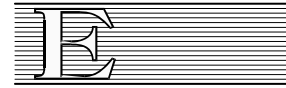




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Africa Review Report on

Transport

(FINAL DRAFT MAIN REPORT)

August 2009

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Acronyms and abbreviations

CAI-SSA	Clean Air Initiative in Sub-Saharan African Cities
CDM	Clean Development Mechanism
CEMAC	Central African Economic and Monetary Community
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
COMESA	Common Market for Eastern and Southern Africa
COSCAP	Cooperative Operational Safety and Continuing Airworthiness Development Programs
EC	European Commission
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
ERTTP	Ethiopian Rural Travel and Transport program
EU	European Union
FCB	Fuel Cell Bus
FCFA	French <i>Communauté financière africaine</i> "African financial community"]
FESARTA	Federation of East and Southern Africa Transporters Association
GDP	Gross Domestic Product
GEF-SGP	Global Environmental Facility- Small Grant Program
GHG	Greenhouse Gas
IATA	International Air Transport Association
ICA	Infrastructure Consortium for Africa
ICAC	International Civil Aviation Commission
ICAO	International Civil Aviation Organization
ICT	Information and Communication Technology
IEE	Initial Environmental Examination
ILO	International Labor Organization
IMO	International Maritime Organization
IMT	Intermediate Means of Transport
IPPF	Infrastructure Project Preparation Facility
IRF	International Road Federation
JICA	Japanese International Cooperation Agency
LTDP	Long Term Development Plan
LVSR	Low Volume Sealed Road
MDG	Millennium Development Goal
NEPAD	New Partnership for Africa's Development
NMT	Non Motorized Transport
NTB	Non Tariff Barrier
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OSBP	One-Stop Border Post
PASDEP	Plan for Accelerated and Sustained Development and Eradication of Poverty
PCFV	Partnership for Clean Fuels and Vehicles
PPM	Parts Per Million
PPP	Public-Private Partnership
PRS	Poverty Reduction Strategy
PRTSR	Poverty Reduction & Transport Strategy Review

REC	Regional Economic Community
RIT	Regional Integration and Transport
RMF	Road Management and Financing
RTFP	Regional Trade Facilitation Program
RTTP	Rural Travel and Transport Program
SADC	Southern Africa Development Community
SARPs	Standards and Recommended Practices
SIDA	Swedish International Development Cooperation Agency
SME	Small and Medium Enterprise
SO ₂	Sulfur Dioxide
PIDA	Program for Infrastructure Development in Africa
SARA	Southern African Railways Association
SQ. KM	Square Kilometer
SSA	Sub-Saharan Africa
SSATP	Sub-Saharan Africa Transport Policy Program
TCC	Transport Coordination Committee
TRB	Transport Research Board
UATP	Union Africaine Des Transports Publics (African Association of Public Transport)
UEMOA	West African Economic and Monetary Union
µg	Micro gram
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
USAID	United States Agency for International Development
USOAP	Universal Safety Oversight Audit Program
WB	World Bank

Acknowledgement

SECTION 1: Introduction

1.1 Background

1. Transport is among the thematic cluster of issues to be considered by the 18th Session of the UN Commission on Sustainable Development (CSD-18) to be held in May 2010. The United Nations General Assembly Resolution 58/218 mandates UN Regional Commissions in collaboration with the Secretariat of CSD, regional institutions as well as United Nations organizations to organize multi-stakeholder Regional Implementation Meetings (RIMs) to provide regional input to the work of the CSD.

2. The United Nations Economic Commission for Africa (ECA) in collaboration with UN organizations including the United Nations Environment Programme (UNEP) and United Nations Industrial Development Organization (UNIDO) and other partners scheduled the Africa RIM for CSD-18, to be held in October, 2009 under the auspices of the Sixth Session of the Committee on Food Security and Sustainable Development (CFSSD-6). This RIM will review implementation progress achieved in the thematic cluster of issues to be considered by CSD-18 in the context of commitments, goals and targets agreed upon by member states and contained in the Agenda 21 (A21), the Program of Further Implementation of Agenda 21 (PFIA21) and the Johannesburg Plan of Implementation of the Outcomes of the WSSD (JPOI).

1.2 Objectives of the review

3. The preparation of this regional review report on transport was commissioned with the view to providing a report to form background information for the Africa RIM as describe above. The overall objective of the review was to assess the progress in the implementation of transport related commitments and targets contained in A21, PFIA21 and the JPOI with a view to discerning good practices, lessons and practical policy measures and actions needed to address implementation constraints and accelerate implementation. The specific objective of the review therefore were to:

- (i) Review progress made in Africa in the implementation of the commitments, goals and targets agreed on by member states and contained in A21, PFIA21, the JPOI as well as relevant regional and global declarations including the declaration on Millennium Development Goals
- (ii) Identify and document the challenges and constraints encountered during implementation; and
- (iii) Propose the way forward to accelerate implementation progress in the area of transport in Africa.

1.3 Methodology

4. The report is based on information gathered mainly through desk research based on available documentation and internet resources on transport and related economic and social sectors. The review employed the following approaches:

- (i) Data was collected from reports and statistical compilations and other internet publications on transport, including those published by African Union (AU), ECA,

African Development Bank (AfDB), UNEP, the World Bank, African countries Regional Economic Communities (RECs), other relevant UN agencies, regional and sub-regional organizations as well as bilateral development agencies. Consultations with resource persons in ECA were also carried out.

- (ii) Data obtained from the various sources was compiled and then analyzed at sub-regional as well as regional level.
- (iii) Following internal peer review of the first draft report, a revised draft report was presented for careful review, comments and additional inputs by Experts Group Meeting organized by ECA, UNEP and UNIDO.

1.4 Limitations of the review

5. Readily available and reliable data on Africa was difficult to find on the Internet and related publications. Even the World Bank Development Indicators, which is one of the most comprehensive data source dealing with all economies of the world, presents only partial transport sector data for most African countries.

6. There is lack of up-to-date information on the implementation of commitments, goals and targets agreed upon at international development fora as set out in the Agenda 21, the Program of Further Implementation of Agenda 21 and the Johannesburg Plan of Implementation of the Outcomes of the WSSD.

1.5 Structure of the report

7. The report is divided into six sections. Introduction to the report is contained in section one, which includes a brief background, objectives and outline of the structure of the report.

8. Section two provides an overview of the status and emerging issues in the transport sector in Africa. The section also includes a review of the significance of the transport sector in Africa.

9. In section three, actions taken and progress made towards the implementation of the commitments and goals contained in A21, PFIA21 and JPOI are presented.

10. Section four deals with the challenges and constraints faced by Africa in the implementation of the various commitments and achievement of its goals with regard to the development of sustainable transport.

11. Section five addresses the lessons learned and provides a set of policy and other actions necessary to expedite implementation of transport related targets, commitments and strategies in Africa.

12. The conclusions are presented in section six.

SECTION 2: Overview of the status and emerging issues in the transport sector in Africa

2.1 Role of transport in economic growth and poverty reduction

13. Sustainable economic growth and poverty reduction involves addressing a complex set of issues calling for the development of all sectors of the economy to meet the needs of the current generation without compromising the long term needs of future generations. Transport is one of the key sectors that plays crucial roles in the effort to achieve the goals of poverty eradication and sustainable development.

14. The link between transport and other economic and social sectors in relation to the Millennium Development Goals for Africa has been defined by the AU Summit in which targets have been set for the transport sector for each of the eight MDGs. As indicated in the African transport section of the MDGs, transport has a role in facilitating the movement of goods and services as well as in ensuring access to educational and health facilities, which in turn plays important roles in the achievement of the MDGs.

15. A recent empirical study for a sample of Sub-Saharan African (SSA) countries and Small Island Developing States confirmed the long accepted thinking that transport capital has been a contributor to the economic progress of these countries. The analysis also revealed that, in the case of SSA, the productivity of transport capital stock is superior as compared to overall capital (Boopen, 2006). As such, sustainable development cannot be realized without a reliable, efficient, safe and cost-effective transport system.

16. The demand for transport services arises from the need to transport, among other things, agricultural inputs and outputs, industrial raw materials and manufactured goods and minerals as well as passengers from origin to destination.

17. The critical importance of transport for economic and social development also emanates from the fact that transport provides services to all sectors of the economy of a country and is a means for strengthening economic and social integration of regions.

18. Market access associated with improved transport services for the rural population plays a key role in poverty reduction as agricultural inputs are transported to the farm on time and at reasonable costs thus improving productivity. In addition agricultural produce get better access to the market and fetch better prices for the producer, than it would be possible without improved and motorized means of transport.

19. Transport is undoubtedly a precondition to effectively participate in the increasingly competitive global economy and in bringing about sustainable development. Indeed one of the major obstacles preventing Africa from competing effectively in the international market place is the lack of adequate and inefficient transport services.

20. The transport sector is a major source of employment. The construction of roads, railways, ports and airports and associated infrastructure generates employment opportunities for hundreds of thousands of citizens of the continent directly and indirectly in the manufacture and transport of construction materials. The provision of transport services is another sustainable source of employment involving hundreds of thousands of employees, including operators and managers.

21. An efficient and affordable transport system brings states together, thus creating single economic space, with sufficiently large population providing a larger market. Similarly efficient transport systems are central to the development and strengthening regional integration which is associated with economic and social benefits.

22. In line with the recognition that improved mobility and accessibility will bring rural communities closer to goods and services, many African countries have identified transport as a prerequisite for growth and poverty reduction. As it can be seen in the latest versions of their poverty reduction and sustainable development programs, African countries have continued to make efforts to realign their transport strategies to their national poverty reduction programs.

23. For instance, improvement and expansion of the national road network, with special emphasis on rural transport, features among the key sectors contained in the current version of Ethiopia's poverty reduction program, the Plan for Accelerated and Sustained Development to End Poverty (PASDEP). The PASDEP, Ethiopia's development framework for the period 2005-2010 emphasizes that transport is essential to link markets and producers, to lower costs of international trade and improve competitiveness, and to allow people easier access to essential services.

24. A sub-sectoral look at transport reveals some unique roles that each sub-sector plays in a national economy. Road transport is the most ubiquitous means of motorized transport, which has proved its superiority over other modes of motorized transport in terms of its affordability and flexibility for door to door services. Where high speed and long distance travel is of great importance, as it is true for the development of tourism and export of easily perishable and high-valued products, air transport has no parallel among current transport technologies. Maritime transport distinguishes itself as the cheapest means of moving high volumes of freight for thousands of kilometers, more importantly across oceans.

25. However, without proper planning, design and management, transport systems can bring about adverse social and environmental impacts thereby impeding sustainable development. In addition to the normal financial costs, there are economic, social and environmental costs of using any mode of transport. For example, air is polluted by emissions from engines of vehicles, aircrafts, trains and ships. Accidents caused by crashes result in loss of life and destruction of property. Traffic congestions cause, among others things, delays in delivery of goods and arrival of workers to their work places which in turn reduce productivity of the economy.

2.2 Status, trends and emerging issues in the transport sector in Africa

2.2.1 Roads and road transport

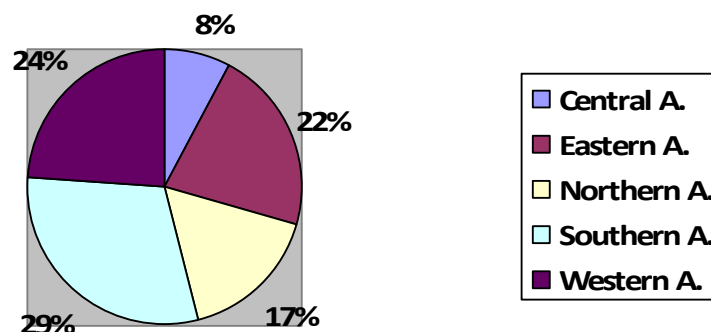
26. The road transport system involves multi-dimensional issues including developing and maintaining infrastructure, vehicles, road safety, impact on human health and the environment, human and institutional capacity building and financing.

Road Network by Sub-region

27. African countries together had about 2.06 million km of roads in 2001, resulting in a road density of 6.84 km per 100 sq. km. The network had expanded to 2.42 million km by 2005, with a proportional growth in the road density to 8.3 km per 100 sq. km. Although the expansion of the African road network over the four years is encouraging, the density is still low compared to those of Asia (over 18 km /100 sq. km) and Latin America (over 12 km/100 sq. km).

28. As it can be seen in Figure 2.1, the highest proportion of roads in Africa is found in Southern Africa (29 per cent), Western Africa (24 per cent) and Eastern Africa (22 per cent). The three sub-regions of Africa are also home to the highest road densities of the continent, with 12.3 km, 11.5 km and 8.4 km for every 100 sq. km of surface area, respectively, (Table 2.1).

Figure 2.1 Share of Africa’s road network by sub-region



Source: World Development Indicators 2008, The World Fact Book 2007, Final Evaluation Report: UNTACDA II, 2002 and AU. 2008, State of Transport Sector Development in Africa

29. Africa’s road-to-population ratio shows that whereas the average for the whole continent is 26 km per 10,000 inhabitants, there is a large sub-regional variation. Central Africa and Southern Africa have the highest road distribution, with 49.5 km and 56.3 km, respectively, for every 10,000 population. Due to the large population concentration in Eastern, Northern and Western Africa, the road network-to-population ratio is below the continent’s average.

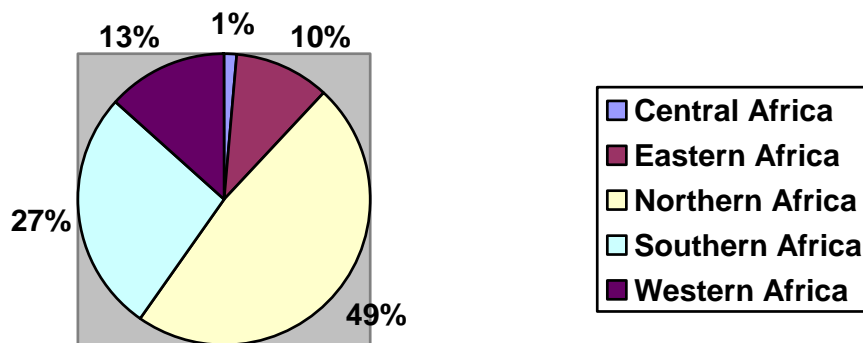
Table 2.1 Road network density and distribution in Africa by sub-region

Sub-region	Road Length (Km)2005	Road Density Km per 100 Km ²	Distribution per 10,000 inhabitants
Central Africa	186,471	6.3	49.5
East Africa	527,502	8.4	18.4
North Africa	400,520	4.4	21.0
Southern Africa	728,834	12.3	56.3
West Africa	580,066	11.5	21.5
Africa Total	2,423,393	8.3	26.0

Source: World Development Indicators 2008, The World Fact Book 2007, Final Evaluation Report: UNTACDA II, 2002 and AU. 2008, State of Transport Sector Development in Africa

30. Of the total African road network, only 580,066 Km or 22.7 per cent was paved in 2005. A look at the proportion of paved roads by sub-region shows a huge diversity. Whereas, Northern Africa had the highest share (49 per cent) of the continent's paved roads, leading the rest of the sub-regions by a wide margin, the second highest share (27 per cent) of the paved roads was found in Southern Africa. The share of paved roads in the other sub-regions ranged from 1 to 13 per cent.

Figure 2.2 Share of paved roads in Africa by sub-region



Source: World Development Indicators 2008 and The World Fact Book 2007

31. Comparison of road densities and conditions at the country level shows the massive effort required by some Africa countries to achieve what others in the continent have already achieved. For example, whereas Chad had only 26 km of paved roads for every one million inhabitants, countries like Algeria and Libya had well over 2000 km of paved roads for one million people.

32. Road construction and maintenance standards are not uniform for all African countries. Whereas few countries have relatively adequate financial and human resources to build roads and maintain them to international standards, many African countries are not in position to do so.

33. For some African countries allocating huge sums of money for building only few good roads seems to be a luxury given the vast population without access to even the basic rural road. Currently, the Rural Accessibility Index (defined as the percentage of rural population living within 2 km of an all weather-road) for the whole of the continent stands at about 34 per cent, indicating that the vast majority of the rural population remains outside the reach of motorized means of transport.

34. Table 2.3 illustrates the length of the total road network and the proportion of good and poor roads in four African countries. Whereas, the total network and the proportion of good roads have increased significantly in Ethiopia and Tanzania, the proportions of good roads have declined in Zambia and Kenya. This reflects, among other things, that some countries pay more attention to providing basic access roads than investing more to improve road conditions.

Table 2.2 Road network conditions in some African countries

Country	1997			2005		
	Good	Poor	Network(KM)	Good	Poor	Network(KM)
Ethiopia	16	47	15,769	38	36	39,162
Tanzania	33	25	10,300	51	16	28,892
Zambia	20	42	17,051	16	64	20,605
Kenya	23	37	6,554	19	64	63,805

Source: SSATP Annual Report 2007

Note: For Zambia, 2003 data are provided instead of 200; For Tanzania and Kenya, the 1997 network data covers only a section of the network

35. Overall, road network development has been inadequate in many African countries. Of even greater concern is the poor maintenance of existing roads, resulting in many sections of the network to be unusable during the wet season.

36. The Trans-African Highway (TAH) program, launched with the objective of linking Africa's capitals and other commercially important centers of production and consumption was first included in the UN Transport and Communication Decade in Africa. The TAH consists of eight major routes: Cairo-Gaborone, Lagos-Mombasa, Dakar-Djamena-Djibouti, Algiers-Lagos, Beira-Lobito, Tripoli-Windhoek, Lagos-Nouakchott, Cairo-Dakar. The total length of these highways is 54,962 km, of which 72 per cent is paved and the remaining 28 per cent is classified as secondary or feeder roads.

37. According to the Evaluation Report of UNTACDA II (2002), lack of adequate resources and absence of properly functioning coordination and monitoring mechanism, among others reasons, had hampered the implementation of the program. Despite the recommendations that the Sub-regional Economic Communities be directly responsible for the implementation of the TAHs, only the Algiers-Lagos highway was being piloted by the Trans-African Liaison Committee comprising representatives of the countries traversed by the Highway.

38. A study jointly conducted by ECA and AfDB to review the implementation status of TAH network identified the missing links to be 21 per cent of the total TAH network. The missing links are indicated in Figure 2.3 by dotted lines.

Table 2.3 The TAH missing links by sub-region

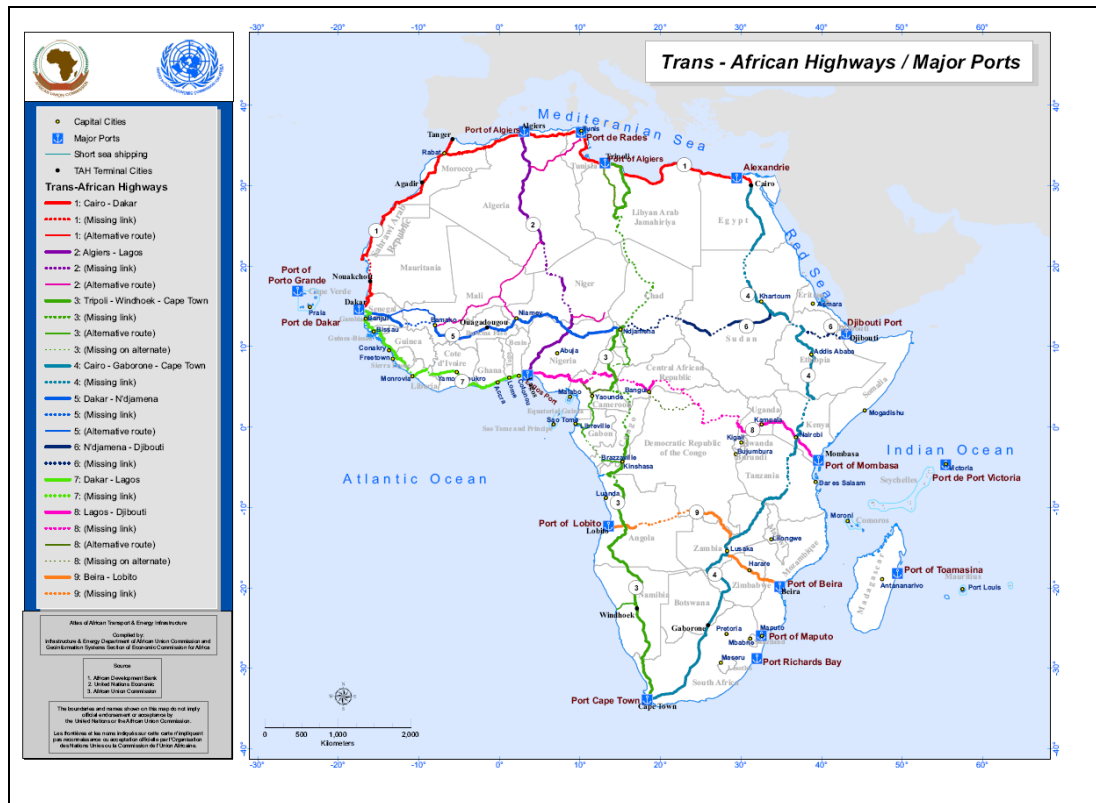
Region	Total TAH Network (km)	Paved sections (km)	% of missing Links
Northern Africa	13,292	13,195	1
Eastern Africa	9,932	8,201	17
Southern Africa	7,988	6,817	15
Central Africa	11,246	3,891	65
Western Africa	11,662	10,581	9
Total Africa	54,120	42,665	21

Source: AU. 2008, *State of Transport Sector Development in Africa*

39. The study also estimated the total funding requirement for completion of missing links to be about 4.3 billion USD, and recommended that financial and technical feasibility studies should be carried out for the sections that require rehabilitation and upgrading.

40. As the Republic of South Africa had been excluded from the TAH program during the Apartheid period, it is now recommended to extend the Cairo-Gaborone TAH section to Pretoria, and the Tripoli-Windhoek to Cape Town.

Figure 2.3 Map of TAH, dotted lines showing missing Links



Road Transport: operation and vehicle fleet

41. Road transport is the most dominant mode of motorized transport in Africa, accounting for 80 per cent of the goods and 90 per cent of the passenger traffic within the continent.

42. A study by NEPAD in 2006 indicated that there were about 20 million road vehicles both public and private in Africa, of which Central Africa accounted for 2 per cent, Eastern Africa for 11 per cent, Northern Africa for 9 per cent, Southern Africa for 58 per cent and Western Africa for 21 per cent.

43. The average age of commercial road vehicles (buses and trucks) is 20 years or higher, against the 8 to 12 years for developing countries as a whole and less than 10 years for industrialized countries. The combined effect of the poor condition of the commercial vehicles and roads in Africa, results in the low utilization rate of 65,000 km/year compared to 100,000 km in Asia and 250,000 km in Europe.

44. Although the development of road transport is essential for poverty reduction and sustainable development, the existing road transport system is also associated with a number of negative impacts on human health and the environment. In Africa, in particular, the aging road transport fleet, the poor road infrastructure and the limited skills of drivers and mechanics are among the major causes of high road accidents and air pollution.

Road transport in urban areas

45. The urban population of Africa has been increasing steadily, having grown from 203 million in 1990 to 295 million in 2000, an annual average growth rate of 1.2 per cent¹.

46. At the current rate of urbanization in Africa, it is estimated that 50 per cent of Africans will be city dwellers in 2030 compared to an average of 35.9 per cent in 2000. To accommodate the growing urban population, cities expand outwards creating neighborhoods far from existing urban infrastructure such as transport, which increases the costs of transport and similar infrastructural services. The rising costs of transport affects the most vulnerable groups of society to the extent that the poorest section of the urban population will have less educational, health and employment services.

