

# Policy Recipe for Fostering Regional Integration Through Infrastructure Development and Coordination in West Africa

Mariama Deen-Swarrray, Bamidele Adekunle, and Gbadebo Odularu

**Abstract** Regional integration is vital for the building of markets, the creation of robust and diverse economies as well as increasing opportunities for growth and attracting investment finance. It is the outcome of cooperative arrangement and processes, the implementation of intergovernmental treaties and market-led processes, which produces the platform for economies in a region to become more closely interconnected (African Development Bank 2010). Studies have shown that more than half of total trade worldwide takes place through regional trade blocs and figures show that trade under this system grew from 43 % to 60 % between 2001 and 2005 (OECD 2005). In order to achieve the laudable objectives of regional integration, transportation development and coordination has a vital role to play as a formidable force for catalyzing intra-regional trade among member states. As a vital component of investment climate, it provides market access to people and goods, thereby reducing cost of doing business.

Against this background, the poor and inadequate state of transportation network in West Africa undermines the rapid progress of its regional development initiatives. Some of the problems being faced by the transportation sector in West

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A different variant of this article entitled 'Infrastructure Development and Intra-Regional Trade: A Case of ECOWAS' was published in the Journal of West Africa Integration (JWAI). These two versions are different because the version in JWAI was based on gravity model.

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Africa are: poor linkages among transport modes in West Africa which causes long delays and raise costs of doing business; landlocked countries are not well connected to the regional transportation networks; and inefficiency of transport services due to protected transportation market. This partly explains why intra-West African trade stands at less than 10 % of its regional GDP. In view of this, this study discusses the evolution of the four transport modes – ports, roads, airports and railways – but focuses more on roads as the most important mode of transportation in the region. Finally, while adopting both quantitative and qualitative analytical approaches, this article presents a transportation development and coordination model for West Africa and also proposes the policy options to be adopted in order to optimize transportation for regional integration in West Africa.

**Keywords** Regional integration • Infrastructure • ECOWAS • Policy coordination and coherence

## 1 Introduction

Regional integration models in Africa are recording more progresses than ever before as the continent experienced unprecedented growth in the last two decade (UNCTAD 2013, Odularu 2005). Studies have shown that more than half of total trade worldwide takes place through these regional trade blocs and figures show that trade under this system grew from 43 % to 60 % between 2001 and 2005 (OECD Report 2005). Improving the state of transportation is a crucial pre-requisite for trade, business and investment promotion, social and economic development and ensuring the regional and international competitiveness of a country. High quality and efficient transportation capacity can foster regional integration as it will facilitate the movement of persons, goods and services across borders, making information easily accessible and at the same time allowing the region to develop a stronger base for trade negotiations with the international market. It also strengthens the region's comparative advantage. Nordas and Piermartini (2004) argued that the quality of transport infrastructure may now be considered a more important determinant of trade than in previous years.

Regional integration initiatives in West Africa aim at promoting regional cooperation and ensuring that trade and other activities are easily facilitated among countries within these regional alliances. The ECOWAS<sup>1</sup> founded in 1975 is the West African regional body set up to promote economic integration within West Africa, with particular emphasis on industry, commerce, transport,

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<sup>1</sup> Other sub-regional blocs within the ECOWAS include the Mano River Union (MRU), the West African Economic and Monetary Union (UEMOA), West African Monetary Zone (WAMZ) and the Community of Sahel-Saharan States (CEN-SAD) to which some of the ECOWAS members belong.

telecommunications, natural resources and agriculture to name a few (Odularu 2007). This regional bloc comprises 15 countries, with varying political, economic and social characteristics (Odularu 2006b). The ECOWAS Commission, through its mandate, endeavors to implement policies and embark on programmes and development projects that will facilitate the process of regional integration. Some of these projects include intra-regional road construction and telecommunication facilities. These are important facilities for promoting trade, which is a vital aspect of the regional integration process.

The ECOWAS has further demonstrated its acknowledgement of the importance of transportation development and coordination in fostering regional integration through the establishment of a Transport and Telecommunication Department within the Secretariat. The focus is on developing road, rail, maritime, river and air transport infrastructure in order to facilitate transport and transit within the region. The overall objectives of the transport division within this department as stated by the ECOWAS Commission are to “improve regional transport system”, “provide efficient and cost effective transport system”, “minimize delays by removing non-tariff barriers” and “promote intra-community trade” (ECOWAS). The telecommunications division aims to “establish a single liberalised telecommunications market within the ECOWAS sub-region”, “implement the adopted Telecommunications Harmonisation Model”, “fast track the implementation of GSM Roaming”, “promote the use of Information and Communication Technologies (ICTs) for development”, “evaluate and update the convergence criteria for Harmonisation of Telecommunications Policies”, “develop a Regional Information Communication Technology infrastructure” and “facilitate the exchange of information and experiences between West African Telecommunications Regulators” (ECOWAS).

Although, ECOWAS has all these novel plans and intentions, evidence on ground indicates otherwise. The road network is not efficient or well linked. Telecommunication is better, but there are a lot of issues that need to be addressed. The cost of doing business is unnecessarily expensive because of bribes collected by customs and immigration officers, and touts along the West African corridors (Adekunle 2010). All these problems constitute obstacles to intra-regional trade because they are non-tariff barriers (NTB) to trade (Odularu 2006a).

The high cost of doing business can deter efforts to encouraging intra-regional trade as countries will look for better options and partners with which they can trade at preferable terms. Trade costs incurred as a direct or indirect result of poor quality infrastructure can take different forms. This article presents the evolution of the four transport modes – ports, roads, airports and railways – but focuses more on roads as the most important mode of transportation in the region. Finally, while adopting both quantitative and qualitative analytical approaches, this chapter presents a transportation development and coordination model for West Africa and proposes the policy options to be adopted in order to optimize transportation for regional integration in West Africa.

## ***1.1 Statement of the Problem***

Evidences abounds on how lack of efficient transportation system in the West African region affects productivity, trade and development. These include, but are not limited to insufficient poor road networks and lack of adequate alternative means of transportation. Sequel to this, the volume of trade among neighboring countries in the region is relatively low. In fact, trend in exports over an 8 year period, shows that Sierra Leone exports most of its products to western countries, with only about less than 10 % directed towards countries in the ECOWAS sub-region.

West African Trade Hub (WATH) studies and reports have revealed that delivery trucks are often damaged as a result of bad roads, thereby increasing the time spent on maintenance and reducing the productive capital rate of return. This proves to be a hindrance to the linking of isolated producers, in most cases smallholder farmers, to local and regional markets (Grigoriou 2007). There is the high possibility that delivery vans can deviate from their normal routes to avoid extremely bad roads which may result in certain communities being deprived the goods and services they need at a relatively less expensive price. More often, they will have to obtain these same products from a secondary or black market at much more inflated prices. Such scenarios not only hinder trade, but also contribute to poverty.

Apart from minimal intra-regional trade, uncertainty about delivery time and the state in which products are delivered as a result of poor quality of transportation is also a contributing factor to the cost of trade in Africa. Furthermore, delays have been shown to have a greater impact on developing countries where most of their exports are perishable agricultural products (Soloaga et al 2006). In addition to this predicament, alternative means of transporting goods are also expensive. Freight costs in developing countries are about on average 70 % higher than in developed nations, with Africa recording the highest, about twice the world average (UNCTAD 2003).

## ***1.2 Objectives***

The main purpose of this chapter is to examine the evolution of the four transport modes with more emphasis on roads transportation. The specific objectives of the study are:

- To assess the trend of growth and development in ECOWAS countries between 1990 and 2010.
- To analyse the evolution in the transportation modes in West Africa.
- To develop evidence-based policy options to be adopted in order to optimize transportation for regional integration in West Africa

### 1.3 *Structure of chapter*

Following this introductory section, the rest of the paper is organized as follows. Section 2 focuses on a review of the relevant literature surrounding the topic, whilst Section 3 discusses the relevant issues on the background to this study. Section 4 provides summary and concluding remarks as well as some policy recommendations.

