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List of Abbreviations

AfDB	African Development Bank
AU	African Union
BOP	Bottom of Pyramid
BRICs	Brazil, Russia, India, and China
CBTI	Cross Border Transport Infrastructure
CEMAC	Communauté économique et monétaire de l'Afrique centrale
CFAs	Clearing and Forwarding Agents
CFS	Container Freight Station
COMESA	Common Market for Eastern and Southern African States
COTIF	Convention Concerning International Carriage by Rail
CPA	Coordinated Parallel Approach
CSR	Corporate Social Responsibility
DRC	Democratic Republic of the Congo
DWT	Dead Weight Tonnage
EAC	East Africa Community
EARH	East Africa Railways and Harbors
EATTFP	East Africa Trade and Transport Facilitation Project
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
EPSA	Enhanced Private Sector Assistance for Africa
EPZ	Export Processing Zone
EU	European Union
FDI	Foreign Direct Investment
F/S	Feasibility Study
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GIS	Geographic Information System
GMS	Greater Mekong Subregion
IGAD	Intergovernmental Authority of Development
ICAO	International Civil Aviation Organization
ICD	Inland Container Depot
ICT	Information and Communication Technology
IDA	International Development Association
IFC	International Financial Corporation
IFS	International Financial Statistics
ILO	International Labour Organization
IMF	International Monetary Fund
IT	Information Technology
JBIC	Japan Bank for International Cooperation
JETRO	Japan External Trade Organization
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
LME	London Metal Exchange
LPI	Logistics Performance Index
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals
NCTTCA	Northern Corridor Transit Transport Coordination Authority
NDF	Nordic Development Fund
NEPAD	New Partnership for Africa's Development
NES	National Export Strategy
NGO	Non Governmental Organization
NIES	Newly Industrializing Economies

NPO	Non-Profit Organization
KPA	Kenya Port Authority
KRA	Kenya Revenue Authority
KRC	Kenya Railway Corporation
KRL	Rift Valley Railways Kenya Limited
OAU	Organization of African Unity
ODA	Official Development Assistance
OOF	Other Official Flow
OSBP	One Stop Border Post
PPP	Public Private Partnership
RAHCO	Reli Assets Holding Company
RCTG	Regional Customs Transit Guarantee
RECs	Regional Economic Communities
RVR	Rift Valley Railways
SACU	Southern African Customs Union
SADC	Southern African Development Community
SAPROF	Special Assistance for Project Formulation
SDI	Spatial Development Initiative
SEZ	Special Economic Zone
SSATP	Sub-Sahara Africa Transport Policy Program
STAP	Short Term Action Plan
TA	Technical Assistance
TAH	Trans African Highway
TAZARA	Tanzania Zambia Railway
TEU	Twenty-Foot Equivalent Units
TICAD	Tokyo International Conference on African Development
TICTS	Tanzania International Container Terminal Services Ltd.
TIR	Trans-ports Internationaux Routiers
TPA	Tanzania Port Authority
TRA	Tanzania Revenue Authority
TRANROADS	Tanzania National Roads Agency
TRC	Tanzania Railway Corporation
TRL	Tanzania Railways Limited
UEMOA	Union Economique et Monetaire Ouest-Africaine
UNECA	United Nations Economic Commission for Africa
UPA	Uganda Port Authority
URA	Uganda Revenue Authority
URC	Uganda Railway Corporation
URL	Rift Valley Railways Uganda Limited
USAID	United States Agency for International Development
VOMS	Vehicle Overload Management System
WB	World Bank
WDI	World Development Indicator
YD	Yamoussoukro Decision

Introduction

Background and Objectives of the Study

Recent globalization strengthened ties of individual economies to the global economy bringing sustained economic growth in many countries, at least up until recently. This process inevitably led to an increase in traffic across borders, both people and goods. As a consequence, Cross-Border Transport Infrastructure (CBTI), which enables such movements, has become increasingly important and will remain so regardless of the consequences of current (early 2009) readjustments in the global economy. Indeed, for small developing countries with small domestic markets, CBTI is even more important under current economic conditions. With this realization, the Japan International Cooperation Agency (JICA) has carried out two research studies investigating possibilities for assisting developing countries in the field of CBTI; phase one involved basic research and phase two application of basic research, targeting the Greater Mekong Subregion (GMS) of Southeast Asia,¹ while the current (research) study has focused on Sub-Saharan Africa.

Sub-Saharan Africa is defined as all African countries except the five countries of North Africa (which are relatively well developed), and contains 34 of the world's poorest 48 countries. It is generally recognized that one reason for the laggard development of Sub-Saharan Africa is the poor state of the region's transport infrastructure and consequent high transport costs, which results in low productivity and high prices, and a low level of private investment and foreign direct investment. A special problem is that of landlocked countries, which have to transport most of their imports/exports through ports in neighboring countries and consequently face high transport costs, which slows their economic development. It is an urgent task for the Sub-Saharan Africa to upgrade its transport infrastructure, particularly CBTI, in order to promote economic development, to alleviate poverty, and to achieve the Millennium Development Goals (MDGs). Also, considering that the overall economic level in Sub-Saharan Africa is still low, industrial development must be undertaken concurrently with CBTI improvements in order for the CBTI improvements to be effective.

As the host country of the Tokyo International Conference on African Development (TICAD), Japan has demonstrated its policy of positively engaging itself to contribute to the development of Africa. In TICAD-IV in 2008, Japan declared that it would double its official development assistance (ODA) to Africa over three years, strengthened its cooperation with the African Development Bank (AfDB) by providing yen loans through Enhanced Private Sector Assistance (EPSA), and announced a plan to promote development of the private sector. To provide effective assistance for CBTI, it is necessary for Japan to conduct rigorous analyses taking the above factors into account, including the need for regional/industrial development with private sector initiative, and the specification of an effective strategy for CBTI development.

Acknowledging the foregoing, this research study seeks to identify desirable directions for Japan's strategy for official development assistance in the field of CBTA based on an analysis of the current situation and future prospects of "hard" (physical facilities) and "soft" (institutional aspects) aspects of CBTI.

The authors hope that this research study will be of use to those who are already involved or will be involved in the development of Sub-Saharan Africa.

¹ Comprising Cambodia, two provinces of the People's Republic of China, the Lao People's Democratic Republic, Myanmar, Thailand, and Viet Nam.

Organization of Study Implementation

An ad hoc advisory committee, with the JICA Economic Infrastructure Department serving the secretariat function, plus representatives of the JICA Africa Department, an academic expert, was established to discuss methodology and finding of the study. Five advisory committee meetings were held during the study. The members of the advisory committee as well of the study team are shown below:

Advisory Committee Chairperson:

Professor Tsuneaki Yoshida Professor, Graduate School of Frontier Sciences, University of Tokyo

JICA Staff/Officials:

Toshiyuki Kuroyanagi	Director General, Economic Infrastructure Department
Koichi Miyake	Executive Technical Advisor to the Director General, Economic Infrastructure Department
Ichiro Tambo	Executive Technical Advisor to the Director General, Economic Infrastructure Department
Tomiaki Ito	Deputy Director General, and Group Director for Transportation and ICT [Information and Communications Technology], Economic Infrastructure Department
Akira Nakamura	Deputy Director General, and Group Director for Urban and Regional Development, Economic Infrastructure Department
Hiroshi Takeuchi	Director, Transportation and ICT Division I, Economic Infrastructure Department
Tomoyuki Naito	Director, Transportation and ICT Division II, Economic Infrastructure Department
Naomichi Murooka	Senior Program Officer, Transportation and ICT Division II, Economic Infrastructure Department
Kenichi Konya	Senior Program Officer, Transportation and ICT Division I, Economic Infrastructure Department
Taro Okawa	Transportation and ICT Division I, Economic Infrastructure Department
Ai Wakamiya	Transportation and ICT Division I, Economic Infrastructure Department
Kazumasa Sanui	Senior Program Officer, Transportation and ICT Division II, Economic Infrastructure Department
Makoto Kanagawa	Transportation and ICT Division II, Economic Infrastructure Department
Masaya Omae	In-house Consultant for Transportation, Economic Infrastructure Department
Mayumi Syoji	Special Advisor, Africa Department

Study Team:

Yuichiro Motomura	Team Leader/Transport Infrastructure/Facility Planning (PADECO Co., Ltd.)
Bruce Winston	Cross-Border Transport Network Planning (PADECO Co., Ltd.)
Hajime Onishi	Industry Development/Trade Promotion Planning (Mitsubishi UFJ Research and Consulting Co., Ltd.)
Satoshi Ogita	Transport Planner I (PADECO Co., Ltd.)
Masako Hatta	Transport Planner II (PADECO Co., Ltd.)

Implementation Schedule of the Study

Through a comprehensive literature review, interview surveys, a one-month field assignment, other forms of information collection, and data analyses, this study developed future CBTI development goals, a CBTI development strategy, and a preliminary CBTI development program. During its home-office assignment, the study team presented the study findings to five advisory committee meetings. The knowledge of JICA staff and a leading academic expert helped the study team refine its output. In addition, JICA sponsored a seminar on CBTI in Sub-Saharan Africa with many participants from the public, private, and academic sectors; the results of the panel discussion during the seminar were incorporated in the study.

