Implications of Africa's Transportation Systems for Development in the Era of Globalization

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Abstract

The paper identifies and discusses major implications of Africa's contemporary transport infrastructure for the continent's development in general and its active participation in the globalization process in particular. Initially it identifies and analyses major events in the evolution of the continent's modern transport systems. It is revealed that colonial authorities did the most to develop these systems. However, because the systems were designed to facilitate the extraction and transmission of products from the continent to the colonial master nations, they are deemed incapable of enhancing the active participation of African countries in the globalization process. In an effort to reverse this situation, a number of specific steps, including increasing the stock of all-season roads,, regional integration, the promotion of intermodal transport facilities, and the adoption of safety measures in the transport sector, are proposed.

Introduction

Although the relationship between transportation and economic development has always been contentious, colonial authorities in Africa believed that investments in transport infrastructure positively influenced economic development. This explains the preoccupation of these authorities with road- and railway-building projects throughout the continent. Colonial authorities were informed by regional and industrial development theories, which assigned a critical role to transport costs. At the time, transport costs were viewed as a leading factor explaining the location of economic activities (Pedersen, 2001). This view prevailed for about a decade during the post-colonial era. However, from the early-1970s to the mid-1980s, following the revelation by a number of empirical studies that this relationship may in fact be negative or inverse, transportation lost its appeal as a critical determinant of economic and regional development (Pedersen, 2001; Hilling, 1996).

Since the mid-1980s, particularly subsequent to the revelation that, investments in public infrastructure contributed to economic development in industrialized countries (see e.g., Aschaeur, 1989, 1990; Costa, Ellson, & Martin, 1987; Duffy-Deno & Eberts, 1991; Eberts, 1990), the importance of transportation to development has once more been recognized (Pedersen, 2001; Njoh, 2000; Turner and Kwakye, 1996). This suggests that a region's ability to succeed in the contemporary global economy depends largely on the effectiveness and efficiency of its transport system.

With Africa as empirical referent, we marshal evidence in this paper to bolster the foregoing assertion. Particularly, we show that Africa's marginalized position within the global economic system is due largely to the fact that the continent lacks the quality and

quantity of transport infrastructure necessary to connect it to the global arteries of commerce and industry. Paradoxically, these arteries are often accorded no more than passing attention in discussions on globalization. Janelle and Beuthe (1997:199) draw attention to this oversight when they characterize transportation as "possibly the least researched element in the complex of factors that foster a changing world economy."

The paper is organized as follows. Following this introductory passage, we review the evolution of Africa's transportation system, with emphasis on the role of European colonialism in developing and under-developing the system. Next, we examine the present state of the transportation network, with particular attention to post-colonial developments. Then, we discuss the implication of this network for the continent's prospects in contemporary and future globalization processes. We end the paper with a set of recommendations and some concluding remarks.

Africa's Transportation System: Historical Perspectives

By the time the first European explorers arrived Africa in the 1400s, Africans had domesticated some animals to help address the growing need of moving people, goods and services over land. At the same time, a number of innovations, such as the construction of rafts and canoes capable of providing water-based transportation services, had been made. Thus, the transport infrastructure in Africa at the time consisted largely, but not exclusively, of tracks for pedestrian and animal traffic, and natural navigable waterways. Some evidence suggests that a number of the ancient empires and city-states of the region had developed a system of well-aligned roads and streets, as opposed to meandering footpaths. For instance, one of the entries in a Dutch explorer's diary in 1602 made the following notation with respect to the ancient City of Benin (Njoh, 1999: 45, citing Tordoff, 1984).

> The town seemeth to be great; when you enter into it you go into the great broad street, not paved, which seems to be seven or eight times broader than Warmoes Street in Amsterdam; which goeth right out and never crooks . . .; it is thought that that street is a mile long [about four English miles]. . . . When you are in the great street aforesaid, you see many great streets on the sides thereof, which also go right forth.

The ancient Ashanti Empire is said to have constructed an extensive series of roads that converged on the capital, Kumasi (Herbst, 2000). Griffiths (1995: 182) provides further evidence of the existence of a relatively extensive network of roads and water-based transport systems pre-dating the arrival of Europeans in Africa in the following statement.

> To reach Timbuctoo Gordon Laing followed well-established Caravan Routes across the desert from Tripoli. René Caille obtained passage on a boat, one of many sailing regularly up and down navigable inland Niger to Timbuctoo. Caille returned to Europe via the very old Caravan route through Morocco.

This extensive series of roads, footpaths and waterways later served to facilitate the transportation of slaves during the infamous trans-Atlantic slave trade era.