## 2 Literature Review

This section reviews both theoretical and empirical literature on the importance of infrastructure to trade and the effect on regional trade integration. We did the review in such a way that the gap in literature is identified and our contribution to knowledge is visible.

Africa is a continent that is physically and institutionally challenged in terms of adequate provision of infrastructure. This unfortunate situation affects growth on this continent because different studies have continued to emphasize the role of infrastructure on economic development (Perkins et al. 2005; Ndulu et al. 2005). Jimenez (1995) and Barro (1990) assert that expenditure on infrastructure raises the marginal product of other capital expenditure within the economy. Investing in infrastructure, though vital, can be very costly and this is supported by the findings of a study carried out by Rosenstien-Rodan (1943).

Morrison and Schwartz (1996) confirm that a decrease in infrastructure investment reduces the productivity growth impacts of public infrastructure. In constructing a model for the technology and behavior of firms and applying it to state-level data for the manufacturing sector in the U.S.A., they find that investment in infrastructure results in a significant return to manufacturing firms, increasing their productivity. According to Bonaglia et al. (2010), infrastructure investment contributes positively to total factor productivity growth, output and cost reduction, with investment in transportation being the most productive. An empirical study by Pereira and Sagales (1999) further supports the need for infrastructure investment, suggesting that public investment has a positive effect on private investment, employment, and output at both aggregate and regional level.

Lack of adequate infrastructure in a country might be a major bottleneck for achieving sustainable growth and poverty reduction (Sahoo and Dash 2009). It is believed that properly designed infrastructural development programs can result in a more inclusive growth process that benefits poorer groups and communities in remote areas (Bhattacharyay 2010). Provision of appropriate and adequate infrastructure can boost investment and enhance trade within and across borders (Sahoo and Dash 2009). Furthermore, infrastructural development can contribute to overall economic development through creating and stimulating production facilities and economic activities. It can reduce trade and transaction costs, and create an

enabling environment for competitiveness, employment and public goods creation (Egert et al. 2009; Sahoo and Dash 2009).

The cost of trading between any two countries can be greatly augmented by the time it takes to search for information, to enter into and enforce agreements, transporting the goods or products once they have been acquired and the time it may take for the other party to receive them (Nordas and Piermartini 2004). Understanding and having insight into the business environment in a country of interest might reduce these costs. Having institutions in place that are fully operational and easily accessible as well as having standard communication facilities is expected to enhance trade through the reduction of trade costs. Nordas and Piermartini (2004) state that countries that share a common language and have similar cultural characteristics will tend to understand and know more about each other and this is likely to cause such countries to trade with each other. Thus, common language and culture also make the flow of information relatively easy.

The flow of information across countries is a major determinant of the cost of searching for information on a potential trading partner. The telecommunication infrastructure is expected to play an important role in the ease of accessibility to relevant information. In the case where the state of the telephone system is undeveloped, firms are limited in their communication and this increases the transaction costs of ordering, gathering information and searching for services. Improvement in the telephone system reduces the cost of doing business and increases the level of output for individual firms in various sectors of an economy (Röller and Waverman 2001). In a study by Rauch and Trinidad (2003a), they argue that the emergence of the information economy has contributed to the reduction of search costs to a large extent. The ease of flow of electronic communication is however contingent on the trading partners having good access to telecommunication infrastructure. Nordas and Piermartini (2004) argue that “the cost of not being able to place a telephone call or access the internet may be just as important as the cost of making the call”, with the former cost pertaining to the rate of penetration of telephone lines. Although information technology makes transaction and communication easy, there is still a need to physically move commodities from one point to the other and this makes distance an important variable in trade flow analysis. Distance from the primary market and high cost of transport as a result of lack of infrastructure affects the competitiveness of most African countries (Ndulu et al. 2005; Amadji and Yeat 1995). This high cost is witnessed in Africa because this continent is the most fragmented in the world with little or no connectivity among the countries. The impact of fragmentation can be reduced if quality of infrastructure available in the region is improved (Limão and Venables 2001). Improvement in the quality of infrastructure will lead to increase in trade volume and a reduction in transportation and transaction costs (Limão and Venables 2001).

Transport costs and the delivery cost of goods are very important factors in the pattern of trade flows among countries. The mode of transport that trading partners settle on can influence the time goods take to arrive at their final destination. The 2003 UNCTAD report focuses on the importance of multimodal transport services

such as packaging, warehousing and transport from exporter's premises to that of the importer's. The choice made by trading partners on mode of transporting goods often depends on their geographical locations (Nordas and Piermartini 2004). Canning and Fay (1993), focusing only on transportation infrastructure for 96 countries, find high rates of return on the investment in developed and industrialized countries and moderate rates of return in underdeveloped countries. In an article on trade in ECOWAS, it is cited that it is possible for goods to be transported from Nigeria to Liberia within 2 days via sea. According to the President of the Nigeria-Ghana Chamber of Commerce, this has not been the case as ships often go through Europe or Asia before heading for the destination as a result of bureaucracy. This results in shipment from Nigeria taking about a month to get to Liberia (The Punch 2011). In other words, West Africa has one of the most expensive transportation costs in the world and some of these costs are attributed to lack of infrastructure.

Furthermore, some studies show empirically that a relationship exists between the quality of infrastructure in a particular country, the cost it imposes on trade and how adequate infrastructure can boost economic growth. Clark et al (2004), Wilson et al (2003) and Limão and Venables (2001) discover that the quality of infrastructure has a positive and significant impact on trade. Clark et al (2004) further indicate that the efficiency of the operation in a country's port can reduce the cost of freighting significantly. According to Nordas and Piermartini (2004), these studies used an overall measure of infrastructure quality or just maritime infrastructure, and expressed the need for more individual variables.

Röller and Waverman (2001) investigates the impact of telecommunications investments on economic developments using evidence from 21 OECD countries over a 20-year period and find evidence of a significant positive causal link. Canning et al. (1994) states that telephones have a positive effect on economic growth. Fink et al. (2002a) also assert that communication cost has a significant and negative impact on bilateral trade when the bilateral cost of making telephone calls is included in a gravity model. They also discover that a 10 % reduction in price of phone calls between two trading partners can increase bilateral trade by about 8 % (Fink et al 2002b).

Sanchez-Robles (1998) further show that road length and power generating capacity can explain future growth; the study indicates that physical units of infrastructure are positively and significantly correlated with growth. Public capital strongly affects growth, though the effect differs across sectors and is more relevant in the industry sector than in the agriculture, construction and services sectors (Fernandez and Montuenga-Gomez 2003). Using a panel of bilateral trade flows between 167 countries over 13 years, Grigoriou (2007) show empirically that an improvement in a domestic country's infrastructure quality would raise exports and imports by 14.5 % and 19.6 % respectively. However, the impact is found to be higher in the case of an improvement in the transit-country's infrastructure quality. In this case, export would increase by 52 %.

To a large extent, quality of infrastructure and high transaction cost can be referred to as a non-tariff barrier (NTB). In a study by the World Bank (2001), the

results show that 168 of the 216 trading partners of the USA had their transport costs much higher than the tariff barriers. This is more pronounced in most countries in Sub-Saharan Africa (SSA), where the findings reveal that the transport cost incidence for exports was five times more than the tariff cost incidence. Limão and Venables (2001) carried out a study on a cross section of countries, controlling for the quality of transit-country infrastructure and they show that poor infrastructure accounts for about 40 % and 60 % of predicted transport costs for coastal and landlocked countries respectively. They further indicate that distance only accounted for a 10 % change in transport costs. Brun et al. (2005) also provide evidence of a high impact of remoteness and infrastructure on trade costs.

