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**Railways - Morocco**

## **MAROCCO “ Marrakech – Laâyoune 2000kms”**

### **Transportation Situation in AFRICA**

#### **All around AFRICA**

**F/MAROCCOrailways2012-JMF-0011**

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## INTRODUCTION

Transportation is one of the essential elements for growth and socio-economic development. Main vector of economic integration, infrastructure transportation and services are a prerequisite for trade facilitation and the movement of goods and persons. For a long time seen as an accessibility tool for trade and global trade in a changing international environment, infrastructure transportation remains one of the pillars of development for accelerating growth and reduction of poverty. Given the challenges of globalization, Africa is far behind in the development of regional trade, particularly because of lack of reliable and adequate transportation. Indeed, the ways and means of transportation existing were directed towards a totally extroverted trade, therefore there were a poor development of infrastructure and transportation services and limited physical integration of the network.

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Based on this recognition, the United Nations proclaimed, at the request of African countries two decades for transportation and communications in Africa (1978-1988 and 1991-2000) to focus the States efforts and partners in the development on specific issues of transportation and communication in Africa.

Evaluation of these 20 years of effort spent on transportation showed that infrastructure and existing transportation services were yet to lead the implementation of socio-economic development and integration of the continent.

Recognizing the importance of their sector, the Ministers of Transportation held the April 6, 2005, in Addis Ababa, a conference on the role of transportation in achieving the Millennium Development Goals (MDGs) and, for this purpose, set goals and indicators whose implementation will enable Africa to make significant progress. The results of this Conference were adopted by the Summit of Heads of State and Government held on 4 and 5 July 2005 in Syrte (Libya), then transmitted to the ONU Secretary General.

In the same direction, the New Partnership for Africa's Development, designed to promote the development of the continent, has set a priority of the acceleration regional integration; its major objective in this regard is to fill gaps in infrastructure in Africa.

This report is thus intended to present the current transportation situation and challenges the continent faces in this area. It aims to sensitize politics and decision makers for appropriate action so that the transportation sector can contribute effectively to the socio-economic development of the continent.

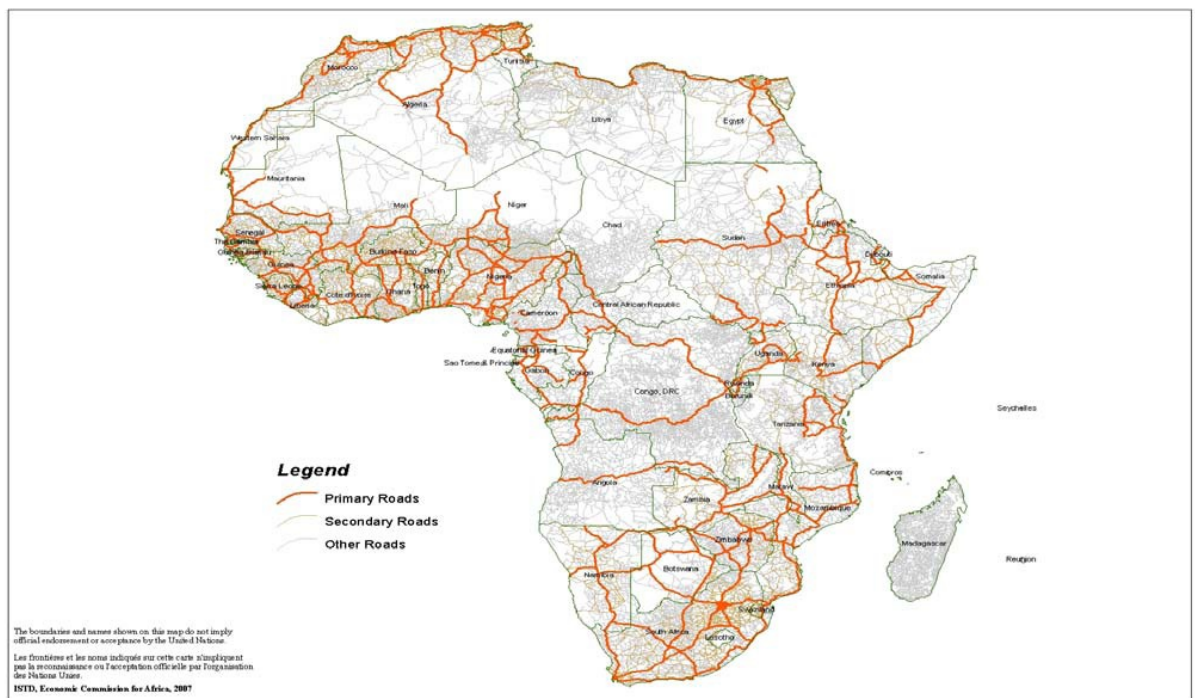
## **I - STATUS OF DIFFERENT MODES OF TRANSPORT**