The schedule of the study was as shown below:

Date(s)	Event	Outline
21 August 2008	1 st committee meeting	Presentation and discussion of study methodology
2 September 2008	2 nd committee meeting	Presentation and discussion of progress of the study and field trip plan
1–28 October 2008	Field trip	Interviews with transport and customs related officials, international agencies, JICA offices, local private firms, and site visits to major ports, roads, and border checkpoints in Kenya, Uganda, and Tanzania
27 November 2008	3 rd committee meeting	Presentation and discussion of field trip findings and study progress
24 December 2008	4 th committee meeting	Presentation and discussion of CBTI development goals and development strategies
29 January 2009	Seminar	Presentation of study findings and panel discussion on public-private partnership (PPP) initiatives in Sub-Saharan Africa
20 February 2009	5 th committee meeting	Presentation and discussion of CBTI development goals and development strategies

Outline of Seminar

The outline of the seminar held on 29 January 2009 is as shown below:

Purpose: (i) to present the result of the study for experts and private firms, (ii) to discuss issues and future on CBTI in Africa, (iii) to report the on-going assistance on CBTI in Africa sponsored by JICA, and (iv) to incorporate opinions of experts and private firms in the study based on the panel discussion and questionnaire surveys for participants.

Date and Time: 13:30 – 17:00, 29 January 2009

Venue: JICA Research Institute, Tokyo, Japan

Number of Participants: 158 (excluding JICA staff, the study team, and panelists)

Major Participants: JICA, development consultants, constructors, trading companies, manufacturer, government agencies, education institutions, and NGOs.

Agenda:

Opening Remarks

Eiji Hashimoto Vice President, JICA

Session 1: Lecture on Issues and JICA Assistance on CBTI in Africa

Direction of JICA Assistance in Africa

Kae Yanagisawa Executive Advisor to the Director General, Africa Department, JICA

Direction of JICA Assistance for CBTI in Africa

Akira Nakamura Deputy Director General, Economic Infrastructure Department, JICA

Present Situations, Issues and Development Strategy on CBTI in Africa

Yuichiro Motomura Study Team Leader, President, PADECO Co., Ltd.

Q & A

Session 2: Panel Discussion on CBTI development and PPP in Africa

Moderator

Mitsuya Araki President, The International Development Journal Co., Ltd.

Panelists

Prof. Tsuneaki Yoshida Professor, Graduate School of Frontier Sciences, University of Tokyo

Masaki Miyaji Visiting Senior Advisor, Africa Department, JICA

Katsumi Hirano Director General, Area Studies Center, Institute of Developing Economies

Yuji Okazaki Senior Special Advisor, JICA

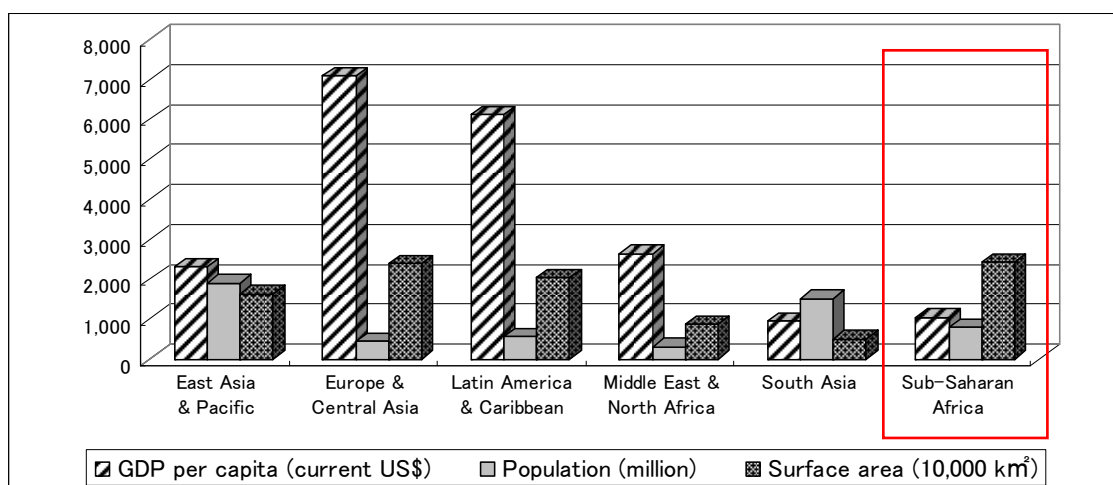
Yuichiro Motomura Study Team Leader, President, PADECO Co., Ltd.

Chapter 1 Conditions and Development Issues in Africa

1.1 Economy

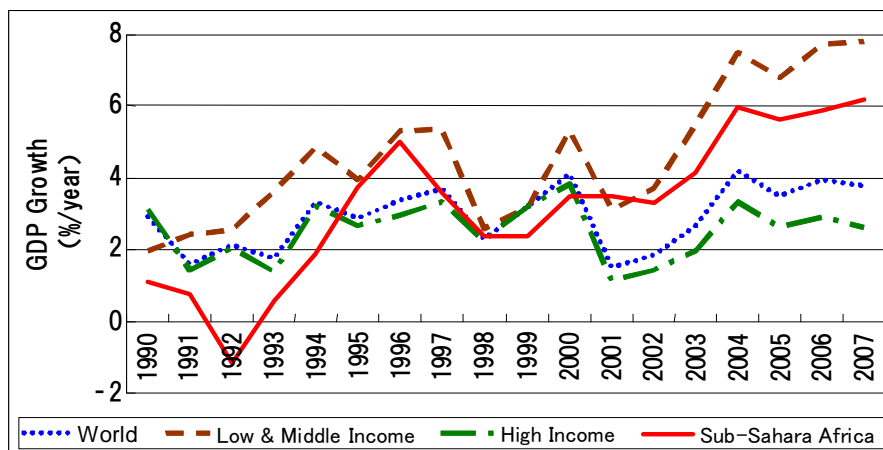
Sub-Saharan Africa encompasses 48 countries, including all African countries except the five moderately developed North African countries. Sub-Saharan Africa covers an area of 24.27 million km² equivalent to 18% of the total world land area, and has a population of 799.8 million (i.e., about 12% of the world’s population); it has a total gross domestic product of US\$840 billion (in 2007 prices), amounting to 2% of the world’s GDP, of which South Africa accounts for 33%. The GDP per capita of Sub-Saharan Africa amounts to US\$1,053, which is generally lower than found in other middle-to-low income regions (Figure 1.1.1). Moreover, GDP per capita of the 47 Sub-Saharan African countries excluding South Africa is only US\$752. About half of the region’s population, about 400 million people, may be classified as poor, i.e., they live on US\$1.25 per day or less. A total of 34 of the poorest 48 countries in the world are in Sub-Saharan Africa (statistical data are from World Bank Statistics, 2007).

While poverty stricken, Sub-Saharan Africa has registered a stable economic growth above the world average since 2001. It has achieved a remarkable GDP growth of 6% per annum (see Figure 1.1.2), with a stable GDP per capita growth rate of 3–4% since 2004. This strong growth is attributable to an upsurge of primary resource prices, which has led to foreign investors’ direct investment in basic African resources. The World Bank (John Page, 2008) cites a favorable impact on African economic growth due to improvements in economic policy, the increased strength of African currencies, improved institutions and governance, and decreased conflicts, along with further improvements in the investment environment, infrastructural improvements, technological innovations, and institutional strengthening as factors for maintaining this growth trend.



Source: Compiled from the World Bank, World Development Indicator Database

Figure 1.1.1 Major Indicators of the World’s Middle-to-Low Income Regions – Population, Surface Area, and GDP per Capita (2007)

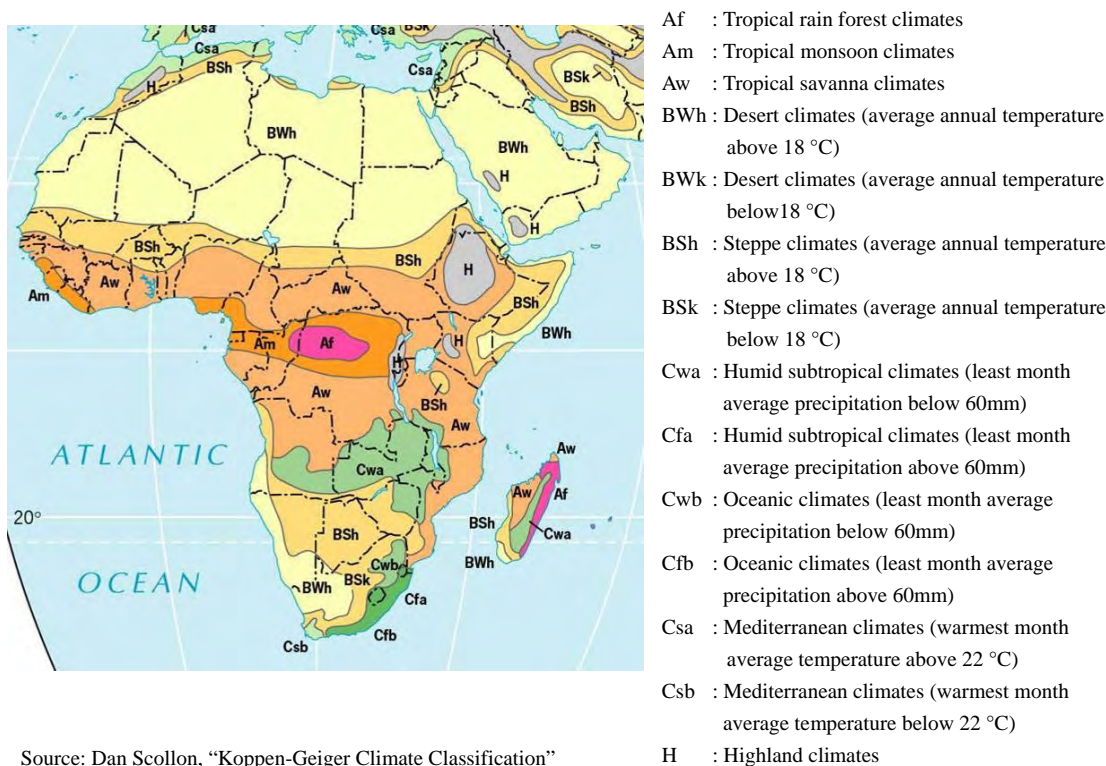


Source: Compiled from “World Development Indicator Database”, World Bank

Figure 1.1.2 The World’s GDP Growth Rate (1990–2007)

1.2 Natural Conditions

Sub-Saharan Africa has a diverse climate, including desert (e.g., the Sahara, the world’s largest), tropical rainforest, Savannah, highlands, and temperate zones with very cold winters (e.g., in South Africa); Figure 1.2.1 presents a classification of African climates. Most of the countries in the region are endowed with a temperate climate suitable for agriculture. The region is rich in such tourism resources as forest, wildlife, and natural parks, which attract international visitors. The region also includes mineral-rich countries, with natural resources such as crude oil, gold, copper, and diamonds; also, rare metals, yet to be tapped, have recently attracted the attention of foreign investors.