The emphasis on road construction—albeit on a small scale and using very rudimentary tools commensurate with that era—that took place before any significant number of Europeans had arrived Africa, was abruptly terminated during the colonial era.

The colonial authorities were interested in penetrating the hinterland primarily to extract and transport raw materials to the seaports for onward transmission to the colonial master nations. Rail transportation presented itself as the optimal means of accomplishing this objective as well as that of militarily defending the colonial territory. For one thing, the cost of developing rail transportation facilities was far less than that associated with developing those for road transportation. For another thing, it was easier and cheaper to freight heavy and/or bulky goods by rail than by road.

A significant portion of investments in transportation during the colonial era also went to the development of seaports. Seaports were extremely important in efforts to evacuate resources from the colonial territories and export them to the colonial master nations. This explains the fact that seaports constitute the terminuses for all the railways that were constructed during this period. Colonial efforts to develop railways and other transportation infrastructure made hardly any attempt to link the colonies. Rather, conscious efforts were made to discourage interaction amongst the colonies. This was particularly true when two colonial territories were under the colonial auspices of different colonial powers. It is noteworthy that the heydays of European colonialism in Africa coincided with a period when there was extreme rivalry, and sometimes, severe animosity amongst European countries. Recall that the two World Wars occurred during this era (circa, 1884-1860).

That the colonial authorities assigned a lot more weight to cost-saving than to regional integration is further proof that they were more interested in exploiting, and not in developing, the colonial territories. There are two known cases of a rare attempt to link territories under different European colonial powers. Both involved German colonial authorities. One case has to do with the German decision in 1916 to link the Tanga rail line in German East Africa (Tanganyika, now Tanzania) to the Mombassa rail line in British-controlled Kenya. The other involves the decision that was made to extend the railway from the Cape (South Africa) into German South-West Africa (Namibia). However, it is important to note that these projects were propelled by military strategic reasons, and not by reasons related to the socio-economic development of the colonies. In this case, the Germans were interested in averting the impending danger of being pushed out of the region, by especially South African forces under the command of General Smutts.

The construction of the Kenya – Uganda railway, which was started in 1896 and reached Lake Victoria in 1902, cannot be considered an effort to establish a veritable interregional linkage because Uganda and Kenya were colonies of one European power, namely England. Apart from facilitating the evacuation of natural products from landlocked Tanzania to the coast in Kenya, this railway also made it possible for the English to protect their colonial possessions from their rivals, the Germans, who controlled neigbouring Tanganyika (Tanzania).

The French controlled most of the colonial territories of West Africa under the rubric of what was at the time known as French West Africa. This explains the fact that railway lines link Senegal and Mali; and Côte d'Ivoire and Burkina Faso (formerly, Upper Volta). The important role played by these rail lines to link the hinterland territories to the coast cannot be exaggerated.

On their part, the Germans constructed two rail lines, one from the agriculture-rich Mount Kilimanjaro to the Port of Tanga, and the other from Dar-es-Salaam to

Kigoma on Lake Tanganyika. These railway projects had an important military purpose, namely to facilitate the rapid movement of troops to defend the borders of Tanganyika had the English ever decided to attack from neighbouring Kenya or Uganda. The efforts by the British to build a railway from Kisumu (Port Florence) on Lake Victoria to Uganda were driven by military concerns as well (Njoh, 1999).

Thus, in colonial Africa, the railway was not only an "instrument of occupation" (Mabogunje, 1981), but also a tool of exploitation and military defense. The need to exploit the vast hinterland regions of Nigeria led the British colonial authorities to embark on the construction of one of the most elaborate railway systems in Africa a decade following the Berlin Conference (1884/5), which sanctioned the partition of the continent. The project, which began in Lagos in 1895, reached Ibadan in 1900, was extended to Illorin in 1908 and reached Kano in the northern part of the country in 1912. An eastbound link was added from Port Harcourt in 1913. This link was extended into the coalfields of Enugu in the eastern region in 1916, and in 1926, the link was connected to the western line at Kaduna. In 1929, the final link from Zaria through the cotton-producing areas of Kaura Namoda was completed.

In Nigeria's neighbour to the East, Cameroon, the Germans also embarked on an ambitious railway construction project that was designed to ultimately link what at the time was known as German Kamerun with German East Africa (Tanganyika). The railway line, known as the Nordbahn, started off at the Port City of Douala in 1906. The main aim was to link the hinterland to the Douala seaport. Accordingly, the Germans proceeded to extend the line inward, reaching Nkongsamba in 1911 and by the outbreak of World War I, the line had reached Windenmeng, a few kilometers from the capital city, Yaoundé.