### **1.1. Road and road transportation.**

The road remains the dominant mode of transport in Africa, representing 80 to 90% long distance and interstate freight. It is usually the only means of access to rural areas and is the most appropriate and flexible mean in the economic life and social conditions of African countries or regions.

The African continent is characterized by low road density: 6.84 km per 100 km<sup>2</sup> compared to 12 km per 100 km<sup>2</sup> in Latin America and 18 km per 100 km<sup>2</sup> in Asia (see map roads of the continent below).

*Map 1: African Road Network*



Source: ISTD, CEA, 2007

The length of the paved network represents approximately 24.56% of the total network, as shown the following table:

*Table 1: Distribution of road network by African subregion.*

	Area (km2)	population (in millions people)	Roads paved (in%)
Central Africa	3 021 180	29.654	4.1
East Africa	6 755 902	233.870	9.5
North Africa	9 301 385	165.070	64.1
Southern Africa	6 005 240	108.770	20.7
West Africa	5 112 060	230.240	22.6
<b>Total Africa</b>	<b>30 195 767</b>	<b>760.600</b>	<b>24.5</b>

Source: Development Indicators for the transport sector in the 2005 World Bank World, 2005.

Moreover, this network is poorly maintained given the limited resources allocated. Thus, less than half of the resources required for maintenance is satisfied. For example, the coverage rate is 30% for ECOWAS, COMESA to 31%, 40% for SADC and 25% for CEMAC.

The network particularly suffers overload carried on road vehicles, which reduces the life of the roads.

## 1.2. Railroad.

The African railroad network is estimated at 89 380 km for an area of 30.19 million km<sup>2</sup> with a density of 2.96 km per 1 000 km<sup>2</sup>. This network is poorly interconnected, especially in West and Central Africa, as shown in the map below:

More than a dozen countries in Africa have no railway, namely Burundi, Cape Verde, Comoros, Gambia, Guinea Bissau, Equatorial Guinea, Libya, Mauritius, Niger, Central African Republic, Rwanda, Sao Tome and Principe, Seychelles, Sierra Leone (the railroad is no longer in service), Somalia and Chad.

In addition, the railways are characterized by the heterogeneity of track gauges with different types of distances within a same sub-region.

Table 2: Types of rail gauge by sub-region (in millimeters)

Central Africa	East Africa	North Africa	Southern Africa	West Africa
1 067	600	600	600	1000
1 435	950	1 000	610	1 067
	1 000	1 055	762	1 435
	1 067	1 067	1 067	
		1 435		

Source: ECA source package from the World Fact Book 2006.

Despite significant investments in the 70s and 80s in infrastructure and rolling stock, the role played by railways in the transportation of both goods and passengers, has been declining at the national and sub-regional levels.

Poor maintenance of infrastructure and the limited availability of rolling stock have contributed to the degradation of the quality of rail service. Moreover, the railway is facing competition from road transportation on long journeys while it used to have a comparative advantage at this level. In addition, the railways were characterized, and for some this is still the case, their bureaucracy, their numbers overstaffing and low productivity.

This has led to reforms in many African countries: privatization, marketing or simply closing down railways.

However, the railways of North Africa have been reformed which have given them greater management autonomy.

## 1.3 Ports and shipping

Shipping is one of the most important modes of transportation for trade inter-and intra-regional. Indeed, it represents 92 to 97% of international trade in Africa.

