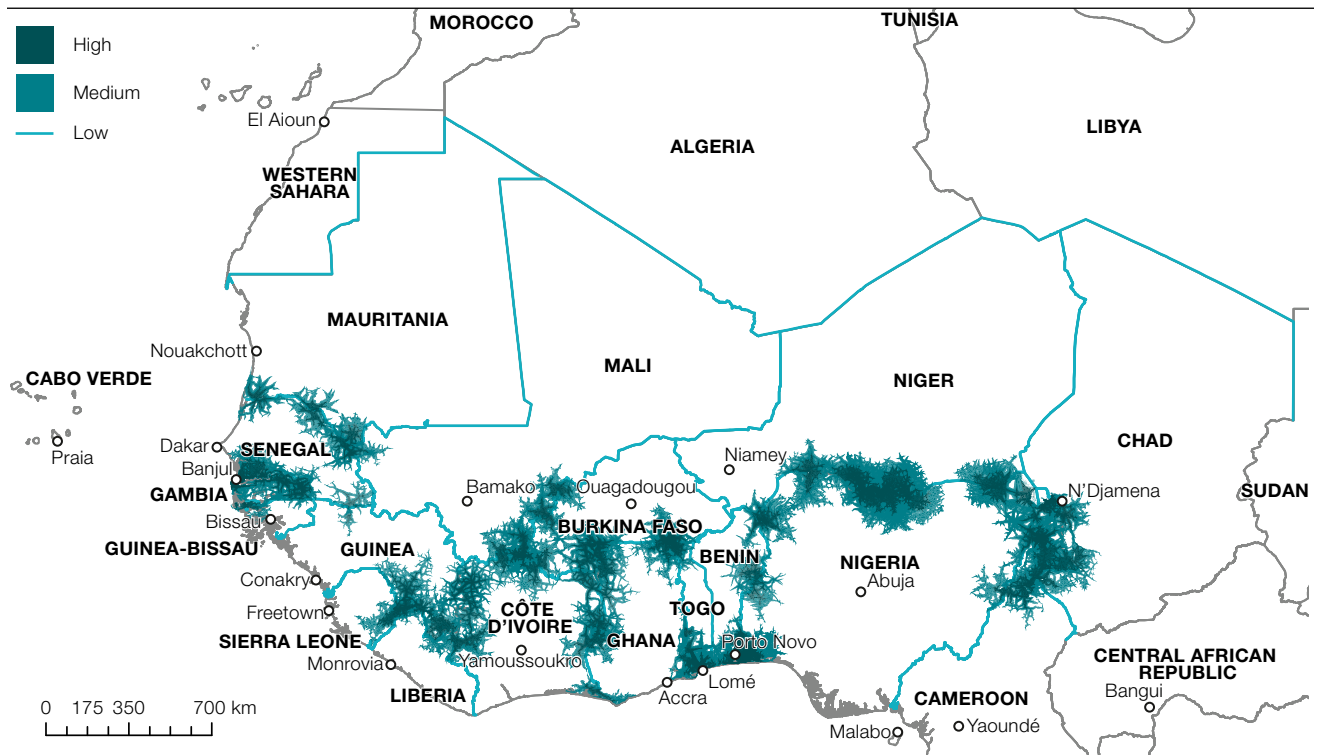
Calculating co-operation potential is a vital first step in studying the geography of cross-border co-operation in West Africa, but it is not entirely sufficient. The intensity of co-operation cannot simply be measured on the basis of the region's potential, which may

or may not be leveraged by socio-economic and political players. In order to show how the current borders could nourish the regional integration process, an analysis of the cross-border initiatives that are actually developed in the region (Chapters 6 and 7) and how political decision makers view the regional development of West Africa (Chapter 8), is required.