Following the outcome of WW I, the League of Nations conferred the status of trust territory on Cameroon and placed 80 per cent under the administrative tutelage of France and 20 per cent under British control. The section with the railway project initiated by the Germans fell under the jurisdiction of the French. This latter also favoured the development of railways as opposed to roads, and decided to adopt the railway project blueprint—with the exception of the portion that was supposed to link Kamerun to Tanganyinka— inherited from their German predecessors. Eventually, they extended the rail line south into Mbalmayo, then into Yaoundé and finally to Ngaoundéré.

As stated above, colonial authorities paid little or no attention to road building. For instance, as Hailey (1938, cited in Herbst, 2000: 87) notes in the case of French West Africa, there were hardly any roads outside a few urban areas in the region in 1914. Why were colonial authorities so uninterested in road building? We have already hinted at the fact that European colonial powers were interested in minimizing the cost of, and maximizing profits from, colonization. Thus, they invested almost exclusively in transportation infrastructure such as railways, which guaranteed them the highest returns on their investments. With respect to road projects, the need to minimize cost led them to build only those roads and streets that were absolutely necessary for colonial governance. In this connection, they "essentially built the minimum number of roads necessary to rule given the Berlin rules," which recognized rule over the capital of any given colony as constituting effective control over that colony (Herbst, 2000: 167). In addition, the colonial authorities developed a few roads that were necessary to broadcast authority and

especially to permit the movement of colonial administrators in a bid to bring the colonial state to the people. Colonial powers had been quick to recognize the importance of their physical presence throughout the colonies as a critical element of control. This is essentially why tours involving colonial government officials became a common practice amongst the colonial powers. The tours, which were seen as an essential component of ruling, were necessary to "learn what was happening" in the territory (Herbst, 2000: 87). These authorities were also quick to recognize that the objective of "learning what was happening" could not be accomplished without roads. Accordingly, they proceeded to build a few roads linking some hinterland areas to the colonial government centres. Table 1 shows the extent of the road-building effort in each of the territories of colonial Africa for the years, 1935, 1950 and 1963.

(INSERT TABLE 1 ABOUT HERE)

In the area of air transportation, only very few airports were developed in Africa during the colonial era. These airports were designed to link the colonies to the colonial master nations. Thus, little if any efforts were made to link African cities by air. It is therefore hardly any wonder that, it is easier to travel by air from say, Douala in Cameroon to Paris, France and from Malabo, Equatorial Guinea to Madrid, Spain, than from Douala to Malabo even though on a clear day, Malabo can be seen with the naked eye from Douala.

Africa's Transportation System: Contemporary Perspectives

The transport systems of Africa vary significantly in coverage and efficiency by country and by regions within the various countries. For instance, while Chad has only 60 km of paved roads per million people, Tunisia, Algeria, Namibia and Botswana boast over 2000 km for the same population (UNECA, On-Line A). Regionally, sub-Saharan Africa (including South Africa) has a population-to-road ratio of less than 500 km, while the corresponding statistic for North Africa is more than 1000 km (Ibid).

Most of the transport infrastructure in the sub-Saharan African region dates back to the colonial era. This is because national governments in the region have made very little, if any effort, to augment the transport inventory they inherited from their colonial precedessors. Consequently, interregional linkages remain non-existent. Thus, travel from one country to another on the continent remains problematic at best. With a few exceptions, such as the Dar es Salaam to Zambia TAZARA railway, the Maputo to Zimbabwe pipeline and the copper belt to Durban rail artery (Veseley, 2001), nothing has been done to increase the inventory of roads inherited from the colonial governments. Table 2 compares the road density—that is, kilometers of road divided by squared kilometers of land—statistics for 1963 and 1997 for the countries in sub-Saharan Africa that had independence in the early-1960s. Note that most of the countries added very little to the road stock inherited from the colonial era. Paradoxically, at least three countries, Burkina Faso, Ethiopia and Mozambique, recorded a negative change in their road inventory between 1963 and 1997. This suggests that although road construction is an additive process, some of the roads that existed in these countries in 1963 had in fact disappeared by 1997.

A perusal of Table 2 reveals an interesting relationship between the current road stock in these countries and the road inventory when they became independent in the 1960s. As Jeffrey Herbst's (2000: 164) analysis demonstrates, "the road stock at independence is a relatively good predictor of road stock in 1997." Thus, the countries

that were badly off at independence also tend to be those that are badly off today, more than three decades after independence. At least three factors account for this phenomenon. The first is the continent's relatively poor economic and political performance (Herbst, 2000). This is especially true of the sub-Saharan region. The second has to do with difficult geographical conditions. A good number of the countries with a poor road building record have 'problematic geographies.' As Table 2 shows, only two countries, Nigeria and Tanzania, with geographies that are considered problematic (e.g., large size, too many mountains, rivers and valleys), registered an increase in road stock superior to the median of 69 percent between 1963 and 1997.