Also, the good performance of this subsector is vital not only for the regional economy but also for the world economy.

Africa has about 80 major ports, which together generate 95% of trade (imports / exports) of 53 African countries, including 6 island countries and 15 landlocked countries.

These ports are facing problems of equipment, safety, environmental problems (pollution, erosion), productivity, inadequate measures of facilitation and technical capabilities.

80% of ships in Africa have over 15 years of age against a world average of 15%. The following table shows the traffic of most important container ports in Africa for 2004:

3 in North Africa, 4 in East Africa, 4 in Africa Southern, 1 in Central Africa and a 5 in West Africa.

*Table 3: Ports Traffic and Containers.*

Region	Country	2003	2004	Annual growth (%)
<b>North Africa</b>				
Egypt	Damietta	955	1 263	32.25
Sokhna	Egypt	122	155	27.05
Casablanca	Marocco	448	492	9.82
<b>East Africa</b>				
Mombasa	Kenya	331	404	22.05
Djibouti	Djibouti	244	159	-34.84
Dar es Salam	Tanzanie	204	260	27.45
Port soudan	Soudan	157	206	31.21
<b>Southern Africa</b>				
Durban	South Africa	1 511	1 717	13.63
Cape town	South Africa	533	570	6.94
Port Elizabeth	South Africa	274	323	17.88
East London	South Africa	56	60	7.14
<b>Central Africa</b>				
Luanda	Angola	210	235	11.90
<b>West Africa</b>				
Abidjan	Cote d'Ivoire	579	670	15.72
Lagos	Nigeria	486	444	-8.64
Tema	Ghana	350	340	-2.86
Dakar	Senegal	281	337	17.79
Lomé	Togo	166	185	11.45
<b>African ports</b>		<b>9 661</b>	<b>11 239</b>	<b>1 6.3</b>
<b>Total global ports</b>		<b>303 109</b>		
<b>Africa's share</b>		<b>3.2 %</b>		

Source: Containerization International Yearbook, 2006.

Air transportation plays a very important role in the transport of goods with high market value and the passenger. It is crucial for tourism development.

But Africa is far behind in this sector and its market share remains low. In 2004, it held only 5.2% of passenger traffic, 3.6% of freight traffic and 8.5% of movements (number of departures). During the same year, the sector generated 470,000 jobs on the continent and with an income estimated at \$ 11.3 billion U.S., it contributes 1.7% of Africa's PIB.

The sub-sector of air transportation has indeed made significant progress since the adoption of the

Yamoussoukro Decision in 1999. This decision resulted in a progressive liberalization of market access of air transportation in the region. It also led to reform airports and airspace management.

Africa has 117 international airports operated regularly and 500 domestic airports.

However, a closer examination of airports in Africa indicates that international standards are rarely enforced.

Global and international airports in Africa are characterized by the following:

- A sharp deterioration of the infrastructure (tracks and macadams), due to lack of maintenance;
- The outdated equipment that does not meet all international requirements;
- Safety standards and inadequate security.

The passenger load rate was higher than Latin America and The Caribbean, at approximately 12% below the world average. On the other hand, the coefficient filling for cargo, estimated at 20% below the average, is far behind the other regions. The table below provides a traffic development for 2004.

*Table 4: Evolution of air traffic*

	<b>North Africa</b>	<b>East Africa</b>	<b>West Africa</b>	<b>Central Africa</b>	<b>Southern Africa</b>	<b>Africa</b>	<b>world</b>	<b>Africa' s share</b>
<b>Passengers</b> in thousands	44 442	10 655	12 046	3 178	33 746	<b>105 067</b>	<b>1 988 328</b>	5.3 %
percentage by Region	42.3 %	10.1 %	11.5 %	4.0 %	32.1 %			
<b>freight</b> (in tons)	3 239 222	357 898	143 696	214 438	352 471	<b>1 392 698</b>	<b>38 926 634</b>	3.6 %
percentage by region	23.3 %	25.7 %	10.3 %	15.4 %	25.3 %			
<b>Departs</b>	533 192	359 219	273 589	167 769	801 638	<b>2 135 407</b>	<b>24 995 883</b>	8.5 %
percentage by region	25 %	16.8 %	12.8 %	7.9 %	37.5 %			