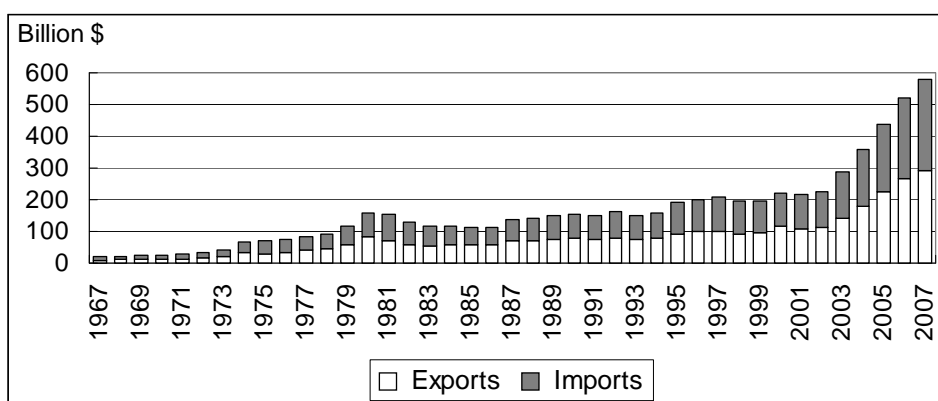
Source: Dan Scollon, “Koppen-Geiger Climate Classification”

Figure 1.2.1 African Climate Classification

1.3 Trade Structure

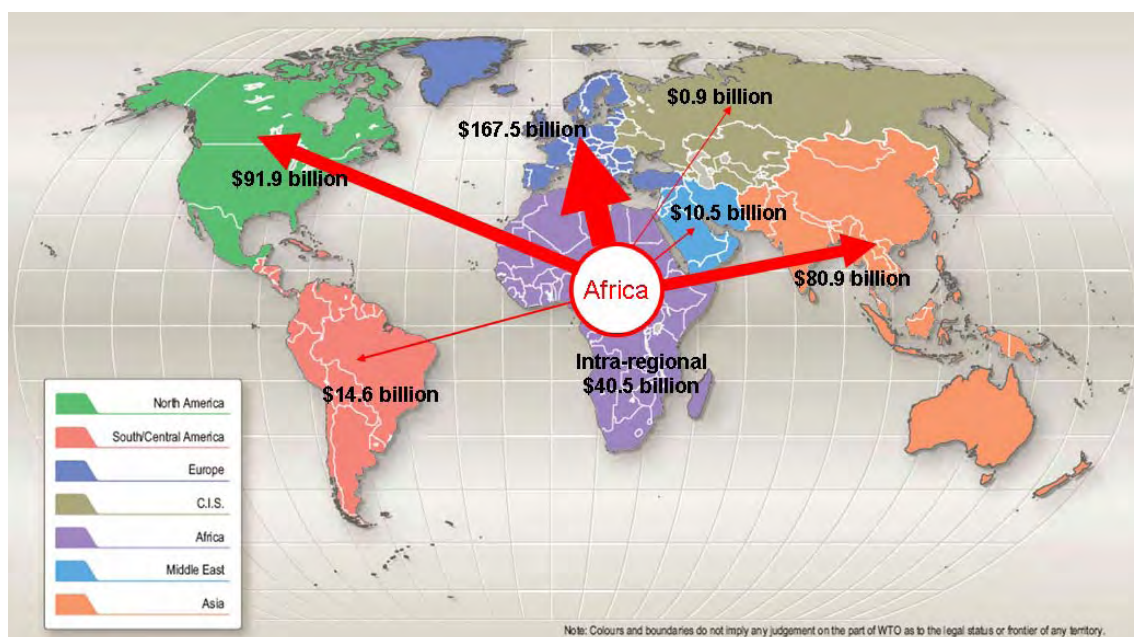
The trade structure of Sub-Saharan Africa is characterized by exports of primary commodities (e.g., oil) and imports of industrial goods. Major export destination countries traditionally have included European Union (EU) countries (e.g., France, Germany) and other industrialized countries (e.g., the United States, Japan), but recently trade volume with China, India, and other Asian countries, as well as with the Middle East, has increased substantially.

During the 1990s, the region’s trade volume growth was rather moderate compared with that of the other regions of the world, but the first decade of the 21st century has seen a remarkable per annum growth of 15% in trade (i.e., the equivalent annual average rate of increase from 2000 to 2007 according to World Bank data). Still, as of 2007, Sub-Saharan Africa’s share represented a mere 2.2% of world trade volume. Figures 1.3.1–1.3.5 summarize these trends.



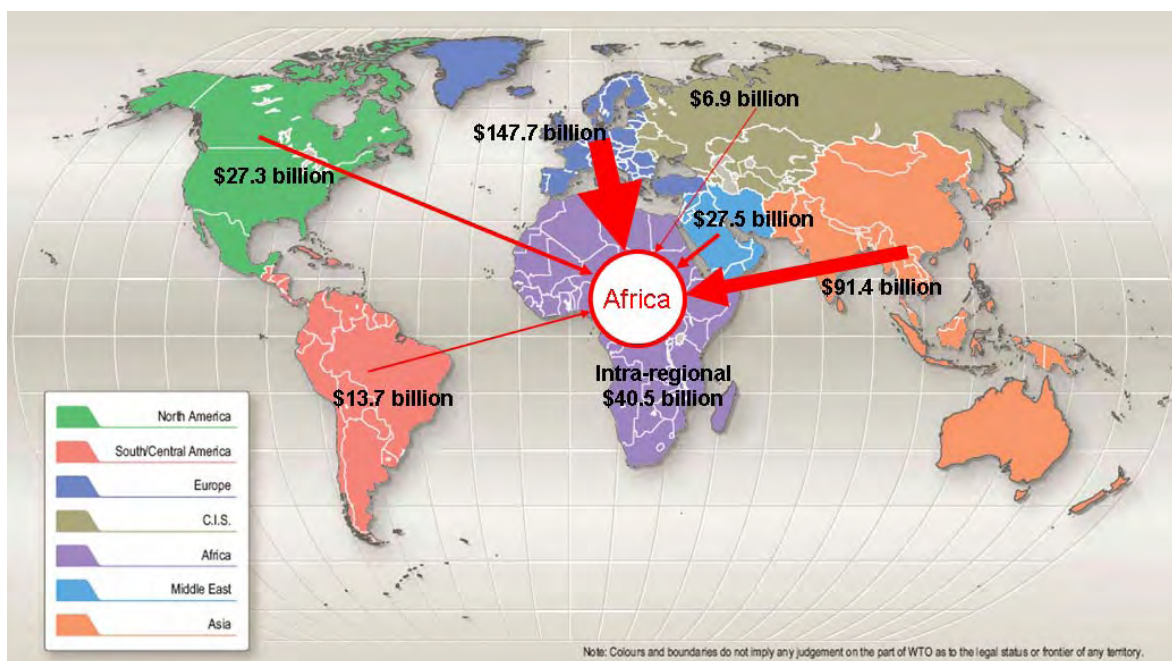
Source: Compiled the statistics from “World Development Indicator Database”, World Bank

Figure 1.3.1 Trend of Annual Trade Volume of Sub-Saharan African Countries (1967–2007)



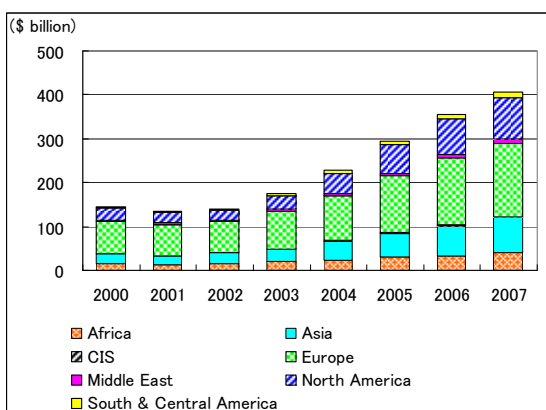
Source: Compiled data and maps from International Trade Statistics, 2008, World Trade Organization (WTO)

Figure 1.3.2 African Exports Bound for Other Regions of the World (2007)



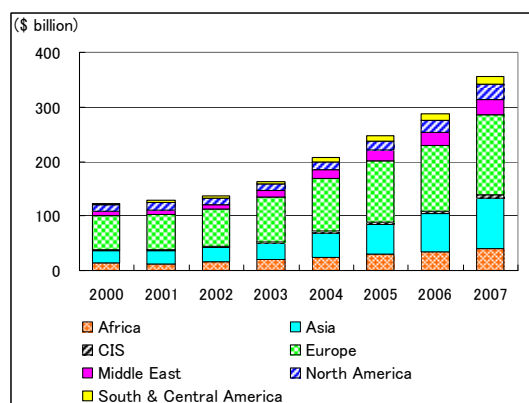
Source: Compiled data and maps from International Trade Statistics, 2008, WTO