47. In most African cities buses are the most common mode of public transport (Table 2.4), with minibuses dominating in all cities, except in Addis Ababa, where large buses have a higher share. Overall, about twice as many trips are taken by minibus than by large bus. Generally buses which carry roughly 8 to 25 passengers are classified as minibuses, and those carrying 30 to 50 passengers (with standees) as midi-buses. Buses carrying 50 to 100 passengers are classified as large buses. The vehicles classified as taxis generally have carrying capacities below those of minibuses. It is also important to note that motorcycles dominate as public transport in Bamako and Ouagadougou.

48. The use of motorcycles for commercial transport is also significant and growing rapidly in Douala and Kampala, resulting from the poor state of the roads and the inability of bus companies to meet growing demand. Motorcycle services originally provided access from residential areas to main roads, from where taxis and buses took over. With the weakening of the bus and taxi services, motorcycle services grew in importance over the years and currently dominate the main streets of Bamako, Douala, Kampala and Ouagadougou. While road congestion and air pollution are already major problems in these

¹ ECA/UN-Habitat (2008), *The State of African Cities*

cities, fatal accidents are also common, as many of the motorcycles are in the hands of inexperienced drivers.

49. Initially, the state-owned bus companies were able to operate without subsidy, but as operational deficits grew and public subsidies did not grow commensurately, operators had difficulty maintaining and replacing their fleet. The result was deterioration in service coverage and quality. Most of the public companies eventually failed and went out of business. Some cities (Accra, Dar Es Salaam, Kampala, Kigali, and Lagos) have abandoned large-bus service altogether, and now rely exclusively on private, largely informal, minibus services. Nairobi is the only city not to have passed through this cycle, having retained the private operation of its large-bus service since independence.

Table 2.4 Shares of various modes of urban transport in African cities (%)

City	Large bus	Mini -bus	Taxi	Motor-cycle	Private car	Walk	Other
Abidjan	11	19	29	0	18	22	1
Accra	10	52	9	0	13	12	4
Addis Ababa	35	20	5	0	7	30	3
Bamako	1	10	5	56	19	—	9
Conakry	1	14	6	0	1	78	0
Dakar	3	73	6	6	11	—	1
Dar es Salaam	0	61	1	1	10	26	1
Douala	10	—	13	12	2	60	3
Kampala	0	41	—	20	35	—	4
Kigali	1	75	10	0	10	5	0
Lagos	10	75	5	5	5	High	0
Nairobi	7	29	15	2	—	47	0
Ouagadougou	8	0	—	58	14	—	20
Average	7	30	8	12	12	37	4

Source: Kumar, A., Barrett, F. 2008. *Stuck in Traffic: Urban Transport in Africa*. AICD

Note: — = Not available. Rows may not total to 100 because of rounding.

Note: The modal share shown for Bamako, Dakar, Kampala, Lagos, and Ouagadougou reflects motorized trips only.

50. Minibus services are almost invariably provided by the informal sector. Ownership is highly dispersed, with most individual entrepreneurs owning no more than one or two vehicles, which they generally rent out to drivers.

51. Most African cities have a minibus fleet several thousand strong, compared with only a few hundred larger buses (Table 2.5). The minibus fleet tends to be somewhat older than the large buses, since typically it is composed of second-hand vehicles, whereas many large buses are or were supplied new by aid donors.

Table 2.5: Average bus age (years) and fleet Size in African cities:

City	Large bus		Minibus	
	Average age	Fleet size	Average age	Fleet size
Abidjan	7	650	15	5,000
Accra	1–2	600	15–20	6,000
Addis Ababa	—	350	—	10,000
Bamako	17	168	15	1,800
Conakry	20	50	10–15	1,500
Dakar	—	410	15–20	3,000
Dar es Salaam	n/a	0	15	7,000
Douala	15	100	15–20	2,000
Kampala	n/a	0	10–15	7,000
Kigali	4	20	15	2000
Kinshasa	2 ^a	180 ^a	15–20 ^b	1,200 ^b
Lagos	—	<100	>15	75–120,000
Nairobi	—	250	>15	10,000
Ouagadougou	5	55	n/a	0
Average	9	218	14	11,400

Source: Kumar, A., Barrett, F. 2008. *Stuck in Traffic: Urban Transport in Africa*. AICD, World Bank

Note: — = not available; n/a = not applicable. a. Publicly owned operator; b. Informal operators

52. The proliferation of minibuses, although a source of essential transport services to Africa's urban residents, has resulted in adverse impacts in relation to road safety and the environment. The large number of minibuses, accounting for about 50 per cent of all motorized traffic in many of African cities has resulted in serious road congestion, particularly during peak periods. Furthermore, the fact that most minibuses are aging, inadequately maintained, and operated for long hours at low speeds, coupled with the generally weak enforcement of regulations on vehicle inspection, driver behavior, and traffic management is attributable to the numerous road accidents and greenhouse gas emissions prevailing in most African cities.

53. Most of the large buses providing urban transport services in African cities are owned and operated by state-owned enterprises. State-owned urban transport systems generally operate under regulated fares, to make it affordable to low income groups. This has resulted in congested and uncomfortable public transport systems in many African Cities. As the mass transit systems are not well developed in Africa, the situation has encouraged the use of smaller passenger vehicles and motorcycles, whose limited seat capacity makes them less efficient than larger buses. In other words, the increasing number of aging and, hence, energy-inefficient taxis and private vehicles on the roads of African cities is the result of the inadequacy of the mass transit system.

54. The more environmentally-friendly means of mobility, including walking and cycling are usually difficult due to the poor infrastructure and facilities suitable for non-motorized transport as well as the congestion of the roads. Very often, there are no adequate and well maintained sidewalks forcing pedestrians to share the roads with motor vehicles.

55. Overall, public transport in Africa has not kept pace with the growth of population. As a result those who can afford a private vehicle have chosen this option, which is costly to the owner as well as to the economy in many aspects. The rising number of private vehicles in many African cities has resulted in congested roads which in turn have lead to a rise in hazardous emissions, including CO₂, NO_x and Sulfur.

56. Further, many cities in Africa are not well planned: residential areas, work places, schools, markets and recreational places are not built by taking the transport need of residents into account. Although modern urban planning takes these factors into account, many existing cities were not built on the basis of modern urban plans.

57. The traffic situation on existing roads is further exacerbated by poor management of traffic flow, weak enforcement of traffic regulations as well as by limited parking space along side roads.

Box 2.1 Urban Transport in Cairo

In Egypt, the number of vehicles increased from 3.6 million in 1992 to 6.6 million in 2005. About 50 per cent of the total number of vehicles in the country was registered in the Cairo Metropolitan Area.

The capital city, Cairo, with a population of 12.1 million in 2008 is served by different modes of transport. The formal public transport service, consisting of the state-owned Cairo Transit Authority (CTA), the Greater Cairo Bus Company (GCBC) and the Cairo metro Organization, which runs the urban heavy-rail service, is the dominant form of urban transport in Cairo.

The informal service is dominated by the privately owned shared taxis, with typical capacities of 11-14 seats.

Given their average age of over 12 years old and running on old-generation diesel engines, most buses and trucks in Egypt consume significantly more fuel than is required by new and more energy efficient vehicles of the same capacity.

Of the total number of daily trips of 18 million made by motorized transport in Cairo, 68 per cent was made by public transport. The total number of passenger trips made by public transport is nearly evenly divided between the formal and informal mode of transport.

Crowding of public transport in Cairo is common, sometimes reaching intolerable levels (Thompson and Nagayama, 2005). This is to be expected, as the number of buses has increased by only 19 per cent from 3,700 during the past decade, whereas the network has expanded by 66 per cent from 6,100 km.

As part of the effort to improve urban transport, Egypt has built the Cairo Underground Metro and made it operational since 2000. The Metro, the first of its kind in Africa and the Middle East, carries an average of 2.7 million passengers per day.

2.2.2 Rural transport

58. Rural Transport include rural transport infrastructure (including rural roads, paths, rivers, coastal transport, railroads and rural air strips) as well as the means of transport, including motorized and non-motorized.

59. As motorized transport services are lacking in most rural areas of Africa, walking and back/head loading are the predominant means of transport. The relatively well-off rural households use beasts of burden for carrying loads and persons. Most transport activities in Africa's rural areas involve travelling between adjacent villages on footpaths and tracks, mainly to go to the market, fetch water, collect fuel-wood and visit the health center. In most cases access to these services and facilities is difficult as long distances have to be covered on foot, often along unsafe and ragged terrain. What makes the situation even of greater concern is the fact that the burden of transport falls mainly on women.

60. Studies in Malawi and Tanzania showed that women contributed about three times more time to rural transport than men. A look at the loads transported also shows that the

share of men and women are even more uneven; only about 15 per cent is carried by men and the remaining 85 per cent by women. As head-loading accounts for approximately 80 per cent in the way goods are carried in these countries, it becomes clear why women carry the burden (Dingen, 2000).

61. Rural transport in Africa is planned and managed by multiple levels of public institutions, central/federal government departments, regional and local governments. Different ministries, such as transport, public works, local government, forestry, agriculture and rural development are also involved in the implementation transport interventions. This often leads to uncoordinated planning, wastefulness in resources and a lack of synergies.

62. Intermediate means of transport (IMTs) are important supplements to traditional and motorized modes of transport. Despite its important role, IMTs are short supply in Africa. For example, while Africa has 35 bicycles per thousand people, China has 270 per thousand. With regard to intermediate motorized vehicles, which are common in China and South East Asia, such vehicles are rarely seen on the roads of African countries.

63. Intermediate motorized vehicles, based on motorcycle technology, are more energy-efficient, less polluting and less expensive means of transport compared to the regular vehicle.

64. Improving accessibility in the rural areas is beneficial to all people, but will have particular impact on women. It is therefore essential that women are involved in all phases of rural transport and access planning, implementation and maintenance.

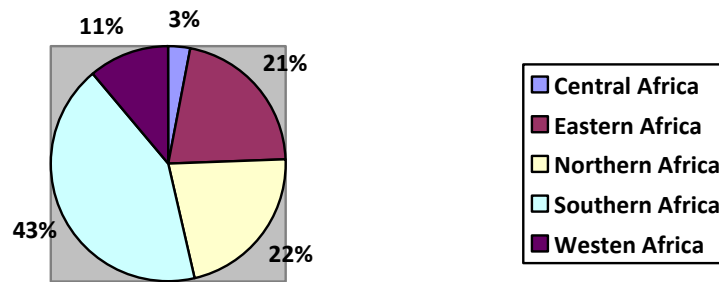
2.2.3 Railways and rail transport

65. Railways are the most cost-effective mode of transport for moving bulk cargo for long distances over land. They are suited to container traffic between ports and capitals. The relative importance of the rail system compared to other modes is the advantage it has gained from recent economic and technological trends including higher energy prices, the growth of container stations and new increases in flows of bulk trade and traffic, including food and other commodity aid to Africa.

66. Although it is well recognized that railways are cost-effective and environmentally friendly means of transport, the existing railway infrastructure in Africa is far from adequate. In addition to the low network connectivity, the railways in Africa, with the exception of North Africa, have a low level of traffic. Over all, the railways in Africa carry only 1 per cent of the global railway passenger traffic and 2 per cent of the goods traffic.

67. In 2005 Africa had a total railway network of 90,320 km or 3.1 km of per 1,000 sq. km. The sub-regional distribution of the railway network at the time is shown in Figure 2.4. Of the five sub-regions of Africa, Southern Africa had the highest share of railway network (43 per cent), followed by North Africa (22 per cent). Central, Eastern and Western Africa together had a share of only 35 per cent.

Figure 2.4 Share of Africa's railway network by sub-region



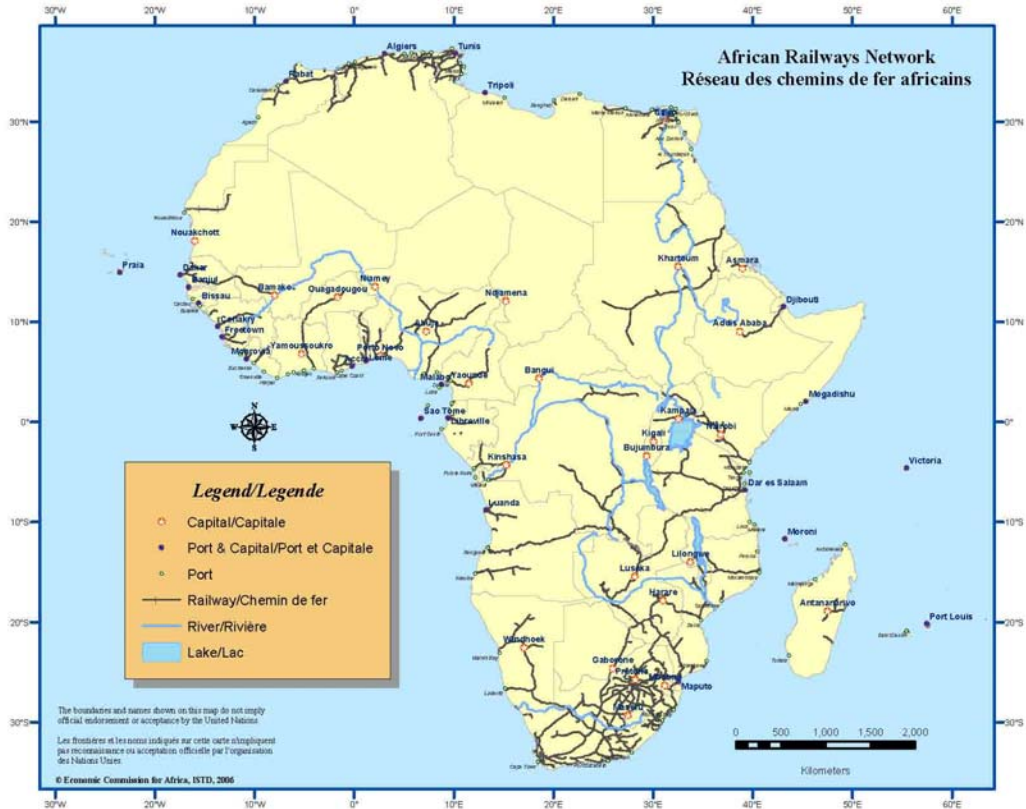
Source: a) *World Development Indicators 2008*
b) *The World Fact Book 2007*
c) *Final Evaluation Report: UNTACDA II, 2002*

68. Most of the network, having been built at the end of the nineteenth century or the beginning of the twentieth century, when the most important demand for transport emanated from the need to link ports to the hinterland producing primary commodities for export, is not interconnected.

69. Poor management, old and poorly maintained track, rolling stock and other facilities has left railways in Africa in a poor state. The only exceptions are, Tazara, the Trans-Gabonese, the Trans-Cameroonian and the mining lines which were built in the late 1970s. Of the total number of the Africa Union member countries, seventeen have no railway. These are: Burundi, Cape Verde, Central African Republic, Chad, the Comoros, Equatorial Guinea, the Gambia, Guinea Bissau, Libya, Mauritius, the Niger, Rwanda, Sao Tome & Principe, the Seychelles, Sierra Leone (the railway no longer works) and Somalia.

70. A further examination of the railway network reveals that many of the lines are disjointed resulting in poor connectivity between neighboring countries. The Southern African rail system is more interconnected than the railways of the other sub-regions.

Figure 2.5 Map of African railways network



71. Road transport development in the past few decades has made railway transport less competitive in many countries. As a result only few countries in Africa have expanded their railway lines in the past few decades. As a result of the conflicts in countries such as Angola, DRC and Sierra Leone, the railways in these countries were in fact closed down some of their railway transport operations.

72. Notable examples of African countries, which have added some lines to their railway network, include South Africa, Tanzania and Zambia. The Tazara railway line running between Tanzania and Zambia was an addition to the long stagnating railway network in the sub-region.

Technical characteristics of African railways

73. African Railway lines use nine different gauges. The following three are widely used:

- The 1.067 m gauge is the most widely used gauge, representing 61.3 per cent of the continent’s network, mainly in Sub Sahara African countries.
- The 1.000 m gauge representing 19.2 per cent of the continent’s network and,
- The 1.435 m (European) gauge representing 14.5 per cent of the continent’s network (dominating in Northern Africa.)

74. A comparison of the power source for driving the locomotives indicates that diesel-electric traction was the most widely used. Electrified railway lines, representing a small fraction (only about 7 per cent), are found, only in some parts of Northern Africa, South Africa and DRC, where the traffic density is high. Although they are being phased out on

many lines, old steam engines are still in operation in Kenya, mainly for tourist attraction purposes.

75. Speed and carrying capacity of African railways are generally low because of a number of factors, including small radius of curvature (less than 400 meters) and high gradient (greater than 10 per cent). Other factors limiting the capacity of the railways are the age and weight of the rails. In addition to being old and weak, most rails light weight, being between 25 and 36 kg per meter.

76. The signalling and telecommunications system of the railways in Africa are also generally old and lack the reliability required in a modern transport system.

77. The above physical characteristic of the rail networks in Africa form major hindrances to the introduction of modern trains, having high speed and carrying capacity.

78. Accidents, some fatal, have occurred involving train derailment and crushes on African railways. Most accidents are attributed to poorly maintained tracks and trains. In addition to claiming the lives of many passengers and crew, these accidents have resulted in huge financial losses to shippers and railway companies.

79. Before the 1990s, railways in Africa were mainly run as state monopolies, characterized by cumbersome and bureaucratic administrations.

80. The poor management of these railway enterprises coupled with the generally obsolete and inefficient rolling stock and rundown equipment did not allow railways to compete adequately with the more dynamic road transport sector, dominated by the private sector.

81. The benefits that public-private partnership arrangements can bring to the transport sector have been documented in a number of studies. A recent study by the Infrastructure Consortium for Africa, for example, has reported performance improvements in the railways of some African countries after the implementation of concession. The following are a few examples.

- Cameroon railway registered *an increase of 27 per cent in freight traffic; 16 per cent in productivity; current asset ratio increased from 0.55 to 0.9; increased net transfers to Gov.*
- Beira railway reported 10 fold increase in average km between locomotive failure; 5 fold decrease in track under temporary speed restriction.
- Mali-Senegal railway reported 8 fold decrease in length of traffic slowdown.

Missing links in African railways

82. According to the African Union (AU) - New Partnership for Africa's Development (NEPAD) Infrastructure Development Study of 2006, 74 per cent of Africa's railway network was interconnected, implying that 26 per cent of the links were missing. The largest proportion (48 per cent) of missing links was found in Western Africa. The most interconnected railway network was reported to exist in Southern Africa, with only 10 per cent missing links.

83. Table 2.6 shows the length of existing links and the length and proportion of missing links of Africa's railway system by Sub-region.

Table 2.6 Railway missing links by sub-region

Regions	Existing Links (km)	Planned Lines in the Master Plan (1979) Missing link (km)	Total Length of Lines (existing and planned) (km)	Percentage of Railway Missing Links
North Africa	16,012	6,484	22,496	29
Eastern Africa	9,341	2,299	11,640	20
Southern Africa	33,291	4,034	37,325	11
Central Africa	6,414	4,574	10,988	42
Western Africa	9,715	8,971	18,686	48
Total Africa	74,775	26,326	101,137	26

Source: NEPAD-AU Infrastructure Development Study, 2006

2.2.4 Ports and maritime transport

84. Sea ports are fundamental outlets of international trade for both coastal and land-locked countries. Sea transport has a significant cost advantage over surface transport for dry and liquid bulk cargoes or containerized cargo.

85. The importance of maritime transport emanates from the fact that over 90 per cent of the world international trade transits through ports. Maritime transport is even more dominant in Africa as it accounts for over 92 per cent of Africa's international trade. However, poorly maintained port infrastructure and inefficient operations remain major bottlenecks for African trade.

86. With a total coastline of 30,725 km, Africa has 90 major ports, accounting for over 95 per cent of its international import and export trade. Africa's major ports are shown in Figure 2.3 (i.e., on the Map showing the Trans-African highways).

87. African ports handle only 6 per cent of global traffic, of which only 6 ports, 3 in Egypt and 3 in South Africa, handle about 50 per cent of Africa's container traffic.

88. The Africa Infrastructure Country Diagnostic, in its study of 73 ports in SSA, has identified port capacity limitations and lack of institutional reforms as two important constraints that must be addressed without delay for African ports to effectively contribute to Africa's international trade.

89. In other parts of the world, containerization has been growing at a rapid rate, with cargoes such as break bulk goods and even food grains, edible oils and liquid commodities increasingly being carried in containers.

90. Africa's port productivity is low compared to the rest of the world. It is estimated that the average productivity in African ports is about 30 per cent of international norm. Poor management, and limited and poorly maintained equipment account for the low productivity.

91. UNCTAD's recent studies on port performance indicate that although some African ports have improved their productivity during the past few years mainly due to port

liberalization programs, much more needs to be done to bring the productivity to international standards.

92. An important performance indicator of port operations is the dwell time for vessels. According to recent NEPAD-AU studies, the average dwell time in a number of major African ports is about 11 days, which is three times that of average dwell times in the ports of other developing regions. Douala in Central Africa, Dar-es-salaam in Eastern Africa, Beira and Maputo in Southern Africa and Guinea in Western Africa have the highest dwell times. Dwell times in each of the selected major ports of Africa are indicated in Table 2.7.

Table 2.7 Dwell times of major African corridor ports

Sub-regions/ports	Dwell-time(in days)
Central Africa	
Douala	19
Gabon	15
Congo DRC	6
Eastern Africa	
Djibouti	10
Mombasa	12
Dar-es-salaam	15
Southern Africa	
Durban	5
Beira	10
Maputo	10
Western Africa	
Banjul	5
Conakry	15
Dakar	9

Source: NEPAD-MLTSF study, 2004

93. According to UNCTAD's Maritime Review for 2006, the volume of goods loaded and unloaded in African ports is estimated to be 860 million tones per year, resulting in the continent's share of about 2.1 per cent of the world's total.

94. Similarly, container ships account for less than two per cent of the African merchant fleet; the vast majority being conventional cargo ships. The shipping lines that principally service long-distance sea routes consider most of Africa's coastal traffic as mere subsidiary to their traditional overseas activities

95. The UNCTAD review also shows loaded goods by vessels owned by African Countries were 230 million tons per year on average, with unloaded cargo averaging 70 million tons. This clearly shows the considerable imbalance between inbound and outbound cargo traffic.

96. With regard to fleet condition, the UNCTAD report indicates that by the end of 2005 the average age of the African merchant fleet, including major open registry, was 11.8 years and was therefore lower than the average of that of the world merchant fleet, which was 12.2 years. However the average age of the fleet without taking into account major open registry was older (20.5 years). In both cases the Review reports that container ships were the youngest, at 6.9 and 12.3 years, respectively; while general cargo ships were the oldest with 17.3 and 22.1 years, respectively.

97. There are new developments in international shipping that are likely to negatively affect many African ports. As the round-the-world services takes shape, a large part of African ports may experience down grading in routing plans. African ports are not located on the main international maritime transport routes, namely: the Asian/North America (Transpacific), Asia/Europe-Mediterranean and North America Mediterranean (Transatlantic). Already African cargo destined for North America is taken to European ports in order to link up with round-the-world services northbound or southbound through Suez Canal.

98. This trend will eventually affect the nature of shipping to and from the region. In terms of cost to shippers, this may turn out to be advantageous in the economies of scale desired by the large shipping lines' freight rate from East Africa to Europe/UK using round-the-world services is about \$ 900 per TEU whereas normal liner rate is between US \$1,500-2,000 per TEU.