(INSERT TABLE 2 ABOUT HERE)

The others, including Angola, the Democratic Republic of Congo, Ethiopia, Mozambique, Senegal, Somalia and Sudan, registered an increase at or below the median. The last, but by no means the least factor accounting for the poor road building record of African countries has to do with administrative ineptitude. In this regard, the indigenous leaders lack have woefully failed to logically and meaningfully prioritize the socio-economic needs, and/or judiciously utilize the scarce resources of their countries. Rather, more often than not, more grandiose projects such as the construction of aerodromes designed to 'showcase' their fledgling polities and impress the international community are given priority over basic development projects such as road building. The case of Cameroon, with an airline company that is almost always in financial and other troubles and providing hardly any domestic air travel services, boasts three aerodromes (Garoua, Yaounde and Douala), each capable of accommodating some of the largest aircrafts in the world. This is despite the fact that most areas in the country remain disconnected from the rest of the country because of the absence of access roads. In addition, a large number of other areas are linked to the rest of the country by seasonal roads that are impassable most of the year.

Africa's inventory of roads, the continent's dominant mode of transportation, is estimated at 6.84 kilometres per 100 square kilometers, compared to Latin America's 12 km/100 sq. km, and Asia's 18 km/100 sq. km (UNECA, On-Line B). Traveling from one African country to another sometimes entail transiting through a European city. Thus, at some point, the cost of a flight from New York to Amsterdam was estimated at $164 compared to the airfare of $395 from Abuja in Nigeria to Bamako, Mali (Ibid). Apart from the problem of inadequate and ill-maintained transport infrastructure, the continent is saddled with institutional hurdles, including but not limited to, costly, antiquated and cumbersome administrative and custom procedures, corrupt officials and staff, and a litany of other deficiencies.

The diversion of scarce resources from transportation infrastructure and facilities to showcase projects such as the construction of aerodromes is rendered more senseless by the fact that hardly any country in, especially the sub-Saharan Africa, with the exception of South Africa and Kenya, currently has a solvent airline. Thus, presently, air service into sub-Saharan African countries is provided by foreign, mostly European-based airlines, which fly exclusively into the political or commercial capitals of these countries. Additionally, it is worth noting that internal commercial air services in these countries are almost non-existent. Therefore, one cannot but ponder why any of the countries needs more than one (international) airport.

The railway, a relatively inexpensive means of transportation, has also been neglected. The few tracks that were inherited from the colonial governments have only

been barely maintained and in some cases left in a state of disrepair. As in the case of road building, very little, if any extensions have been made to the colonial rail lines. Thus, as was the case during the colonial era, African countries continue to be isolated from each other.

More noteworthy for the purpose of the present discussion is the fact the internal transportation systems of these countries are marred by a plethora of problems. According to Veseley (2001), these problems, which are an upshot of "mismanagement, lawlessness and the nepotism based allocation of licenses," have made travel in the region synonymous with playing Russian roulette. This is particularly because, the lot of the region's traveling public "has degenerated to risking life and limb whenever vital work related or personal travel is undertaken." The following specific examples serve to illustrate Veseley's (2001) albeit, melodramatic assertion. In Angola, travel is rendered hazardous thanks to landmines, occasional ambushes, and structurally and mechanically unsound equipment (e.g., aircrafts, trains, railways)—a legacy of the country's 30-year civil war. Kenya, once boasted the best railway service in East Africa, providing safe access to countries such as Uganda, Rwanda, Burundi and Congo. Today, after years of neglect and mismanagement, the railway system is suffering from severe physical and functional obsolescence. In 1993, a train on this railway system plunged into a flooded river causing the loss of 114 lives. Six years later in 1999, faulty brakes on a locomotive resulted in the death of 32 passengers. A year after that in 2000, another case of brake malfunctioning caused the loss of 13 lives, and one week later 25 people were burnt to death when a train hit a number of stationary wagons that had been abandoned on the railway tracks. Kenya's roadways are equally hazardous, thanks to the recklessness of the operators of 'matutu,' the local collective passenger vehicles. In April 2001, more than a hundred people lost their lives when two passenger buses crashed on the Sabaki River on the Kenyan coast. To this end, one would think that the more stringently regulated air service, which serves the extremely small economically well-to-do segment of the region's population, is safe. It is not. In January 2000, a Kenya Airways A 310 airbus crashed into the Atlantic Ocean off the Coast of Abidjan, killing 170 people. These horrific transport-related stories are not unique to Kenya. Rather, they are commonplace throughout sub-Saharan Africa.