Other variables that may affect intra-regional trade include common border, languages and colonial histories, which have positive effect on bilateral trade (Nordas and Piermartini 2004). Carrère (2006) also suggests that SSA and ECOWAS landlocked countries will trade 28 % less than their coastal counterparts and Raballand (2003) reveals that being landlocked reduces trade by more than 80 %. This was mainly as a result of the way in which the land lock variable was represented in the study, focusing on bilateral trade between two landlocked countries. Radelet and Sachs (1999) in their study on 97 developing nations, discover that transport and insurance costs were twice as high for landlocked than for coastal countries.

In summary, Africa has various challenges in terms of regional trade integration such as the lack of capacity of staff at border posts, delays at borders, lack of adequate infrastructure, poor condition of roads, underdeveloped telecommunication and energy sectors that cause final prices of products to be inflated (East African Business Survey 2005). The role and the involvement by governments in infrastructure development cannot be overlooked. The decisions influencing infrastructure investment often comes from those in power and as Canning (1998) suggests, the trend in infrastructure stock growth in countries can be better explained by the political economy rather than by economic efficiency as governments are highly involved in infrastructure development.

Many studies in Africa cite poor infrastructure as a contributing factor to slow economic growth. However, some of the empirical studies reviewed show that infrastructure development has no significant impact on economic growth. Among these is the study by Easterly and Levine (1994), which in an attempt to explain Africa's growth tragedy using a cross-sectional regression on a list of variables, discover that infrastructure investment is not significant in explaining the trend in growth. Using a consolidated public-sector investment in transport and communications also did not find any significant impact of these variables on growth. Another study by Canning and Fay (1993), using physical measures of infrastructures such as kilometers of roads, railways per worker, electricity generating capacity per worker and telephones per worker for a cross-country sample, reveal that the variables had no significant impact on growth. Ghafoor and Yorucu (2002), finds in their study on Northern Cyprus using aggregated and disaggregated time series data from 1977 to 1998, that both the long-run and short-run elasticities of gross national product (GNP) with respect to infrastructure and human capitals are very low and in most cases statistically insignificant. The study



therefore concludes that further investment in infrastructural and educational sectors will not contribute towards improving economic performance.

## **2.1 Summary**

Polenske (1994) summarises the state of both the theoretical and the empirical literature on public infrastructure and productivity and finds that several studies show opposite conclusions in their investigation of the relationship between regional economic performance and infrastructure expenditure and views this as convincing evidence that more work needs to be done on the topic. Hakfoort (1996) in reviewing the empirical literature on infrastructure and growth concludes that in general, infrastructure has a positive and significant impact on output.

The African Development Bank (1999) Annual report based on background papers, examined the importance of physical infrastructure. The report suggests that the major causes of the poor state of infrastructure are mainly structural, in particular, low economic density and geography. The challenge according to the report is to expand the quantity and quality of infrastructure in a cost – effective way. The World Bank (2000) also produced a review report on infrastructure in Africa and concludes that lagging infrastructure may be due to low demand rather than inadequate supply. The report identifies that in order to ensure sustainable institutional arrangements, it is necessary to have cross-border and regional cooperation. The report further suggests that the region has to employ sustainable incentive packages necessary to extend infrastructure access to rural areas. Rehabilitation and maintenance of existing infrastructure are seen as important in the infrastructure development process. The report also emphasizes the need for private participation, towards improving investment effectiveness and service provision.

The theoretical and empirical review of relevant and existing literature indicates that though there are varying views and findings, in general the availability and quality of infrastructure promotes trade and economic growth. This impact has not been analyzed for the ECOWAS countries, especially with respects to intra-regional trade among the 15 member countries. Thus, this article fills this gap and contribute immensely to literature.

## **3 Background to the Study: Regional Integration and Transportation in West Africa**

### **3.1 Introduction**

Regional integration is vital for the building of markets, the creation of robust and diverse economies as well as increasing opportunities for growth and attracting

investment finance. Regional integration is also defined as the outcome of cooperative arrangement and processes, the implementation of intergovernmental treaties and market-led processes, which produces the platform for economies in a region to become more closely interconnected (AfDB 2010).

Kwaku (1995) suggests that the main force influencing the increasing number of RIAs on the African continent is the need to increase regional cooperation through the establishment of unified economic blocs. The African countries also envisage that RIAs will form the building blocks for stronger integration between countries (UNECA 2004; WTO 2005). Some express the view that regional integration will increase intra-regional trade, which will in turn spur economic growth and development through economies of scale (Kasekende and Ng'eno 2000; Mistry 2000).

With overlapping memberships in various regional bodies, there is the tendency for the capacity of these institutions to be overstretched. This can limit their technical capacity as well as the ability to exercise their enforcement powers. Adequate infrastructure might aid regional trade integration in developing countries, most especially West African countries. Africa's infrastructure need is estimated to be \$93 billion annually, but only \$45 billion is currently spent on it annually (World Bank 2010). This shows that there is a gap of \$48 billion that needs to be spent on Africa if the continent is to catch up with the rate of development in other continents in the global village. The private sector has become more fully involved in this regard, though most of their investment is claimed to be more geared towards the information and telecommunication sector. According to the OECD (2010) report, this sector received 87 % of all investment commitments in 2008. Since infrastructural development is a catalyst and a positive externality to economic development, adequate analysis of the state of infrastructure in ECOWAS, its impacts on regional trade integration and the way forward will be the focus of this section. Specifically, we will look at infrastructure such as power, rail, road, sea/airports and telecommunications.

### ***3.2 Transportation Infrastructure and Trade in Regional Integration***

Infrastructure, as identified in the literature, plays a vital role in the development process (Perkins et al. 2005; Ndulu et al. 2005). It has the potential to improve the region's competitiveness, boost both domestic and regional trade and overall, enhance the integration of the region into the world economy. Cross-border infrastructure projects promote regional integration and contribute to regional trade and growth. These projects can however be very costly as transaction costs are high and so are the risks involved. To fund regional infrastructure projects successfully, the countries involved need to work together and coordinate well.

The disparities among African nations are obstacles that hinder the regional integration process. There is a lot of missing regional and trans-African links that

pose serious threat to the success of integration (AfDB 2010). The challenge is not only the low level of physical infrastructure but also the lack of existing road and rail links and the poor connectivity to ports within the region.

With countries in the ECOWAS sub-region mainly engaged in the export of primary commodities, having a functional and efficient rail system can provide a more efficient means of transporting these goods within the region and can be comparatively cost effective. Investment in infrastructure, mainly in the transport sector, is highly likely to have a positive impact on trade that will in turn accelerate growth and development within the sub-region (Odularu 2009).

Africa's infrastructure facilities continue to lag behind that of other regions and this has been a major obstacle in achieving sustainable development (Brixiova et al 2011). The absence of well developed infrastructure has been attributed to the lack of adequate financing for such projects which are known to be very costly. According to the discoveries by Africa Infrastructure Country Diagnostic (AICD), Africa lacks the technical expertise to develop this infrastructure. There is thus a need for capacity building through proper education and the creation of an enabling environment for the development of entrepreneurs who are innovative, imaginative and are willing to take risk in the tough African business environment that is full of opportunities though at times very fragile.

Efforts towards exploring possible ways of financing infrastructure development have been ongoing at the country level. In Ghana, an external sovereign bond was used to finance such projects. The government of Nigeria is using the Private-Public Partnership to help close the infrastructure gap. One such project is the Lagos State Bus Rapid Transit, said to be the first of its kind in sub-Saharan Africa. This project is a joint venture between the Lagos Metropolitan Authority and the private sector and has succeeded in reducing traffic, cutting transport cost by about 30 % and creating a safer alternative for commuters (World Bank 2009). Another such venture is the construction of the US\$385 million Lekki-Epe Toll Road in Lagos, which was the first PPP and privately funded toll project in Nigeria (AfDB 2010). It was carried out in an endeavour to upgrade the country's infrastructure in order to reduce traffic and was successfully completed in 2006.