99. The Johannesburg Plan of Implementation has called States to ratify or accede to and implement the conventions and protocols and other relevant instruments of the International Maritime Organization (IMO) relating to the enhancement of maritime safety and protection of the marine environment from marine pollution and environmental damage caused by ships, including the use of toxic anti-fouling paints and urge IMO to consider stronger mechanisms to secure the implementation of IMO instruments by flag States.

2.2.5 Inland water transport

100. Africa is endowed with a number of rivers and lakes that have great potential of being inexpensive, energy-efficient and environmentally-friendly inland waterways. Twenty-nine African countries have navigable bodies of water, of which only a small number have been well developed for transport services.

101. Despite the potential of these inland waterways for expanding the choice of transport modes, and more importantly, for providing additional access for landlocked countries, very little has been done to develop them. Most of the time even existing waterways are prevented from providing reliable and sustainable service due to a number of problems, including conflicts. The Congo conflict is a typical example of an existing transport operation being disrupted and causing traffic to decline drastically.

102. Currently, of the total number of navigable inland waterways in Africa, five rivers and three Lakes provide the most significant volume of service.

103. *The Nile River:* The Nile River, called the White Nile from its source in Lake Victoria to Khartoum, Sudan where it joins the Blue Nile, originating from the Highlands of Ethiopia is 6,650 km long from source to draining the Mediterranean Sea.

104. In Egypt alone, the river Nile including the canals carried 3.6 million tones of freight in 1995. This was only 3.3 per cent of the total freight transported in the country by all modes of transport in the same year. Despite the advantages of using inland waterways as a means of energy-efficient mode of transport, the Nile is underutilized as an inland waterway, not only in Egypt but all along its journey from Lake Victoria to Alexandria.

105. **The Congo River:** The Congo River, the second longest river in Africa is another important river from the transport point of view. Combined with the Oubangui, tributary, the Congo River provides 1,200 km of navigable waterway of Bangui with Brazzaville/Kinshasa. The river has a total length of 4370 km. The transport fleet, mostly owned by the private sector, operating on the Congo-Oubangui-Sangha river system is estimated at 10,000 units.

106. **The Niger River:** The most prominent inland waterway in West Africa is the Niger River, ranking as the third longest river in Africa. With its tributary, the Benue River, the Niger River traverses Guinea, Mali, Niger, on to the border with Benin and then through Nigeria travelling about 4,183 km from its source to the point where it discharges into the Atlantic Ocean.

107. **Senegal River:** Another important inland waterway in west Africa is the Senegal River, measuring 1790 km long. The Senegal River, serving as the boundary between Senegal and Mauritania, is navigable from the Atlantic Ocean to Podor, Senegal, all year long, and to Kayes, Mali, during rainy seasons.

108. **The Zambezi River:** The Zambezi River, with its tributaries, offers 570 km of navigable waterway for the Southern part of Africa. Goods, including coal and molasses are transported over the river in barges.

109. **Lake Victoria:** Lake Victoria Africa's largest Lake with an area of 69,000 sq. km and a shore-line of 3,500 km, is suitable for inland water transport. The Lake, located in the territories of Kenya, Tanzania and Uganda, has long been a means of transport carrying cargo and passengers within each country and between the three countries. The East African Community has an ongoing program of improving services of the lake through measures including involvement of the private sector in the provision of port infrastructure and other facilities and privatizing port services to improve efficiency and ensure full utilization of the facilities.

110. **Lake Tanganyika:** Lake Tanganyika, the second largest lake in Africa with an area of 36,000 sq. km forms an important inland waterway linking DRC, Tanzania, Burundi and Zambia. The levels of operational characteristics in L. Tanganyika are the same as those of Lake Victoria.

111. **Lake Malawi:** Lake Malawi, the third largest lake in Africa, provides a useful means of transport for and between Malawi, Mozambique and Tanzania. The lake is a long but narrow body of water, stretching 603 km from the north to the south, with a width of 87 km at its widest point.

112. Outcomes of the recent NEPAD studies on infrastructure medium to long Term strategic Framework, published in June 2007 on infrastructure Development Gaps have identified the major constraints of inland waterway transport as follows: poor safety and security due to lack of communications and SAR system; poor infrastructure at terminals; difficulties arising from seasonal blockages caused by water weeds that often close in land waterways routes and terminals; and lack of modern fleet to provide reliable transport services.

113. The NEPAD study on infrastructure has proposed a number of measures that would help improve inland water transport services. The major recommendations include:

improvement and maintenance of roads and terminals of inland waterways; introduction of modern fleet; improvement of safety, security and environment of the inland waterways; and harmonization of procedures and standards to increase domestic and international traffic.

2.2.6 Multi-modal transport

114. Goods from African ports are carried by rail, road, air, inland waterway or a combination these modes. However, as the different modes of transport are regulated and managed by different public authorities and organizations, very little coordination exists between the different carriers. An integrated multi-modal transport system can reduce freight costs by removing inefficiencies associated with a system of transport where goods are loaded and unloaded from different modes operated independently.

115. Inland container depots (ICDs) are important elements in the development of multi-modal transport systems as they serve as inland port terminals in coastal or land-locked countries in the hinterland.

116. A major role of ICDs is the promotion of the use of containers, which greatly facilitates the movement of goods from point of origin to final destination without the need for customs control and cargo handling up to the point of modal transfer.

2.2.7 Airports and air transport

117. Africa had about 4,000 airports and airfields in 2007, of which only 20 per cent had paved runways. The vast majority of airports serve only smaller aircrafts for domestic services. A significant number of Africa's airports do not meet ICAO standards and recommended practices. Runways, taxiways, parking spaces, passenger and freight terminals as well as cargo handling and electro-mechanical equipment are in such a poor condition that they require major rehabilitation and upgrading. Only 117 of Africa's airports are classified as international airports. During the year under consideration, South Africa had the highest number of airports in Africa, with a total of 728 (146 of which had paved runways). South Africa, Egypt, Morocco, Algeria have the busiest airports in Africa.

118. Africa's share of global air transport services remains modest at about 5.2 per cent of the two billion passengers carried by 190 Member States of ICAO and approximately 3.6 per cent of freight for the year 2006. During the same year, the air transport sub-sector generated 470,000 jobs in the continent resulting in a revenue of USD11.3 billion contributing 1.7 per cent to the African GDP.

119. Although Africa's global share of air transport services remains low in absolute terms, the growth rate of air traffic in the continent is higher than that of the world's average. According to the International Air Transport Association (IATA), in 2005, Africa's air traffic had a growth rate of 11 per cent for passengers and 8 per cent for freight, compared to the global figures of 8.3 per cent and 3 per cent, respectively.

120. Passengers carried to and from African airports grew from 30 million in 2001 to 40 million in 2006, which is an average annual growth of 6 per cent. South Africa, with 12.9 million passengers in 2006 has by far the largest share of passengers carried, with Egypt (5.0 million), Morocco (4.1 million), Algeria (2.9 million), Kenya (2.7 million), Tunisia (2.1 million), Ethiopia (1.7 million), Nigeria (1.3 million), Libya (1.2 million) and Mauritius (1.1

million) occupying the top ten list. In terms of carrier departures from African airports, South Africa, with 146,648 departures per week assumes the top rank. Morocco with 55,239 departures per week and Egypt with 47,444 departures per week follow South Africa.

121. Africa’s air transport sub-sector is also expected to continue on a strong growth path in the coming years. Boeing’s forecast, for example, indicates a growth of 4.8 per cent for passengers and 6.4 per cent for freight during the coming decade. A similar forecast by Airbus predicts Africa’s air transport to grow at the rate of 6.3 per cent in the passenger traffic for the period 2004-2013 and 3.9 per cent for the period 2014-2033 as well as 7 per cent in freight traffic for the period 2005-2023.

122. According to NEPAD’s study on transport infrastructure (2006), out of a total of 1167 aircrafts operated by African Airlines, the vast majority (about 80 per cent) were 10 years old or higher, with nearly half of the total (48 per cent) falling in the age group of 20 years or higher.

Table 2.8 Average age of the African air fleet

Age Bracket (years)	0-10	10-20	20-30	Over 30	Total
Number of Aircrafts	236	366	322	243	1167
Share in Percentage	20.2	31.4	27.6	20.8	100

Source: NEPAD Infrastructure Development Gaps Report, 2006

123. The NEPAD Report referred to above has also shown that Africa’s aircraft fleet average age of 20 years compares unfavorably with 12 years of that of North America, nine years of that of Europe and seven years of that of Asia.

124. African Airlines are also characterized by a relatively small fleet of mainly medium-sized aircrafts. In fact all Africa’s Airlines, with the exception of South African Airlines, have not reached the critical size of major international airlines.

125. Aircrafts run by African Airlines have numerous weaknesses compared to modern aircrafts, which have increasingly become more fuel efficient and environmentally friendly. Carbon emissions and noise of modern aircrafts are significantly lower than those of older aircrafts. However, given the small size of air fleet operated by many African Airlines, the share of emissions from African airlines is a tiny fraction of the total emissions from world airlines.

The Yamoussoukro Decision

126. The most radical step to-date in liberalizing air transport in the continent was taken in 1988 when African Ministers responsible for civil aviation, adopted the Yamoussoukro Declaration on a New African Air Transport Policy. This declaration was a response to the deregulation and liberalization policies that had been implemented in the USA and Europe since the late 1970’s. The Yamoussoukro Declaration was aimed at creating a conducive environment for the development of intra-African and international air services in Africa.

127. Five years after the Yamoussoukro Declaration was made, it was learnt that very little action had been taken by member countries to implement the Declaration, which prompted the African Ministers of Transport and Communications to meet in Mauritius on 9 September 1994, and adopt the following measures:

- (i) Governments should incorporate the Declaration into their national policies within one year;
- (ii) There should be flexibility in exchange and liberalization of traffic rights within a period of two years;
- (iii) Efforts should be intensified toward the establishment of multinational airlines;
- (iv) Cooperation and integration programs should be established by airlines during the period 1995- 2000, revamping and commercialization of operations and the training and retention of qualified staff;
- (v) Coordination machinery should be set up at all levels with the involvement of sub-regional economic organizations; and
- (vi) Supplementary measures should be adopted on rationalized use of airspace, air transport charges, facilitation, security, transfer of revenues, designation of airlines and establishment of a multi-national legal framework for the application of the above decisions.

128. Having recognized the need to accelerate the implementation of the Yamoussoukro Declaration, the African Ministers Responsible for Civil Aviation adopted the “Decision” related to the implementation of the “Yamoussoukro Declaration” for the liberalization of access to air transport markets in Africa at their meeting in Yamoussoukro in November 1999.

129. The Heads of State and Government of the Organization of the African Unity (OAU) (now AU) at the summit held in July 2000 in Lome, Togo , endorsed the Decision of the Ministers. The Decision reaffirmed the commitment of African countries to gradually eliminate non-physical barriers to intra-Africa air transport and restriction linked to: the granting of traffic rights, particularly the fifth freedom traffic right; aircraft capacity of African airlines; traffic regulation; designation of operating instruments; and operation of cargo flights.

130. Since the adoption of this Decision, African countries in collaboration with African regional organizations, have implemented a limited number of air transport liberalization policies; therefore the full implementation of the Yamoussoukro Decision still remains a challenge to most African countries.

2.2.8 Cross cutting issues

2.2.8.1 Transport facilitation

131. Transit times on African transport corridors are unduly long due to a number of reasons, including unclear and sometimes conflicting rules and regulations, inefficient service providers, road blocks, as well as cumbersome administrative and customs procedures.

132. The existence of roadblocks on African highways has created a serious challenge to transport facilitation and trade in the continent. It leads to excessive traffic delays thus

resulting in substantial increase in transport costs. As it can be seen in Table 2.10, in 2003 the major highways in West Africa had two to seven roadblocks on every 100 km route. The Lagos-Abidjan route had the most frequent check points, with 7 per 100 km.

Table 2.9 Checkpoints on selected west African highways

Highways	Distance (km)	Number of Checkpoints	Checkpoints per 100 km
Lagos-Abidjan	992	69	7
Cotonou-Niamey	1036	34	3
Lome-Ouagadougou	989	34	4
Accra-Ouagadougou	972	15	2
Abidjan-Ouagadougou	1122	37	3
Niamey-Ouagadougou	529	20	4

Source: ECOWAS Official Site (2003)

133. It was also reported that at these check points, drivers are sometimes subjected to many types of administrative harassment and extortion. The situation is now improving as operations are becoming sensitive to unwarranted checkpoint delays. Table 2.10 shows the number of the numerous checkpoints per 100 km in various sections of major highways in the West Africa region and Table 2.11 outlines the delays that drivers experience at selected border posts.

Table 2.10 Delays at selected border posts in southern Africa

Corridor	Border Post	Countries	Delay (hours)
Beira	Machipanda	Mozambique and Zimbabwe	24
	Zobue	Mozambique and Malawi	24
	Mutare	Mozambique and Zimbabwe	26
Maputo	Ressano Garcia	South Africa and Mozambique	6
	Namaacha	Swaziland and Mozambique	4
North South	Beit Bridge	South Africa and Zimbabwe	36
	Chirundu	Zimbabwe and Zambia	24
	Victoria Fall	Zimbabwe and Zambia	36
	Martins Drift	South Africa and Botswana	6
Trans Caprivi	Kazungula	Botswana and Zambia	24
Trans- Kalahari	Buitepos	Namibia and Botswana	6
	Pioneer Gate	Botswana and South Africa	4
Tanzam	Nakonde	Zambia and Tanzania	17

Source: World Bank, 2000, 'Transport Corridor Agenda', World Bank – Southern Africa Transport Commission.

134. Delays caused by the numerous checkpoints along Africa's roads, cumbersome customs procedures at border posts have been common problems facing the transportation of goods in Africa. A recent SADC report on implementation status of Trans-Africa Highways estimated that about 3.3 million vehicle-hours are spent annually for passing through the borders in that sub-region, the cost of which was estimated at USD 4.8 million.

2.2.8.2 Transport and energy

135. Of the total global energy production, Africa accounts for 10 per cent. A look at fossil fuel production and consumption alone shows that Africa contributed 12.5 per cent of global oil production, but accounted for only 3.5 per cent of global oil consumption². Africa's energy (particularly oil) consumption, is low compared to its population share (13 per cent) of the world.

136. Africa's energy consumption pattern demonstrates a strong bias towards traditional energy sources. Biomass, constituting mainly of plant residue and animal waste, accounts for 59 per cent of the continent's total energy consumption. Whereas petroleum products account for 25 per cent of the continent's energy consumption; electricity, coal and gas follow with 8 per cent, 4 per cent and 4 per cent, respectively (IEA 2005-SCP).

137. A sectoral look at the world's energy consumption shows that, the transport sector accounts for about 25 per cent of the total energy consumption and for more than 55 per cent of all the oil used each year. The sector depends on petroleum products for 95 per cent of its energy requirements. The growth in world oil demand is mainly attributed to the growth in transportation demand³.

138. A further breakdown of energy consumption by sub-sector reveals that, of the total energy consumption in the transport sector in developed countries, road transport accounts for about 85 per cent, the balance of the energy consumption in the transport sector being shared by rail, maritime and air transport.

139. From the high energy intensity of road transport, it is not difficult to estimate the magnitude of energy wasted through the use of aging and inefficient road vehicles. It is this kind of inefficiency, among others, that makes African transport users to bear the high transport and energy costs, in addition to suffering from the consequences of higher pollution and environmental degradation.

140. Africa's demand for energy will no doubt keep on rising with the ever increasing need for mobility, on the one hand, and the need to eradicate poverty and bring about sustainable development on the other. All African countries have plans to accelerate the expansion of their motorized transport from its current low level compared to other developing and developed countries. This transport growth in turn will call for increasing consumption of energy, mainly petroleum products.

2.2.8.3 Transport and environment

141. The transport sector mainly during the construction of infrastructure and operation of transport equipment and other facilities is associated with a significant adverse effect on the environment. These environmental effects can however be avoided or minimized by ensuring the formulation and implementation of transport policies and programmes and project takes into account environmental considerations

² UNIDO, Scaling up Renewable Energy in Africa, Working Paper, January 2009

³ Dr. Jean-Paul Rodrigue, Dept. of Global Studies & Geography, Hofstra University.

142. Among some of the environmental concerns associated with the transport sector are: forest degradation and deforestation, loss of biodiversity including loss of wildlife habitats, changes made on the drainage systems and geological formations and land degradation especially the construction of roads, railways, airports and seaports is of great concern to society at large.

143. The problem of serious erosion adjacent to ports and harbors has been documented in Benin, Togo, Nigeria, Liberia, Ghana, Cote d'Ivoire, South Africa, Tanzania, and Somalia, among others. Another negative impact of transport to the environment that deserves mention here is the depletion of natural resources caused by the rapidly increasing usage of fossil fuels as energy source for driving the transport system.

144. The sector also generates liquid and solid waste including used oils and scrap metal given that most of the vehicles used in the region are second hand.

145. During the operation of the transport systems key among the environmental concerns are carbon emissions which have lead climate change. Transport sector accounts for approximately 20 per cent of total world greenhouse emissions. With the rapidly increasing motorized means of transport in Africa, the transport sector has become the fastest growing source of greenhouse emissions in the continent. The sector is also associated with air pollution which has serious health impacts as detailed in the following section.

2.2.8.4 Transport and Health

Vehicle Emission and Health

146. The health hazards from vehicle emissions, including carbon monoxide (CO), carbon dioxide (CO₂), Nitrogen Oxides (NO_x), sulfur dioxide (SO₂) and lead have been well documented⁴.

147. Carbon monoxide, for example, can cause acute and chronic effect on humans at various concentrations which may be manifested as headache, dizziness, vision and hearing impairment, asphyxia, cerebral congestion, edema and death. Similarly, SO₂ levels exceeding the WHO guideline of 350 µg/m³ affect human health in a number of ways. Some of the effects of exposure to SO₂ include irritation, reduced lung function, impaired vision and increased respiratory diseases. SO₂ and NO_x interact in the atmosphere to form fine sulphate and nitrate particles that can be transported long distances by winds and inhaled deep into people's lungs. Many scientific studies link elevated levels of these fine particles to increased illnesses and premature death from heart and lung disorders such as asthma and bronchitis.

148. Leaded fuel contributes significantly to pollution in urban areas that have high traffic densities. As a result, the vegetables that are farmed in urban and peri-urban sites are exposed to fine particulate lead matter that is transported by wind to their surfaces. Since lead does not dissipate, biodegrade or decay, lead pollution deposited into soil and dust remains a potential source of lead exposure. Lead is a toxic metal that can cause damage to the kidneys, nervous system, brain, and cardiovascular and reproductive systems. Of most concern are its effects

⁴ UNEP, Report on Atmosphere and Air Pollution, Prepared for CSD-14

on the nervous system of young children. It has also been linked with reduced intelligence, attention deficit disorders and behavioral difficulties.

149. Despite the fact that Africa has the lowest air pollution level compared to other developing countries, urban air pollution has increasingly become a health and environmental concern in many African cities. The transportation sector is the highest polluter in key African cities such as Cairo, Nairobi, Johannesburg, Cape Town and Dakar. In 2000, Africa had 2.5 per cent of the total world vehicle population. There has been a doubling of motor vehicle fleets in the past 10 years in Zimbabwe and Botswana. Transport systems emit tons of reactive atmospheric gases (mainly NO_x and SO₂ and volatile organic compounds) and other toxic particulate species. These pollutants are products of combustion of diesel and gasoline—the key fuels used in transport.

150. The Table below shows the level of pollutants in selected African cities whose data was included in the World Development Indicators. Of these cities, Cairo had the highest level of pollution: with particulate matter (PM10) of 169 micrograms per cubic meter and sulfur dioxide of 69 micrograms per cubic meter. Cape Town, on the other hand, had the highest nitrogen dioxide concentration of 72 micro grams per cubic meter of compared to the WHO recommended maximum level of 40-50 micro grams per cubic meter.⁵

Table 2.11 Level of air pollution in selected African cities

City	Particulate matter concentration Urban population weighted PM10 micrograms per cubic meter, 2004	Sulfur Dioxide (SO ₂) (micrograms per cubic meter 2001)	Nitrogen Dioxide (NO ₂) (micrograms per cubic meter 2001)
Accra	33		
Cairo	169	69	
Nairobi	43		
Cape Town	16	21	72
Durban	32	31	
Johannesburg	33	19	31

Source: World Development Indicators 2008

151. South Africa, a signatory to the UN 1958 Agreement concerning the harmonization of standards pertaining to the construction and use of motor vehicles, has advanced features in controlling emissions from vehicles. As its automotive industry standards are aligned with UN European standards, vehicle emission standards follow those of the UN Economic Commission for Europe. As it is shown in Table 2.12, the South African Cities of Cape Town, Durban and Johannesburg had much lower levels of sulfur dioxide concentrations compared to that of Cairo. One major factor for South Africa’s low sulfur dioxide pollution is its relatively stringent fuel specifications. In 2004, the specification included maximum sulfur content in unleaded petrol of 500 ppm and in diesel of 3,000 ppm, with a clear plan to reduce these levels progressively.⁶

⁵ Compendium of Transport Related Environmental Norm in Africa, 2001

⁶ Sexsmith, Fred, Status of Lead Phase-out in Gasoline in Sub-Saharan Africa, July 2005

Table 2.12 Share of CO₂ emission of selected Africa countries

City	Carbon Dioxide Emissions Per Capita Metric Tons , 2004	Share of Carbon Dioxide (CO ₂) Emission (%)
Algeria	6	0.7
Botswana	2.4	0.6
Egypt	2.3	1.2
Morocco	1.4	2.4
South Africa	9.4	90.6
Zimbabwe	0.8	3.5

Source: World Development Indicators, 2008

152. Although Africa's smaller economies contribute little to the continent's total air pollution, the concentration of pollutants in these countries have increasingly become worrying as they have exceeded acceptable norms. According to the SSATP report of a study carried out to evaluate air pollution in Benin, certain road intersections of the city of Cotonou had significant vehicle emission concentrations. Carbon Monoxide (CO) concentration reached 18 mg/Nm³, which is almost double the norm. On the other hand, pollution by NO_x remains within acceptable limits (concentration of 50µg/Nm³) and the concentration in SO₂ was less than the detection limits of the measuring equipment. Finally, ozone concentration was high and could even exceed European limits⁷.

153. Benin's energy use shows that the transport sector is a high-energy consumer. It represents 62 per cent of the country's oil expenses, four times more than the industrial sector. Moreover it has to be noted that transport mainly has a very local impact on air quality. This is why atmospheric pollution along Cotonou's major highways is almost all caused by transport. This was confirmed from results of various analyses: CO concentration level outside of the city was 10 times less than at the main intersections.

154. The impact of air pollution on an individual's health from a vehicle's exhaust is determined by the increase in a large range of illnesses from respiratory and lead related illnesses to allergies and skin illnesses. A specific analysis of hospital data clearly indicates that air pollution in Cotonou is responsible for the high frequency of severe respiratory infections. The cost of these respiratory ailments was analytically evaluated at approximately 600 million FCFA per year. Based on similar studies the global cost of lead related ailments for the city could be estimated at some 20 billion FCFA. The cost of air pollution in Cotonou's air therefore reaches approximately 1.2 per cent of the country's GDP (Compared with 2.7 per cent of GDP in Dakar and 1.6 per cent of GDP in Ouagadougou)⁸.

155. Health problems resulting from air pollution, although still low by the standards of other developing and developed countries, have increasingly become a source of concern in many African cities. The impact of air pollution on an individual's health from a vehicle's exhaust is determined by the increase in a large range of illnesses from respiratory and lead-related illnesses to allergies and skin illnesses.