Figure 1.3.3 African Imports Originating from Other Regions of the World (2007)



Source: Compiled from WTO Database

**Figure 1.3.4
Trend of African Exports to the Other
Regions of the World (2000–2007)**



Source: Compiled from WTO Database

**Figure 1.3.5
Trend of African Imports from Other
Regions of the World (2000–2007)**

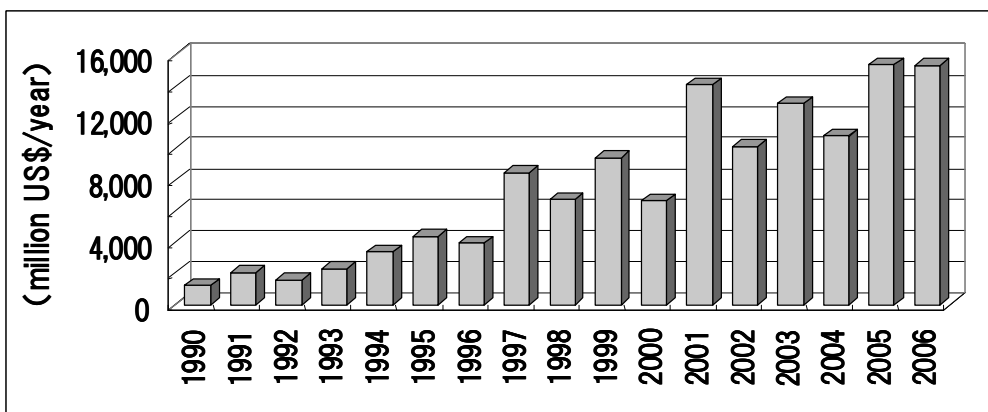
1.4 Investment

To date, Foreign Direct Investment (FDI) has not been active in Sub-Saharan Africa compared with other developing countries and other regions (see Figure 1.4.1 for the data for Sub-Saharan Africa). However, recently, FDI has increased in the mineral resources sector (see Figure 1.4.2), with surging demand worldwide, in particular on the part of newly industrializing countries such as China and India. Increased in the prices of primary resources since late 2003 have made resource investments feasible in areas where previously returns were deemed marginal. In particular, aggressive investments have been made by major Western resources companies and smaller enterprises targeting African resources including in inland countries.

In addition, since 2000 political regimes in Africa have stabilized, which has invigorated resource investments in African economies, which has also lead to investments into such sectors

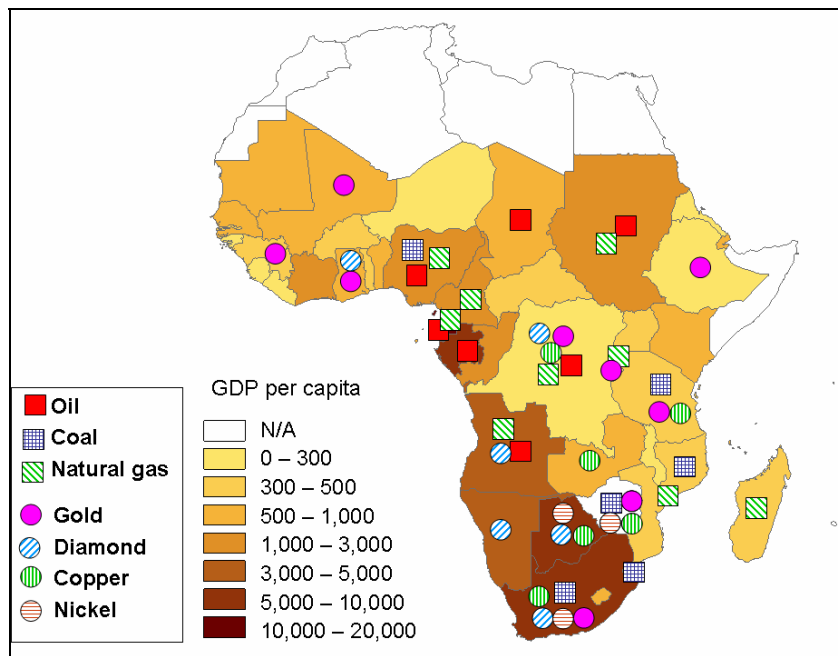
as finance, communications, and retail enterprises. As exemplified by the huge investments by Western telecommunications giants into the African mobile communications market, Sub-Saharan Africa has also been seen as a new consumer economy with a population of 800 million.

On the other hand, speculative withdrawals of funds due to the financial crisis commencing in late 2008 has shrunk demand and triggered a collapse in the prices of mineral resources, which has adversely affected investments in Sub-Saharan resources. However, over the long term, the economy of Sub-Saharan Africa is likely to turn around, due partially to the steady demand for resources by newly industrializing countries.



Source: Compiled data from “World Development Indicator Database”, the World Bank

Figure 1.4.1 FDI Inflows into Sub-Saharan Africa (1990–2006)



Source: Compiled data from DOE, USGS, and the World Bank

Figure 1.4.2 GDP per Capita and Major Natural Resources in Each Country (2006)

1.5 Issues in Industrial Development and Transport

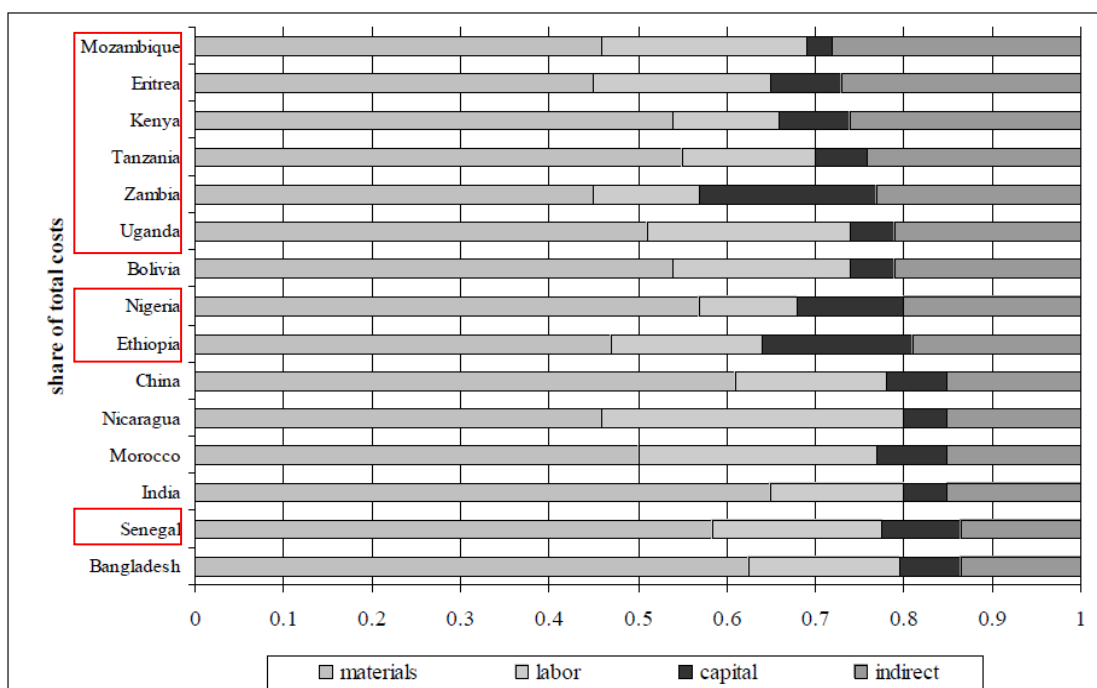
Figures 1.5.1 to 1.5.5 present an overview of issues in industrial development in Sub-Saharan Africa.

The shares of various industrial sectors in Sub-Saharan Africa have been about 20% agro-forestry-fishery, 35% for mining and manufacturing, and 45% for the services sector. These shares have been basically unchanged over the past 40 years.

Major industrial development constraints for the region are deemed to be: (i) high indirect costs (e.g., for transport, energy, land, communications, security); (ii) lower agricultural productivity; and (iii) higher labor cost. Among indirect costs, a higher transport cost structure (Eifert, Gelb and Ramachandran, 2005), compared with Asia and Latin America, is seen to be a major bottleneck for industrial development and economic growth (see Figure 1.5.1 and 1.5.4).

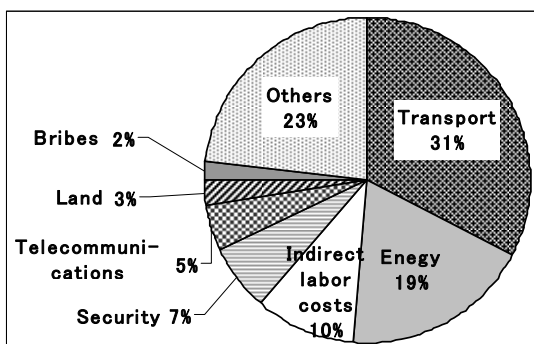
In the agriculture sector, which employs 60-70% of the working population, productivity is very poor, due to high fertilizer prices attributable to high transport costs, coupled with a higher number of small-scale farmers. This poor productivity is reflected in low average harvest yields per hectare of 1.3 tons (2005) for Africa, compared with the Asian average of 3.7 tons.