At the continent level, the African Development Bank (AfDB) renders support to its regional member countries (RMCs) through the accessing of long-term financing which is more appropriate for infrastructure. Over US\$6 billion was invested by the bank in 2009, a 177.3 % increase from the amount invested in 2008 and accounting for 52 % of the bank's portfolio (AfDB 2010). The AfDB, through the African Legal Support Facility, further supports private sector financed infrastructure projects in the region. This facility set up to provide technical advice to RMCs, seeks to ensure that the right environment with the appropriate legal and regulatory framework is in place to allow African nations enter into lucrative contracts with partners in the private sector. African countries are endowed with natural resources which are often left to be managed by the private sector, which in turn is required to make specified social contributions. It is most often the case that African economies enter such agreements without proper negotiations that would ensure they reap the

utmost benefits. Private sector investments in infrastructure have increased over the years, moving from US\$40 billion in 2006 to US\$42 billion in 2007 (AfDB 2010).

### 3.3 Overview of the ECOWAS

The ECOWAS was established by the Treaty of Lagos in May 1975 to promote economic trade, cooperation and self-reliance. It is said to be the largest regional economic multi-cooperation organization in Africa, accounting for one sixth of the size and one third of the population of Africa (Odularu 2006b, 2007, 2009, 2011a, 2011b). The organization among other things, aim at ensuring regional free trade, introducing common tariff, facilitating the free movement of capital and human resources as well as promoting infrastructure development. Figure 1 shows the countries and the ecological zones in the ECOWAS region.<sup>2</sup>

The figure depicts that there are vast opportunities in the region because of different economic activities and agricultural production that abound. The region is also known for its mineral resources such as crude oil in Nigeria and Ghana and mineral resources in Niger.

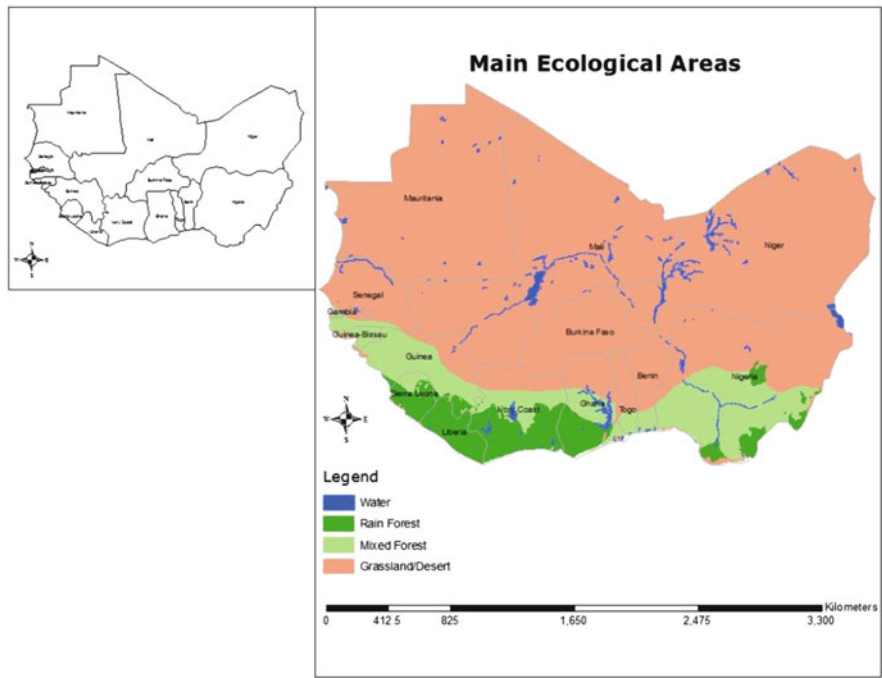
The organization has put in place product standards and has realized free trade for industry products, removing tariff barriers. A common external tariff has been established with the rates ranging from 0 % to 20 %. As far as infrastructure goes, ECOWAS has embarked on the construction of the highway and roads that connect the region as well as focusing on aviation and railway construction. One stop border post initiatives are currently applied at borders in Ghana, Mali, Togo and Burkina Faso to assist landlocked countries in facilitating transit. Within the region, air service liberalization through the 1999 Yamoussoukro Decision have only been fully implemented by the West African Economic and Monetary Union, made up of mostly the French speaking states and Guinea-Bissau and also the Banjul Accord Group.

The characteristics of the various countries within ECOWAS make it more challenging for the successful implementation of certain infrastructure projects. Characterized by mainly small economies, fairly low population density on average and low rates of urbanization make intra-regional connectivity difficult and therefore relatively low in the sub-region. Most of the intra-regional road networks are characterized by major discontinuities. The region is also characterized by relatively high prices for the services provided by the limited existing infrastructure facilities.

The relatively small sizes of most ECOWAS member countries, makes it challenging to embark on cost-effective infrastructure development projects. Collaborating at the regional level to implement the fiber-optic submarine cable

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<sup>2</sup> All maps in this chapter were developed with data from the Data Resource Centre, University of Guelph and developed by Dr. Gift Dumedah (McMaster University).



**Fig. 1** ECOWAS – showing the countries and the ecological zones

will go a long way in reducing the costs associated with ICT activities. Collaboration in the various country hubs as well as the road and rail corridors is necessary to enhance the integration process. Regional integration is therefore a necessity as it can bring about low costs across all types of infrastructure.

Though there have been some improvements in the road network in the region, there are still a lot of gaps and some roads are still not in the best condition. Table 1 below shows the state of some regional roads in the ECOWAS region. It can be seen that on average, only about 45 % of such roads within ECOWAS are in good condition.

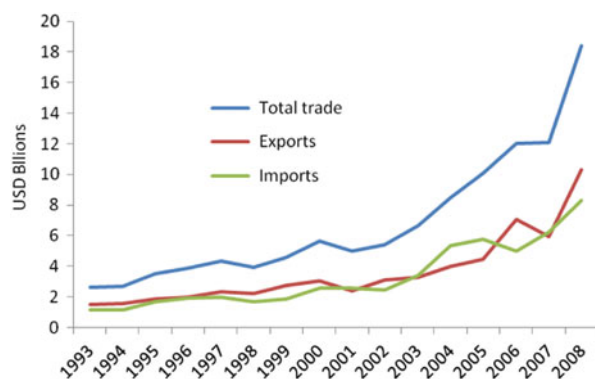
**3.3.1 Trade Patterns in the Sub-Region**

ECOWAS has developed a trade relation with China which has become intense with an increase in the amounts traded over the years. With ECOWAS’ lack of high technology products and machinery, they have turned to China to provide these products. The West African region, on the other hand is well endowed in mineral and other natural resources, which China has very little of. As such they have engaged in a trade relationship that they envisage will be mutually beneficial. This chapter is interested in the intra-regional trade, though we acknowledge the fact that

**Table 1** ECOWAS countries roads and their condition

Country	Condition		Type
	Good (%)	Fair (%)	Paved (%)
Benin	35.8	1.8	96.8
Burkina Faso	58.2	33.6	100
Cape Verde	0	0	0
Cote d'Ivoire	16.1	47.1	90.3
Gambia	0	89.4	47.4
Ghana	70.3	23.6	100
Guinea	22.2	20.7	89.1
Liberia	39.4	55.9	47.5
Mali	66.6	21.7	99.6
Niger	31.2	31	88
Nigeria	55.6	29.7	100
Senegal	39.8	15.1	99.8
Sierra Leone	19.5	58.4	33.6
Togo	49.7	0	100
ECOWAS	<b>45.1</b>	<b>28.4</b>	<b>92.5</b>