Transportation and Development: Theoretical Perspectives

As noted above, post-colonial authorities in Africa have not accorded transportation the attention it deserves. Yet, it is difficult to overstate the advantages of transportation facilities, especially roads, as a tool of economic development. To gain an adequate appreciation of the manner in which transportation can facilitate the active participation of a country or a region in the globalization process, it is necessary to understand the link between transportation and development.

The debate surrounding the relationship between transportation and development remains fierce and contentious. However, it is important to note that, with the exception of the period from the 1960s to the early-1970s, most, including researchers and policymakers have, with or without empirical evidence, assumed that this relationship is positive, thereby accentuating the importance of transportation to development. However, in the 1960s, as Pedersen (2001) notes, a number of studies began unearthing evidence suggesting that the relationship may not be positive and that transportation plays

a less critical role in development process than initially believed. Such findings must be understood in light of the increasing trend towards outsourcing or the dispersal by large multinational/multilocation enterprises of different production functions to regions and/or countries with the lowest costs for labour and other production inputs (Pedersen, 2001; Massey and Meegan, 1979). In instances where outsourcing, relocation or dispersal was rendered impossible, the costs associated with transportation were so small as to be inconsequential. This explains, in essence the fact that transportation was virtually ignored in studies of economic and regional development during the 1960s and early-1970s.

However, there is every reason to believe that studies devaluing the importance of transportation in the development process are in error. A number of empirical studies, albeit focusing on one developed country at a time, have demonstrated that transportation is not only an important production input, it is also positively associated with development (see e.g., Aschaeur, 1989, 1990; Costa, Ellson, & Martin, 1987; Duffy-Deno & Eberts, 1991; Eberts, 1990). In a rare effort focusing on Africa, Njoh (2000) found that the higher a country's investments in transportation (measured in terms of road density per capita), the higher its GDP/GNP (a proxy for economic growth). This finding is intuitively and theoretically appealing, especially when the transport sector is taken to encompass "all productive activities undertaken to realize the socio-economic function of transportation" (Njoh, 2000: 293). To the extent that foregoing definition is deemed valid, it is logical to attribute to transportation a wide array of activities, including but not limited to the following (Njoh, 2000; USDOT, 1996):

- transportation facility/equipment building/maintenance;
- construction materials/equipment processing and supply;
- transport facilities operation and administration;
- transportation program/service management/administration;
- acquisition and distribution of transport/related services;
- supply of catering/other services to employees of the transport sector.

Seen from this perspective, the transport sector overlaps with almost all other sectors of the economy. Therefore, any improvement in the transport sector invariably contributes toward the functioning of other sectors of the economy and ultimately the national or regional economy. This suggests that as a production input, transportation is increasing and not decreasing, in strength. Similarly, it is misleading to argue that transport costs have fallen to a point that devalues the significance of transportation as a production input. Such an argument can be challenged on at least four grounds (Pedersen 2001: 86). First, while there might have been some reduction in average per unit costs of transport over the years, overall transport costs have not experienced any decrease. One reason for this has to do with the fact that, any decrease in transport costs is offset by costs associated with increases in the amount and length of transport. Perhaps more importantly for the purpose of the present discussion is the fact that while unit costs of transport might have decreased, the size of the transport sector as a percent of GDP has not experienced any decrease, thereby accentuating the economic importance of transport infrastructure and services. Also, it is important not misconstrue reductions in transport costs accruing from improvements in transportation technology as a weakening of the economic role of transport.

Second, not all commodities and consignments have experienced significant reductions in unit costs associated with transportation and communication. Two important, but occasionally ignored variables here are availability of transport infrastructure and density of demand on specific links (Pedersen, 2001). Third, transportation remains a significant input, especially in merchandize production—an area, which has become more efficient, thereby relying on an increasingly decreasing share of the work force. This means, amongst other things, that despite increasing trends in favour of globalization, the local merchandize production environment and production for the local market remain important (Pedersen, 2001, citing Krugman, 1996). Finally, there is a need for what Schmitz (1990) has called collective efficiency. This speaks to the fact that internal and external logistic costs can be substituted. This magnifies the significance of the local and regional production environment, comprising not only private production and service enterprises, but also and perhaps above all, public infrastructure, including transportation and related services.