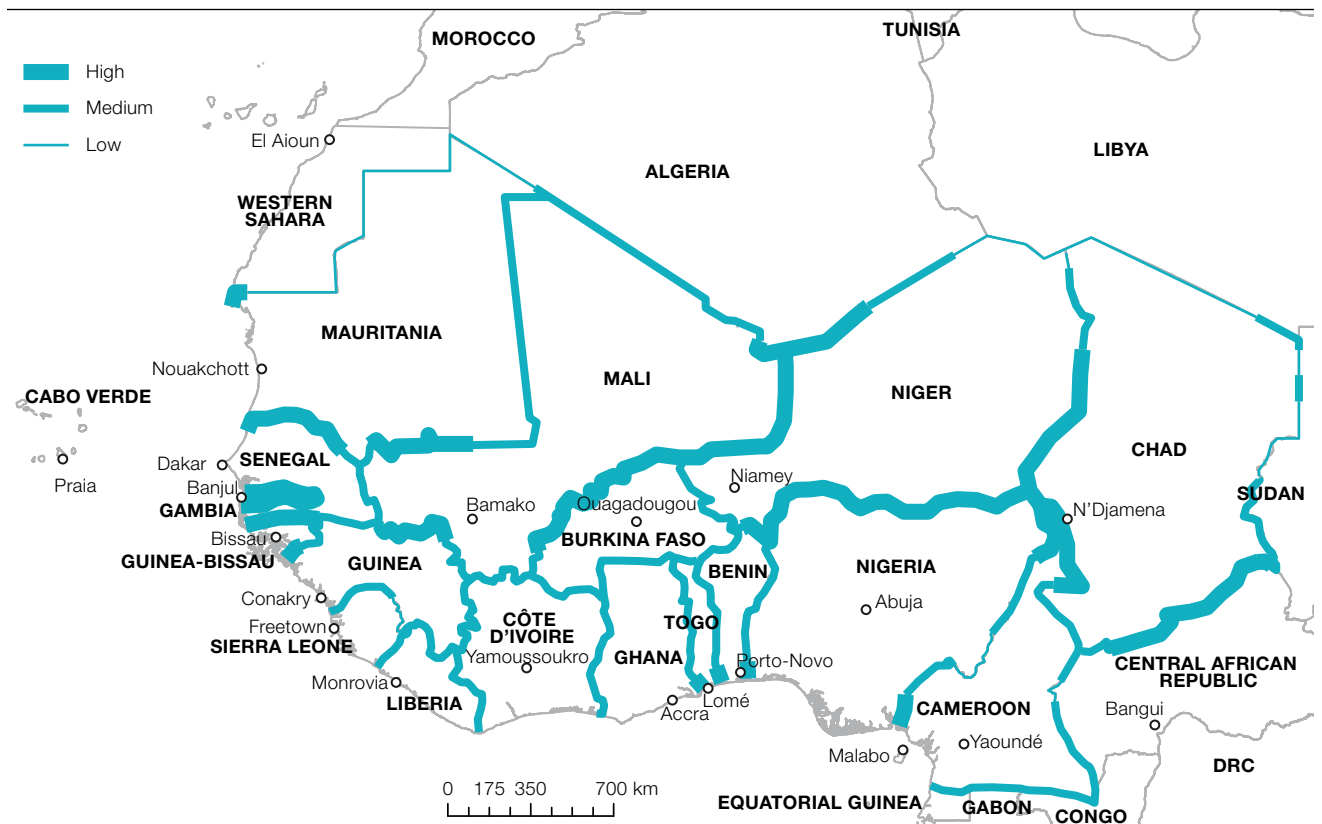
Map 5.33

Cross-border co-operation potential: Population



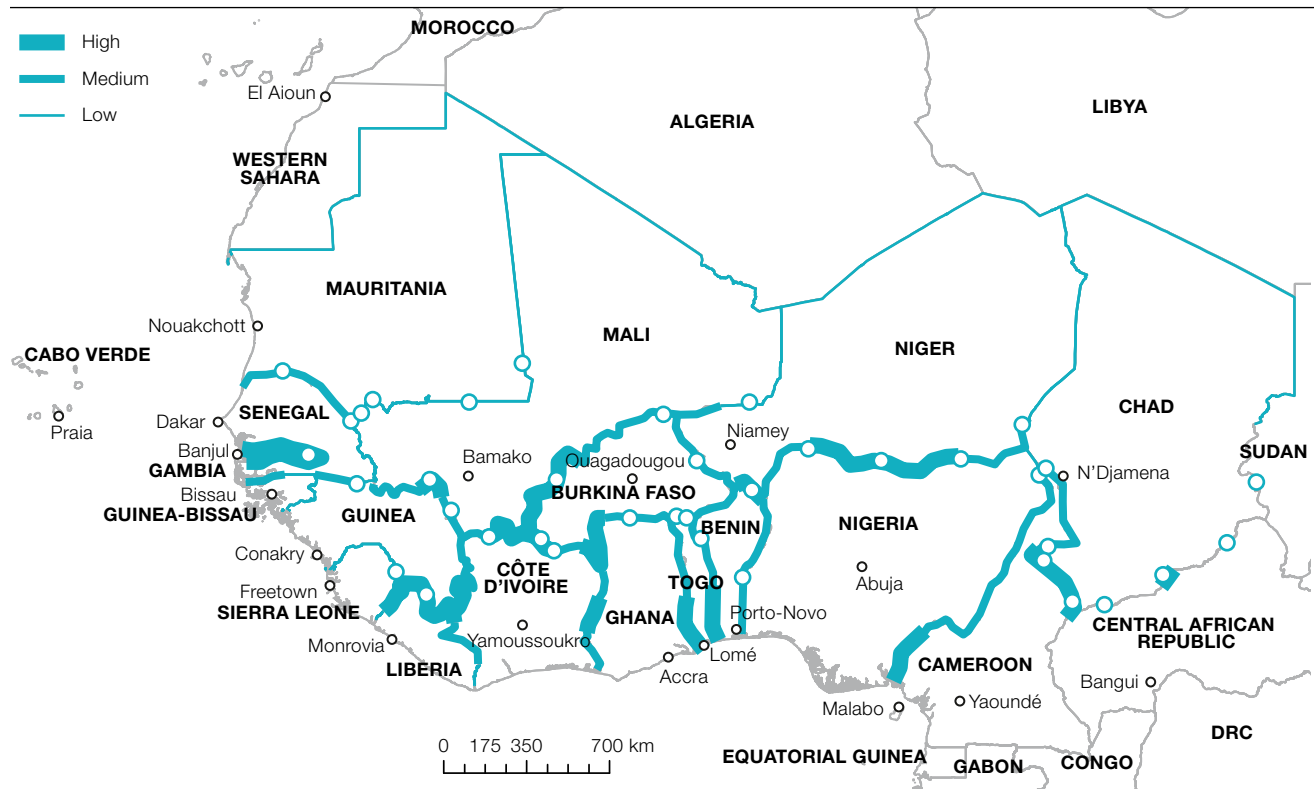
Map 5.34