A higher urban wage rate, attributed to higher food prices and preferential provisions for urban dwellers, also hinders development. All these constraints have resulted in the capital-intensive subsectors (e.g., mining) rather than the labor-intensive subsectors being at the core of the secondary industry sector.



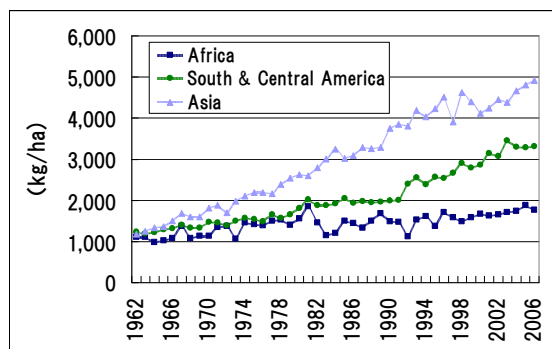
Source: Extracted from Eifert, Gelb and Ramachandran, 2005

Figure 1.5.1 Cost Structure of the Private Enterprises in Sub-Saharan Africa



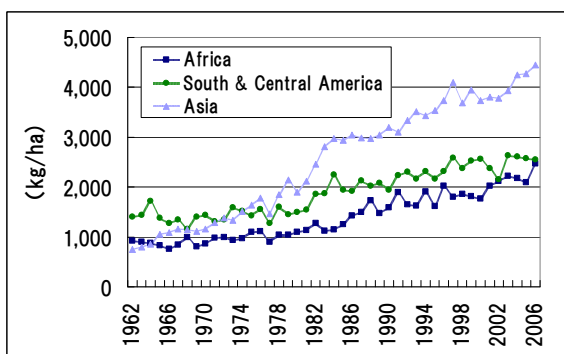
Source: Compiled data from Eifert, Gelb and Ramachandran, 2005

Figure 1.5.2
Indirect Costs of the Private Enterprises in the Sub-Saharan Africa (Kenya)



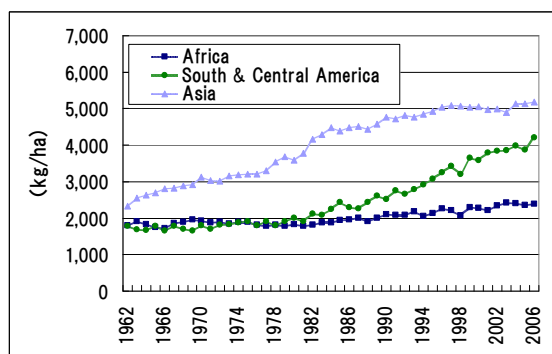
Source: Statistics compiled by the Food and Agricultural Organization (FAO)

Figure 1.5.3
Comparison of Maize Hectare Yield



Source: Statistics compiled by FAO

Figure 1.5.4
Comparison of Wheat Hectare Yield



Source: Statistics compiled by FAO

Figure 1.5.5
Comparison of Rice Hectare Yield

Figures 1.5.6 to 1.5.11 present an overview of issues in transport development in Sub-Saharan Africa.

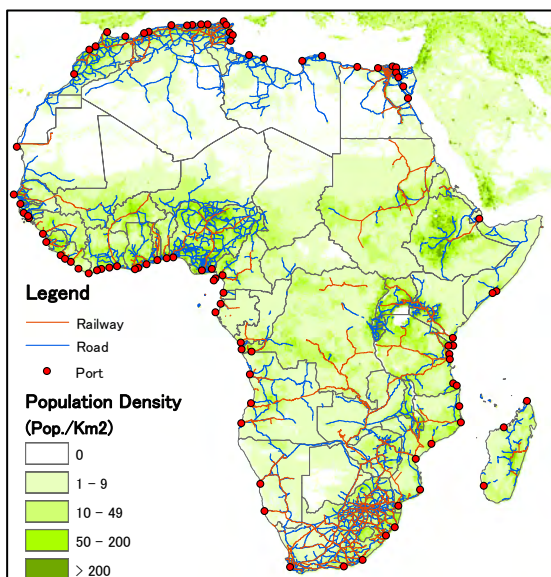
Most Sub-Saharan logistics infrastructure (e.g., ports, railways, trunk roads) was constructed during the colonial period. Densely populated inland agglomerations are networked by Cross-Border Transport Infrastructure (CBTI) to service the trade of landlocked countries via ports (see Figure 1.5.10). However, due to the limited availability of navigable inland waterways and the lack of sufficient navigable depth for ports, there are few large-scale container terminals.

Moreover, after independence the limited capacity to maintain roads, railways, and ports has led to deteriorated physical distribution infrastructure. Trunk roads are not well paved, and paved roads are frequently degraded. With respect to railways, rehabilitation and rolling stock repair are well overdue, with capacity decreasing every year. The lack of capacity and operation inefficiency of ports are often cited as freight and cargo shipments converge to the few well-served ports.

As mentioned, higher transport costs pose a huge bottleneck to industrial growth in the region, a consequence of insufficient services and the provision of poor physical distribution infrastructure, along with poor institutional and operational arrangements. Poor logistics

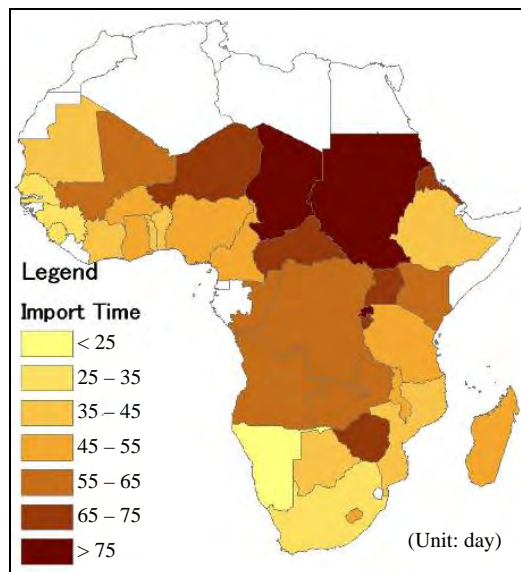
distribution infrastructure, in terms of physical as well as “soft” aspects, leads to long transport times, which increases economic costs.

The significant economic cost of lost time incurred around the ports and associated service facilities is largely a result of limited port and railway capacity. Other elements of high transport costs in the region include high road transport costs due to poor road conditions and transport cost increases due to railway capacity constraints and reduced cost competitiveness. These high costs are more prevalent inland, resulting in intraregional economic disparities (Figures 1.5.7, 1.5.8, and 1.5.10).



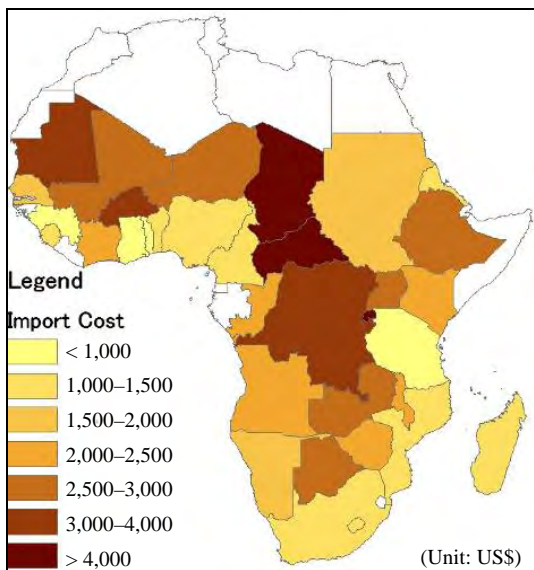
Source: Compiled from various sources

Figure 1.5.6 African Trunk Roads and Railway Network – Distribution of Ports and Populations



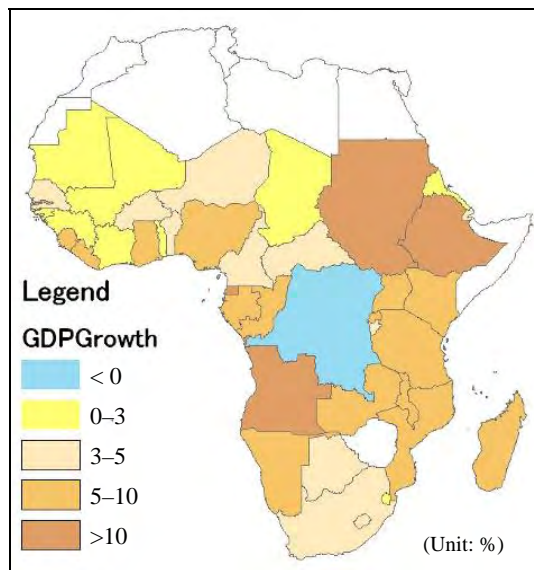
Source: Compiled from World Development Indicators, the World Bank

Figure 1.5.7 Import Time in Average Days from the Port of Unloading (20-ft Container)