Source: ACI-OACI (2004)

To a new dynamic in the air sub-sector, several African Ministers of air transportation conferences were jointly organized by the African Union and the African Economic Commission (ECA). Also, the Third Conference on air transportation, held in Addis Ababa from May 7 to 11, was an opportunity to remind the importance of the Yamoussoukro Decision. The discussions focused on following questions:

- The creation of the implementing agency as directed by the Decision Yamoussoukro
- harmonization of competition rules;
- The dispute settlement mechanism;
- The criteria for evaluating the implementation of the Yamoussoukro Decision;
- Problems and prospects of the Yamoussoukro Decision, for the liberalization of air transportation markets in Africa.

There is currently improved airlines operations. Regional alliances were formed, yet they have not reached the levels observed in Latin America. Many countries have established civil aviation authorities and autonomous chosen to put their airports under concession.

Regional organizations and some countries have invested in improving services air navigation, but security issues remain a huge challenge. The same applies to facilitation measures at airports, including the issue of visas.

#### 1.4. Transportation by inland waterway

Transportation by inland waterways is hardly used in Africa, although it is an excellent pathway. The African continent has a inexpensive type of transportation in terms of energy and safe for the environment. The development and operation of means of transportation in Africa has been slow during the past decade, although its importance has become greater in other parts of world. This is because Africa has only a few inland waterways. The Congo, Nile and Zambezi are classified as international waterways but most other rivers remained in its natural state, with depths varying according seasons and are unpredictable. The lakes offer better opportunities for transportation on inland waterways, particularly in East Africa and Central Africa.

However, the industry remains largely unstructured and largely unregulated. The navigation aids are inadequate and port facilities are deficient. The regulations relating to safety of ships and boats are unconventional are not enforced.

## **II.DIFFICULTIES OF TRANSPORTATION DEVELOPMENT**

In view of the transportation situation described above, many challenges remain if the transportation can become an engine of economic growth continent. Under these challenges include the following factors:

2.1. Lack of a formulation and implementation of appropriate policies In recent years, African countries have made efforts to develop their various infrastructure and ensure their sustainability. However, due to the absence of an appropriate policy and issues related to existing institutional structures, growth and efficiency in the sector have not met expectations.

Policies adopted to regulate and operate the infrastructure and services Transportation in Africa don't ensure, for most, to enable a private environment sector participation.

In addition, these policies must take into account all modes of transportation and must also aim at establishing peace and security.

#### 2.2. Inadequacy of the infrastructure network

The network of different modes of transportation in Africa is inadequate because some sections do not meet the standards while others fail, in particular as regards the TAH, the lines of railway and air transportation.

It is therefore very difficult to travel within Africa and in all seasons. It is therefore necessary to build the missing section in the national, sub-regional and regional levels, to develop appropriate maintenance procedures and coordinate programs of various RECs in this area.

#### 2.3. Inadequate funding

Financial needs in the transportation sector are enormous and are often linked to infrastructure expansion and sustainability through maintenance. Costs infrastructure renewal and expansion often exceed the capacity of countries Africa, leading them to an excessive use of debt.



Governments have, at present, to generate problems and mobilize resources for infrastructure renewal to the extent that foreign loans and grants for the construction of new infrastructure and maintenance become very rare and not enough not meet all the priorities of African development.

According to recent estimates, the investments to be made annually in infrastructure in Africa represent 5-6% of GDP, implying needs investments of over \$ 250 billion U.S. over the next 10 years. It is therefore essential that the private sector actually participates in the development and infrastructure management, and for this, governments must create a favorable environment (political and legal appropriate framework) enabling the participation to the private sector.

the mechanisms funding should be focused on public-private partnerships. Research and adoption of policies and innovative measures to increase financial resources are also essential and it is the same for the development of stable macroeconomic policies and the adoption and implementation of measures of good governance.