Cross-border co-operation potential: Water resources



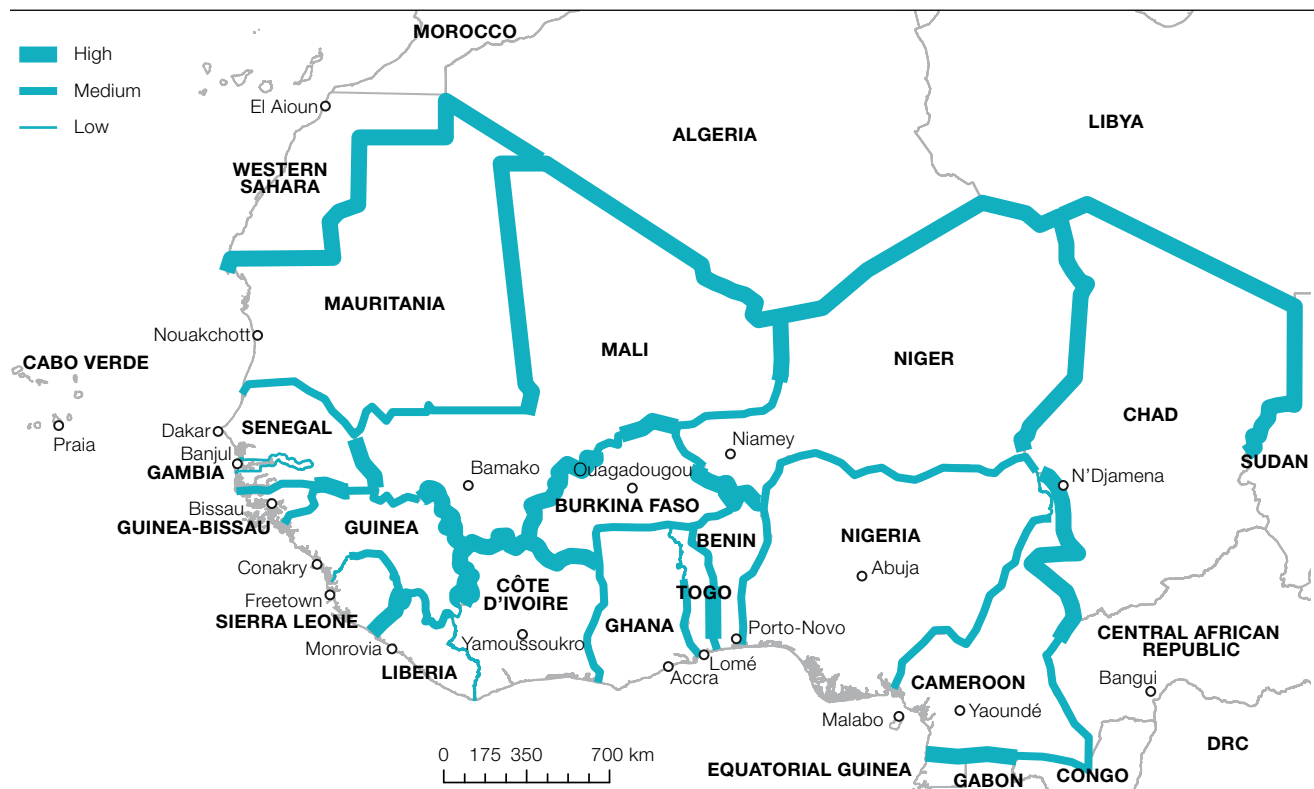
Map 5.35

Cross-border co-operation potential: Agricultural and pastoralism



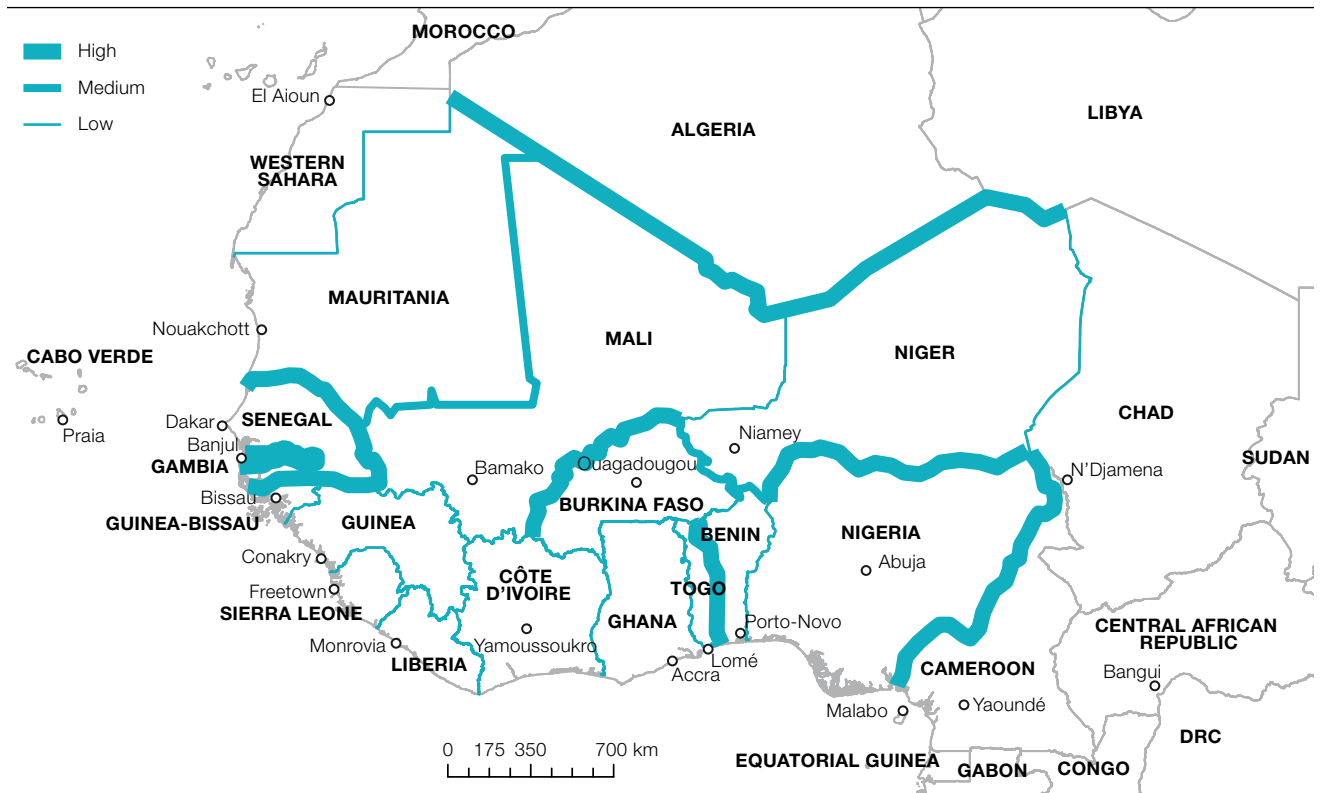
Map 5.36

Cross-border co-operation potential: Languages