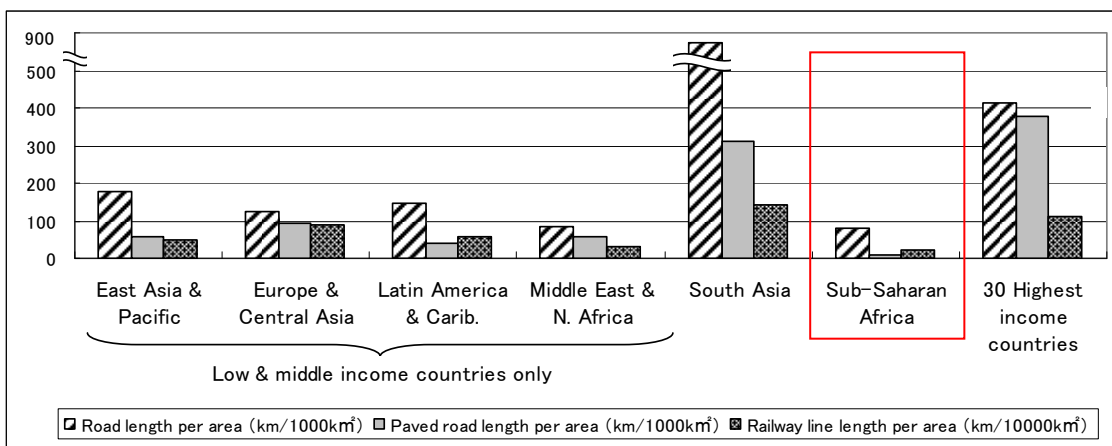
Source: Compiled from World Development Indicators, the World Bank

Figure 1.5.8 Average Transport Cost from the Port of Unloading (20-ft Container)



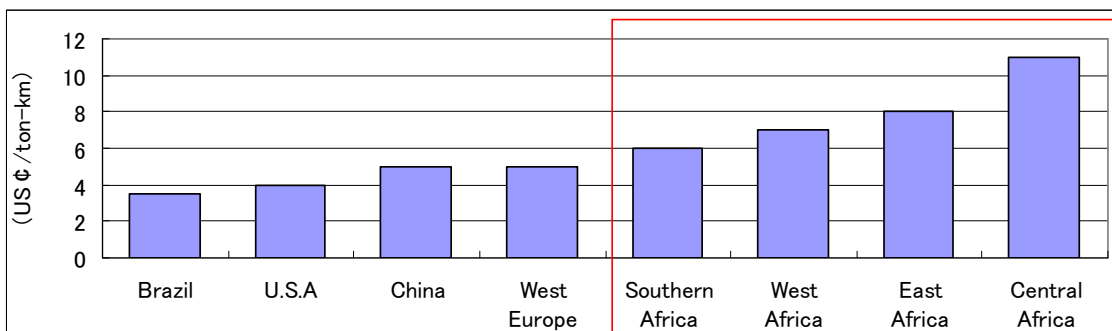
Source: Compiled from World Development Indicators, the World Bank

Figure 1.5.9 Average GDP Growth Rate (2007)



Source: Compiled from World Development Indicators 2006, the World Bank

Figure 1.5.10 Transport Infrastructure Provision in Various Regions



Source: Compiled from Teravaninthorn and Raballand, Transport Prices and Costs in Africa, 2008

Figure 1.5.11 Comparison of Average Transport Cost

1.6 Regional Integration

Regional integration through regional cooperation has been a long-standing issue for Sub-Saharan Africa, which today consists of a collection of countries with small-sized economies and small-to-medium populations, transected by arbitrarily drawn national boundaries due to the colonial era policies. Movement toward regional integration has produced many regional economic communities (RECs) in Sub-Saharan Africa, as shown in Table 1.6.1 and Figure 1.6.1. These RECs aim at economic integration with neighboring countries, e.g., through establishment of customs unions, introduction of a common currency, promotion of cross-border trade, and establishment of common markets. With respect to transport policy, RECs undertake studies on region-wide corridors, coordination with concerned countries on corridor development and provision, and promotion of agreements to facilitate the cross-border movement of goods and people.

Recently, the profile of RECs has increased as they have become recipients of assistance from international development partners. On the other hand, there are many issues affecting REC effectiveness such as determining REC partner country contributions and the lack of enforcement power vis-à-vis participating countries.

The African Union (AU), which is by far the largest regional community, includes all 52 states on the African continent except for Morocco. Roles of AU are shown in the next section.

Table 1.6.1 Major Regional Economic Communities of Sub-Saharan Africa

Name	Participating States
IGAD: Intergovernmental Authority of Development	Somalia, Djibouti, Sudan, Eritrea, Ethiopia, Kenya, Uganda
COMESA: Common Market for Eastern and Southern African States	Egypt, Libya, Djibouti, Sudan, Eritrea, Ethiopia, Kenya, Uganda, Burundi, Rwanda, Congo, Angola, Zambia, Zimbabwe, Malawi, Mauritius, Madagascar, Swaziland, Seychelles, Comoros
EAC: East African Community	Kenya, Uganda, Tanzania, Rwanda, Burundi
SADC: Southern African Development Community	Tanzania, Mozambique, Congo, Angola, Zambia, Zimbabwe, Malawi, Mauritius, Madagascar, Swaziland, Botswana, South Africa, Lesotho, Namibia
SACU: Southern African Customs Union	Swaziland, Botswana, South Africa, Lesotho, Namibia
ECCAS: Economic Community of Central African States	Central Africa, Chad, Gabon, Cameroon, the Congo, Equatorial Guinea, Sao Tome and Principe, Rwanda, Burundi, Congo (Democratic), Angola
CEMAC: Communauté économique et monétaire de l'Afrique centrale	Central Africa, Chad, Gabon, Cameroon, the Congo, Equatorial Guinea
ECOWAS: Economic Community of West African States	Nigeria, Gambia, Burkina Faso, Senegal, Benin, Mali, Niger, Togo, Côte d'Ivoire, Guinea-Bissau, Ghana, Guinea, Liberia, Sierra Leone, Cape Verde
UEMOA: Union économique et monétaire Ouest-africaine	Burkina Faso, Senegal, Benin, Mali, Niger, Togo, Côte d'Ivoire, Guinea-Bissau

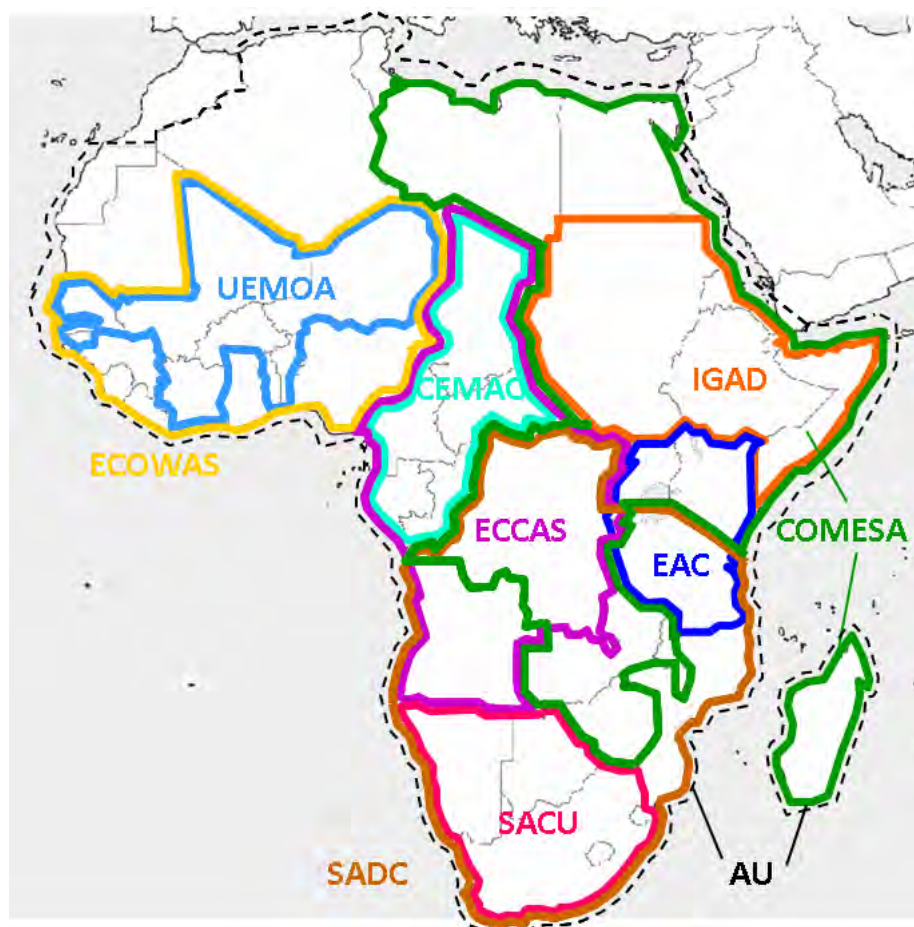


Figure 1.6.1 Geographical Position of Major Regional Communities in Africa

1.7 Trends in Foreign Assistance

1.7.1 Global Trends

With the adoption of the Millennium Development Goals (MDGs) in 2000, donors have doubled their Official Development Assistance (ODA) budget and have focused their assistance on lower-income countries of Sub-Saharan Africa. With this impetus, ODA funds inflow to Sub-Saharan Africa has rapidly increased, as has the grant component, which is now 72.8% of total aid to the region.

In addition, the Organization of African Unity (OAU) adopted in 2001 an initiative, titled New Partnership for Africa's Development (NEPAD), to promote African development through partnerships with industrialized countries, with infrastructure development as one of its targets along with industrial and human resources development. In 2002 with a move of the OAU to the African Union (AU), it was decided that the AU would serve as the executing organ of NEPAD. The international development community has expressed support for the NEPAD initiative and has proceeded with assistance under the banner of this new partnership.

1.7.2 Official Development Assistance (ODA) by Development Assistance Committee (DAC) Countries

(1) Japan

Japan has increased its share of bilateral assistance to the African Region since 2000. Japan has hosted the Tokyo International Conference on African Development (TICAD) four times since 1993, and has formulated its African development assistance strategy based on consultations at these TICAD conferences held once every five years. Japan also aggressively assists the NEPAD initiative. Japan's assistance has centered on grant assistance as the African Region has a concentration of heavily indebted states; among grant assistance, technical assistance has especially been active.