To better understand this point of view it is necessary to first appreciate the relationship between infrastructure investment and interregional development. Two theoretical perspectives, associated respectively with, the neoclassical economic theory and the cumulative causation theory are informative here (cf., Solow, 1956). According to neoclassical economists, development proceeds as firms and households make more efficient use of labour, capital and natural resources (Aschaeur, 1989). Thus, investments in infrastructure can contribute to regional economic growth in at least two ways (Ibid). In the first instance, the availability of infrastructure is likely to enhance the productivity of human and physical capital. Resulting from this is, amongst other things, lower cost for logistical support and production, and ultimately an increase in the demand for the region's goods and services. The importance of less expensive goods for global competitiveness cannot be overstated. In the second instance, when infrastructure itself is considered a direct factor input, it follows that higher levels of investment will result in higher regional output.

From a cumulative theoretical perspective, regional growth is generally assumed to begin with some initial stimulus. This stimulus may be the existence of a natural resource of some sort. Investment efforts, including those designed to exploit the natural resource then generate high returns, which in turn attract further investment. These high returns and their ability to attract further investment result in economies of scale and agglomeration. Seen from this vantage point, investments in infrastructure are capable of promoting regional and national development. This is because, *ceteris paribus,* such investments provide the genre of public facilities necessary not only for complementing activities in the private sector, but also, and perhaps above all, for eradicating capacity constraints and reducing congestion. In the context of globalization, we contend that these effects can result in, inter alia, attracting both local and international investors.

Globalization Implications of Africa's Transport Systems

Transportation facilities are vital in any effort to reinforce a country's or a region's position within the global economic system. According to Rodney Slater, U.S. Transportation Secretary under President Bill Clinton, not only does transportation have major implications for globalization, it is the reason several emerging economies are not doing well within the international global economic system (Slater, 2000). This,

according to Slater (2000, On-Line) is because many emerging economies "are not connected to the great global arteries of commerce—the roads, the seaports, the railroads and the airports that move the world's resources that sustain growth." To further appreciate the importance of transportation in the contemporary globalization process, it is necessary to understand that the size of the global economy today is fifteen times what it was 40 years ago (Ibid). Credit for this unprecedented expansion goes to three main activities, trade, travel and tourism, all of which depend heavily on transportation. It is important to note that the least economic expansion during said period occurred in Africa. Several reasons, particularly the continent's inadequate transport infrastructure and exorbitant costs of transportation (see above), account for this phenomenon.

As intimated earlier, transport costs constitute an important determinant of the costs of doing business. This is more so in the case of international or global business. Poor transport infrastructure in particular and poor communication facilities in general, tend to isolate countries, thereby inhibiting their ability to participate in global production networks. Despite the global trend towards liberalization, the absence of functional transport systems, high transport costs, and the lack of harmonized rules and procedures (UNECA, On-Line B), promise to effectively limit the participation of African countries in the globalization process. Limão and Venables (2001: 451) make this point more succinctly when they contend that, "As liberalization continues to reduce artificial trade barriers, the effective rate of protection provided by transport costs is now, in many cases, considerably higher than that provided by tariffs" (p. 451). They further contend that, "poor infrastructure accounts for 40 percent of predicted transport costs for coastal countries and up to 60 percent for landlocked countries."

One of the problems plaguing Africa's transport systems is the fact that they are not integrated and are therefore inefficient. Yet, an integrated and efficient system is necessary to not only facilitate national/international traffic and foster trade and factor mobility. The problems highlighted above explain, at least in part, the extremely high costs of African products and their inability to compete in international markets. This problem is amplified in the case of landlocked countries, where costs associated with transportation can be as high as 76.7% of the value of exports (UNECA, On-Line B). "In the West African road corridors linking the ports of Abidjan (Cote d'Ivoire), Accra (Ghana), Cotonou (Benin), Dakar (Senegal), and Lome (Togo) to Burkina Faso, Mali and Niger, truckers paid $322 million in undue costs at police, customs, and gendarmerie checkpoints in 1997 . . ." (Ibid). It is necessary to underscore the importance of road transport in the global economy today. Furthermore,

> although waterways and railways constitute the main transport routes, roads form a connecting link between them and also with the seaports . . . [roads] serve as the ultimate tentacles which, as further pushed forward, create links between farms and markets and provide access to unexplored areas (Herbst, 2000: 84).

The costs associated with transport are equally high. For instance, the costs of freighting by rail are twice as high in Africa as in Asia and one-and-a-half times as high as in Latin America (UNECA, On-Line A). Similarly, the costs of air transportation are four times as high on the continent as they are in the Asia, while the costs of a container passing through African ports can be twice as high as the same container passing through a European port.