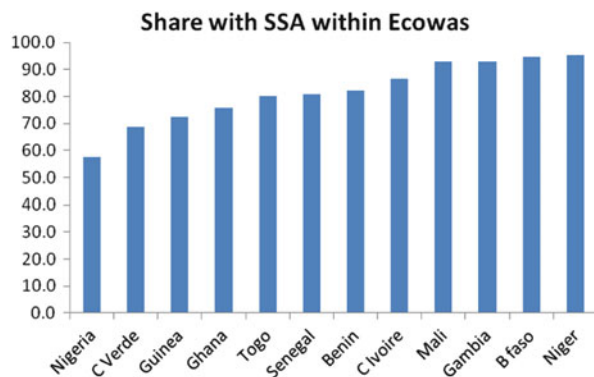
Source: AICD 2010

**Fig. 2** Volume of trade within the ECOWAS region

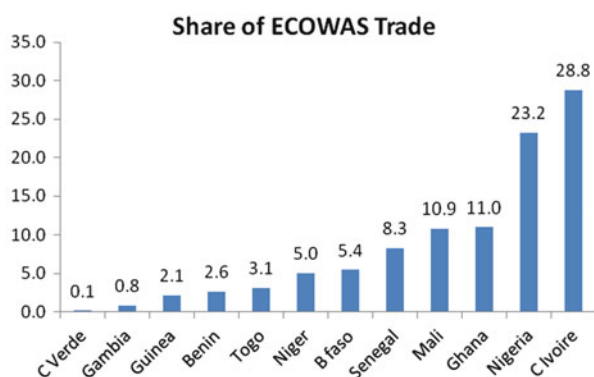
lack of infrastructure might create incentive for countries to trade with countries, outside the region, that provide infrastructure through bilateral trade arrangements. In fact, the trade with China is surging and the capacity to benefit from the relationship through proper macroeconomic management is lacking though the relationship is a reality and ECOWAS governments are supposed to use compensation principle for people that are worse off (Adekunle and Gitau 2013). It is a possibility that beneficiaries will increase and transaction cost will reduce if countries within the region trade with each other. Below are graphs that depict the trade pattern within ECOWAS for the period of the study.

The trade volume within the region has continued to increase during the study period (1993–2008). This might be due to better policy implementation on the part of the ECOWAS Commission, the African Development Bank and governmental and non-governmental organizations. As seen in Fig. 2, the total trade within the

**Fig. 3** Contribution of countries to ECOWAS out of total trade within SSA



**Fig. 4** Country's share of total trade within ECOWAS



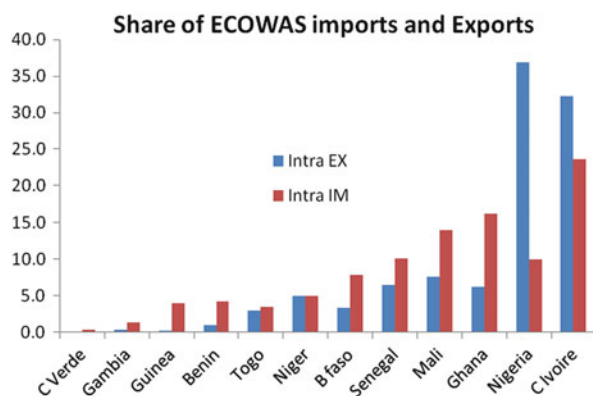
region has increased from less than US\$ 4 billion in 1993 to close to US\$ 20 billion in 2008. In order to maintain this development there is a need for adequate infrastructure within the region.

We also examined the share of total trade in SSA accounted for by intra-ECOWAS trade for each country (except countries with no data). It was discovered that 55–90 % of the trade in SSA by West African countries were done within the region. In fact, countries such as Mali, Gambia, Burkina Faso and Niger did most of their trade activities with countries from within the region (Figure 3).

Since a lot of the ECOWAS countries trade more within the region as compared with SSA, we examined the share each country contributed to the regional trade (Fig. 4). The graph showed that Nigeria and Cote D'Ivoire accounted for 23.2 % and 28.8 % respectively. Due to the importance of these two countries, a better connectivity with other countries within the region might contribute significantly to intra-regional trade. Cape Verde had the least value of 0.1 %.

A breakdown of the total trade to imports and exports (Figure 5) indicated that the two largest countries (Nigeria and Cote D'Ivoire) export a lot to the region but they don't really import from the region. This is interesting because the other

**Fig. 5** Country's share of intra-regional exports and imports



countries in the region import more than they export to the region. There is a need to balance the trade flow within the region through capacity building, information dissemination and availability of adequate infrastructure.

### 3.3.2 Transportation in the Sub-Region

This section provides an ex-post analysis on transportation-related projects and programmes in Africa, with specific focus on West Africa.

In Africa in general and in the ECOWAS sub-region in particular, rail networks are the least developed. There have hardly been any new additions or reconstruction of railway lines since after the colonial era. According to AICD, generally, the rail roads in the region are poor and rarely used and close to non-existence. The private sector involvement in railroad construction was pronounced in Sitarail, linking Burkina Faso and Ivory Coast, was concessioned in 1995. This is the only rail network with significant cross border flow within the region. Though the rate of reform in this sub-sector picked up in the 2000s, the implementation process has proven to be slow. The 2007 statistics showed that of the 69,000 km of rail lines in Africa only 55,000 km is in operation and the majority of these are in the Southern and Northern parts of the continent (AfDB 2010).

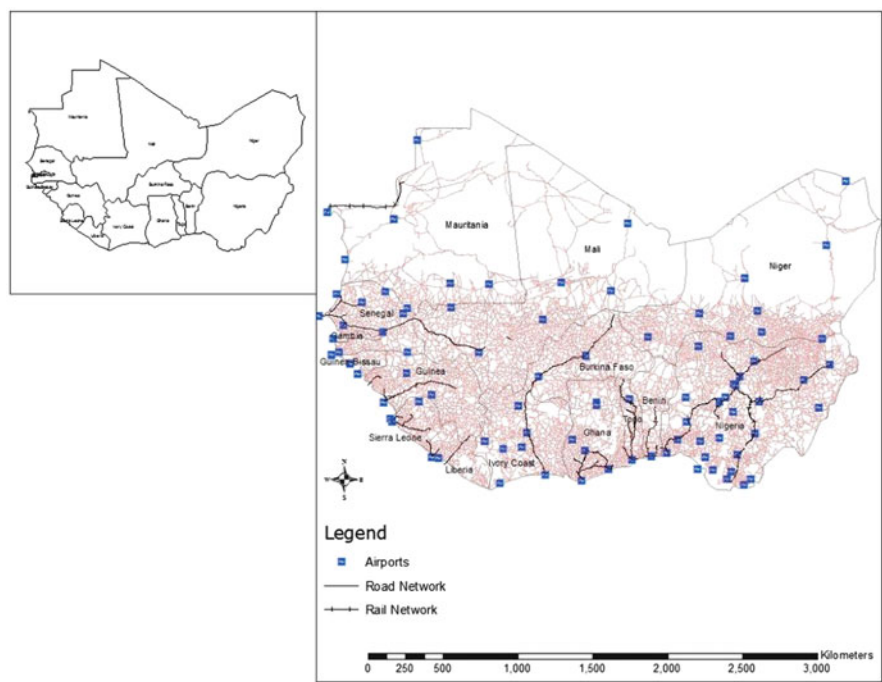
The total road network in sub-Saharan Africa is still comparatively low at about 204 km per 1,000 km<sup>2</sup> of land area, with only about 25 % paved. This is way below the world average of 944 km per 1,000 km<sup>2</sup> of land area (AfDB 2010). Road freight is slow and expensive because of ill-maintained road networks, corruption and unnecessary paper work along the borders (Adekunle 2010). These roads are mostly in good condition and the seven major corridor in ECOWAS are almost entirely paved, though some are in poor condition. The regional corridors exclude Gambia, Sierra Leone, Liberia, Guinea Bissau and Guinea – these countries are totally neglected, and even in Nigeria there is no corridor passing through the country to Niger (as seen in AICD map – see Appendix). The present state of major corridors



**Table 2** Corridors in the ECOWAS sub-region and their current state

Corridors	Good (%)	Fair (%)	Poor (%)	Paved (%)
Abidjan-Lagos	51	28	21	99
Tema-Ouagadougou-Bamako	67	31	2	100
Dakar-Bamako	48	20	32	100
Abidjan-Ouagadougou	33	23	44	100
Lome-Niamey	50	30	20	100
Cotonou-Niamey	50	8	42	99

Source: AICD 2010



**Fig. 6** Rail, roads and airports networks in ECOWAS

is presented in Table 2 and a map on the present rail, road, and airports in ECOWAS is presented in Figure 6.