#### 2.4. Lack of appropriate human and institutional capacity.

The development of human resources and institutional development are among the prerequisites for development of the sector and its participation in the process of globalization. However, in most African countries, the transportation sector does not have human resources and institutional capacity and has no technical efficiency required to create, produce and provide adequate transport facilities.

In the field of railways, for example, most training centers have disappeared. Actions to be undertaken should focus on sharing knowledge and good practices, training and implementation of appropriate capacity at national and sub-regional levels. Growing associations and the creation of centers of excellence should also be a priority.

#### 2.5. Inadequate transport facilitation measures and high costs transport

Administrative procedures are long and costly and the absence of measures and appropriate facilitation policies undermine market access.

Transportation activities between countries are generally hampered by lack of harmonization of rules and transit procedures, customs and other transportation documents are different in different countries. This situation leads to excessive costs and prolongs the time transportation. As shown in Table 5, the transportation costs and insurance are important elements in the operations of import and export. Efforts should be made to significantly reduce transportation costs to improve competitiveness African products in the international market.

*Table 5: Costs of transportation and insurance for exports*

	<b>Landlocked least developed countries</b>	<b>landlocked countries</b>	<b>maritime countries</b>	<b>Landlocked Developing Countries</b>	<b>Developing countries</b>	<b>OECD countries</b>
<b>Exports</b>	32 %	20 %	15 %	13 %	8 %	6 %
<b>Imports</b>	25 %	21 %	10 %	7 %	5 %	3 %

Source: World Customs Organization (WCO), 2005.



## 2.6. Inadequate safety and security

The issues of safety and security concern all modes of transportation. Considering for example road transportation: The number of road accidents in Africa is very high compared to other continents. The economic cost of these accidents is estimated at about 2% of GNP. The establishment of an appropriate policy is essential. Given the importance of road safety in developing countries, held in Accra (Ghana), from 5 to 8 February 2007, the African Conference on Road Safety, with the objective of note the importance of road safety in Africa and, especially, to educate decision makers in the implementation of preventive measures and emergency.

All modes of transportation are concerned about the safety of persons and property. At level of air transportation for example, the accident rate remains particularly high in Africa as shown in the diagram below:

Table 6: Accident Rates by air

6							
5	5.26						
4							
3		2.13				2.74	
2			1.25				1.29
1							
0				0.91	0.67		
	Africa	Asia	Middle East	Europe	North America	South America	world

Source: Aviation Organization (ICAO).

## 2.7. Little attention paid to environmental issues and measures against pollution

The environmental degradation has become a major concern worldwide. Transportation infrastructure and transportation means have a significant negative impact on the environment that must be controlled.

The air pollution, noise pollution in major African cities and congestion have increased in recent years. Furthermore, the risk of marine pollution increase. The environmental problems related to this situation are expressed in terms of greenhouse gas, noise, discharge of oil, waste treatment, etc.. Awareness and adoption of policies and appropriate measures in national, sub-regional and regional levels will improve the situation.

## 2.8. Under-exploitation of new information technologies and (TCI)

The introduction of information technology and communication (TCI) in the transportation sector is the most formidable challenge that faces African countries, because of aging of the equipment and instruments.

The information technology has revolutionized business and has proved an instrument powerful for the

expansion of trade in the form of electronic commerce. These opportunities are not fully exploited in Africa. The appropriate use of ICT, training and knowledge acquisition will be necessary actions to be undertaken during the future.

#### 2.9. Lack of appropriate databases

The lack or rarity of appropriate data for monitoring, planning and evaluating results transportation sector have shown that it is difficult for managers to develop appropriate policies and make investments in the sector.

The establishment of databases in the national, sub-regional and regional after a data and procedures collection harmonization of these, including the development of performance indicators, should receive high priority.

#### 3.10. Taking account of the fight against HIV / AIDS and gender issues in policies and programs related to transportation

- Transportation, by its nature, is an activity that can carry many diseases and infect people in contact, if appropriate arrangements are not made.
- Transportation is a cross-cutting sector that affects all socio-economic areas. Regardless of the transportation policy adopted, it affects the parity. For example, the construction of a road, the establishment of a bus network, the closure of a railway line, etc.. may further affect Women.
- It is therefore necessary that the issue of gender is mainstreamed in all policies or development strategies transportation if we want to fight against poverty.