At the TICAD IV held in May 2008, Prime Minister Takeo Fukuda announced an assistance program, including a US\$400 million equivalent in yen loans over the coming five years and measures to promote Japanese enterprises' investments in Africa. Under the TICAD IV initiative, Japan is expected to extend more aggressive assistance to Sub-Saharan Africa with an all-out effort by the Ministry of Foreign Affairs and JICA.

(2) The World Bank

The World Bank has renewed recognition of the critical importance of infrastructural development since 2000, considering it an essential element in Sub-Saharan African development. At the Group of Eight (G8) summit in 2005, three priority tiers of assistance to the African Region were expressed: (i) good governance and human resources development, (ii) economic growth, and (iii) poverty reduction. The World Bank has aggressively been addressing these objectives in collaboration with NEPAD, providing assistance through its Sub-Saharan Africa Transport Policy Program (SSATP).

(3) African Development Bank (AfDB)

AfDB is a development finance institution that was established in 1964 to assist African economic development. With the adoption in 2001 of NEPAD by OAU, the AfDB is recognized as a leading institution in promoting African infrastructural development. AfDB has implemented many projects listed in the Short Term Action Plan (STAP) formulated by NEPAD in 2002. Their priority sectors include: (i) Agriculture and the Regional Development; (ii) Social Development; (iii) Transport; (iv) Rural Water Supply and Sanitation; (v) Private Sector Development; (vi) Governance; (vii) Regional Economic Cooperation and Integration; (viii) Environment; and (ix) Capacity Improvement of Assistance Recipient Institutions. More AfDB loans have been extended to the infrastructure sector, of which more than 30% are allocated to the transport sector.

(4) United States

Since the terrorist attacks in the United States on 11 September 2001, the country has been strategically strengthening its assistance to Africa, under the premise that poverty provides breeding grounds for terrorism. The previous (Bush) administration put forth objectives of African assistance, including: (i) establishment of peace and security; (ii) health (HIV/AIDS), hunger alleviation, and education; and (iii) free economy promotion through "aid and trade".

(5) European Union (EU)

At the Africa-Europe Ministerial Conference held in Brussels in October 2001, the EU declared eight priority sectors for African assistance: (i) conflict prevention and resolution; (ii) regional cooperation and integration; (iii) the environment; (iv) HIV/AIDS and communicable diseases;

(v) food security; (vi) human rights and democracy; (vii) the return of cultural items that were stolen; and (viii) assistance with Africa's external debt as well as support of NEPAD. The EU has established consultations with respective Communities in Africa; for example, the EU has regularly held Ministerial dialogues with the SADC since 1994 and with ECOWAS since 2000. In the area of infrastructural development, the EU participates in NEPAD's coordination committee, the Infrastructure Short-Term Action Plan (STAP), and it supports the Sub-Saharan African Transport Program (SSATP).

(6) United Kingdom

The United Kingdom makes it a policy to prioritize assistance for poverty reduction in low-income African countries. In particular, it targets 16 countries, with an emphasis on former British colonial states. Its poverty reduction assistance includes a diverse set of programs, but emphasis is put on: (i) basic areas of primary education, food provision, financial assistance, water supply, and HIV/AIDS; and (ii) governance and capacity building including institutional building, human resources development, and performance evaluation. The United Kingdom has also extended bilateral assistance in Africa through international collaboration with NEPAD. Moreover, in accordance with the basic principle of NEPAD, it is providing financial and technical assistance through program implementation toward promoting intra-African trade as a means of poverty reduction.

(7) France

France puts a high priority on African development. It assumes a central and leading role in establishing aid structures among both industrialized countries and African countries. It puts emphasis on the Francophone countries of Western Africa, and on South Africa, Mozambique, Angola, Ethiopia, and Kenya.

France has also been aggressive in assisting NEPAD regarding: (i) institutions and governance; (ii) economic growth and sustainability; (iii) infrastructural development assistance; and (iv) agriculture. With respect to transport infrastructure, France is engaged in the Western African Road Corridor Project. It is also examining the potential of assisting the railways sector in Mali and Senegal.

(8) China

China has recently become aggressive in assisting Africa. China's assistance now covers almost all African countries with the number increasing over the years. Its assistance mainly includes: (i) construction assistance; (ii) materials grants-in-aid and food supply; and (iii) technical assistance. In particular, construction assistance accounts for more than 80%. Such construction assistance is extended to sectors such as: (i) manufacturing; (ii) agriculture; (iii) traffic and transportation; (iv) hydropower generation; and (v) energy. China's engagement in NEPAD includes the agricultural and mining sectors, in particular.

Chapter 2 Analysis of Cross-Border Transport Infrastructure in Sub-Saharan Africa

2.1 Definition of Cross-Border Transport Infrastructure (CBTI)

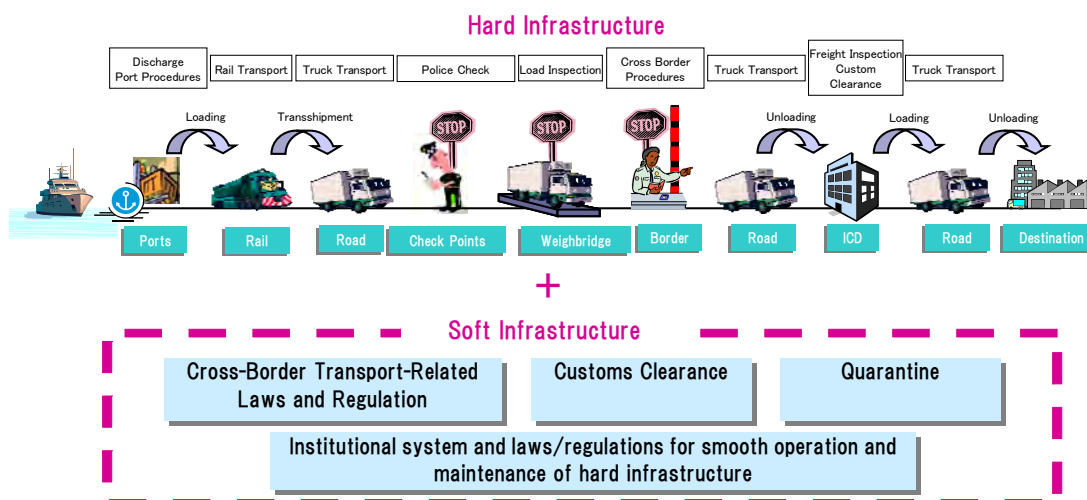
In this study, Cross-Border Transport Infrastructure (CBTI) is defined as the infrastructure necessary for traffic crossing borders between countries, including not only “hard” infrastructure consisting of international transport corridors and including ports/harbors, railways, airports, roads, transshipment facilities, border facilities, weighbridges, and inland container depots (ICDs), but also supporting “soft” infrastructure, including maintenance management, financial measures, organizations/institutions, operational schemes, cross-border traffic regulations, and human resources. Soft CBTI includes regional economic communities (RECs) and international agreements, border crossing facilitation measures (e.g., regarding customs clearance and quarantine procedures) to support the entire CBTI system. Table 2.1.1 and Figure 2.1.1 show the various components of CBTI.

The cross-border traffic to be covered in the study are not only those between Sub-Saharan African countries but also those between Sub-Saharan Africa and other parts of the world. Therefore international ports/harbors and international airports are also among those to be addressed. Since cross-border transport in Sub-Saharan Africa at present is mainly cargo traffic (logistics), which is essential for promoting the economic growth and industrial development, this study basically focuses on cargo traffic movement.

Table 2.1.1 Components of CBTI

Type	Major Components
Hard Infrastructure	Major infrastructure: ports, railways, airports, and road infrastructure facilities (plus freight transit facilities, border facilities, weighbridges, and ICDs)
Soft Infrastructure Supporting Hard Infrastructure	Maintenance, financial measures, organizations, operation schemes, cross-border regulations (e.g., regarding police checks), and capacity development
Soft Infrastructure for CBTI System	RECs, international agreements, custom and quarantine measures, bonding systems, etc.

Source: The Study Team



Source: The Study Team

Figure 2.1.1 CBTI Components

2.2 Review of Issues Relating to CBTI in Sub-Saharan Africa

2.2.1 Historical Review of CBTI Development in Africa¹

(1) From the Colonial Period to the 1980s

Historically, the typical colonial transport system in Africa consisted of penetration lines or transport corridors (mainly railways based) linking export ports with their hinterlands. For example, the origin of the modern railway system in Kenya was the port of Mombasa and the railway line built in the 1890s and the first years of the 20th century, linking the port to Nairobi and Kisumu with a ferry connection to Port Bell near Kampala and Jinja in Uganda, and on to Mwanza, Bukoba, and Musoma in Tanzania. During the first three decades of the 20th century, the railway was extended with a number of branch lines.²

While there was an increase in transport investments for a short period of time in many Sub-Saharan African countries in the 1960s at about the time of independence (with many new ports, railways, and roads built before or after independence), from the 1960s to the mid-1980s transport was accorded a low priority in Africa. During this period, there was a shift from centralized to decentralized and local economic development in the industrialized countries, as well as a shift from an export orientation to an import orientation with a focus on self-reliance and local rural development in many Sub-Saharan African countries.³ Transport was downgraded in national plans; while provision was sometimes made for rural roads, few new trunk roads were built and maintenance was neglected. By the mid-1980s transport infrastructure in Africa was generally worse than it was in the late 1960s.