With the majority of the ECOWAS countries lying along the coast, making use of the sea as a major transport route will be expected. However, there are a lot of challenges associated with the ports within the sub-region with regards to capacity, delays and bureaucracy. Ports are not of the best standards and lack the required capacity to deal with containers and goods processing. Though the ECOWAS sub-region has 25 significant ports, they are relatively small in size. The use of container transport, though in its early stage is growing with an average annual

growth rate of 13.8 % in West Africa. The number of container trade handled by ports in the region increased by over 364 % between 1995 and 2005, whilst that of general cargo increased by 5.1 % during the same period (Mundy and Penfold 2008). However, the region contributes very little to total global trade.

There is little private investment in ports and with the increasing need for transshipment, it is important that this area be given the necessary attention. Within Africa, there are currently four regional hubs, two in East Africa, one in Southern Africa and one in West Africa (AfDB 2010). However, due to the civil war, Abidjan which used to play the role of the sub-regional hub has suffered some set-backs. The company Maersk currently makes use of ports in Spain and Morocco as hubs for West Africa trade. The Tema harbor in Ghana, which is one of the region's major ports, lacks the capacity to handle large numbers of containers and is currently under pressure to handle general cargo. Analysis has shown that the location of many ports within ECOWAS contributes to the lack of sufficient capacity. The location of the Apapa port in a major urban area is one such example.

Airport connectivity remains a major challenge in the sub-region. Since the collapse of the major Air Afrique Airline in 2004 and the collapse of other significant airlines within the region, coupled with stringent regulatory restrictions, inter-connections with the region have been difficult and often expensive. The air traffic within the region is mostly between Lagos and Accra (two Anglophone cities in the region), with Nigeria offering the most number of connections within the continent and the world. The major gateways to the continent, and the world in general, are however located in the Eastern and Southern parts of Africa, namely, Addis Ababa, Johannesburg and Nairobi. It is however believed that in the West, Nigeria has the potential to become its gateway but this is yet to be realized. The ECOWAS sub-region is yet to have a central air transport hub and smaller jets that can ply the West African route, linking countries to the hub.

ECOWAS countries are better in terms of accessibility to power as compared with other Sub-Saharan countries but the supply is still epileptic and expensive. There is relatively good access to signal and cables, though the services are still expensive (especially for internet access) but it's getting cheaper as a result of competition in the market. For example, there are presently more than 40 telecommunication companies in Nigeria, including MTN, Globacom and Zain (now Bharti Airtel). The fiber optic is working in the region but it is still cheaper to call US than to call some countries within the West African region, but the region is better in terms of roaming than other regions in the continent. Some of the countries in the region, namely Sierra Leone, Liberia and Guinea which had been plagued by internal conflicts are still highly dependent on satellite for communication and are yet to fully tap into the benefits of the fiber optic cable. The 2008 ICT development index (IDI) showed that of the top five countries in the African region, only one was from the West African region. These countries however still lag behind, ranking 66th–109th on a global scale. With financial assistance from the AfDB, a feasibility study for a Technology Park in Cape Verde to improve the ICT infrastructure is underway. The level of ICT concentration in the region is presented in Figures 7, 8, 9 and 10 based on 2003 data. Although some countries have gone through changes

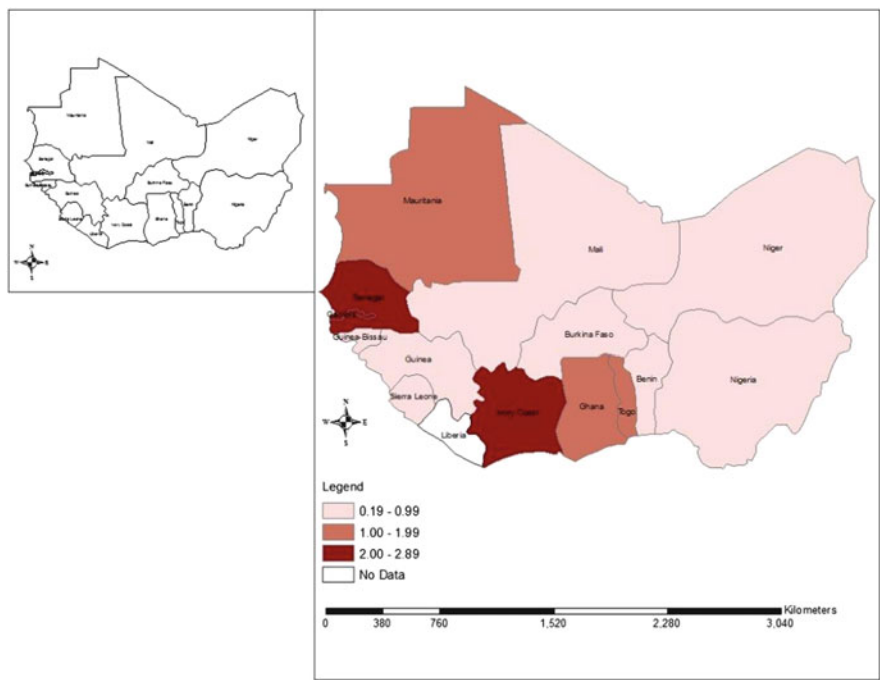
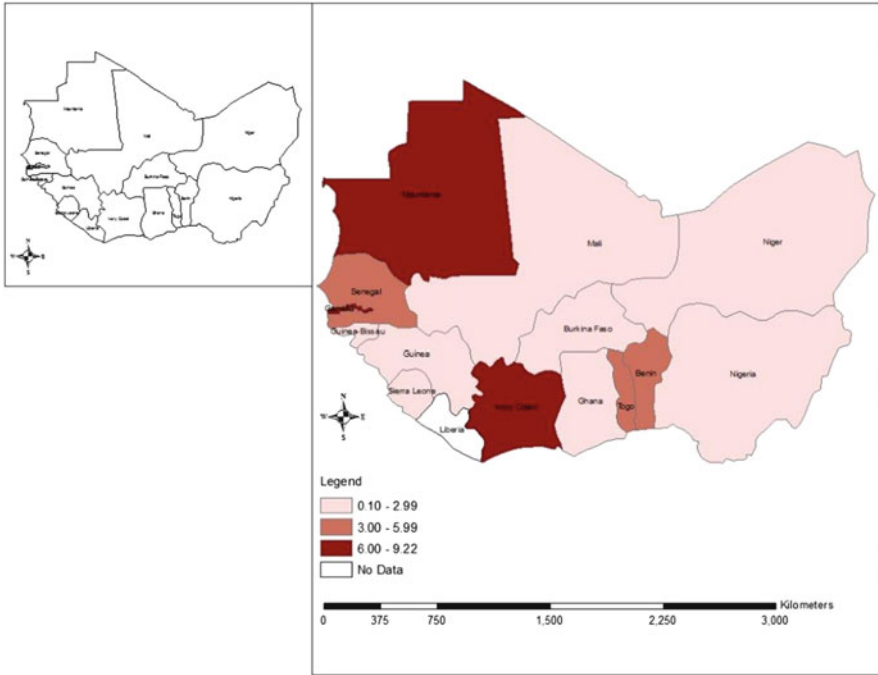


Fig. 7 Main telephone line (landlines) per 100 inhabitants

since that time, the changes are however not that different from what is shown in the maps. In fact, the accessibility to landlines has declined because of better access to mobile phones and inefficiency of the landline providers. A good example is Nigeria Telecommunication Limited (NITEL) that has not really lived up to expectations, leading to huge decline in customers subscription rates.