156. A specific analysis of hospital data clearly indicates that air pollution in Cotonou is responsible for the high frequency of severe respiratory infections. The cost of these

⁷ SSATP, *Technical Note No. 33, June 2001*

⁸ Ibid.

respiratory ailments was analytically evaluated at approximately 600 million FCFA per year. Based on similar studies the global cost of lead related ailments for the city could be estimated at some 20 billion FCFA. The cost of air pollution in Cotonou's air therefore reaches approximately 1.2 per cent of the country's GDP (Compared with 2.7 per cent of GDP in Dakar and 1.6 per cent of GDP in The cost of air pollution in a number of African cities can be as high as 2.7 per cent of GDP. In Cotonou's air therefore reaches approximately 1.2 per cent of the country's GDP (Compared with 2.7 per cent of GDP in Dakar and 1.6 per cent of GDP in Ouagadougou)⁹.

Transport and HIV/AIDS

157. The number of people living with HIV/AIDS world wide has increased from 32.9 million in 2001 to 39.5 million in 2006. The number of people dying from AIDS has also increased from 2.2 million in 2001 to 2.9 million in 2006, prevention methods being unable to keep pace with the growth of the epidemic.

158. Africa faces formidable challenges from the threat of HIV/AIDS. According to UNO-AIDS 2004 report, the number of people, living with HIV/AIDS in sub-Saharan Africa increased at an average annual rate of about 3 per cent from 23.8 millions in 2001 to 25 million in 2003. The report also shows that Africa is the continent most affected by the pandemic, with a rate ranging from 66 per cent to 69 per cent of the total world estimate of 34.9 million in 2002 and 37.8 million in 2003. With only less than 10 per cent of the world population, Africa had about two thirds of the total number of people living with HIV/AIDS.

159. The road transport sub-sector is known to have played a significant role in the spread of HIV in Africa. Various studies (Riverson, etal) have shown that transport sector workers such as long-distance drivers and seamen have contributed to the spread of HIV/AIDS along road corridors and ports. The situation along transport corridors is aggravated by the delay at check points where drivers are sometimes forced to stay around the check points over night or even longer.

160. Research in South Africa, for example, has shown that an estimated 71 per cent of long-distance truck drivers spent 15 or fewer days at home in a six month period. Long delays and stopovers at borders and check points are common, forcing drivers to find accommodation in the nearest available place, including the home of a sex worker. This encourages drivers and their assistants to have multiple sexual partners along the transport corridor.

2.2.8.5 Transport cost

161. Africa's poor transport infrastructure, high fuel prices, aging and inefficient fleet, poor transport facilitation as well as limited competition and low level of trade volumes on some routes are the main factors that explain the high transport costs in Africa.

162. According to a study¹⁰ conducted by the World Bank with a view to identifying the determinants of high transport prices that users of transport services face in Sub Saharan

⁹ SSATP, *Technical Note No. 33, June 2001*

¹⁰ Teravaninthorn, S. and Raballand, G., 2009

Africa, in Central and West Africa, road freight transport is dominated by cartels¹¹ charging high prices for low quality services. In Eastern Africa, the trucking industry is deregulated and hence more competitive than in West Africa. Northern and Southern Africa have better opportunities to balance the supply with the demand for transport services and hence can bring down their unit costs to comparable levels with Asian countries. Of all the sub-regions of Africa, the Southern Africa transport corridor is the most advanced in terms of efficiency, competitive prices and service quality.

163. On average, Africa's transport and insurance costs represent 30 per cent of the total value of exports. This compares unfavorably with 8.6 per cent of that of all developing countries. Although most African countries share the problem of high transport costs, landlocked countries face the most excessive transport costs recorded in the continent. Africa's landlocked countries having the highest transport and insurance costs include Malawi (55.5 per cent), Chad (51.8 per cent), Rwanda (48.4 per cent), Mali (35.6 per cent) and Uganda (35.5 per cent).

164. As it is true for other costs associated with trade between African countries, there is a striking difference between intra-Africa and inter-continental shipping costs. Shipping (including insurance) a car from Japan to Abidjan costs USD 1500, but shipping the same car from Addis Ababa to Abidjan would cost USD 5000 – i.e. 220 per cent more costly. Similarly, to ship a 20-foot container from Ghana to the United Kingdom, it costs USD1,000, while from Ghana to neighboring Liberia, it costs more than twice as much (USD2,300).

165. Air transport costs and flight fares in Africa are above the world norm, inhibiting the development of tourism in the continent and exports with high value added. According to Airports Council International (2002), expenses per passenger at African airports have increased in recent years (from USD 5.9 in 1997 to USD 9.7 in 2001) and are high by international standards (the world average was USD7.6 in 2001). There is also evidence that fuel tends to be significantly more expensive in Africa than in other regions. For instance, according to the African Civil Aviation Commission (see AFCAC-WTO, 2001) fuel prices are often 40 per cent to 50 per cent higher in Africa than in Europe. High and rising costs of airport services also have a direct impact on the cost of travelling to the region. Moreover, an overregulated air market means that fares remain high and passengers' choices of destinations and flight frequency are reduced.¹²

166. The result of high transport costs combined with other factors renders African trade less competitive compared with the rest of the world.

2.2.8.6 Transport safety and security

167. Safety and security are important issues that should be taken into account through out the life cycle of any system. Because of its dynamic nature and geographic spread, the transport system is exposed to potential risk of accidents and breach of security more than any other single economic sector. In the transport sector, accidents can occur, among others, during construction of infrastructure, manufacturing of equipment as well as operation. A brief outline of the major safety and security issues in the transport sector are given in the following paragraphs.

¹¹ A cartel is a consortium of independent organizations or companies formed to limit competition and set monopoly prices by controlling the production and distribution of a product or service

¹² African Air Transport Advisory Group, 2003.

168. Road traffic accidents kill 1.2 million people in the world, of which over 225,000 or 19 per cent were accounted for by deaths on African roads. In Sub-Saharan Africa alone over 70,000 deaths due to road traffic accidents were estimated to have occurred in 2000. Moreover, Africa has the highest road traffic accidents per capita. In Ethiopia, for example, 136 deaths were registered for every 10,000 vehicles in 2003.

169. The economic impact of road accidents is also of serious concern in Africa. It is estimated that annual vehicle crashes cost US\$3.7 billion. Findings of road safety studies made in some African countries confirm that the economic losses due to road accidents are significant compared to the gross domestic product of these countries. These economic losses alone are estimated to be 1 per cent of GDP in South Africa, 5 per cent in Kenya and 2.3 per cent in each of Botswana and Zambia.

170. From the above figures of deaths and economic losses, it is clear that investment not exceeding a reasonable fraction of the economic losses due to traffic accidents can go a long way in making roads safer, thereby reducing loss of life and damage to property.

171. With regard to security of maritime transport the International Ship and Port Security (ISPS) code requires port authorities and ship owners to comply with the code by putting in place facilities and procedures that would ensure ports, vessels and freight are free from security threats. The consequence of not complying with the code carries the potential of being blacklisted as a security threat to the global maritime transport industry.

172. Piracy has been an old security issue in maritime transport all over the world. But the recent escalation of piracy in the Horn of Africa and the Gulf of Aden has heightened the concern of shipping companies as well as governments. Out of a total of 440 acts of piracy and armed robbery reported to have taken place off the coast of Somalia since IMO started compiling relevant statistics in 1984, more than 120 attacks were reported in 2008 alone leading to more than 35 ships being seized by pirates and more than 600 seafarers being kidnapped and held for ransom¹³.

173. According to the *African Business (April 2009)* magazine, the poor security situation in the Gulf of Aden of the sea route had forced ship owners, including, AP Moller-Maersk, Europe's biggest ship owner, to use the longer route around the Cape of Good Hope with the attendant consequences of increased fuel consumption, emissions and turn around time, which in turn translate into higher economic and environmental costs.

174. Air transport safety and security is the most critical issue in the aviation industry. All stakeholders in the industry, including airlines, aviation authorities and manufactures have given top priority to improve aviation safety as a result of which air transport is 25 times safer than road travel per passenger-kilometer¹⁴.

175. The horrific attacks of September 11, 2001 in New York, have demonstrated how vulnerable the air transport system could be to security breaches. Following these events governments and other stakeholders have stepped up efforts to improve security measures to prevent terrorists and other offenders from threatening the security of the aviation industry.

¹³ Our Ports, Official Publications of the Port Management Association of Eastern & Southern Africa

¹⁴ Oxford Economic Forecasting, 2003, Final report on study for the Air Transport Action Group

176. However, the safety records of many African Airlines are below the global best standards, many of these being not compliant with ICAO standards on safety. The aging and poorly maintained fleets of these airlines account for the high rate of fatal aviation accidents in Africa. According to IATA, the average number of plane crashes that occurred in 2005 was more than nine times higher than the world average.

177. Concerns over the poor safety performance of the airlines of some African countries has led the EU to impose operational bans on the airlines of a number of African countries (DR Congo, Equatorial Guinea, Liberia, Sierra Leone, Swaziland as well as some Airlines in Angola, Rwanda and Sudan), thus preventing them from flying to European airports. The decision was reported to have been made following assessments on the basis of ICAO safety regulations and standards¹⁵.

2.2.8.7 Transport information systems

178. The use of modern information technologies can bring benefits to the economy through the provision of information required for planning and management of operations. Similarly, availability of reliable transport database supported by modern information technologies would enable more informed decision making in all phases of the process ranging from policy formulation through the different stages of implementation, monitoring and evaluation.

179. Having recognized the importance of using Information and Communication Technology (ICT) in all aspects of management, including, in maintaining a database in relation to transport infrastructure and operations, traffic management, tracking and virtual follow-up of freight, flight booking, etc., some African countries have significantly developed their transport database and ICT capabilities. Despite the progress in the development of transport information systems in a few countries of the continent, many African countries have not yet taken full advantage of the new technologies mainly due to financing constraints and lack of adequately qualified staff.

2.2.8.8 Financing transport

180. Africa needs to invest about USD 40 billion annually to build new infrastructure and another USD 40 billion for maintenance and operation of existing infrastructure in order to achieve its goals of poverty reduction and sustainable development.¹⁶

181. African governments have been able to allocate 6-8 per cent of their GDP annually to infrastructure development. This amounts to USD16-20 billion, which is a significant improvement of annual government allocation compared to the USD8-8.5 billion allocated to infrastructure in the 1990s. It is clear from the above that government allocation for infrastructure falls far short of the requirement.

182. With regard to the transport sector, the investment requirements for new transport infrastructure and maintenance in Africa is conservatively estimated to be USD14.2 billion annually. The 2007 financing requirements for transport infrastructure for 13 Sub-Saharan African Countries alone was estimated to be USD 6.4 billion.¹⁷

¹⁵ EU Presentation to ICAO High Level AFI Conference (17 September 2007, Montreal, Canada)

¹⁶ World Bank, Africa Infrastructure Country Diagnostic

¹⁷ ibid

SECTION 3: Review of progress and achievements made in the development of the transport sector in Africa

183. Agenda 21, the Program for the Further Implementation of the Agenda 21 (PFIA21) and the Johannesburg Plan of Implementation (JPOI) of the World Summit on Sustainable Development (WSSD) contain a well articulated set of goals and commitments agreed upon by Member States for fostering sustainable development at global level. The transport related commitments are as summarized in Annex 2. Since the adoption of A21, PFIA21, and JPOI, number of other declarations relevant to these commitments have been made. These include the declaration on millennium development goals (MDGs) and New Partnership of Africa's Development (NEPAD).

184. In this section, action taken, the progress made in the implementation of transport related commitments is presented.

3.1 Integrated approach to transport development

185. Africa has registered significant developments in the way goods and services are moved from one place to another. Major efforts of varying degrees have been made in different countries of the continent during the past decades to transform the traditional mode of transport into one based on motorized technology. Significant transport infrastructure development, including roads, railways, airports and seaports has also taken place.

186. As a result of these developments, the proportion of rural households living within easy walking distance of all-weather roads has increased over the years, but a significant number of households still remain outside the coverage of the modern transport system.

187. To support efforts by individual countries, sub-regional, regional and international organizations as well as ministerial conferences and heads of state summits have adopted resolutions with the view to accelerating the development of the transport system.

3.1.1 Transport policies, strategies and programmes

188. African countries have developed, adopted and implemented a number of policies, strategies and programmes at regional, subregional and national levels aimed enhancing integrated approach to transport development.

Regional and subregional level

189. Having recognized the important role of transport infrastructure and services in meeting the Millennium Development Goals (MDGs), the African Ministers responsible for Transport and Infrastructure meeting held in Addis Ababa, Ethiopia on April 6, 2005 adopted a declaration, in which a number of targets including the following were set:

- (i). Halve the proportion of rural population living beyond 2 km of an all-season mode of transport, in order to improve access to inputs and markets and generation of employment opportunities;
- (ii). Narrow down the difference in average transport cost within Africa by 50 per cent as compared to Asia;

- (iii). Reduce rate of accident fatalities arising from road and other means of transport by half;
- (iv). Halve the number of urban and rural residents for whom mobility problems severely constrain access to employment and essential services;
- (v). Promote environmental sustainability in all transport operations and development programs;
- (vi). Phase out the production and use of leaded petrol;
- (vii). Dismantle all physical and non-physical transport barriers that increase journey time, customs clearance and border delays and impede the flow of goods and services; and
- (viii). Take into consideration the phenomenon of desertification and sand movement in the transport policies and programs.

190. Major past and current regional programs aimed at developing Africa's transport infrastructure and services are outlined in the following paragraphs.

United Nations Transport and Communications Decades in Africa (UNTACDA I and II)

191. The first United Nations Transport and Communications Decade in Africa (UNTACDA I), which was launched in 1978. As a follow up to the first program, UNTACDA II was launched in 1991 with a long-term objective of establishing an efficient and integrated transport and communications system as a basis for the physical integration of Africa.

192. According to the findings of the final evaluation of the Program, about 466 projects (66 per cent) out of the 708 (including the 39 new projects added in 1993) projects approved had been fully or partly implemented by 2000. The amount of resources mobilized for the projects was USD9.0 billion, compared to the financing requirement of USD16.6 billion, indicating 54 per cent achievement.

193. In addition to the various infrastructure projects, UNTACDA II had incorporated four special initiatives: human resources and institutional development, the Yamoussoukro Declaration on a New African Air Transport Policy, the regional transport database and the Trans-African Highway Bureau.

194. The evaluation report has noted that satisfactory results have been achieved in relation to, among others, the recognition of the importance of transport and communications in the socio-economic development of the continent, the expansion of the transport network, improvement of quality of infrastructure and services and strengthening institutional capacity as a result of the implementation of UNCTADA II. However, having concluded that the projects and initiatives included in the UNTACDA II program have been implemented only partially, a way forward has been adopted by the Conference of African Ministers responsible for Transport and Communications, with the view to accelerating the implementation of commitments made by African governments and their development partners.

Program for Infrastructure Development in Africa (PIDA)

195. Building on the lessons learnt from the slow implementation of its earlier initiative, namely, the Short-Term Action Program (STAP) on infrastructure, the NEPAD Secretariat, with financial support from the AfDB, started to develop a Medium to Long-Term Strategic Framework (MLTSF) in 2007. Meanwhile, the need for integrating efforts underway by the

different regional organizations working on the development of infrastructure in Africa, the MLSTF has recently been merged with other regional programs led by the AU Commission. The three regional organizations, AUC, the NEPAD Secretariat and AfDB have jointly began to develop an initiative focusing on infrastructure development in Africa.

196. The initiative referred to as '*Program for Infrastructure Development in Africa*' (PIDA) is currently at its initial stage. In addition to its lead role, the AUC is mandated to develop regional sector policies and master plans based on the regional policies and master plans developed by the RECs, which are in turn designated as the pillars of the initiative.

197. A coordination mechanism has also been established, whereby the AUC, the African Development Bank and the NEPAD Secretariat on the one hand and the different African stakeholders, on the other, can engage in consultation among themselves. The mechanism is also expected to serve as an instrument of dialogue and interaction with Africa's development partners.

198. The PIDA, whose major objectives are establishment of a strategic framework for the development of sub-regional and regional infrastructure and an infrastructure investment program as well as the preparation of an implementation strategy, is expected to address issues including, the continent's deficiency in information, need for the prioritization of development needs and the poor implementation of initiatives and programmes observed in the past.

Sub-Saharan African Transport Policy Program (SSATP)

199. Another important initiative in the area of policy and strategy development is the work being done under the auspices of the Sub-Saharan African Transport Program (SSATP). The SSATP is an initiative underway with the joint effort of 35 African countries, 8 regional economic communities, 3 African institutions, namely AU/NEPAD and UNECA, national and regional organizations as well as international development partners. The Program is currently funded by the European Commission, Denmark, France, Ireland, Norway, Sweden, United Kingdom, the Islamic Development Bank, the African Development Bank and the World Bank. With its overall mission of facilitating policy development and related capacity building in the transport sector in Sub-Saharan Africa, SSATP has been active in the areas of road network management, institutional and financial arrangement, road fund enhancement, road agency improvement, rural and urban transport as well as transit transport improvement along selected corridors by capacity building, training and knowledge sharing.

200. The establishment of road funds is among the important initiatives that African governments have undertaken to meet the financing needs of the transport sector in the past two decades or so. By 2007, twenty seven countries in Africa had established road funds with the aim of providing a predictable and sustainable source of finance for road maintenance. The establishment of Road Funds was one of the important results of the Road Maintenance Initiative, currently known as Road Management and Financing, launched under the SSATP by the UNECA and the World Bank, following the framework agreement set within UNTACDA II.

201. According to the framework agreement, road funds are expected to be financed mainly from a fuel levy of up to USD 0.01 per liter of fuel to meet at least the financial

requirements for routine maintenance. By 2006, only four countries (Chad, Côte d'Ivoire, Mozambique and Namibia) had reached that level.

Box 3.1 Ethiopia's Road Fund

Since its establishment about a decade ago, the Ethiopian Road Fund has reported to have allocated some USD38 million for routine maintenance of over 10,000 km of roads in districts of the country. The Fund is financed mainly through tax on vehicle fuel, road service charges, and fees collected from vehicles entering the country from neighbouring countries.

202. Other focal areas being addressed by the SSATP is the initiative to integrate transport strategies with the poverty reduction goals of African countries. A major activity in this connection is the Poverty Reduction and Transport Strategy Review (PRTSR), which has progressed well in many African countries. Eighteen member countries of the SSATP, including four new countries that were added in 2007 (Burkina Faso, Central African Republic, Ethiopia, Gambia), had completed their PRTS Reviews and started work of promoting the recommendations of the reviews by the end of 2007. In three other countries (Cape Verde, Burundi and Niger) reviews were underway in the same year.

203. In Central Africa, the Democratic Republic of Congo, Mali, Malawi, Rwanda and Senegal, the review proposals shaped the way transport is conceived in poverty reduction strategies. In the other countries, the sensitization process initiated the demand to update national transport strategies to be responsive to the changing development environment, mainly serving the objectives of the MDGs.

204. With regard to railways, efforts at developing and harmonizing policies at the regional level have been made in recent years. One example is the Brazzaville Declaration and Plan of Action on African Railways adopted by the first conference of Africa's Ministers responsible for railway transport system, held in Brazzaville during April 13-14, 2006. At the conference, issues related to developing an effective railway system that will promote Africa's Development and Integration were discussed.

205. As a follow up to the Brazzaville Declaration and Plan of Action, a conference was organized by the African Union Commission in collaboration with the Department of Transport of the Republic of South Africa for railway professionals to look into issues such as interconnection and interoperability of Africa's railway networks. The conference of the railway professionals held in Johannesburg in November 2007 also discussed and made recommendations on harmonization of standards for infrastructure, equipment, practices and procedures.

206. As part of the mandates assigned to RECs regarding the implementation of the Plan of Action, the COMESA Authority agreed at its Twelfth Summit, held in Nairobi, on May 22 & 23, 2007 to develop a Model Agreement for Railways Concessioning within the COMESA region.

207. In recent years, African railway enterprises have undergone some reforms aimed at bringing about competition, efficiency and financial viability. The reforms have even created an enabling environment for the private sector to enter into the railway transport market. Management contract of publicly owned railway enterprises has been a major form of private sector participation in the sub sector.

208. In line with this, a number of African countries have introduced a wide range of reforms aimed at stemming the declining performance of their railways and improving efficiency and safety.

209. Since the adoption of NEPAD, enhanced efforts have been underway to reinvigorate and integrate the railways, with the support of the multilaterals. For example, under the private arms of the Infrastructure Consortium for Africa (ICA), public-private partnerships (PPP) including concessions of railway operations are being promoted. A concessioning arrangement generally involves an agreement between the public authority representing the state-owned railway enterprise and the private contractor to finance, build and operate the railway infrastructure and other assets for a fixed period typically ranging from 25 to 30 years. Currently concessioning in Africa is dominant in railways and ports of only a few countries.

Box 3.2 Public-Private Partnerships (PPPs) in the transport sector in South Africa

South Africa has the greatest cumulative experience of public-private partnerships in Africa, with over 50 such partnerships in development or implementation at national or provincial level, and 300 projects at municipal level, since 1994. The South African National Treasury, the key ministry that approves these deals, has built on almost a decade of PPPs, and has developed a *PPP Manual* and *Standardized PPP Provisions* to guide all projects of this nature.

The *PPP Manual* refers to two specific types of PPPs: where the private party performs a function usually carried out by government, such as providing water or maintaining a road; or where the private party acquires the use of state property for its own commercial purposes; or a hybrid of the two.

The number of public-private partnerships in South Africa's transport sector are few compared to the total number of partnerships registered in the country. The following are the major transport PPPs in South Africa underway since 2001:

- Fleet Management Concession given by Northern Cape Department of Transport for 5 years beginning November 2001.
- Fleet Management Concession given by Eastern Cape Department of Transport for 5 years starting in August 2003. The Net Present Value (NPV) of benefits to Government is estimated at 919 million Rands.
- Chapman's Peak Drive toll road: This 30-year concession has NPV equal to 450 million Rands.
- Gautrain Rapid Rail link: The Concession Agreement was signed between the Gauteng Provincial Government and the Bombela Concession Company in 2006. The Government contributes 87 per cent of capital, another 11 per cent comes from debt issue and a further 2 per cent comes from equity. The Project planned to be completed in 2010/11, was initially (in 2000) estimated to cost 3.5 - 4 billion Rands. The current capital value is estimated at 23.09 billion Rands.

Source: Burger, Philippe, A brief history of PPPs in South Africa;
Farlam, Peter, 2005, Assessing Public-Private Partnerships in Africa

210. At the regional level, RECs have made efforts to contribute towards the revitalization and improvement of the transport system in their respective region. SADC, for instance, has adopted a protocol to help Southern Africa railway operations to improve their performance, reduce costs and distribute traffic for improved coordination through the Southern African Railways Association (SARA).

211. Guided by these initiatives, SADC has began work to:

- Standardize specifications of infrastructure and equipment;
- Interconnect countries, particularly landlocked ones, by rail;

- Eliminate physical and non-physical barriers that had been major obstacles to the movement of goods and services.

212. A similar effort to improve railway transport has been undertaken by the East African Community. Having noted the deteriorating state of the railway infrastructure connecting the member states, the Community has instituted policy reforms that have opened up the sector for private investment.