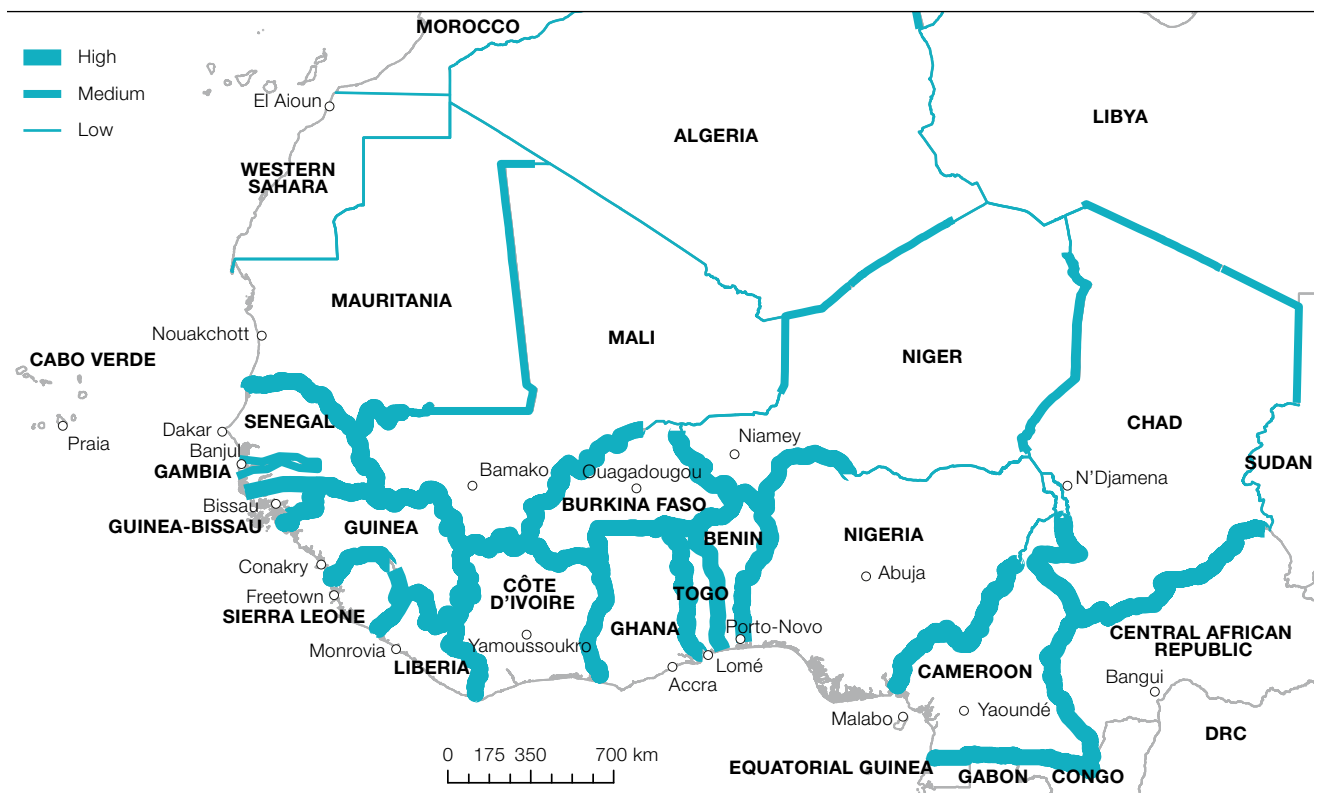
Map 5.37

Cross-border co-operation potential: Status of border



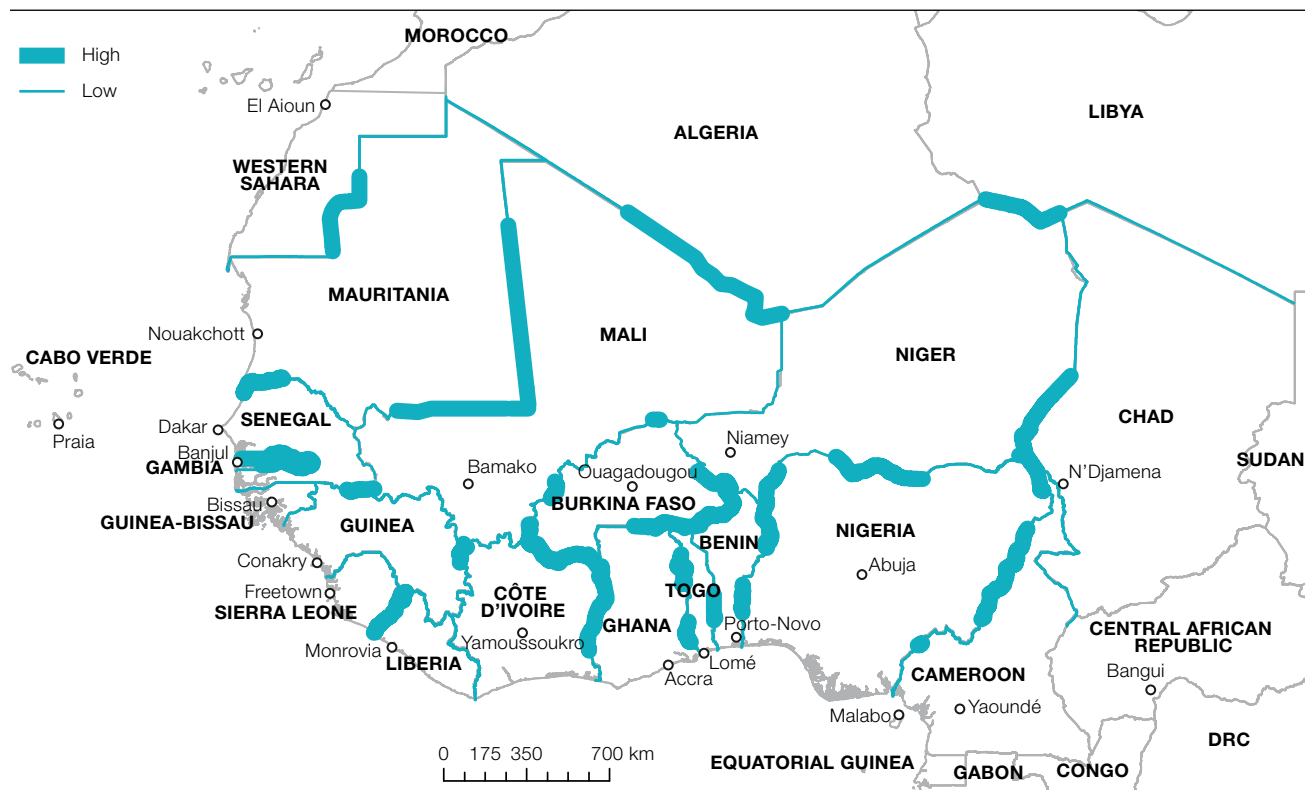
Map 5.38