The ECOWAS, through funding from international donors has commissioned the construction of a 25 km Dakar toll road. This project once completed is expected to foster regional integration through an improvement of the Dakar Port. There are many other infrastructure projects being developed in Dakar to create a regional hub that is expected not only to enhance local economic activities, but also strengthen intra and inter-regional trade through the facilitation of the movement of goods and services. Efforts are also underway to reconstruct the Fulfuso-Sawla Road in Ghana that will form the major gateway from Tamale to the Upper West Region and Southern Burkina Faso. This is another project within the region that is expected to foster regional integration (AfDB Website).

The Trans-Gambia River Crossing project is also in the pipeline among the projects to be undertaken in the ECOWAS sub-region. This project will facilitate the flow of traffic between The Gambia and Senegal and also between member states of ECOWAS, through the international transport corridor between Dakar and Lagos. This is in line with the objectives of NEPAD in the area of transport that seeks to enhance regional co-operation through physical interconnections and is



**Fig. 8** Cellular subscribers per 100 inhabitants

envisaged to promote economic trade within the region. This bridge is also part of the Dakar-Gambia-Bissau-Conakry-Trans-West African Highway that is part of the ECOWAS program and is expected to close a major gap on the Coastal Trans-African Highway Cairo-Tanger-Dakar-Gambia-Bissau-Conakry-Lagos. This however remains a challenge as some of the countries within the Trans-West African Highway face national infrastructure challenges that will first need to be addressed. There is a new section of road network needed in Guinea connecting to the Boke border and one also in Liberia that will provide a link to the Ivorian border. In the case of Sierra Leone, the reconstruction of certain road networks need to be undertaken and a new road is essential in linking to the Liberian border. These are all hurdles that need to be sorted before this highway project can be fully realized. The Sierra Leone government has recently embarked on major infrastructure projects mainly in roads and this is a step that though will result in delays, will contribute to the progress of linking the region through a Trans Highway.

### 3.3.3 Efforts Towards Transportation Development, Coordination and Integration

As a means of mitigating the high risks and transaction costs involved in infrastructure ventures, the ECOWAS is establishing bilateral or multi-lateral special purpose

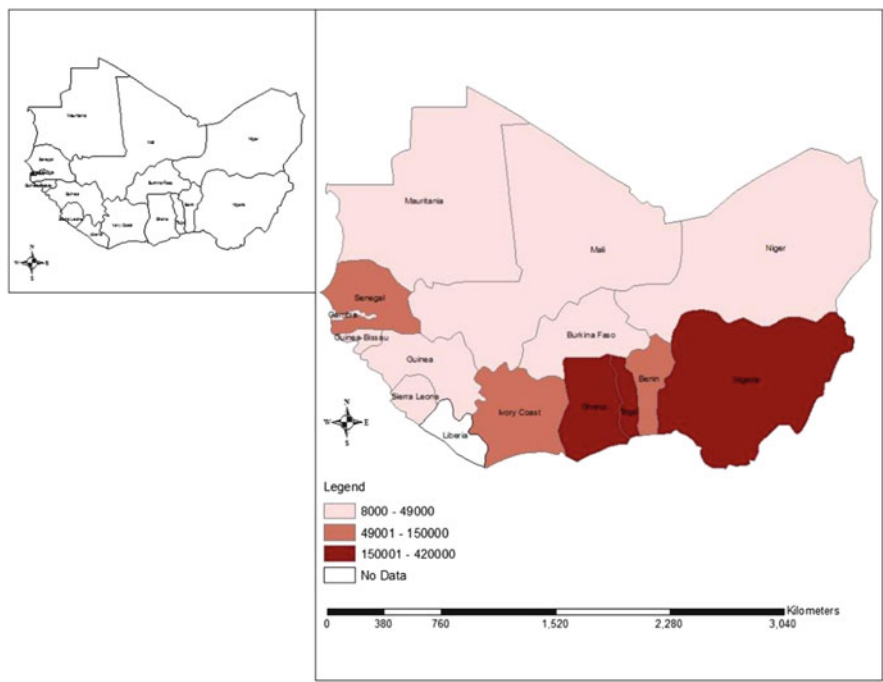


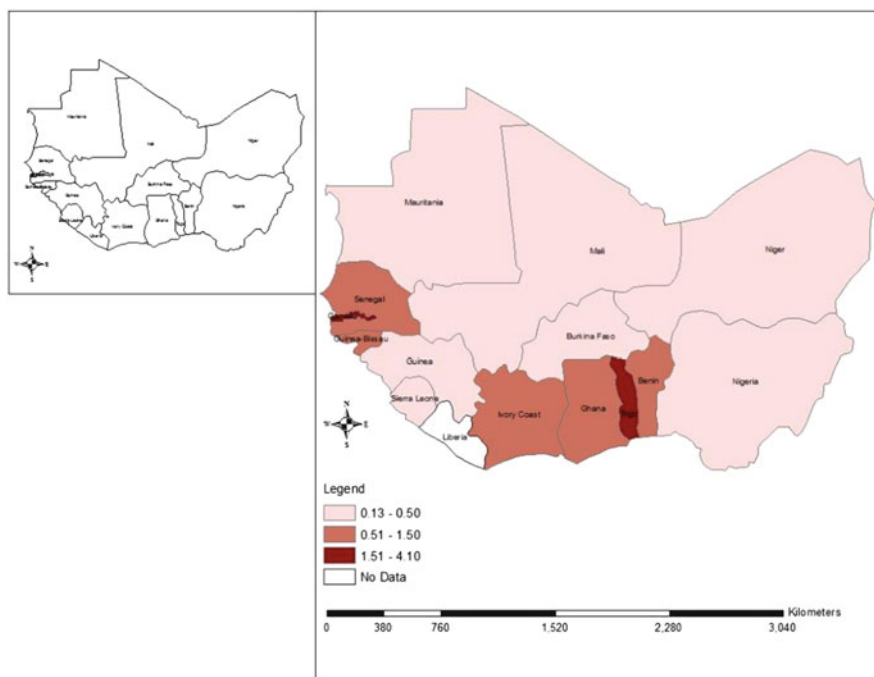
Fig. 9 Internet subscribers in ECOWAS

vehicles (SPVs), which would identify, prepare, and manage regional infrastructure projects and negotiate with private investors.

The ECOWAS sub-region works closely with the EU-Africa Partnership on Infrastructure as the project implementation body for projects designed for West Africa. This partnership aims among other things at improving economic growth, trade, regional integration and interconnectivity. The ECOWAS complements its efforts at improving physical infrastructure with that of the harmonization of legislation, regulations, and technical standards and have strategic regional bodies in place to help in facilitating trading activities.

Other organizations within the region have demonstrated their concern on the need to upgrade infrastructure within the continent. The African Development Bank in a bid to assist in the process of promoting regional infrastructure connectivity is working with several other continental initiatives. These include, the NEPAD Short-Term Action Plan (STAP), the NEPAD Medium-to-Long-Term Strategic Framework (MLTSF), the AU Infrastructure Master Plan Initiative and the Program for Infrastructure Development in Africa (PIDA).

The recently launched regional project by the International Telecommunication Union (ITU) and the European Union (EU) to facilitate the establishment of an integrated ICT market in West Africa is a commendable achievement by the regional body. The aim of ECOWAS in this regard is to adopt uniform legislative



**Fig. 10** Internet users per 100 inhabitants

and regulatory frameworks, have an interconnection and integration of national networks so as to have a single liberalized telecommunications market in the sub-region.