The limited inventory of paved roads in African countries—most of which are characterized by challenging geography, particularly torrential rainfall, loose soil, steep hills, and deep valleys—is a significant hurdle to their active and meaningful participation in the global economy. In fact, road conditions are recognized as an important determinant of economic development in these countries (Herbst, 2000). This is because roads are often the only link between the hinterland regions and the urban centers. In some cases, roads constitute the sole link between landlocked countries (e.g., Chad, Burkina Faso, Mali, Niger, Ethiopia, Rwanda, Burundi) and seaports. The absence of all-season roads therefore means a good number of countries in the region and several towns and cities within national boundaries tend to be isolated during the rainy season, which may last for as long as four months in some regions. One of the effects of this phenomenon is to impede the ability of isolated areas to participate in global production networks. Poor roads are also implicated as a leading cause of the near-absence of formal trade between African countries. By some accounts, formal trade between these countries make up less than five per cent of the continent's foreign trade (Pedersen, 2001: 92). This figure decreases significantly once we eliminate transit trade between landlocked countries such as those mentioned above and their export/import harbors. Thus, despite the global trend towards liberalization, the absence of functional transport systems promises to effectively limit the participation of African countries in the globalization process.

The absence of dependable road networks further limits the ability of African countries to participate in international liner shipping. This transport mode was revolutionized in the 1970s by the introduction of containers (Pedersen, 2001; Hoyle & Charlier, 1995). Concomitant with this innovation in the international shipping industry, has been the simplification of the process of transshipment between different modes of transportation. Within this framework, road transportation plays a crucial role as it facilitates multi-modal door-to-door delivery and/or pick-up of international goods and services. However, African countries are unable to maximize the utility of containerization because of the absence of good roads.

Also, tourism, an industry in which many African countries have always been active, invariably suffers when transportation facilities are quantitatively and/or qualitatively inadequate. To strengthen their tourism sector and enhance their active participation in the globalization process, authorities in Africa will need to achieve significant success in what Hall (1999: 181) calls spatially expressed roles, including: i) establishing functional links between their countries and real/potential sources of tourists; ii) facilitating the movement of tourists once they are in the host country; ii) facilitating mobility within and between tourist attractions; and iv) facilitating travel along recreational and scenic routes.

Recommendation and Concluding Remarks

It is clear that the transport problems of African countries severely limit their ability to actively participate in the globalization process. Therefore, any meaningful effort to transform African countries into active, as opposed to, passive participants in this process must perforce, address the continent's transport problems. An important step in this direction will entail broadening the transport sector's scope in both geographic and institutional terms. In this regard, African countries must seek to link their transport

networks. In other words, policymakers in these countries must view their transportation systems in an international, rather than simply in a national context. The importance of doing so is amplified by the fact that globalization is increasingly effacing international boundaries as they have hitherto been known. Recall that colonial efforts did everything possible to discourage interaction and cooperation amongst African territories. This was especially true when the territories were controlled by rival colonial powers. For instance, the German colony of Kamerun could not permit its landlocked neighbours, namely Chad and the Central African Republic (at the time, Ubangi Shari) access to its seaports on the Atlantic coast, because, these landlocked territories were controlled by Germany's most noted rival at the time, France. Chad, for instance, was compelled to expend more on transport using the circuitous route through the Central African Republic and Congo (People's Republic) to this latter's seaport at Pointe Noire, or the Gabonese seaport at Port Gentil. As a strategy to promote active participation in the contemporary global economy, authorities in these now independent countries must seek to minimize the costs associated with access to seaports. This means, amongst other things, negotiating with neighbouring countries to gain access to the closest seaports.

The importance of international and interregional linkages is further underscored by need for regional economic integration on the continent. As observed above, African economies are generally small and fragmented, thus necessitating integration. Such integration promise to "help African countries reap the benefits of scale economies, foster strong competition, which could improve the quality, quantity and diversity of output; and provide a better environment for attracting domestic foreign investment" (UNECA, On-Line A).

African transport authorities will also do well to ensure the integration of transport networks throughout the continent. This is especially because active participation in the globalization process invariably depends on effective and efficient intermodal systems of transportation. Such systems permit not only travelers, but also, and perhaps more importantly, "shippers to enjoy the seamless synergy of multiple modes of transportation operating as one" (UNECA, On-Line). We have already alluded to innovations in the liner shipping industry, which take advantage of waterways and good roads to effectuate the door-to-door delivery of containers.