### III INITIATIVES FOR THE DEVELOPMENT OF THE INFRASTRUCTURE AND TRANSPORTATION SERVICES

#### 3.1. Efforts of regional economic communities

Regional economic communities (RECs) have established programs transport facilitation, improvement and expansion of transportation infrastructure.

All RECs have developed their transportation plan, and they have indeed made efforts to get member countries to develop their transportation infrastructure and communication and improve services for sustainable development.

They have adopted instruments or measures to facilitate transit traffic. For example:

- COMESA has established the third party insurance, harmonized limits the axle load and the adopted road transit charges and customs declaration of COMESA.
- The transport between Member States of ECOWAS and UEMOA mainly governed by two treaties, the Convention of interstate transportation (TIR) and the Convention of Inter-State Road Transit (ISRT) and by many bilateral agreements. An insurance system road was also introduced.
- In Central Africa, the transport is governed by the Convention interstate transportation multimodal.
- The transit system ² Interstate Central Africa (TIPAC) Transit road between the States of the sub-region was adopted
- In southern Africa, SADC encourages the establishment of joint border posts, development initiatives of transport corridors with the participation of private sector and the establishment of committees of transit transport facilitation. The Priority areas include the implementation of the

missing sections, the problems of transport facilitation, reduction of delays during the crossing borders and reducing the waiting time in ports.

A coordinating committee of REC Transport was set up to harmonization of work programs and exchange of experiences. The program includes the creation of joint border posts to harmonize and speed up its efforts to border crossing, the establishment of observatories of abnormal practices along the corridors transit and the development of corridor management committees.

### 3.2. Transportation Program for Africa (SSATP)

The transportation program for SSA is an initiative set up jointly by ECA and the World Bank since 1987, with the participation of African countries. Currently, 35 countries and regional economic communities are part of the program, which is funded by 11 donor agencies. It aims to improve performance of the transportation sector by transportation policy reforms and changes institutional to favour sustainable economic growth and reduce poverty partner countries.

The current program is as follows:

- Strategies<sup>2</sup> effective transportation
- Management and financing of roads
- Appropriate transportation services
- Regional integration and transportation
- Road Safety
- Gender
- Job Creation
- Management of environmental impact
- HIV / AIDS

The SSATP is currently preparing its development plan for the period 2008 to 2011. A workshop was held on 19 and 20 July 2007 in Addis Ababa, involving also RECs. This workshop examined the progress made in implementing the Plan long-term development for 2004-2007. The goal was the preparation of the second plan long-term development.

Trade facilitation and regional integration, administration and management existing corridors were the emphasis of this workshop, which also emphasized the growing country ownership and RECs, and on growing the partnership with donors.

### 3.3. New Partnership for Africa's Development (NEPAD)

NEPAD has made the infrastructure development a priority, many transportation projects are included among the twenty priority projects, including the study of strategic framework in the medium and long term also known by the acronym MLTSF (Medium to Long Term Strategic Framework).

With the objective of implementing a coherent and strategic framework for monitoring development of transport infrastructure, it also places emphasis on the definition of and sub-regional strategies for the entire continent.

Jointly funded by the African Development Bank and the Fund Technical Cooperation of Nigeria, this study has been the subject of a workshop held in Addis Ababa from 24 to 26 July 2007, involving all stakeholders. The meeting allowed participants to have a comprehensive approach to infrastructure in Africa and assess subsequently the establishment of the flagship projects of transport which:

- Improving the efficiency, safety and reliability of transport;
- Strengthen the capacities of RECs and related services;
- Prepare in advance the projects and programs;
- Develop facilitation projects for all modes of transport.

### 3.4 Action Plan initiated by the Almaty office of the High Representative for the least developed countries, developing landlocked countries and developing small island states.

The Action Plan of Almaty is a new global framework for action to develop Effective transit for landlocked developing countries and transit countries. This program is initiated by the Office of the High Representative for Least Developed Countries, the Landlocked Developing Countries and Small Island Developing States. One of the priorities of this program is the development of transit transportation infrastructure.