Furthermore, ECOWAS commission needs a strategic plan with appropriate policy formulation tactics and implementation assessed by monitoring and evaluation by experts rather than politicians and their loyalist. We want to see an ECOWAS with borders that aid regional trade and movement of labour – ‘borderless West Africa’. It is also extremely important to have a light rail – regional light rail – that will link all the countries especially the ones on the coast. Harmonization of decision making and centralized decision making through ECOWAS commission will make project implementation across countries easier. We also hope that in a few years time we will have the equivalent of inter-state roads (US) or 400 series (Canada) in ECOWAS. The ECOWAS version can be named ECOWAS Interstate Highway (EIH) with jointly managed toll-gates – e.g. well linked road from Canada-US-Mexico (NAFTA). This is different from ECOWAS Interstate Road Transit Scheme (ISRT). The ISRT allows the movement of goods by road with customs approval in a member state that allows passage through other member states without duty, taxes and other restrictions while in transit. Trade will move in leaps if this infrastructural development is backed with mobile roam-able region and uninterrupted internet supply.

Finally, all this will happen if there is adequate data for making informed decisions and advising the policy makers. Thus, there is need for adequate collection of data on infrastructural variables within the ECOWAS commission.

## **4 Conclusions and Policy Recommendations**

### ***4.1 Introduction***

This study has analyzed the pertinent issues relating to infrastructure development, trade and regional integration in West Africa. Within the period under study (1993–2008), the volume of trade in the sub-region rose from approximately US \$4 billion to about US\$20 billion, representing a 400 % increase in 15 years, which is partly an indication of desirable and workable macroeconomic policies. More specifically, 55–90 % of ECOWAS exports take place within the SSA, with Nigeria and Cote d'Ivoire recording the largest volume of about 23.2 % and 28.8 % respectively. However, on the other hand, ECOWAS member states significantly import from outside SSA. Thus, there is a dire need for a balance of trade flow within the sub-region through a policy directed towards capacity strengthening, information dissemination and expansion of infrastructural facilities.

With respect to transportation-related projects and programmes in West Africa, rail network is the least developed. In fact, the pace of rail policy reforms was accelerated in the 2000s, the implementation process has proven to be slow partly due to inadequate technical capacity in the sub-region. On the other hand, major roads are mostly in good conditions and the seven major corridors in ECOWAS are almost entirely paved, though some are in poor conditions (Adekunle 2010). It is important to note that within about three decades of existence of ECOWAS, major countries like Gambia, Sierra Leone, Liberia, Guinea Bissau and Guinea do not have regional corridors of trade. Thus, there is a need to urgently implement policies which will be targeted at the maintenance and expansion of ECOWAS corridors of trade.

Though majority of ECOWAS member states are located along the coastlines, and also have 25 large sea-ports (by African standards), they hardly utilize the sea as a major transport route. This is partly due to the lack of required capacity to process goods and manage containers. This is evident in the fact that ECOWAS as a regional bloc contributes very little to total African and global container traffic (about 1 % in terms of number of container trade handled; and about 2 % with respect to general cargo). Thus, the regional government needs to initiate policies and programmes which are targeted at developing the sea-port sub-sector of the infrastructure industry.

The airline sub-sector suffered a drastic setback since the collapse of the major Air Afrique Airline in 2004. Though Nigeria has the potential to serve as the airline hub for the sub-region, it is yet to realize this partly due to lack of willpower. Sub-regional coordinated policies should therefore be pursued in order to have a central air transport hub, in which smaller jets can ply the West African routes, and also linking various cities to the central hub.

Though ECOWAS countries are partly connected to electricity when compared to their counterparts in SSA, the supply is still largely epileptic and expensive. With respect to telecommunications, West African countries lag behind, ranking between 66th and 109th on a global scale. Thus, West Africa still needs to implement policies and programmes which will be targeted at providing affordable power supply, telecommunication services, internet access and other ICT facilities.

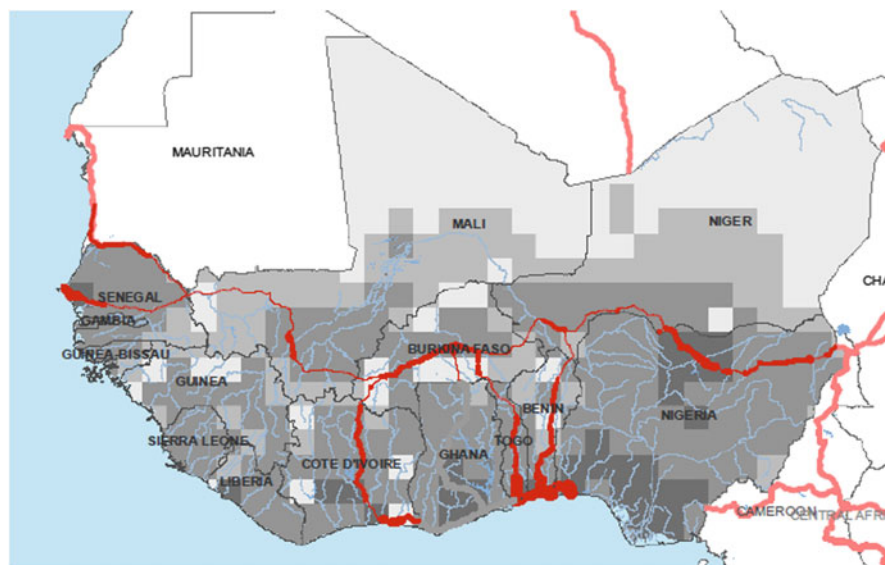
In summary, the qualitative and ex-post analysis indicate that West Africa has witnessed some developments but there is still a lack of institutional framework that creates incentives for infrastructural development in the region (Odularu 2006a, 2009, 2011a).

#### ***4.2 Policy Recipe for Fostering Regional Integration Through Infrastructure Development and Coordination in West Africa***

- Regional infrastructure development policies should be strategically mainstreamed into West Africa's regional integration plans so that infrastructure policies respond and adapt to the needs of regional integration policies and not the other way round. Further, regional integration and transportation policies should be systematically harmonised at national and regional levels.
- West African governments should ensure that infrastructure and investment policy frameworks effectively promote the regional integration efforts. This could be achieved by (i) providing monetary and fiscal incentives for transportation development initiatives that promote regional integration; (ii) strengthening relevant institutions for transportation development.
- Infrastructure development policies should provide opportunities and alternatives to West African businesses and also promote the use of relevant institutions and tools (e.g. risk management instruments, ICT-based market information systems, et cetera.) that foster regional integration.
- There is a dire need for regular policy dialogues among all actors/stakeholders to facilitate building up consensus level on bottlenecks to more coherent infrastructure and regional integration policies without overlooking the political economy of regional integration.
- Joint venture initiatives between public and private sector, such as public-private partnerships (PPP), should be supported in order to leverage infrastructure and regional integration programmes for regional development.
- Funding for infrastructure initiatives should be made contingent upon evidence of the participation of all relevant stakeholders (private sector, non-state actors, et cetera) in the design of CAADP compacts and investment plans.
- The successful promotion and sustainable development of the sector in West Africa require strong policy and institutional support.



## Appendix: Major Corridors in ECOWAS



A map showing the major corridors in ECOWAS (Source AICD 2010)

**Acknowledgements** We thank ECOWAS-EPAU for providing the funding for this study. We also appreciate the contributions of Glen Filson, Carlyle Farrell, Caiphaz Chekwoti, Diery Seck, Ciliaka Gitau, and Gift Dumedah.

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Regional Economic Integration in West Africa

Seck, D. (Ed.)

2014, XII, 267 p. 33 illus., 26 illus. in color., Hardcover

ISBN: 978-3-319-01281-0