Thus, authorities will do well to strive towards augmenting their inventory of paved or all-season roads. With such roads, African countries can increase their participation in the raw material processing sector, which at the moment is extremely low and non-existent in some cases. Gains accruing from all-season roads permitting containerization are already being realized in a few areas on the continent. For example, in West Africa, as Pedersen (2001: 88) notes, "containerization has been important for the development of saw mills and a shift from export of logs shipped in bulk to export of planks shipped in containers." Activities of this genre, which in most cases create a need for container depots closer to import/export agents, can go a good way in resuscitating the economies of African countries.

Furthermore, transport and cognate authorities in Africa cannot afford to ignore the essence of transportation safety. Rather, they must take all the steps necessary to ensure the safety of all modes of transportation on the continent. The need for doing so is rendered more urgent in an era of globalization. With the increase of incomes concomitant with, or resulting from, globalization, it is logical to expect a significant

increase in access to automobiles and/or use of other motorized means of transportation. Unless appropriate steps are taken to ensure transportation safety, this will invariably lead to dramatic increases in transport-related accidents, especially automobile accidents, which are already a leading cause of deaths on the continents (see above). Specific actions in this regard include, at a minimum, collecting and analyzing relevant data to identify causes of accidents. Results of such analyses can then be used as the basis for remedial actions, which must be undertaken in conjunction with training, education and publicity campaigns to reduce accident rates (Enoch, 2003).

Finally, whereas colonial authorities developed and used roads, ports and other transport facilities to broadcast authority and consolidate power in colonial Africa, post-colonial authorities must create and employ such facilities to intensify their participation in the global market place.

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Table 1: Road-Building Effort
(km of Rd. per Sq. km of Land) in
Colonial Africa 1935, 1950, & 1963.

COLONY	1935	1950	1963
Basotoland	0.02	N/A	0.06
Bechuanaland	0.001	N/A	0.01
Gambia	0.004	0.09	0.12
Gold Coast	0.04	0.05	0.13
Kenya	0.03	0.05	0.08
Nigeria	0.02	0.04	0.08
N. Rhodesia	0.02	0.02	0.05
Nyasaland	0.06	0.07	0.11
Sierra Leone	0.03	0.04	0.09
S. Rhodesia	0.04	0.06	0.19
Swaziland	0.11	N/A	0.13
Tanganyika	0.02	0.04	0.04
Uganda	0.03	0.06	0.08
British Empire Ave.	**0.02**	**0.04**	**0.09**
French Eq. Africa	0.07	0.007	0.03
French W. Africa	0.01	0.02	0.05
French Empire Ave.	**0.009**	**0.14**	**0.04**
Belgian Congo	0.02	0.04	0.07
Ruanda Urundi	0.10	N/A	0.21
Angola	0.02	0.03	N.A.
Mozambique	0.03	N/A	N/A
South Africa	0.11	0.23	0.27

Source: Herbst (2000: 86).

Table 2 Road Densities for African Countries 1963 vs. 1997

	Country	Road Density 1963	1997	Change
	Rwanda	0.21	0.56	173
	Burundi	0.21	0.52	143
	Gambia	0.12	0.25	105
	Swaziland	0.13	0.22	67
	Nigeria	0.08	0.21	152
	Côte d'Ivoire	0.10	0.17	62
	Malawi	0.11	0.17	57
	Ghana	0.13	0.16	23
	Lesotho	0.06	0.16	171
	Sierra Leone	0.09	0.16	73
	Guinea	0.03	0.13	305
	Kenya	0.08	0.13	70
	Togo	0.05	0.13	144
	Uganda	0.08	0.13	71
Average	**0.06**	**0.11**	**82**	
	Liberia	0.02	0.10	383
	Tanzania	0.04	0.09	133
	Cameroon	0.03	0.07	129
	Congo (DR)	0.07	0.07	5
	Senegal	0.07	0.07	0
Median	**0.05**	**0.07**	**69**	
	Benin	0.06	0.06	4
	Angola	0.06	0.06	0
	Zambia	0.05	0.05	5
	Burkina Faso	0.06	0.04	-37
	C.A.R.	0.03	0.04	32
	Congo (PR)	0.03	0.04	16
	Mozambique	0.05	0.04	-20
	Botswana	0.01	0.03	109
	Chad	0.03	0.03	18
	Gabon	0.02	0.03	33
	Somalia	0.02	0.03	41
	Ethiopia	0.02	0.02	-6
	Mali	0.01	0.02	97
	Mauritania	0.01	0.01	76
	Niger	0.01	0.01	69
	Sudan	0.00	0.01	183

Source: Herbst (2000: 162).