213. The areas considered for private sector participation include: rehabilitation, upgrading and maintenance of the railway tracks; modernization and maintenance of the railway telecommunication system; modernization and maintenance of the signalling equipment; maintenance of rolling stock; integrating the railway infrastructure to capture more domestic and transit traffic by strengthening interchange and interface facilities; and development of local capacity in designing, investment, financing and provision of railway services and ancillary facilities.

214. In an effort to address the challenges facing Africa's maritime transport, the first AU Conference of Ministers responsible for maritime transport held its Meeting in Abuja, Federal Republic of Nigeria, during February 22-23, 2007 on the theme "The role of maritime transport in the development of Africa." At the end of the meeting, the Abuja Declaration and Plan of Action on Maritime Transport of Africa was adopted.

215. The following actions in relation to the management and development of inland waterways have also been taken at regional and bilateral levels.

- (i) The International Commission of the Congo-Ubangi-Sangha basin (CICOS) with the objective of improving safety of the waterways has been established.
- (ii) Having recognized its importance as a cheaper and environmentally friendly mode of transport, riparian countries are taking measures to improve the navigability of the Niger River system. Additional ports and facilities for handling cargo have been built along the most navigable section of about 1,000 km.
- (iii) Joint formulation and implementation of a frame work in respect of development of a ten-year program (2004-2013) for Lake Victoria has been drafted with the aim of providing a sustainable regional marine based safety support for all projects and programs under the auspices of the East African Community (EAC) has been developed. The framework focuses on, inter-alia, regulation of operations on the lake, research, salvage regime and hydrography.
- (iv) The Permanent Committee of National Transport Administrators, Comité Permanent des Responsables Nationaux du Transport Lacustre (COPTRALAC) under the auspices of the Economic Community of the Great Lakes countries (CEPGL) and the Permanent Technical Committee (CTC) responsible for navigation on lake Tanganyika in regard to the implementation of inland water transport cooperation operations in the south corridor project of COMESA have been established. As part of its role of promoting regional cooperation, the COMESA Authority has appointed Malawi to lead the implementation of Shire-Zambezi Waterway project.

216. These initiatives would represent a new awareness on the possibilities that can be offered by inland waterways in opening up rural access with the view to reducing poverty. Their full implementation would definitely assist in identifying bottlenecks to the development of inland waterways and also offer solutions to the development and exploitation of the potential of African rivers and lakes for transport of persons and goods.

217. With regard to multi-modal transport, the United Nations International Convention on Multi-modal Transport, which was signed in 1981 has not yet taken effect, as the minimum number of signatories for ratification has not been attained. Including five African countries, only ten UN member countries had ratified the Convention by 2002.

218. As part of its contributions to the development of transport in Africa, ECA conducted a study on the development of multi-modal transport in Africa, endorsed by an Expert Group Meeting on the same subject, and a study on best practices for commercialization and privatization of rail, air, road and maritime transport has been undertaken. The study highlights the importance of private sector involvement in the development of transport infrastructure and transport services.

219. At the subregional regional level, a multi-modal convention based on the UN model has been adopted by the member states of CEMAC. Inland container depots (ICDs), which are key to the development of multi-modal transport systems, are being developed rapidly in Africa, particularly in Eastern and Southern Africa. The ICDs serve as inland port terminals in coastal or land-locked countries in the hinterland.

220. With regard to the liberalization of the access to air transport market in Africa, some efforts have been made by African countries to implement the Yamoussoukro Declaration and subsequent Decision of the African governments. A recent NEPAD survey has highlighted the following actions that have been taken at the regional levels:

- (i) Although Northern African countries have not implemented the Yamoussoukro Decision, the countries in the sub region are considering to liberalize air transport, for which a draft convention is under preparation;
- (ii) In Eastern Africa, six countries have implemented the Yamoussoukro Decision;
- (iii) In Western Africa the eight UEMOA member states and members of the group of Banjul have complied with the Yamoussoukro Decision;
- (iv) In the Central Africa the member states of CEMAC and the group of Banjul are in conformity with the Decision; and
- (v) In Southern Africa, although no air agreement was revised in compliance with the Yamoussoukro Decision, liberalization measures have been taken.

221. To give a renewed impetus to the implementation of the Yamoussoukro Decision, African Ministers Responsible for Air Transport have held three meetings since the beginning of 2005: the first in Sun City, South Africa, in 2005, the second in Libreville, Gabon in 2006 and the third one in Addis Ababa, Ethiopia in 2007. The following decisions were made in their last meeting in Addis Ababa.

- (i) The function of the Executing agency of the Yamoussoukro Decision should be entrusted to AFCAC. To that end, the AU commission should work out modalities for accomplishing the undertaking;
- (ii) Elaboration of Rules of competition and Dispute settlement mechanism should be finalized and submitted to the next session of the conference;
- (iii) Evaluation of the implementation of the Decision should also be finalized; and
- (iv) A consensual document on Guidelines for the negotiation of air services agreements between the AU and EU member states should be prepared and considered by a meeting of experts from member states and other stakeholders.

222. During their meeting in Addis Ababa in 2007, the Conference of Ministers also adopted a resolution on the creation of the Executing Agency of the Yamoussoukro Decision as well as a Plan of Action on Air Transport (2007-2010).

223. The most recent addition to the efforts towards the implementation of the Yamoussoukro Decision on the liberalization of access to the air transport markets in Africa is the decision made by Central and Western African Ministers responsible for aviation. During their meeting held in Accra, Ghana on November 7, 2008, the Ministers agreed to accelerate the liberalization of the markets in the two sub-regions.

224. In line with one of its mandates of promoting regional cooperation regarding air transport, the COMESA Authority has appointed Rwanda to assume the lead role in the implementation of the regional projects in Communication, Navigation and Surveillance/ Air Traffic Management.

National level

Development and implementation transport policy, strategies and programs

225. With regard to transport sector policy development, Mali, Malawi, DRC, Lesotho and Zimbabwe completed the preparation of sector policy documents in 2007. In the same year, Niger, Benin, Central Africa, Senegal Uganda, Tanzania, Burkina Faso & Cameroon started to draft policy documents. Some countries which had completed their policy documents earlier on started developing transport master plans and investment plans in 2007. In this category fall Ethiopia, Malawi, DRC and Mali.

Box 3.3: Ethiopia's urban transport master plan

In Addis Ababa, public transport is provided by a state-owned bus transport enterprise, which is generally characterized by its inadequate number of aging and crowded buses. This has resulted in the rapid increase of taxis and second hand private vehicles over the past years.

Having recognized the problem, the Ministry of Transport and Communications has developed a Master Plan, which outlines the strategies to be followed in the transport sector. The main urban transport priority is indicated to be the improvement of personal mobility by providing convenient and low-cost public transport services, including:

- Expansion of the number of city buses to meet the demand and encourage the private sector to provide urban bus services;
- Ensuring a sustainable financing system of the city bus fleets and services, through an additional fuel levy in urban areas;

- Establishing an entity for the transport planning and traffic management needs of Addis Ababa, including network development, road safety, traffic control, control of harmful vehicle emissions, road and public transport provision, the needs of pedestrians, etc.
- Adapting the under-utilized railway right of way within Addis Ababa to become an electrified bus way as the first step in the gradual electrification of the urban public transport system, able to use indigenous hydro-electric power resources;
- Continuing to extend the city road system to accommodate new developments and city expansion.
- Giving priority to adequate public transport services and the city centre environment, and respect urban land-use plans prepared with public participation.

226. To address the mobility needs of the rural population, efforts are underway in African countries, including the following recent examples: preparation of National Rural Transport Strategy in Côte d’Ivoire; development of rural transport services strategy in Cameroon; improvement of community access roads in Swaziland; and promotion of IMT (bicycles and ox-cart) in Uganda.

227. With regard to policy reforms in the railway sub-sector, a number of African countries have taken important steps aimed at revitalizing their ailing state-owned enterprises responsible for railway transport.

228. Since 1993, fourteen railway concessions, costing US\$0.4 billion to private investors have been registered. The AICD study reported that frequent renegotiations, low traffic and costly public service obligations (PSO) have kept private investment in the railways below expectations. The trend of African railways concessioning since 1993 is shown in Table 3.1.

Table 3.1 Railway concessioning since 1993

Country	Year Awarded	Concessionaire	Year Commenced
Ivory coast/Burkina Faso	1995	Sitarail	1995
Cameroon	1998	Camrail	1999
Gabon	1999	Transgabonaise	1999
Malawi	1999	CEAR	1999
DRC	1995	CEAR	1999
Zimbabwe	1997	BBR	1997
Togo	N.A.	WACEM/Spoornet	2002
Maputo Corridor	2002	NLP/	
Senegal/Mail	2003	Transrail	2003
Zambia	2003	RSZ	2003
Madagascar (North)	2003	Madarail	2003
Mozambique (Beira)	2004	CCFB (Rites)	2004
Mozambique (Nacala)	1999	CDN(CEAR)	2005
Kenya	2006	Sheltam-comazar	2004
Uganda	2006	Sheltam-comazar	2004

Source: Richard Bullock, Results of Railway Privatization in Africa updated by information from CPCPS Transcom, Canada (2006). The world Bank Group, Report No. 36005, Sept. 2005

229. In addition to the concessions indicated in Table 3.1, Asian countries have recently invested in the railways of Angola, Ghana, Nigeria, Sudan and Zambia.

3.1.2 Institutional reforms and capacity building

230. To support the institutional reform and capacity building initiatives that African countries are undertaking, development partners have been playing important roles. The

AfDB, for example, has incorporated human and institutional capacity building in its Infrastructure Short Term Action Plan (STAP) adopted in June 2002. The STAP has outlined the objectives of the capacity building initiatives as creating a suitable environment for investment and efficient operations, empowering the implementing and coordinating institutions to meet their mandates in relation to the development of infrastructure in Africa. According to the Annual Report (2007) of the SSATP, a number of institutional capacity building efforts were reported to have been made with the following implementation status by the end of 2007:

- Establishment of new road agencies had been completed in Madagascar, Gambia, Uganda and Zambia;
- Establishment of new road agencies was underway in Ghana, Kenya and Swaziland;
- Restructuring of road agencies of Senegal, Zambia, Malawi and Sierra Leone had been completed; and
- Enhancement of the capacity of local governments at village and district levels to effectively coordinate rural transport infrastructure and services was underway in Tanzania.

231. Important institutional reforms have also been undertaken in the air transport sub sector in Africa, including the separation of responsibilities for the development and management of airport infrastructure on the one hand and the regulatory function of the air transport sector on the other. As a result of the institutional reforms undertaken in the past few years, many African countries currently have two public bodies in the air transport sub-sector: one for managing airports and providing navigational services and the other for serving as a regulator. This is a significant improvement from what used to be the norm two or more decades ago, whereby a single civil aviation authority used to run airports, provide aeronautical and navigational services and at the same time assume regulatory functions.

232. Human resource development is another area that has attracted the attention of African policy makers and their development partners for a long time.

233. Although Africa is endowed with abundant human resources, most countries of the continent lack adequate number of skilled and experienced professionals that are in great demand in all sectors of the economy. The transport sector is in the fore front of economic activities facing serious shortages of skilled technical and managerial staff.

234. To address this challenge, capacity building and institutional strengthening components are currently included as key aspects of partnership programs in practically all initiatives, including that of AfDB, ECA, EU, ICA, SSATP and the World Bank. All the initiatives are currently providing support to African countries, where NEPAD and RECs assume the role of strengthening capacities in the formulation and implementation of appropriate transport policy such as strategy development, project preparation, project implementation, operation and maintenance as well as project monitoring and evaluation.

3.1.3 Transport facilitation

235. A multitude of international agreements and protocols aimed at simplifying and harmonizing trade and transport between states have been signed in Africa. In addition to these, numerous bilateral agreements on international road transport have been signed by several Africa countries.

236. In Central Africa, for example, several conventions governing international transport have been signed including: (i) the inter-state convention for the transportation of miscellaneous goods by road; (ii) the inter-state convention for multi-modal transport; and (iii) the regulation of transport of dangerous goods and the Inter-State Transit Agreement for Central African countries. CEMAC countries have: (i) adopted a community highway code and a civil aviation code; (ii) created an international commission for the Congo, Oubagui and Sangha Basin; and (iii) signed a protocol on maritime cooperation as well as an agreement on air transport between member states. An agreement on the preparation of a transport master plan, including transport facilitation was also adopted and preparation of the master plan is in its advanced stage.

237. The CEMAC Trade Corridor Project approved by member States in 2006, aims to facilitate efficient regional trade among member states and improved access to world trade. Financing for the three-country (Chad, the Central African Republic and Cameroon) corridor project being undertaken by CEMAC has been secured from the World Bank (USD201 million), AfDB (USD67 million grant), both signed in 2007. There was also plan for USD76 million loan agreement between AfDB and CAR.

238. To facilitate interstate freight traffic, ECOWAS and UEMOA have adopted two conventions: the Inter-state Transport convention (TIE) and the Inter-state Road Freight Transit convention (TRIE). The conventions, which have already taken effect, provide the guideline to be followed with regard to road transport services and allow uninterrupted transit across country boundaries.

239. As part of the transport facilitation effort, an initiative aimed at improving road transport governance has been launched in West Africa. A major component of the initiative is the preparation and dissemination of a quarterly report on road corruption along three (Tema - Ouagadougou, Ouagadougou - Bamako and Lomé - Ouagadougou) primary trade corridors. The report is expected to help fight road corruption by providing timely information to decision makers and other stakeholders.

240. ECOWAS has also introduced a common vehicle insurance scheme known as the Brown Card. The scheme covers third-party liability and medical expenses. ECOWAS has also adopted the Automated System for Customs Data (ASYCUDA) as an e-commerce approach towards overcoming delays in reporting of traffic movements and location. Presently, ECOWAS and UEMOA are working on the establishment of joint border posts, which, among other things, would address issues of variations in working hours at adjacent border posts. They are also in the process of establishing corridor management committees and observatories for monitoring abnormal practices along major transit transport corridors.

241. In Southern Africa efforts to improve trade facilitation include the launching of the Regional Trade Facilitation Program (RTFP), a key component of which is the One Stop Border Post (OSBP). The OSBP involves measures including harmonization of customs

clearance procedures at border crossing points. A pilot OSBP has been put in place at Chirundu border post (between Zambia and Zimbabwe), with others to follow. Similarly, in Eastern Africa, an OSBP aimed at improving the efficiency of rail traffic between Kenya and Uganda has been established at Malaba¹⁸.

242. In the Eastern and Southern Africa sub-region, COMESA and SADC have adopted a number of protocols related to transport facilitation. They have also adopted measures for facilitating transport and transit between their member states. At its Twelfth Summit, held in Nairobi, on May 22 and 23, 2007, the COMESA Authority urged COMESA member states to implement the trade and transit facilitation instruments approved at earlier Summits.

243. At bilateral level, agreements have been signed between countries to promote transport facilitation. Uganda and Rwanda, for example, recently agreed to extend their working hours at their border post to 22.00hours. A recent conference in Kampala, Uganda, with the theme ‘Seamless Transport Services’ focused on the reduction of NTBs between the port of Mombasa and the landlocked neighbouring countries. Following the recommendation of the Workshop, the Kenyan Government decided to change the daily working hours at the Port of Mombasa to 24 hours.

244. The Port of Mombasa is of critical importance to Uganda, as 70 per cent of the Port’s transit traffic is accounted by Uganda’s trade, the rest being of Rwanda, Burundi and DRC. Due to a number of reasons, mainly attributable to the lack of railway capacity of the East African Railways Company, which carries most of the cargo from the Port of Mombasa, the port suffers from serious congestion. As many as 14,000 containers can be seen at the Port at any one time compared to its effective capacity of only 8,500 containers

245. In an effort to further reduce NTBs the Kenyan government has decided to open border posts to neighbouring landlocked countries, 24 hours every day, which is an enormous improvement from the existing practice of an eight-hour working day. There are also plans to bring down the number of road blocks between Kenya and Uganda on its Northern Corridor (which comprises a rail and road network that links Kenya to the Great Lakes countries of Burundi, Democratic Republic of Congo, Rwanda, Southern Sudan and Uganda) from the current 47 to 17.

246. In a similar move aimed at improving transport and trade facilitation, a corridor management mechanism of the Central Corridor linking the great lake countries to the port of Dar es Salaam was put in place in 2005. During the same period, preparations were underway to establish corridor management groups for the North-South Corridor, linking DR Congo, Zambia, Zimbabwe, Malawi and Botswana to Durban port as well as the Bamako-Ouagadougou-Tema and Niamey- Ouagadougou-Lomé Corridors.

247. Following the implementation of the corridor management initiative important results have been achieved. The journey time from Mombasa to Kampala, for example, fell from 10 to 6 days.

248. To ensure that countries that have not taken such measures quickly adopt regional best practices, all RECs have taken steps to promote decisions limiting road check-points and are calling on all the states to remove control posts.

¹⁸ ICA Annual Report, 2007

249. Ghana and Burkina Faso are taking the lead in adopting pragmatic measures to reduce trade barriers, including the creation of enhanced understanding of the key constraints to transport movement and the increasing adoption of measures to remove barriers.

250. The above regional efforts are supported by Africa's international development partners. As part of the initiative of the UN Secretary General to refocus attention on the achievement of the Millennium Development Goals (MDGs), the UN has established the MDG Africa Working Group, which is composed of thematic groups, including the Infrastructure and Trade Facilitation Thematic Working Group. To make its work effective, the AfDB, the EC, the World Bank and the ICA Secretariat have been supporting the Thematic Working Group.

251. In 2003 the Almaty Program of Action addressing the Special Needs of Landlocked Developing Countries within a New Global Framework for Transit Transport Cooperation for Landlocked and Transit Developing Countries was launched by the UN General Assembly. As a follow-up to this international initiative, African Governments have developed the African Program of Action focusing on the development of major transit corridors that were selected at a preparatory meeting on the Almaty Program of Action (APoA) in 2003 in Addis Ababa. An African review meeting was held from 17 to 20 June 2008 to assess progress made in establishing efficient transit transport systems on the continent, and to agree on what needs to be done to further galvanize global partnerships to assist African landlocked and transit developing countries to effectively implement the APoA.

252. A number of initiatives aimed at improving the performance of regional transport corridors have also been underway in collaboration with the SSATP. In the NEPAD Medium and Long Term Strategic Framework, SSATP has taken a coordinating role on trade and transport facilitation activities, using the Technical Coordinating Committee (TCC) of the Regional Economic Communities (RECs). Much of the efforts of the RECs are focused on the removal of non-physical barriers of transport along major corridors, especially those connecting landlocked countries to the seaports.

253. In line with this, SSATP is currently the principal advocate for eliminating physical and non-physical barriers to the smooth flow of passengers and freight across borders. Contributions of SSATP also include funding transport facilitation activities of RECs such as the establishment of transport corridor performance monitoring mechanisms (observatories), port security audits, harmonization of legal/regulatory arrangements at border posts and establishment of One Stop Border Posts.

3.1.4 Addressing transport costs

254. As part of the implementation of the African Action Plan, the World Bank has carried out the Africa Infrastructure Country Diagnostic (AICD) study and the Transport Cost Study. The AICD explores fiscal costs, investment needs and sector performance indicators in 24 countries in Sub-Saharan Africa and provides a set of baseline unit cost data. The output of the study is expected to help, among other things, in all phases of project preparation and implementation as well as in the management of operations. The Transport Cost Study addresses factors behind Africa's high prices of road transport. The study also aims to assist decision makers in their effort to reduce transport costs which in turn is expected to improve Africa's competitiveness in international trade.

255. Measures that African countries have taken in the past few years to improve transport infrastructure, efficiency, intra-modal and inter-modal competition and cross-border transport facilitation, among others, have important implications to the reduction of transport costs.

256. With regard to actions taken at the sub-sector level to address the high cost of air transport, the African Union in collaboration with the AfDB convened a high level meeting of Airline Company Directors in Tunis, Tunisia, from 29 to 30 May 2006. The major issues discussed at the meeting include: the relatively high air fares for intra-African services and the lack of direct links between many African countries. At the end of the Meeting, a comprehensive Plan of Action was adopted with the aim of improving the efficiency of intra-African air transport services and strengthening the continent's air transport industry.

3.1.5 Transport safety and security

257. Having recognized the significant health hazard and economic cost of poor road safety, African governments are working with ECA, SSATP, WHO and NGOs to formulate transport policies that will improve road safety

258. As part of its recently added focal areas, the SSATP has launched a Road Safety initiative that has the objective of creating better understanding of road safety and gender issues and identifying strategies on how these issues could be mainstreamed in strategies and programs. The initial task of the initiative involved conducting a road safety baseline survey in over 20 African countries.

259. Among the achievements of the Long Term Development Program (LTDP) implemented by the SSATP over the period 2004-2007, the support given to member countries, in relation to road safety, is noteworthy. LTDP supported selected countries to review or develop their national road safety policy. In Uganda and Cameroon, having agreed to develop a national road safety policy using a participatory approach, conceptual framework has been adopted subsequently. In Mozambique, the government has included development of road safety using participatory approach in the country's transport development program (2007-2009).

260. In line with the measures taken at regional and country levels with support from SSATP, the following have been achieved: the African Road Safety Practitioners' Network has been initiated; road safety policy reviews applying the PRTSR approach have been undertaken in a number of countries; a road safety workshop, having the theme of developing methodologies for development of National Road Safety Policy documents took place in Addis Ababa in 2007.

261. In an effort to bring together stakeholders at the regional level, the African Road Safety Conference, which drew more than 250 delegates, was held in Accra, Ghana from 5 – 8 February 2007. The Conference was jointly organized by the Government of Ghana, the World Health Organization and the UN Economic Commission for Africa to review the progress made by African countries in improving road safety and the development of national action plans.

262. At the end of the Conference, the Accra Declaration of African Ministers responsible for transport and health was issued which called upon developed countries to recognize the

urgent need to improve road safety in Africa, particularly in Sub-Saharan Africa and systematically include road safety in the work of the Africa Infrastructure Consortium, the Sub Saharan Africa Transport Policy Program and in the development assistance programs of the G8 nations to ensure that new and improved roads in Africa do not increase road traffic death and injuries.

263. The Declaration also highlighted the commitments of the African governments represented at the Conference, inter alia, to work together to stop the growing epidemic of deaths and injuries on African roads (targeting to reduce road traffic fatalities by half by 2015); set and achieve measurable national targets for road safety; mainstream road safety into new and existing road infrastructure development programs; improve the collection, management and use of data on road deaths and injuries so as to formulate evidence-based policies; and to ensure the enactment and enforcement of laws associated with driving under the influence of alcohol and drugs, inappropriate and excessive speeding, non-use of helmets, driver licensing, roadworthy vehicles, and the use of mobile phones while driving.

264. From 8 to 10 July 2009, ECA, in collaboration with FIA Foundation, organized in Dar es Salaam, Tanzania, an African Road Safety Seminar whose objective was to assist African countries to develop regional and national road traffic casualty reduction targets and provide them with examples of good road safety practices in setting up and monitoring these targets.

265. As part of the support being given by Africa's development partners to address the critical issue of road safety, the Global Road Safety Facility has been created by the World Bank with initial contribution of USD5 million from the Bank and Federation Internationale de l'Automobile (FIA) Foundation.

266. In the water transport sub-sector, a number of measures have been taken in the past few years to address the important issues of safety and security. With regard to inland water transport, the IMO has developed model safety regulations for inland waterway vessels and non-conventional craft, including fishing vessels operating in Africa.

267. The model regulations were agreed upon by representatives of Burundi, Uganda, Zambia, and Zimbabwe during a workshop held in Mwanza, Tanzania between 15 and 19 October 2001. The preparation of the model regulations, complying with the requirements and standards set by relevant IMO conventions is an important step towards putting in place the right regulatory framework dealing with inland water transport in Africa.