The main transit corridors listed below were selected as part of Action Plan for Africa during a preparatory meeting on the Almaty Plan of Action, held in Addis Ababa from 5 to 7 May 2003.

Table 7: Main transit transport corridors

Corridor	distances	Notes
Dakar-Mali	1 250 km	Rail
Abidjan-Burkina Faso-Mali	1 200 km	Options multimodales jusqu'à Ouagadougou, puis route
Tema/Takorad -Burkina Faso-Mali	1 100 km jusqu'à Ouagadougou	Route
Lomé-Burkina Faso-Niger / Mali	2 000 km	Route
Cotonou-Niger-Burkina-Mali	1 000 km jusqu'à Niamey	Options multimodales
Lagos-Niger	1 500km	Route
Port Harcourt-Tchad		
Douala-République centrafricaine - Tchad	1 800km	Options multimodales
Pointe Noire-République centrafricaine-Tchad	1 800km	Rail/Fleuve/Route
Lobito-RDC-Zambie	1 300km	Non utilisé actuellement
Luanda-RDC-Rwanda-Burundi		Non utilisé actuellement
Walvis Bay-Zambie-RDC (Trans-Caprivi)	2 100km jusqu'à Lusaka	Route
Walvis Bay-Botswana-Afrique du Sud (Trans-Kalahari)	1 800km	Route
Durban-Zimbabwe-Zambie-RDC (Corridor Nord-Sud)	2 500km jusqu'en RDC	Options multimodales
Maputo-Afrique du Sud	600 km	Options multimodales
Beira-Zimbabwe-Zambie-RDC		Options multimodales
Nacala-Malawi-Zambie-RDC	1 800km jusqu'à Lusaka	Options multimodales
Mtwar -Malawi-Zambia-RDC		Pas encore utilisé pour le transit
Dar es-Salaam-Zambie-RDC (Corridor de TAZARA)	2 000km jusqu'à Lusaka	Possibilités d'options multimodales

Dar es-Salaam-Rwanda-Burundi - Ouganda - RDC (Corridor central)	1 400km jusqu'à Kigali, 1 600km jusqu'à Kampala	Options multimodales
Tanga - Ouganda	1 500km	Pas encore développé
Mombasa-Rwanda-Burundi-Ouganda-RDC (Corridor Nord)	1 200km jusqu'à Kampala, 2 000km jusqu'à Bujumbura	Options multimodales
Berbera-Éthiopie	850 km	Route
Djibouti-Éthiopie	900 km	Options multimodales
Assab-Éthiopie	900 km	Non utilisé actuellement
Massawa-Éthiopie		Non utilisé actuellement
Port Soudan-Éthiopie		Non utilisé actuellement
Lagos-Niger-Mali et Lagos-Tchad Projet du Comité de liaison de la routeOptions multimodales transsaharienne (CLRT)	8 000 km	Options multimodales

Source: CEA, Action Plan for Africa, in May 2003.

These corridors include roads and rivers and rails, and Planning needs to take into account the requirements of these different modes of transportation and the construction of infrastructure and equipment.

## **V. CONCLUSION AND RECOMMENDATIONS**

Africa is far behind in transportation infrastructure. So that transportation can support economic growth and regional integration and contribute to economic and social development of the continent it would require political focus and tremendous efforts and support in the area.

Also, the following recommendations can they be made:

- Adoption of an integrated approach to policy development of public transportation taking into account all modes of transportation.
- Implementation of reforms in the transportation sector;
- Promotion of missing links in transportation infrastructure;
- Promotion funding of transportation infrastructure;
- Establishing a regulatory framework for greater participation of private sector in managing and financing of transportation;
- Greater safety and security in all modes of transportation;
- Growing human and institutional resources and rehabilitation of schools training;
- Establishment of databases for measuring progress in transportation sector;
- Increased use of new information technologies and communication in transportation;
- Consideration of gender issues, the fight against HIV / AIDS and STDs in policies and transportation strategies.

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