Cross-border co-operation potential: Political stability



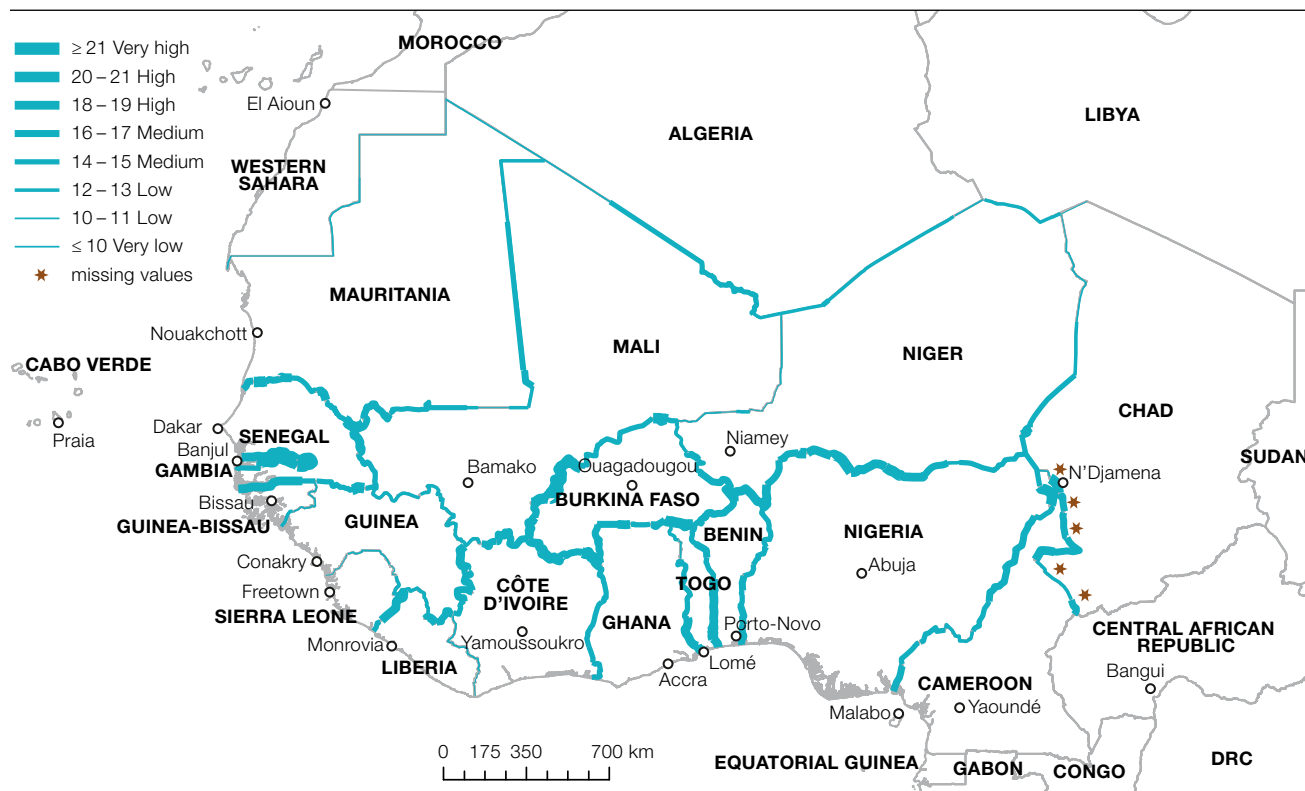
Map 5.39

Cross-border co-operation potential: Poverty



Map 5.40

Cross-border co-operation potential

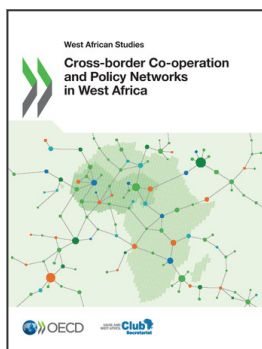


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