268. To combat the increasing threat of maritime piracy in the Horn of Africa and the Gulf of Aden, many governments in cooperation with the IMO are taking steps. The initial step involved a proposal for a tougher action to be taken against piracy which was tabled by the IMO at the UN Security Council. The Security Council issued a Presidential statement on the subject in 2006 and passed resolutions 1816 and 1838 in 2008, which provide, among other things, that following receipt of a letter from Somalia to the President of the UN Security Council giving the consent of Somalia's Transitional Federal Government (TFG), States cooperating with the TFG would be allowed, for a period of six months, to enter the country's territorial waters and use "all necessary means" to repress acts of piracy and armed robbery at sea, in a manner consistent with relevant provisions of international law. The UN Security Council has also authorized naval powers of the world to conduct patrols off Somalia. Since then warships including those from NATO, EU members, Russia and India have been patrolling the sea off the coast of Somalia and in the Gulf of Aden.

269. A code of conduct aimed at combating acts of piracy and armed robbery against ships was adopted following a high-level meeting held in Djibouti on 26 January 2009 under the auspices of the IMO and attended by representatives of 17 states from across the western Indian Ocean, Gulf of Aden and Red Sea areas; of which nine countries (Djibouti, Ethiopia, Kenya, Madagascar, Maldives, the Seychelles, Somalia, Tanzania and Yemen) signed the code of conduct during the closing ceremony of the meeting. The code of conduct requires signatories to share and report relevant information, interdict ships suspected of engaging in acts of piracy or armed robbery, apprehend and prosecute persons committing or attempting to commit acts of piracy and armed robbery as well as facilitate proper care, treatment and repatriation for seafarers, and other shipboard personnel and passengers subject to acts of piracy or armed robbery¹⁹.

270. With regard to air transport safety, the Standards and Recommended Practices (SARPs) initiated by the International Civil Aviation Organization (ICAO) has been serving as the basis for safety standards in the air transport industry for several years. To enhance air transport safety, the ICAO has also embarked on a project referred to as the Universal Safety Oversight Audit Program (USOAP). The lessons learned from the ICAO safety audits have led to the commitment by the Directors of Civil Aviation to implement an action plan aimed at strengthening their capabilities with respect to safety oversight, particularly with regard to the areas of licensing, airworthiness and the operation of aircraft.

271. Among the issues that the Second Conference of African Ministers responsible for air transport held in Libreville, Gabon on 18 & 19 May 2006 reviewed was the progress made in the implementation of the USOAP. At the end of their Conference, the Ministers reaffirmed: their determination to pool their efforts and take all the necessary measures to publish the results of air safety audit by March 2008; and the urgent need to devise national, regional and continent-wide strategies on aviation safety in the African continent with a view to promoting air transport as a mode of transport which enhances Africa's development and integration;

272. The Ministers also welcomed the various new initiatives undertaken by sector organizations in the continent and by Regional Economic Communities (RECs), notably: the implementation of the Cooperative Operational Safety and Continuing Airworthiness Development Programs – COSCAP (Central African Economic and Monetary Community, West African Economic and Monetary Union, Southern Africa Development Community, Banjul Accord Group, East Africa Community), and regional initiatives in aviation safety including EAC Air Safety Projects and the COMESA Communication, Navigation and Surveillance/Air Traffic Management (COMESA CNS/ATM) Project.

273. Finally, the Ministers expressed their commitment to: bring down the rate of aircraft accidents in Africa to the world average by 2008; establish and/or strengthen Autonomous Civil Aviation Authorities; create Regional and Sub-Regional Aviation Safety Oversight Organizations (RSOOs); and encourage the Regional Economic Communities (RECs) to undertake or pursue the Cooperative Operational Safety and Continuing Airworthiness Development Programmes – COSCAP or similar programmes in the regions where they do not exist.

¹⁹ International Ports and Harbors Association, Ports and Harbors, March 2009

274. At the sub-region level a mechanism for cooperation in aviation safety oversight has been developed in West and Central Africa following a study carried out by ICAO at the request of the Union Economique et Monétaire Ouest Africaine.

275. In West Africa, the COSCAP Projects include:

- Conducting inspections and airline audits at the request of States
- Undertaking mock audits of CAAs at the request of States
- Harmonization of regulations and procedures through safety working groups comprising representatives of participating States and project personnel
- Training of regional and national inspectors in the application of the harmonized regulations and procedures.
- Provision of a wide range of supplemental technical assistance by industry

276. With the favorable response to the COSCAP Program in the West and Central African sub-region, the concept was subsequently extended to the Eastern and Southern African sub-region.

3.1.6 Women and transport

277. In their efforts to address the special needs of women in the transport sector, African countries have continued to incorporate gender concerns in their transport plans and specific programs and projects. Taking into account the significant climate mitigation and personal mobility benefits, special focus is given to the development of non-motorized transport to meet the needs of women, as cultural factors discourage women from utilizing such modes of transport in their traditional designs. Many countries in Africa are promoting bicycles as a technology for women's empowerment, with particular emphasis on the safety of cycling and walking.

278. As part of the women and transport initiative underway in the context of the Sub-Saharan Africa Transport Program, a study on gender inclusion in transport-related programs was carried out in 2006, in three pilot countries: Guinea, Malawi and Uganda.

279. The study highlighted the need for taking the special needs of women in transport projects and involving women in all stages of project development. The study also concluded that gender inclusion should be mandatory. Among 10 projects evaluated under this study the project implemented in Uganda, which had a clear objective of enhancing women participation, had an inclusion rate of up to 32 per cent compared to 3-5 per cent in the other projects.

280. Another important achievement of the initiative is the establishment of a Virtual Women and Transport Network by the women and transport group of SSATP in 2006. The main focus of the Network is the advocacy of the mainstreaming of the specific interests and demands of women in transport.

3.2 Investment and partnerships for the development of sustainable transport systems

3.2.1 Improvement of road connectivity

281. In an effort to eliminate the missing links of Africa's road network, priority roads have been identified to be built by mobilizing resources from domestic and external sources. The regional road projects being financed by AfDB are shown in Table 3.2. The roads, with a total length of 13,780 km include all the missing links representing about 25 per cent of the total Trans-African regional road network.

282. As part of the efforts underway to reduce the missing links on the TAH, the following commendable results have been achieved in the past two years. In Western Africa, for example, a total of 1785 km of the missing links have been paved. The improvements on the specific routes are as follows: on the Algiers–Lagos highway (4504 km), only 223 km of desert track remains to be paved; on the Dakar–Ndjamena Highway (4496 km), the last 230 km of road (formerly identified as a missing link) has been paved, making the Highway 100 per cent complete and the Dakar–Lagos Highway (4010 km) has been about 80% complete, with only 765 km still classified as a missing link.

Table 3.2 Priority road projects being financed by African Development Bank

REC	CORRIDOR	COUNTRY COVERAGE	LENGTH (KM)	EST.DEV.C OST (USD, mn)
COMESA	Nairobi-Cairo	Kenya-Ethiopia-Sudan-Egypt	900	500
	Dodoma-Kigali	Tanzania-Burundi-Rwanda	500	400
SADC	Lobito-Beira	Angola-Zambia-Zimbabwe-Mozambique-DRC	1770	950
	North-South	South Africa-Botswana-Zambia	150	100
	Trans-Kunene	Namibia-Angola	980	400
	Nacala	Mozambique-Malawi-Zambia	890	450
	Mtawara	Mozambique-Tanzania	810	450
CEMAC ECCAS	Pointe Noire-Ndjamena	Congo-DRC-CAR-Chad	0	550
	Yaounde-Bangui-Kisangani- Bujumbura	Cameroon-CAR-DRC-Burundi	4000	2000
	Yaounde-Brazza-Luanda	Cameroon-Gabon-Congo- DRC-Angola	1000	550
ECOWAS	Dakar-Lagos	Senegal-Gambia-Guinea-Guinea Bissau-Sierra Leone-Cote d'Ivoire-Togo-Benin-Nigeria	2150	900
	Alger-Lagos	Niger	400	200
	Dakar-Ndjamena	Senegal-Mali-Burkina Faso-Niger-Nigeria-Chad	230	150
GRAND TOTAL			13,780	11,400

Source: ICA Annual Report 2006 Volume II

3.2.2 Improvement of urban transport

283. Several countries in Africa have continued to put in place a combination of mechanisms, including traffic demand management policies as well as the provision of cleaner and more energy-efficient public transport systems.

284. Although introduced over three decades ago in Latin America, a public transport system known as Bus Rapid Transit (BRT) was added recently to Africa's transport system, as part of the drive toward sustainable urban transport. The principle of BRT is to simulate a mass transit system using exclusive right of way lanes in line with the metro systems well known in developed countries, but using bus technology instead of rail. The BRT, which uses a dedicated right of way lane and cleaner technology, has proved to be useful in many Asian and Latin American Countries. The BRT costs a small fraction of the modern rail-based transit system and draws on best practices from modern metro systems in managing operations, including pre-board fare collection and fare verification, enclosed stations that are safe and comfortable, clear route maps and real-time information displays.

285. During the last decade, the Bus Rapid Transit system has attracted the attention of a number of cities in Africa. Cairo, Lagos, Johannesburg, Dar es Salaam, and Dakar have either introduced the BRT as an alternative mass transport system or are preparing to do so.

286. Lagos with an estimated population of 17 million is already served by minibuses (8-25 seats) and medium to large buses(30-50 seats) together numbering 75,000. In addition to these buses, a significant number of taxi motorcycles provide commercial transport services to the City residents. The public transport system in Lagos, although providing a much needed mobility to the residents, has always been a source of pollution, traffic congestion and road accidents.

287. In 2008, Nigeria introduced the BRT system in line with World Bank-led GEF projects undertaken in Latin America. Lessons of successful implementation were drawn from Bogota (Colombia) and Curitiba (Brazil). The new urban transport system is the first of its kind in Sub-Saharan Africa. The BRT in Lagos has a 20 km route and an exclusive right-of way lane. Although the BRT serves a short route (compared to the 630 km of the City's road network) it has already demonstrated the advantages of the new system of urban mobility. The number of commuters has surpassed expectations being over 200 per cent of target. Despite a 100 per cent rise in fuel prices during the first six months of the BRT operation, the average fares that commuters were charged was 30 per cent lower than the prevailing fares charged by the old buses and taxis. Other benefits of using the BRT to commuters include a reduction of 40 per cent in journey time and 35 per cent in waiting time. In South Africa, A full BRT system, including pre-paid boarding, dedicated bus lanes, and real-time bus arrival information displays for customers is planned to start operation in Johannesburg, in April 2009. The system is expected to have bus stations that are safe, comfortable, and friendly to passengers with disabilities. With 25 km of segregated bus corridors, the first phase of the BRT system is expected to provide service to 69,000 passengers daily.

288. Tanzania is also expected to open BRT services to residents of Dar es Salaam in the near future. The features of the system under implementation include: a 21-kilometer 'closed' BRT system, with dedicated 18-meter articulated buses, enclosed stations, pre-board fare

collection and level boarding and alighting. The system will also include regular pedestrian crossings and a segregated bicycle lane on both sides of the corridor.

289. Uganda is also in the process of introducing BRT. The BRT project, which is aimed at building a safe, affordable and environmentally-friendly public transport system for the city of Kampala, is currently at the pre-feasibility study phase.

290. The underground mass transit system continues to be a rare mode of transport in Africa. Egypt completed the construction of the Cairo Underground Metro and started operation in 2000. The Cairo Metro, the first of its kind in Africa and the Middle East, carries an average of 2.7 million passengers per day.

291. Following Egypt, which has been operating the system for almost a decade now, Algeria is developing an underground transport system, the first line of which is 9.5 km long. Each metro train will have 1200 seats and will run at a maximum speed of 70 km/h. Another line with a route length of about 9.5 km is expected to be opened in 2012. The service on the first line, which is planned to start in 2009, is reported to be the first heavy subway system in the Maghreb Region.

292. The latest addition to rail-based mass transit system in Africa is South Africa's Gautrain Rapid Rail Link. The Gautrain Rail Link is an 80-km network connecting Johannesburg with Pretoria, Oliver Tambo International Airport and a number of intermediate stations. When the Rail Link becomes operational, it is expected to reduce traffic congestion and motor vehicle emissions on the country's busiest road.

293. With an asset value currently estimated at R23.09 billion, the Gautrain is the largest infrastructure deal in Africa. This state-of-the-art rail link, designed to allow a maximum speed of 160km/h, is planned to be operational in time for the 2010 World Cup.

3.2.3 Improvement of rural transport

294. An important line of activity of the Sub-Saharan Africa Transport Program is the component that deals with rural transport in Africa. As part of the activities undertaken by SSATP during 2004-2007, analytical works that delivered methodologies for the assessment of rural transport service were carried out. Additional outputs of the SSATP activities during the same period included a review of the progress made in terms of promoting intermediate means of transport (IMT) and an evaluation of the success and bottle necks of the Rural Travel and Transport Programs (RTTP) implemented by many African countries, supported by the World Bank and bilateral donors.

295. The findings of the review and evaluation showed the poor state of motorized rural transport services, the absence of regulatory frameworks and institutional structures and indicated the need to address the regulatory, institutional and financing aspects of rural transport restricting the provision of affordable transport to the poor. To address the issue of the knowledge gap regarding rural transport, a training material on the management of rural transport was developed. The first training of its kind was also conducted in 2007 with the view to disseminating the body of knowledge in rural transport to a wider network of African rural transport practitioners.

296. Some SSA countries, Ethiopia, Malawi, Nigeria, etc, have taken the principles of RTTP further by launching large scale rural access improvement programs linked to rural development.

297. Nigeria, for example, has integrated its rural travel and transport program with its National Transport Policy. Having first developed a draft rural travel and transport policy in line with the framework of the Rural Travel and Transport Program (RTTP) of the SSATP through a rigorous participatory process, the country is currently implementing a major rural transport intervention project referred to as the Rural Access and Mobility Project (RAMP). The RAMP is being funded by the Federal Government in collaboration with State Governments and development partners (World Bank and the African Development Bank).

Box 3.4 Objectives of Nigeria’s Rural Access and Mobility Project (RAMP)

Providing improved all-weather access road networks in selected and prioritized rural development areas; Rehabilitation/ upgrading and repair of selected prioritized river crossings throughout the State, and Supporting the institutional reform in the transport sector to streamline and improve the management of the state-wide road network, and to sustain coordination of the national rural travel and transport program.

Source: SSATP, Annual Report, 2007

3.2.4 Non-motorized transport (NMT) and cleaner transport energy

298. With increased concern regarding the impact of emissions from motorized mode of transport on the environment, an area of transport that has attracted increased attention in the past decade is non-motorized transport. One particular means of mobility which has created wider interest through out the world is the bicycle technology. The viability of bicycles in Africa in particular emanates from the fact that their prices are low compared to motorized transport, have acceptable speed and range, and require low maintenance skills and minimal infrastructure. More pertinent to sustainable transport is that cycling is associated with zero-emission of greenhouse gasses and offers the rider the opportunity to do physical exercise while travelling to his or her destination.

299. Initiatives are underway to address the issue of sustainable transport in Africa by a number of African countries in collaboration with their development partners. One such initiative is the one being undertaken by the Institute for Transportation and Development Policy (ITDP) under the program called *Access Africa*. The Program, being carried out in Ghana, Senegal, South Africa and Tanzania aims at promoting healthy and environmentally-friendly cities by making sure that the mode of transport meets the needs of the people and is energy-efficient. Some elements of ITDP’s efforts as part of implementing the *Access Africa* program are indicated in Box 3.5.

Box 3.5 : Access Africa– Ghana, Senegal, South Africa and Tanzania

ITDP is working in the following program areas:

- International Bus Rapid Transit Program, which aims at promoting BRT as a way to provide a sophisticated, high-quality transit system at a fraction of the cost of other options. ITDP is working with leaders in each country to support the development of formalized public transit, provide technical assistance for the development of new systems, and secure funding for their design and implementation.
- The California Bike Coalition, which aims at improving the quality of bicycles available in sub-Saharan Africa through a unique partnership with the international bicycle industry. By shouldering the risk of importing the bicycle into Africa, ITDP has created a proven social enterprise that provides the local bicycle industry with economies of scale, business development and product diversification.

Member retailers are given skills training and then accredited through a program that includes quality standards for bicycle assembly, repair and customer service.

- Improving Safety for Bicyclists and Pedestrians. It aims at promoting safe space for all modes of transportation. ITDP is working with officials in each country to provide: safer and more attractive routes for bicyclists and pedestrians; and bicycle master plans.

Source: (ITDP, Sustainable Transport, March 2007.)

300. Another important initiative focusing on the promotion of NMTs and cleaner energy systems has been carried out over the past few years through the collaboration of the Global Environmental Facility (GEF). The GEF has supported a number of sustainable transport community projects in Africa and other developing countries partially funded by its Small Grant Program (SGP). The projects were aimed at achieving the three main objectives of communities, namely, poverty reduction, empowerment of communities and mitigating the negative environmental impacts of transport by reducing greenhouse gas emissions. Some of the African countries which benefited from GEF-SGP funding are presented below.

301. In 2004, the Environmental Protection Organization (EPO) of the City of Beni Sweif (120 km south of Cairo, Egypt) with support from GEF- SGP and charitable societies in nearby communities purchased three hundred and forty bicycles and distributed them to the residents under a credit scheme. Because of the popularity of the program, the demand for bicycles quickly grew to a level far in excess of the supply. Subsequently EPO started dialog with the local government to further facilitate bicycle transportation. The project in addition to providing improved mobility to the users, has demonstrated its beneficial impact to the environment as a zero-emission mode of transport.

302. Efforts are also underway in a number of African countries aimed at promoting and encouraging NMTs. As part of its policy to promote sustainable transport through, among others, non-motorized means of mobility, South Africa has planned to expand the use intermediate means of transport that incorporates cycling, animal-drawn carts and NMT infrastructure. More specifically, the government aims to distribute a million bicycles countrywide by 2015, in line with the resolution and action plan of the African Ministers' Transport Summit held in Addis Ababa, Ethiopia, in 2005. The program also incorporates the establishment of micro businesses which sell, repair and maintain bicycles to ensure the sustainability of the project.²⁰

3.2.5 Transport and energy efficiency

303. To address the need for growth without negatively affecting human health and the environment, global efforts have resulted in the development of new transport technologies, which are increasingly more energy-efficient and less polluting. Global efforts to improve energy efficiency in relation to transportation include the development of gasoline hybrid electric automobiles; advanced bio-fuels; non-motorized transport technologies such as the folding bicycle as well as modernized and electric-powered passenger transport.

304. African countries have been exerting efforts to take advantage of the more energy-efficient modes of transport, namely water and rail transport. Many countries endowed with navigable rivers and lakes have taken measures to develop facilities in order to increase their

²⁰ South Africa Year Book 2007/08 - Transport

capacity. Similarly, measures are underway to revitalize rail transport, in many cases replacing the less energy-efficient diesel engines with the more efficient electric-driven locomotives.

305. Further to taking specific measures of moving towards more energy-efficient transport technologies, African governments in collaboration with their development partners are developing a framework of partnership to support sustainable consumption and production in all sectors of the economy.

3.2.6 Developing partnerships at national level for strengthening transport

306. There is increasing recognition through out the world that mobilizing the private sector to invest in infrastructure development has the potential to ease public resource constraints and at the same time enhance productivity of infrastructure services.

307. In Africa, private sector participation in infrastructure development is still modest, but increasing. The level of private sector investment in infrastructure has increased from USD6.6 billion in 2001 to USD22 billion in 2006, an increase of 233 per cent during the five-year period. An even higher growth of private sector commitments in infrastructure investment is registered in Sub-Saharan Africa, having increased by 321 per cent over the five-year period under consideration to reach USD 11.8 billion in 2006.

308. Africa's private sector participation in transport investment had lagged far behind other infrastructure sectors until 2005, with an average share of 11 per cent and limited to port and railway concessionings in only a few countries. In 2006, the share of private sector investment in transport improved to 21 per cent compared to private sector investment in all infrastructure (Energy, ICT, Transport and Water) sectors.

Table 3.3 Investment Committed for Privately Financed Projects In Africa (USD million)

Region/Sector	2001	2002	2003	2004	2005	2006	Total 2001-2006
North Africa							
Transport	270		97	97	86	440	720
All Infrastructure	2,666	885	1,200	5,359	4,470	10,132	24,712
SSA-SA							
Transport		101	318	187	504	4,251	5,361
All Infrastructure	2,817	2,263	3,549	3,061	4,668	11,761	28,119
South Africa							
Transport	484	0	17				501
All Infrastructure	1,138	1,072	2,374	929	1,191	100	6,804
All Africa							
Transport	754	101	335	284	591	4,691	6,756
All Infrastructure	6,620	4,220	7,123	9,349	10,329	21,993	59,634

Source: ICA 2006 and 2007 Annual Report

309. Although private sector participation in transport investment rose sharply in 2006 from the levels in the preceding years, the past trend shows that it is still low. To attract more private sector participation in the transport sector African governments need to create of a conducive investment environment appropriate in terms of policy and legal framework.

310. In the East African Community, for example, measures have been taken, including the harmonization of policies and legal instruments in the infrastructure sector to attract more private sector investment. The Community has identified the following potential areas for private investment: large-scale road and bridge construction and maintenance; use of labour-based methods in road construction and maintenance; hiring out equipment for road construction and maintenance; establishment of road equipment maintenance and modification; encouraging women participation in the provision of road transport services; and development of integrated road transport with other modes linking with the neighbouring countries

3.3 Measures to mitigate the negative impact of transport on human health and the environment

3.3.1 Environmentally-friendly transport

311. Efforts to promote and develop cleaner and environmentally friendly energy systems for transport have been going on at the global level for a number of years.

312. In 1997, the Kyoto Protocol called for developed nations to reduce emissions by an average of 5.2 per cent from a 1990 baseline. The agreement came into force on 16 February 2005. The Kyoto Protocol offers a mechanism, known as the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC), which allows the developed signatory countries of the Protocol to offset excessive climate change emissions by financing clean technology in developing countries through a credit mechanism. Thus, although developing nations do not have reduction requirements under the Protocol, these nations can sell credits gained through CDM to other nations that do have Kyoto emission reduction requirements. Currently CDM projects are being supported by many institutions, including the governments of Finland, Japan and the Netherlands, as well as The World Bank through its Prototype Carbon Fund.

313. As part of the NEPAD initiative with regard to the environment, a program on climate change has been developed for Africa. Many African countries have completed their first national communication and are working on their second communication. Currently most African countries (86 per cent) have ratified or acceded to the Kyoto Protocol and are translating them into action.

314. Although Africa and many other developing nations do not have reduction requirements under the Protocol (due to their negligible share of global greenhouse gas emissions), efforts to reduce vehicle emissions and develop environmentally sound transport systems, albeit limited in scope, have been underway in the past few years.

315. To improve fuel efficiency and air quality, Egypt has taken a number of measures, including the legal provision for a mandatory inspection and certification of vehicles. In Cairo, a vehicle-emission testing, engine tuning and certification program has been in place

since 1999. Currently, vehicle emission testing and certification are mandatory for licensing vehicles in Egypt.

316. With regard to the use of cleaner fuels, having fully phased out leaded gasoline in the Capital City, Egypt is implementing projects to switch to more environmentally-friendly power sources for the transport sector. The major initiatives in this respect include developing compressed natural gas (CNG) as a transport fuel as well as electrification of railways and buses.

317. Under the Clean Development Mechanism, the Global Environmental Facility (GEF) has sponsored the development of projects, including public transport systems using cleaner technology. One such project was the development of a mass transport system based on the fuel cell technology. Although the project did not go beyond the trial phase, the GEF had sponsored a fuel cell bus (FCB) project in Egypt. The FCB project did not go beyond the trial phase as Egypt withdrew from the project mainly due to the high project cost and limited benefit. The other mass transport system sponsored by GEF, the BRT, is running successfully in Egypt and Nigeria.

318. Although emissions of carbon dioxide and other greenhouse gases are of increasing concern in many countries of Africa, some citizens take consolation in the fact that Africa's overall share of the global emissions of greenhouse gases is still minimal. In recognition of this minimal role of Africa in global emissions, the 12th Session of the Heads of State and Government of African Union held in Addis Ababa in January 2009 reiterated the need for those countries which have contributed the most to global warming to compensate for the damage done on Africa's economy in line with the 'polluter-pay principle'.

319. Since Agenda 21 was adopted, many countries in Africa have put in place legislations in relation to the protection of the environment. An important component of the environmental laws is the provision that requires project sponsors/developers to undertake an environmental impact assessment (EIA) of the proposed project before it is implemented. In addition to the national environmental laws, a number of these countries have also developed supporting regulations and sectoral guidelines for the implementation of the policies and laws.

320. Many African countries, including Egypt, Ethiopia, Tanzania, Nigeria and South Africa have developed guidelines on environmental impact assessment for agriculture, industry, mining, and roads as well as social impact assessment and resettlement guidelines. The environmental laws of these countries classify projects in terms of their potential environmental impacts. In Egypt, for example, the most environmentally clean projects or have minor environment impact are classified as *White Projects*; those projects that could result in substantial environmental impacts are labelled as *Grey Projects*; and the last group which are likely to cause potential environmental impact are classified as *Black Projects*. *White Projects* are not required to go through an environmental impact assessment process. *Grey Projects* and *Black Projects*, on the other hand, must undergo limited and a fully-fledged EIA, respectively.

Box 3.6 Uganda's National Environment Statute

In 1995, Uganda enacted a National Environment Statute (now Act Cap 153) calling for Environmental Impact Assessment (EIA) for all development activities likely to negatively impact on the environment before they are implemented and the National Environment Management Authority (NEMA) was created and mandated to operationalise and implement this requirement.

Transport is among the sectors for which EIA guidelines have been developed. The developer must indicate the likelihood of impact on the environment and its mitigation measures.

In the conduct of EIAs for roads, for example, the EIA system emphasizes coverage of all these aspects including compensation for lost property and/or land, selection of least cost road alignments, among others. Of serious health concern on EIAs for road projects is the issue of HIV/ AIDS. Most road EIAs now have to define the mechanisms for minimization of the spread of HIV/AIDS as part and parcel of the overall EIA.

Source: Ecaat, J, 2004, A Review of the Application of Environmental Impact Assessment in Uganda,

321. Other African countries employ the project classification (as related to environmental impact) developed by UNEP. According to this classification, Category "A" projects are those projects having significant adverse environmental impacts requiring full impact assessment. Category "B" projects are those with some adverse environmental impacts of lesser significance than those of Category "A". To determine whether or not a full EIA is required, an Initial Environmental Examination (IEE) is carried out. If the IEE indicates that a full EIA is not required, the IEE itself is taken as the final environmental assessment report. Category "C" are projects which are unlikely to have adverse environmental impacts, and hence do not require IEE or EIA. Rural travel and transport projects can be classified as Category "B" as they have obvious adverse impact on the biophysical environment and the rural society (ERTTP, 2002).

322. Other measures taken by African countries to address potential environmental impacts of transport include amendment of legal provisions in the importation of vehicles. For example, new cars imported into Cape Verde, Benin, Kenya, Mauritius and Tanzania are required to be fitted with catalytic converters or are in the process of being so. Import of second-hand cars is another area where, some countries have either implemented or are planning to implement regulations limiting age of imported vehicles or levying heavy taxes on older vehicles. Eritrea, Mauritius and Tanzania fall in this category.

323. In addition to controlling import of old vehicles and requirement of fitting antipollution devices in new vehicles, Kenya's National Environmental Management Agency is working together with the Kenya Bureau of Standards to put in place standards for emissions from vehicles.

324. In Morocco, emissions monitoring and reduction project by the name Amelioration of Air Quality and Reduction of Air Pollution from Vehicles was undertaken to support the

implementation of a government decree against air pollution. The project involved the testing of a total of 100,000 vehicles in a number of cities in Morocco for levels of emission.

325. In Ghana, Mali, Mozambique and Tanzania biodiesel projects involving the planting of *Jatropha* trees for biodiesel production were undertaken in 2004 and 2005. Although the projects were initially intended to provide biodiesel for use as household fuel, the eventual aim is scaling up toward supplying fuel for transport.

Box 3.7 *Jatropha* Project in Ghana and Mali

In Ghana, a small local community *Jatropha* project worked with women's groups to produce cosmetics and small amounts of fuel for milling engines. This was replicated by another project on a larger scale in a different region of the country, with emphasis on bio-fuel production at scales more relevant to the transport sector. Partnerships with relevant government agencies were created from the beginning of the projects. The combination of these projects, plus the networking efforts of some project proponents, led to the creation of a national bio-fuel policy committee, charged with making recommendations for mainstreaming bio-fuel in the Ghanaian transport sector.

In Mali, the grantee has been working with communities to establish *Jatropha* plantations and markets for several years now, and the featured project itself replicated previous projects, with the additional focus on supply chains for motor vehicles. Through the participatory project design, a village focal point has been established in each village to diffuse acquired *Jatropha* knowledge to neighbouring people thus setting up an informal institution for replication. The private sector is playing a great role in the process by commercializing components of the supply chain.

326. South Africa, whose sulphur dioxide concentration in its largest cities is already lower than that of Cairo, has planned to reduce the maximum sulphur content in petrol from its level of 500 ppm in 2004 to 50 ppm in 2010, with a similar target of 50 ppm of sulphur in diesel from its level of 3,000 ppm in 2004.

327. As cleaner fuels and technologies and proper modal mix and traffic management, among others, can contribute to sustainable transport, environmental sustainability in relation to transport can also be significantly improved by creating proper land use patterns. Integrating transport planning into land use planning has important effects on reducing energy consumption and hence GHG emissions, noise and traffic congestion and accidents.

328. Because of their close proximity to markets, jobs, schools, etc., urban residents can choose between different modes of transport: they can walk, take any available public transport, or use private cars. On the other hand, as residential areas are located farther away from the centre of the city, as it true for suburban and rural areas, transport choices become increasingly limited. So in the more affluent African societies, residents in suburban areas increasingly rely on private cars for their transport needs.

329. As the demand for motorized transport is closely related to the distance from residential areas to location of goods and services, African countries are taking serious consideration of addressing transport issues in their development programs and urban development policies. Many African countries have indicated their commitments to undertake or update land use studies and incorporate their sector development programs to their land use plans.

330. In relation to ports and maritime transport, efforts are underway by African countries in collaboration with their development partners to contribute towards implementing

commitments to develop environmentally-sound transport systems. In this connection, activities of the Ports Management Association of Eastern and Southern Africa (PMAESA) are noteworthy.

331. PMAESA is currently collaborating with ECOPorts in Europe to undertake activities in the African region under the African Green Ports Initiative program, which focuses on the following: integrated approach/system for management of all wastes in port towns and cities; development of a regional System for marine pollution surveillance; baseline information, pollution problem identification and assessment; regional workshop on handling of hazardous materials in ports; survey/study on port reception facility requirements and costs in some countries; and regional seminar/workshop on ratification of international conventions related to protection of the marine environment.

332. The African Green Ports initiative is reported to be officially launched in December 2009 during the PMAESA African Ports Conference.

333. Given the global nature and impact of aviation, ICAO has developed guidelines on land-use planning to be adhered to by member states, which includes guidance on using various tools for the minimization of the impact of aircraft noise in the vicinity of airports and describes the practices adopted for land-use planning and control in several States.

Economic instruments for the mitigation of the environmental impact of aviation

334. Despite its many advantages, air transport is associated with significant negative impact on the environment, mainly due to its emissions which in turn lead to air pollution, ozone layer depletion and global warming. The noise from aircrafts, particularly during take-off and landing, is also a source of negative impact on human health.

335. Measures that have been taken to mitigate the negative impact of air transport on the environment at the global level (which has direct bearing on Africa's aviation) also include the development of more energy-efficient aircrafts, improving operational efficiency and application of stricter regulations. During the last three decades or so, significant improvements have been made in fuel efficiency of aircrafts. Recent generation of aircrafts, for example, consume three times less fuel per seat kilometre than earlier generations.

336. With regard to the regulatory measures in place to control the environmental impact of air transport, mention can be made of the emission certification standards for emissions of carbon monoxide, nitrogen oxides, unburned hydrocarbon (HC) and smoke developed by the International Civil Aviation Organization (ICAO)²¹.

337. ICAO first addressed the introduction of emission-related charges at the 1991 Conference on Airport and Route Facility Management. As regards emission-related levies, the initial options being evaluated were: a fuel tax, with revenue going to national treasuries; a revenue-neutral charge based on aircraft efficiency, with higher charges on less fuel-efficient aircraft offset by lower charges on more fuel-efficient ones; and an en-route emissions charge, with revenues recycled to the aviation sector (for example, to defray the costs of the harmful effects of emissions and to support air traffic modernization, early retirement of aircraft, and research and development activities).

²¹ Annex 16 to the Chicago Convention

Phasing-out leaded gasoline and reduction of sulphur in diesel and gasoline fuels

338. As part of the global initiative, the Clean Air Initiative in Sub-Saharan African Cities (CAI-SSA) was launched in 1998 to control the deterioration of air quality in Africa, with the support of the World Bank and a number of other multilateral and bilateral donors. African Governments also adopted the Dakar Declaration in 2001, which, among other things, spelt out their commitments to phase out leaded gasoline from their respective countries by December 2005.

339. As part of the efforts to contribute to the global Clean Air Initiative, UNEP established the Partnership for Clean Fuels and Vehicles (PCFV) to promote the process of the phasing out of leaded fuel. Since its launching in 2002, the PCFV has been engaged in the promotion of the adoption of clean fuels and vehicles strategies by providing technical, financial and networking support to countries in Africa and other parts of the world.

340. In line with this commitment, by 2003, over 50 per cent of all gasoline sold in SSA was unleaded. By 2004, three refiner countries (Ghana, Nigeria and Sudan) and six importing countries, (Cape Verde, Eritrea, Ethiopia, Mauritania, Mauritius and Rwanda) had progressed to the level that all the gasoline used was completely unleaded. In the same year, unleaded gasoline accounted for an estimated 57 per cent of SSA consumption of all gasoline.

341. By the end of 2005 all of SSA was expected to have phased out leaded gasoline. Although this target was not met, leaded gasoline was finally phased out in sub-Saharan Africa effective 1 January 2006.²² By end of 2008 only two African countries (Algeria and Tunisia) had not phased out leaded gasoline, having set early 2009 as their target for marketing lead-free gasoline in their respective countries.

342. In addition to the elimination of lead in gasoline, the reduction of sulphur in diesel and gasoline fuels, and the adoption of cleaner vehicles and vehicle technologies have been a major area of activity in support of the development of sustainable transport. African countries had agreed to reduce sulphur in motor fuels (diesel and gasoline) to less than 500 ppm by 2006 and further reduce it to less than 50 ppm by 2010 from the 2002 level of greater than 2000 ppm in over 95 per cent of African countries.

343. By February 2009 there were only eight countries (all of them in Southern Africa) which had succeeded in reducing sulphur in motor fuels to 500 ppm, and only two countries to 50 ppm. At the same time, the vast majority (over 75 per cent) of African countries were still using motor fuels with sulphur levels of higher than 2000 ppm.

344. As part of the efforts underway to address the problem of the slow progress in the implementation of commitments to reduce sulphur in diesel fuels, national sensitization workshops were held in Cotonou, Benin and in Bamako, Mali in March 2009. The Workshops which were also attended by the PCFV Clearing-House and representatives from Nigeria and Togo recommended progressive reduction of sulphur levels in diesel fuels to 50ppm, with common targets and timeframes to lower sulphur in diesel fuels to be set by the task team formed following the Workshop.

²² UNEP/PCFV

3.3.2 Measures to prevent transport related spread of HIV/AIDS

345. During the past few years most of Africa's transport corridor development programs have incorporated mechanisms to address the HIV/AIDS epidemic and, more specifically, prevent the transport sector from continuing to be a vehicle for the spread of the virus.

346. An example of efforts to address HIV/AIDS is the project undertaken, with support from the World Bank, to study the correlation between transit transport movements and HIV/AIDS on the Abidjan-Lagos Corridor (ALCO). The project covers five countries of West Africa (Côte d'Ivoire, Ghana, Togo, Benin, and Nigeria).

347. The findings of the study showed that the cumbersome border crossing procedures resulting in delays at the border crossings have created demand for overnight lodgings thus attracting commercial sex workers to such places. This in turn has exposed drivers, passengers and traders to the risk of HIV/AIDS.

348. The ALCO study concluded with the following recommendations:

- a) At regional levels the study recommends the setting up of a sub-regional information system on the inter-state road transport corridor, supported by all institutions that work in the field.
- b) At national levels the recommendations emphasize the need for: a reduction of the large number of existing checkpoints in accordance with the ECOWAS resolution C/RES 4//5/90 for a reduction of the number of checkpoints on the roads of ECOWAS member states; harmonization of the opening and closing hours of the borders; organization of awareness and information seminars to all concerned groups.

349. As part of the regional effort to minimize the role that the transport system plays as a vehicle for HIV/AIDS, the SSATP program has included a component to address HIV/AIDS problems in Africa. Under this component, the following have been accomplished: HIV/AIDS policies have been developed in 10 countries; HIV/AIDS transport strategy has been developed with support from ILO; poverty Reduction Transport Strategy (PRTSR) reviews have included actions and recommendations to limit the spread of HIV/AIDS.

3.4 Financial and technical support provided to Africa to develop sustainable transport

350. Developed countries have for a long time provided support to African countries through their bilateral and multilateral cooperation arrangements to finance, among others, the development of transport systems, and, more recently, to support efforts to implement climate change mitigation and adaptation programs and projects.

351. The most significant financial and technical assistances that African countries have received from developed countries in their efforts to develop sustainable transport are outlined in the following paragraphs.

NEPAD Infrastructure Project Preparation Facility (IPPF)

352. NEPAD Infrastructure Project Preparation Facility (IPPF) was established in 2003 with the objective of assisting Africa countries, Regional Economic Communities, Specialized Infrastructure Development Agencies and related institutions, to prepare high quality, viable regional infrastructure projects in transport and other economic infrastructure sectors, which would be used to solicit financing from public and private sources.

EU-Africa Partnership on infrastructure

353. EU-Africa Partnership on infrastructure aims at supporting physical infrastructure investment, institutional development and capacity building as well as policy facilitation and regulatory frameworks. The European Union support to Africa with regard to the transport sector is elaborated in the EU-Africa Partnership on Infrastructure launched on October 24, 2008, at the AU headquarters in Addis Ababa. Whereas the Partnership covers all economic infrastructure sectors, the focus with respect to transport is on the Trans-Africa Corridors.

354. As resources to finance the programs included in the Partnership are expected to be mobilized from various sources (European Commission grant, EU member countries, loans from the European Investment Bank as well as the AfDB), a Steering Committee was established to harmonize the various initiatives. The Committee provides policy guidance on the Partnership and facilitates coherence and consistency of the various strategic plans.

355. The main purpose of the Partnership is to support programs that facilitate Africa's interconnectivity which in turn could promote regional integration and economic development. The direct outcome of this partnership was the establishment of the EU-Africa Infrastructure Trust Fund, to serve as a mechanism for mobilizing resources from EU Member States and the European Commission as well as other bilateral and multilateral donors for financing Africa's infrastructure development. By the end of 2007, the Trust Fund had received a total contribution of Euro 42.5 million from EU Member States and other European financing agencies.

356. During the first few months of the establishment of the Trust Fund, one transport project received preliminary acceptance for funding. This project is the Port of Point Noire with an estimated funding requirement of Euro 20 million. The project, whose components include rehabilitation and strengthening of wharfs and roads leading to the port as well as the construction of container terminals and storage facilities, is expected to benefit Congo, CAR and DRC.

The African Development Bank (AfDB)

357. The African Development Bank has outlined its commitments for the development of transport in Africa in its latest strategic plan for the four-year period 2007-2010, the major elements of which include: financing regional transport corridors; financing green field road projects; increasing infrastructure asset base at the national level by financing road rehabilitation projects and putting emphasis on maintenance and attendant capacity building; development of PPP projects especially in connection with the extractive industries in Regional Member Countries (RMC) for the development of transport infrastructure; and Development of multi-sector projects.

358. In line with AfDB's plan to finance regional transport corridors, the Bank is providing support to: the Tema – Ouagadougou – Bamako corridor, extending the Northern Corridor in

East Africa to Ethiopia, undertaking a feasibility study on a key bridge on the North-South Corridor in Southern Africa. These projects are part of major transit corridors identified in the Almaty Action Plan adopted at a preparatory meeting held during 5-7 May 2003 in Addis Ababa. The plan is aimed at developing efficient transit systems for landlocked developing and transit countries.

359. AfDB also supports (together with the World Bank) the East Africa Trade and Transport Facilitation Project. Rehabilitation and extension of railways in East and West Africa is another focus of support by AfDB.

360. The African Development Bank has also taken the initiative to encourage participation in some regional transport projects from the Arab Banks, which have often undertaken co-financing operations in the past, but normally with one another, rather than with the main multilateral agencies.

The World Bank

361. The World Bank provides financial and technical support, among others, to the transport sector in Africa covering the areas of development of national and regional infrastructure and institutional capacity building. The Bank's program of support is outlined in its Africa Action Plan (AAP) which was launched in 2005. The AAP is the Bank's response to Africa's need for significant investment required to meet the MDGs. In relation to the transport sector, the AAP seeks to development of the private sector in Africa; expand and upgrade road networks and transit corridors; and develop human and institutional capacity.

The Infrastructure Consortium for Africa (ICA)

362. The Infrastructure Consortium for Africa (ICA), financed by the G8 Group and other bilateral donors was established in 2005 to address national and regional constraints to infrastructure development through the sharing of information, project development and good practices. Its work program covers: capacity & institutional strengthening; advocacy; analytical work in support of ICA activities; cooperation in project preparation and enhancing donor coordination.

363. Regional infrastructure projects have continued to receive an increasing share of the ICA commitments earmarked for Africa's development, with the share having risen from 5 per cent in 2005 to 23 per cent in 2007.

364. There is also an encouraging development in the composition of donors, with the addition of non-OECD members. In 2007, China committed resources for infrastructure development in Africa estimated at USD 5.2 billion.

365. A major obstacle reported by ICA is that African countries have not been able to prepare adequate number of bankable infrastructure projects. A key factor in the weakness in project preparation in Africa is the lack of sufficient number of skilled human resources in the fields of project planning and management.

366. As indicated in Table 3.3, the commitments by ICA members for transport projects increased from about \$2.6 billion in 2005 to nearly \$3.6 billion in 2007. Of the total ICA

2007 commitments to the transport sector in Africa, the highest share (35.7 per cent) went to Eastern Africa. Central Africa Northern Africa and Western Africa had shares of 18.8 per cent, 16.3 per cent and 15.3 per cent, respectively of the total commitments.

Table 3.4 ICA commitments to transport sector in Africa by sub-region (USD million)

Sub-Regions	ICA Total		
	2005	2006	2007
Central Africa	574.0	347.7	676.2
Eastern Africa	421.6	1,210.3	1,283.0
Northern Africa	493.4	352.0	584.4
Southern Africa	139.1	315.0	482.9
Western Africa	966.1	941.0	550.9
Other or Unallocated	7.0	1.9	17.3
Total	2,601.2	3,167.9	3,594.6

Source: ICA Annual Reports 2006 and 2007

367. As it is true for other infrastructure sectors, the bulk of the financing from ICA sources for the transport sector is provided by the EU, World Bank and AfDB, with EU leading the group.

Table 3.5 Main sources of ODA for transport in Africa (USD million)

Donor/Sector	2006	2007
AfDB	656.4	611.1
EU	897.8	1024.1
IDA/WB	670.2	922.5
EU Members	133.3	176.3
Japan	311.3	349.9
USA	498.9	258.3
Others (IFC & AfDB Private)	-	252.5
All Donors	3167.9	3594.7

Source: ICA Annual Reports 2006 and 2007

SECTION 4: Challenges and constraints

368. In spite of the efforts made by African governments and their development partners in formulating and implementing measures, policies, strategies and programmes to develop adequate, safe, secure and affordable transport system that supports efforts to eradicate poverty and bring about sustainable development, a wide gap still exists between planned targets and the level of achievement. This can be attributed to the numerous challenges and constraints that the region faces in relation to the development of sustainable transport systems. The major challenges and constraints include the following.

Inappropriate national policies and limited implementation of national, sub-regional and regional agreements

369. The lack of appropriate and well formulated policies and strategies as well as the slow implementation of sub-regional and regional agreements remain major obstacles to the development of sustainable transport in Africa. Many African countries do not have policies that allow and promote private sector participation in transport infrastructure development and operation. Liberalization and privatization in rail, air and maritime transport is still in its infancy. Efforts to harmonize policies and regulations pertaining to cross border movement of goods, services and people have not yet been effective, as many African countries have not fully implemented agreements aimed at facilitating cross border movement of goods and passengers by road and rail as well as the much anticipated and long overdue Yamoussoukro Decision in relation to air transport.

Low transport network connectivity and poor state of network

370. In many African countries transport networks are characterized by several missing links within each country and between countries, forcing a significant percentage of the rural population to live without access to market and essential economic and social services. Coupled with the problem associated with the missing links in the road, rail, inland waterway and air transport system, a large proportion of the existing infrastructure is aging and in a poor state.

Inadequate human and institutional capacity

371. Although the number of workers in African public transport enterprises and agencies is relatively high, the availability of skilled personnel is limited in most transport organizations. As it is true for other critical capacities, managerial and technical skills are in short supply in Africa. In addition to lack of adequate skilled human resources, institutions that have appropriate powers and technical capacity to formulate, plan and manage infrastructure development and services as well as to regulate and enforce policies and regulations are lacking in many African countries.

Negative impact of transport on the environment

372. Despite the critical importance of the transport system in economic development and poverty reduction, it is also associated with significant adverse effects on the environment. The most serious environmental concerns usually associated with the construction of roads, railways, airports and seaports are the destruction of forests and other ecosystems including

wildlife habitats; land degradation particularly through soil erosion on land adjacent to the infrastructure; and changes made on the drainage systems and geological formations.

373. Other typical serious environmental problems arising from transport operation include emissions of carbon dioxide and other greenhouse gases from vehicles, trains and aircrafts, as well as congestion of streets and ports. The role of these emissions in causing air and noise pollution, ozone layer depletion and climate change, which in turn pose human health hazard and negative impact on the economy, is well documented.

High transport costs

374. Transport costs in Africa are among the highest in the world. Transport services are unaffordable to many African citizens as transport costs are high compared to the average incomes of the citizens. Travel costs in African cities have a share of 21.7 per cent of GDP, compared to 14.3 per cent in Latin America and even lower in other parts of the world. Similarly, freight costs in Africa are significantly higher than the average cost in Asia. The high transport cost in Africa is mainly attributable to poor infrastructure, high fuel prices, aging and inefficient fleet, as well as limited completion and low level of trade volumes on some routes. The already high transport costs have been exacerbated in the past few years by the energy crisis associated with the high and volatile oil prices. Factors, including limited skills of managerial and operational staff as well as poor transport facilitation play significant roles in the high transport costs in Africa.

Poor transport safety and security

375. The prevailing poor state of road safety remains a serious challenge in Africa, as accidents and the resulting loss of life and destruction of property has assumed intolerable proportions. A major weakness in this area is the absence in some countries and the weakness in other countries of lead institutions that are responsible for road safety. Coupled with this, there appears to be a lack of consistent enforcement of traffic regulations. In most cases, the major constraint common to all the weaknesses in the management of road safety is the lack of adequate financial resources. The poor safety record of many African airlines is another area of major concern in Africa.

Poorly developed transport information systems

376. Statistical information is a key input at every stage of the development process, including in the planning and implementation of programs and projects. Adequate and well organized statistical information provides tools for making informed decisions in identifying gaps, formulating policies and strategies, developing effective investment programs as well as for monitoring and evaluation. However, in Africa such data is at best limited and poorly organized. Likewise, despite the importance of ICT in facilitating decision making through rapid data processing, storing, retrieving, transferring over long distances, the transport sector has not taken full advantage of the technology due to, mainly, lack of proper policy for the development of the ICT as well as limited financial and human capacity.

377. Limited Financial Resource: Despite efforts by African governments as well as their international and domestic development partners to mobilize financial resources for financing investment in transport infrastructure and maintenance of existing facilities, huge gaps remain between the demand and available resources. Sustainable transport development requires

huge financial outlays to build infrastructure, provide energy-efficient and environmentally-friendly transport equipment, among others.

SECTION 5: Lessons learned and way forward

378. Transport infrastructure and services are critical to Africa's sustainable development. Effective mobility and timely access to goods and services requires well developed, safe, secure and affordable transport network and services. However, Africa's transport system has not yet been developed even to the level of other developing countries in Asia and the rest of the world.

379. Lessons learned from ongoing initiatives have shown that potentials for speeding up implementation of commitments and achievement of goals and targets exist. This however requires a right set of measures to be undertaken in the area of policy, strategy, resource mobilization and capacity building. The biggest challenge remains the translation of policies and strategies in concrete action in a timely manner. This therefore requires provision in a timely manner financial and other resources, strengthening and achieving good corporate and public governance. More specific lessons learnt and recommended policy and other measures necessary are presented under each of the major intervention below.

National policies and sub-regional and regional agreements

380. On the way forward, African countries have to prove their commitment to improving the domestic investment environment by taking practical actions in the following areas:

- (i) Deepening the policy reforms in transport sector with the view to attract private sector financing;
- (ii) Strengthening the regulatory and enforcement mechanism in order to create level playing fields for infrastructure investment and services; and
- (iii) Improve coordination in the development and implementation of regional and sub-regional agreements on transport facilitation and air transport liberalization.

Human and institutional capacity building

381. Efficient institutions having appropriate mandates and staffed with highly motivated and skilled human resources are key elements in the development of safe, secure, affordable and environmentally sound transport system.

382. To enhance the environment for improving and expanding transport infrastructure and services, the following measures need to be taken in the area of capacity building:

- (i) Ensure that appropriate institutional frameworks are put in place and separate regulatory and operational functions of all modes of transport;
- (ii) Strengthen existing and establish new entities, where they don't exist, for the planning, regulating and implementing activities that will support the development of sustainable transport;
- (iii) Strengthen and expand national and regional institutes and centers of learning and specialized training;
- (iv) Eliminate physical and non-physical barriers to the movement of goods and passengers at ports, border crossings and inland terminals, including cumbersome clearance procedures and road checks along the corridors serving landlocked countries, among other things, to prevent transport sector workers from being exposed to HIV/AIDs;

- (v) Develop and implement capacity building programs to upgrade the knowledge and skills of staff involved in policy formulation, planning and implementation as well as those engaged in regulatory and enforcement functions; and
- (vi) Raise public awareness and participation of key stakeholders in all phases of policy making and implementation.

Transport and the environment

383. The development of sustainable transport which adequately meets the mobility and access needs of African countries and at the same time reducing greenhouse emissions has been demonstrated, albeit in a limited way, to be possible in Africa.

384. Africa, although not by design, is a good example of the advantages of low motorized transport from the environment point of view. Because of its low motorized mode of transport compared to other regions of the world, Africa's contribution to global greenhouse gas emissions and associated climate change impacts, air pollution, land usage for transport infrastructure, as well as impact on fauna and flora is low.

385. Although Africa is not currently among the big polluters, if the continent continues along the path of business-as-usual, it will not only retard its own development but also significantly contribute to the global problem of climate change. Africa should draw lessons from the other countries who have significantly contributed to global warming by avoiding the path they followed to develop their fossil fuel-dependent transport system. Given the embryonic stage of the transport system of Africa, the continent has a unique opportunity to develop low carbon and environmentally sound transport systems.

386. Many African countries have given more focus to promoting non-motorized transport as part of their strategies to provide improved mobility and access to markets while at the same time reducing the negative impact of transport on the environment and human health. Cycling, for example, in addition to providing an alternative means of mobility, has increasingly become a desirable means of transport not only in Africa but also in other developing and developed countries because of its beneficial impact on the environment as a zero-emission mode of transport.

387. Apart from mitigation measures based on thorough environmental impact assessment that should be incorporated in the development of infrastructure, the following measures need to be taken to minimize carbon emissions and avoid environmental degradation:

- (i) Ensuring that projects pass through rigorous environmental impact assessment processes before approval;
- (ii) Establishing appropriate incentives to encourage the development and use of more efficient and cleaner modes of transport, including use of energy efficient modern vehicles, locomotives, vessels and aircrafts;
- (iii) Promoting the use of low-energy consuming passenger and freight transport systems;
- (iv) Removing obstacles and disincentives to the development of cleaner energy sources;
- (v) Developing properly planned infrastructure and upgrading existing ones to acceptable standards;
- (vi) Improving traffic management to reduce congestion and delays and their associated emissions;

- (vii) Strengthening measures to minimize the number of vehicles in operation, particularly aging fleet, and other transport equipment with high emissions;
- (viii) Integrating transport infrastructure planning into land use planning to ensure sustainability of transport that meet accessibility and mobility needs with environmental requirements;
- (ix) Involving all stakeholders, including, local authorities, ministries, airport authorities and representatives of residents in the neighbourhood of prospective airport locations to have their say about land use and airport planning;
- (x) Taking into account ICAO's work on aviation and environmental protection when developing air transport and environmental policy;
- (xi) Ensuring that wastes arising during the construction of transport infrastructure and operations, including oil spills and scraps are kept to the minimum; and
- (xii) Encouraging reduction of travel through such mechanisms as the use of tele-conferencing and other electronic modes of message transfer as a substitution for air travel or driving to meetings, conferences, etc.

Energy efficiency and transport cost

388. Transport services in Africa are associated with high costs, attributable to a complex set of factors, including inadequate and poor infrastructure, aging and inefficient fleet, poor transport facilitation as well as limited competition and low traffic on some routes.

389. Lessons show that availability of goods and services in close proximity to consumers minimizes the need for movement of passengers over long distances. That is where land use planning can make important contributions. Land use planning can, for example, limit urban sprawl, which is associated with the formation of a settlement pattern calling for the less energy-efficient transport modes, such as the proliferation of taxis and private vehicles.

390. In order to improve on energy-efficiency and reduce costs in the transport sector can be classified as follows:

- (i) Integrating transport planning with land use patterns with the view to minimizing transport demand;
- (ii) Encouraging the development of good public transport and more energy-efficient mass transit systems;
- (iii) Developing and utilizing energy-efficient modes and means of transport;
- (iv) Improving the management of enterprises by upgrading the capacity of managerial and technical staff as well as streamlining operations and administrative functions;
- (v) Carrying out institutional reforms, including liberalization and privatization;
- (vi) Improving and properly maintaining infrastructure as well as transport machinery and equipment;
- (vii) Ensuring the full implementation of transport facilitation initiatives; and
- (viii) Promoting intra-modal and inter-modal transport competition to improve efficiency.

Transport safety and security

391. The loss of human life and property caused by traffic accidents has assumed alarming proportions in all modes of transport in Africa, but more so in road transport. Efforts are currently underway to put in place regulatory mechanisms and strengthening institutional capacity to improve safety in all modes of transport.

392. To enhance efforts underway by a number of African countries with the view to improving transport safety through policy reforms and capacity building, African governments in collaboration with their development partners have expressed their commitments to work together to stop the growing epidemic of deaths and injuries on African roads, targeting to reduce road traffic fatalities by half by 2015.

393. The Road Safety Campaign underway worldwide under the auspices of the UN and coordinated by WHO has also contributed to improving awareness of the impact of road accidents on human life and the economy.

394. African countries need to build on existing initiatives aimed at improving safety in all modes of transport by taking the following measures:

- Establishing effective institutional framework and strengthening existing ones to improve road safety;
- Allocating adequate funds for safety programs in line with the call made by the Commission for Global Road Safety for the allocation of at least 10 per cent of the total road infrastructure investment for safety related activities;
- Ensuring compliance with safety and security regulations and standards established by the relevant international and regional bodies in all modes of transport, in particular ICAO with regard to air transport; and
- Addressing maritime security problems, particularly in relation to the escalation of maritime piracy in recent years, in a holistic manner, including through an in depth look at the root causes of piracy.

395. As a short term measure to combat the recent escalation of piracy and armed robbery against ships passing through the Gulf of Aden and off Somalia, the naval powers of the world, with the close collaboration of trans-national corporations, need to continue patrolling the waters in the area and ensure the safety and security of ships. States across the western Indian Ocean, the Gulf of Aden and Red Sea areas should contribute to the safety and security of their ships and cargo by complying and implement the code of conduct on the repression of piracy and armed robbery adopted in Djibouti under the auspices of IMO.

Transport information systems

396. Given the high intensity of use of information in the transport sector and inadequacy of the necessary information in many African countries, information, communication technology (ICT) offers a powerful tool in accessing, processing and disseminating large volumes of information in the shortest time possible.

397. ICT can also help save time and energy by avoiding travels to conduct meetings and collect data, with the associated reduction of emissions from road vehicles, railways and aircrafts. However, due to the ubiquitous constraint of financial and skilled human resources, the transport sector in Africa has not adequately embraced ICT.

398. The transport sector in the region should take advantage of the possibilities offered by ICT through:

- (i) Developing policies that promote increased use of ICT in all aspects of the transport system;
- (ii) Building adequate database of transport information; and
- (iii) Developing strategies that can encourage the use of ICT (e.g. video conferences and electronic information exchange mechanisms) as a substitute for trips and physical movement of goods

Financial resources

399. Despite the noted efforts of African governments for allocating up to eight per cent on average of their GDP for infrastructure development, the amount is far below that is required to finance even the maintenance of the existing transport network and operations.

400. Following the policy reforms undertaken by many African countries in the past few years, private sector participation in infrastructure development, although modest, is increasing. Important public-private partnership deals have been registered in many African countries in all modes of transport in the past fifteen years. Involvement of the private sector in infrastructure development and operations, in addition to its contribution toward easing public resource constraints, has the potential of enhancing productivity and efficiency of infrastructure services. However, as only very few PPP arrangements, particularly in rail concessions, have achieved their objectives of improved services, enhanced efforts during the planning and implementation phases are required to make future PPPs successful..

401. Past experience has also proved that Africa has strong international development partners who are willing to provide significant technical and financial support to finance the continent's development plan, including transport infrastructure.

402. In order to secure adequate finance for the development and maintenance of transport infrastructure, the following measures need to be taken:

- (i) Enhancing public source financing by ensuring that an adequate share of GDP is allocated to the sector, either directly from the government budget or through government borrowings or guarantees;
- (ii) Raising external resource mobilization capacity to take advantage of resources from multilateral and bilateral donors, as well as other innovative funding mechanisms, including those related to the global Clean Air Initiative; and
- (iii) Encouraging public private partnerships in the construction and operation of transport infrastructure to complement public funding. This undoubtedly calls for improving the investment climate, including updating institutional and regulatory frameworks and elimination of unnecessary bureaucratic procedures and practices;
- (iv) Reducing rehabilitation and replacement funding requirements of infrastructure and rolling stock by proper and timely maintenance.

SECTION 6: Conclusion

403. Transport is among the key sectors that play crucial roles in the effort to achieve sustainable economic growth and poverty reduction thereby bringing about sustainable development in Africa. In order for the transport sector to play its rightful role, if it is developed in a coordinated manner with the ultimate aim of bringing about a reliable, efficient, safe and environmentally sound system of moving passengers and goods.

404. Although the expansion of the African road network over the past years is encouraging, the density and geographic distribution is still low compared to those of other developing countries in Asia. Other modes of transport, including rail, water and air transport have also not yet expanded to a level that satisfies the demand for domestic and international movement of goods and services.

405. On the other hand, despite the key role that transport plays in meeting the essential needs of mobility and access to goods and services, the negative impacts of transport to human health and the environment has been a cause for concern, both at the global and regional levels.

406. In line with the various international declarations, more importantly the PFIA21 and the JPOI, made to give increased impetus to the implementation of AGENDA21, a number of measures have been taken in relation to the transport sector in Africa to ensure that the sector makes effective contributions to sustainable development.

407. With regard to the development and promotion of an integrated approach to transport policy, investment for the development of sustainable transport, mitigation of the negative impact of transportation on human health and the environment and partnerships at the national level for strengthening transport infrastructures and developing innovative mass transport systems, measures taken at the regional level include, resolutions and action plans put in place by the AU as well as the conferences of ministers responsible for the different modes of transport. Significant financial and technical support has also been obtained from a number of UN organizations, the international and regional financial institutions, the EU and a number of bilateral donors.

408. Despite the efforts and the achievements made so far to develop sustainable transport in Africa, formidable challenges remain, including inappropriate national policies and limited implementation of national policies and regional agreements, limited financial resources, low network connectivity, inadequate skilled human resources, inadequate database and limited use of ICT, high transport costs, poor transport safety and negative impact of transport on the environment

409. Lessons learnt from ongoing initiatives have shown that potentials for speeding up implementation of commitments and achievement of goals and targets exist, provided that the right set of measures in the area of policy, strategy, resource mobilization and capacity building is taken. Sustainable transport development is also possible provided that policies and strategies are translated into action properly and timely, adequate resources are allocated, good corporate and public governance is in place and support from development partners is ensured.

410. To speed up implementation of agreed commitments and goals in relation to the development of sustainable transport, African countries need to take action in the following areas among others: implementing regional and sub-regional agreements on transport facilitation and air transport liberalization; institutional reform, including liberalization and privatization; promoting intra-modal and inter-modal transport competition to improve efficiency; strengthening the regulatory mechanism of the sector in order to create level playing fields for infrastructure investment and services; establishing effective institutional framework and strengthening existing ones to effectively manage traffic and ensure safety; ensuring compliance with safety and security regulations and standards.

411. Other required measures include enhancing public source financing by ensuring that an adequate share of GDP is allocated for sustainable transport; improving land use planning to properly channel and restrain road traffic, optimizing resource utilization by using computerized decision support systems; ensuring that projects with likely negative environmental impacts pass through rigorous environmental impact assessment processes before approval.

412. In order to ensure environmentally sound and energy efficient sector, countries need to establish appropriate incentives to encourage the development and use of more efficient and cleaner modes of transport, including use of energy efficient modern vehicles, locomotives, vessels and aircrafts; promoting the use of low-energy consuming public transport systems; remove obstacles and disincentives to the development of cleaner energy sources; strengthen measures to minimize the number of vehicles in operation, particularly aging fleet, and other transport equipment with high emissions; and addressing the mobility and accessibility needs of the rural population through appropriate transport technology, including NMTs and cleaner motorized transport systems.

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Annexes

Annex 1: Selected African transport data

Country Name	Roads			Rail	Airport (Run way)		
	Total km	Paved	Unpaved	Total km	Total No.	Paved	Unpaved
Algeria	108,302	76,028	32,274	3,973	150	52	98
Angola	51,429	5,349	46,080	2,760	232	31	201
Benin	16,000	1,400	14,600	758	5	1	4
Botswana	25,798	8,410	17,388	884	85	11	74
Burkina Faso	92,495	3,857	88,638	622	33	2	31
Burundi	12,322	1,286	11,036	-	8	1	7
Cameroon	50,000	5,000	45,000	987	45	11	34
Cape Verde	1,350	932	418	-	8	8	-
Central African Republic	24,307	-	-	-	51	3	48
Chad	33,400	267	33,133	-	55	7	48
Congo, Dem. Rep.	153,497	2,794	150,703	5,138	237	26	211
Congo, Rep.	17,289	864	16,425	894	31	5	26
Cote d'Ivoire	80,000	6,500	73,500	660	34	7	27
Djibouti	3,065	1,226	1,839	100	13	3	10
Egypt	92,370	74,820	17,550	5,063	88	72	16
Equatorial Guinea	2,880	-	-	-	5	5	-
Eritrea	4,010	87	3,136	306	18	4	14
Ethiopia	36,469	6,980	29,489	699	84	15	69
Gabon	9,170	937	8,233	814	53	10	43
Gambia, The	3,742	723	3,019	-	1	1	-
Ghana	62,221	9,955	52,266	953	12	7	5
Guinea	44,348	4,342	40,006	837	16	5	11
Guinea-Bissau	3,455	965	2,490	-	27	3	24
Kenya	63,265	8,933	54,332	2,778	225	15	210
Lesotho	7,091	1,404	5,687	-	28	3	25
Liberia	106,000	657	9,943	490	53	2	51
Libya	100,024	57,214	42,810	-	141	60	81
Madagascar	65,663	7,617	58,046	854	104	27	77
Malawi	15,451	6,956	8,495	797	39	6	33
Mali	18,709	3,368	153,411	729	29	8	21
Mauritania	11,066	2,966	8,100	717	25	8	17
Mauritius	2,028	2,028	-	-	5	2	3
Morocco	57,625	35,664	21,961	1,907	60	27	33
Mozambique	30,400	5,685	24,715	3,123	147	22	125
Namibia	42,237	5,406	36,831	2,382	137	21	116
Niger	18,550	3,803	14,747	-	28	9	19
Nigeria	193,200	28,980	164,220	3,505	70	36	34
Rwanda	14,008	2,662	11,346	-	9	4	5

Sao Tome and Principe	320	218	102	-	2	2	-
Senegal	13,576	3,972	9,604	906	20	9	11
Seychelles	458	440	18	-	15	9	6
Sierra Leone	11,300	904	10,396	-	10	1	9
Somalia	22,100	2,608	19,492	-	67	7	60
South Africa	362,099	73,506	288,593	20,872	728	146	582
Sudan	11,900	4,320	7,580	5,978	101	16	85
Swaziland	3,594	1,078	2,516	30	18	1	17
Tanzania	78,891	6,808	72,083	3,690	124	10	114
Togo	7,520	2,376	5,144	568	9	2	7
Tunisia	19,232	12,655	6,577	2,153	30	14	16
Uganda	70,746	16,272	54,474	1,244	32	5	27
Zambia	91,440	20,117	71,323	2,157	107	9	98
Zimbabwe	97,267	18,481	78,786	3,077	341	19	322
Total	2,463,679	549,820	1,928,555	83,405	3,995	790	3,205

Annex 2: Main commitments, goals and targets on transport

A. Agenda 21

The proclamation of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 (AGENDA21) in the chapter on the Protection of the Atmosphere identified the following measures to be taken.

- (i) Develop and promote, as appropriate, cost-effective, more efficient, less polluting and safer transport systems, particularly integrated rural and urban mass transit, as well as environmentally sound road networks, taking into account the needs for sustainable social, economic and development priorities, particularly in developing countries;
- (ii) Facilitate at the international, regional, sub-regional and national levels access to and the transfer of safe, efficient, including resource-efficient, and less polluting transport technologies, particularly to the developing countries, including the implementation of appropriate training programs;
- (iii) Strengthen, as appropriate, their efforts at collecting, analyzing and exchanging relevant information on the relation between environment and transport, with particular emphasis on the systematic observation of emissions and the development of a transport database;
- (iv) In accordance with national socio-economic development and environment priorities, evaluate and, as appropriate, promote cost-effective policies or programs, including administrative, social and economic measures, in order to encourage use of transportation modes that minimize adverse impacts on the atmosphere;
- (v) Develop or enhance, as appropriate, mechanisms to integrate transport planning strategies and urban and regional settlement planning strategies, with a view to reducing the environmental impacts of transport;
- (vi) Study, within the framework of the United Nations and its regional commissions, the feasibility of convening regional conferences on transport and the environment.

B. Program for the Further Implementation of Agenda 21 (PFIA21)

The Program for the Further Implementation of Agenda 21 (PFIA21), adopted by the UN General Assembly at its nineteenth special session (23-28, June, 1997), underscored (in relation to transport) the need for:

- (i) The promotion of integrated transport policies that consider alternative approaches to meeting commercial and private mobility needs and improve performance in the transport sector at the national, regional and global levels, and particularly a need to encourage international cooperation in the transfer of environmentally sound technologies in the transport sector and implementation of appropriate training programs in accordance with national programs and priorities;
- (ii) The integration of land-use and urban, peri-urban and rural transport planning, taking into account the need to protect ecosystems;

- (iii) The adoption and promotion, as appropriate, of measures to mitigate the negative impact of transportation on the environment, including measures to improve efficiency in the transportation sector;
- (iv) The use of a broad spectrum of policy instruments to improve energy efficiency and efficiency standards in transportation and related sectors;
- (v) The continuation of studies in the appropriate forums, including the International Civil Aviation Organization, on the use of economic instruments for the mitigation of the negative environmental impact of aviation in the context of sustainable development;
- (vi) Accelerating the phasing-out of the use of leaded gasoline as soon as possible, in pursuit of the objectives of reducing the severe health impacts of human exposure to lead. In this regard, technological and economic assistance should continue to be provided to developing countries in order to enable them to make such a transition;
- (vii) The promotion of voluntary guidelines for environmentally friendly transport, and actions for reducing vehicle emissions of carbon dioxide, carbon monoxide, nitrogen oxides, particulate matter and volatile organic compounds, as soon as possible;
- (viii) Partnerships at the national level, involving Governments, local authorities, non-governmental organizations and the private sector, for strengthening transport infrastructures and developing innovative mass transport schemes.

C. The Johannesburg Plan of Implementation of the Outcomes of the WSSD (JPOI)

The Johannesburg Plan of Implementation adopted a comprehensive plan of action including the following in relation to transport:

Promote an integrated approach to policy-making at the national, regional and local levels for transport services and systems to promote sustainable development, including policies and planning for land use, infrastructure, public transport systems and goods delivery networks, with a view to providing safe, affordable and efficient transportation, increasing energy efficiency, reducing pollution, congestion and adverse health effects and limiting urban sprawl, taking into account national priorities and circumstances. This would include actions at all levels to:

- (i) Implement transport strategies for sustainable development, reflecting specific regional, national and local conditions, to improve the affordability, efficiency and convenience of transportation as well as urban air quality and health and reduce greenhouse gas emissions, including through the development of better vehicle technologies that are more environmentally sound, affordable and socially acceptable; and
- (ii) Promote investment and partnerships for the development of sustainable, energy efficient multi-modal transportation systems, including public mass transportation systems and better transportation systems in rural areas, with technical and financial assistance for developing countries and countries with economies in transition.

Support African efforts to develop affordable transport systems and infrastructure that promote sustainable development and connectivity in Africa.