While the deterioration in African transport systems between the 1960s and the 1980s was due in part to underinvestment in transport infrastructure, the economic institutions developed as part of the import-substitution industrialization policies implemented by most African countries after independence also played a role. These policies generally included the following elements: (i) development of an industrial sector on the basis of the existing small concentrated home market for industrial goods and the import of machinery and often the necessary production inputs; (ii) high customs barriers to protect infant industries and secure government revenue; (iii) an overvalued currency, which reduced the costs of imported machinery and production inputs; (iv) agricultural policies focusing on export crops to finance the imports necessary for the industrialization process, and stable food production to guarantee food security⁴; and (v) the

¹ This section draws extensively from: (i) Patrick O. Alila, Meleckidzedek Khayesi, Walter Odhiambo, and Poul Ove Pedersen, *Development of African Freight Transport – The Case of Kenya*, DIIS [Danish Institute for International Studies] Working Paper No. 2005/6, 2005; (ii) Poul Ove Pedersen, *The Logistical Revolution and the Changing Structure of Agriculturally Based Commodity Chains in Africa*, CDR [Centre for Development Change] Working Paper 2.12, October 2002; (iii) Poul Ove Pedersen, *The Tanga-Moshi-Arusha Corridor: Decline or Restructuring of an African Transport Corridor*, CDR Working Paper 01.6, October 2001; (iv) Poul Ove Pedersen, *The Role of Freight Transport in Economic Development: An Analysis of the Interaction between Global Value Chains and Their Associated Transport Chains*, DIIS Working Paper No. 2007/12, 2007; (v) Poul Ove Pedersen, *The Changing Structure of Transport under Trade Liberalisation and Globalization and its Impact on African Development*, CDR Working Paper 00.1, January 2000; and (vi) Poul Ove Pedersen, *Zimbabwe's Freight Transport and Logistical System*, CDR Working Paper 02.4, February 2002.

² Patrick O. Alila, Meleckidzedek Khayesi, Walter Odhiambo, and Poul Ove Pedersen, *Development of African Freight Transport – The Case of Kenya*, DIIS [Danish Institute for International Studies] Working Paper No. 2005/6, 2005, p. 9.

³ Around 1970 there was change in development thinking from modernization theory to dependency theory and basic needs strategies; while modernization theory saw transport infrastructure as a main precondition for development, the basic needs strategy shifted the focus to rural development. However, in the 1990s a new economic geography introduced by Paul Krugman and other economists focused attention again on transport and location issues, which led to increased donor support for transport investments.

⁴ During this period, in most Sub-Saharan African countries production and marketing of major agricultural crops

development of social services, mainly education and health, in both rural and urban areas. Import substitution policies led to sellers' markets in which almost anything that could be produced could be sold, often at the factory gate. There was little or no incentive to develop an effective marketing and distribution system.

As foreign currency became scarcer in the 1970s, truck fleets stagnated or contracted in most Sub-Saharan African countries. Import permits were generally reserved for parastatals and other large enterprises, and it became more difficult for individuals to own vehicles. Trucks were concentrated in the capital cities and large regional cities where the parastatals were headquartered. Rural transport, which had before independence been undertaken mainly by private rural traders, was taken over by marketing boards, which either invested in the own truck fleets or outsourced transport to state transport companies or sometimes to private trucking enterprises.⁵ The resulting centralization of transport was expected to result in greater efficiency, but in fact transport became less efficient. At the same time, demand for transport increased because, as a consequence of various factors (e.g., improved extension services, subsidized farm inputs), the production of the main crops moved out to peripheral areas located farther from the market and where the infrastructure was poor. The efficiency of rural transport is generally low, due to the seasonal demand for transport, which results in few return trips, but traditional rural traders, who bought a range of crops and distributed consumer goods and farm inputs, had a greater chance of obtaining return loads than the specialized crop parastatals. As a result, the costs of the marketing boards increased and they had increasing difficulty of adequately serving the farmers. Also, a strong focus on monocropping tended to increase seasonality and this reduce transport efficiency.

When the parastatals found it increasingly difficult to maintain their crop purchasing monopoly in rural areas during the 1970s, their transport monopoly supported by restrictive licensing practices became a means to maintain their trade monopoly. Licenses and import allocations were generally not given to vehicles stationed in rural areas because such trade was seen as undesirable. The centralization of rural transport capacity in the crop parastatals meant that small entrepreneurs and farmers could not easily find transport for alternative products and other products, which contributed in part to the lack of diversification of products and markets.

Transport policy continued to favor railways during this period from the late 1960s to the 1980s, e.g., by controlling development of roads parallel to railway lines⁶, by refusing licenses to parallel trucking routes, by requiring parastatals to use the railways as much as possible. However, investment in track maintenance and new rolling stock was insufficient and railways also began to decline; most African railways were built for strategic reasons and have historically operated with deficits, although that of Zimbabwe has been reported as an exception.⁷ Also, railways were not equipped to serve specialized markets; consider, for

were controlled by crop-specific parastatal marketing boards, which were responsible for the post-harvest trade, collection, and processing of controlled crops.

⁵ The situation of rural transport in Kenya has generally been less severe than elsewhere in Africa because parastatal monopolies were maintained less strictly there than elsewhere, and because of the establishment of a dense network of minibuses (*matatus*) all over Kenya beginning in 1973. Patrick O. Alila, Meleckidzedek Khayesi, Walter Odhiambo, and Poul Ove Pedersen, *Development of African Freight Transport – The Case of Kenya*, DIIS [Danish Institute for International Studies] Working Paper No. 2005/6, 2005, p. 6.

⁶ E.g., the last links in the main roads parallel to railway lines in Tanzania and Ghana were not built until the late 1950s, on the eve of independence. Patrick O. Alila, Meleckidzedek Khayesi, Walter Odhiambo, and Poul Ove Pedersen, *Development of African Freight Transport – The Case of Kenya*, DIIS [Danish Institute for International Studies] Working Paper No. 2005/6, 2005, p. 6.

⁷ Zimbabwe inherited a railway (and road) network that at independence in 1980 was probably the best in Sub-Saharan Africa (other than that of South Africa), but it only served the urban and white settler areas. Poul Ove Pedersen, *The Role of Freight Transport in Economic Development: An Analysis of the Interaction between Global*

example, one study found that in Tanzania it often took more than a month to ship goods by rail from western Tanzania to Dar es Salaam; another study found that in Ghana in 2000 the railway was still unable to carry containers.⁸

(2) The Effect of the “Logistical Revolution” on Africa: From the 1990s to Present

The “logistical revolution” and containerization developed rapidly from the late 1960s in the industrialized and industrializing countries, but did not have significant impact on African transport until the late 1980s or early 1990s. While African imports were containerized to some extent, since European importers wanted to protect their goods, African transport infrastructure was not ready to export the containers. But during the 1990s, trade liberalization and structural adjustment policies triggered a process of change that was invigorated by increased competition from South Africa following the end of the embargo on South Africa in 1994. Transport has no longer been viewed as an isolated activity, but has become closely integrated with trade and production in complex logistic systems in which travel time and timing are at least as important as transport costs.

Major changes begun during this period and continuing to the present include the following:

- (i) Rapid containerization has reduced the cost of transshipment and made door-to-door transport possible. Containerization of high-value goods has increased the security of transport, while containerization of bulk goods has increased the flexibility of transport since a container can be shipped when full without waiting for collection of an entire shipload. Containerization has also allowed for greater market segmentation and product differentiation, a rapid rationalization of liner shipping, and integrated door-to-door transport organized and controlled by a rapidly growing sector of international freight forwarders.⁹
- (ii) Containerization has also increased the size of transport vehicles, which has increased maintenance problems and created demand for new larger-capacity infrastructure, and led to serious bottlenecks in all modes of transport; particularly in the case of road transport, increases in vehicle size and an inability to control excess vehicle loads has led to rapid road deterioration.¹⁰
- (iii) Institutional and organizational factors in transport have become increasingly important, since (a) transport costs are quite sensitive to the efficient utilization of transport capacity (which depends very much on the ability to obtain return freight and vehicle turnaround time), and (b) transport speed and reliability have become more important as a result of globalization and just-in-time production, which requires goods to be delivered in very narrow time windows, which in turn requires greater frequency of service on the various modes of transport. Again, the focus has increasingly shifted to multimodal, door-to-door transport, which has led to changes in the transport sector to which large state organizations have found it difficult to respond.
- (iv) Sub-Saharan African shipping companies, airlines, ports, and railways have been slowly commercialized or privatized. Parastatals and large private enterprises that previously

Value Chains and Their Associated Transport Chains, DIIS Working Paper No. 2007/12, 2007, p. 11.

⁸ Poul Ove Pedersen, *The Logistical Revolution and the Changing Structure of Agriculturally Based Commodity Chains in Africa*, CDR [Centre for Development Change] Working Paper 2.12, October 2002, p. 7.

⁹ However, many containers are still emptied or loaded at or near the port, for a number of reasons, e.g., many containers hold consolidated shipments with goods to several consignees, the cost of loading/unloading containers is low due to low labor costs, and trucks can carry more goods without the container; few potential recipients of containers have the forklifts or cranes necessary to handle the containers.

¹⁰ Roads with a design life of 20–25 years have deteriorated significantly in 5–10 years; consider, for example, that when axle load is doubled, road deterioration increases by about 30 times.

operated their own truck fleet have increasingly outsourced their transport requirements to transport firms to reduce costs and compete with foreign investing in Sub-Saharan Africa.¹¹ Therefore, the trucking industry in Sub-Saharan Africa has been growing. However, ports remain major bottlenecks in the Sub-Saharan African transport system, including in East Africa.¹²

- (v) Sub-Saharan African transport networks have become increasingly hierarchical, leaving most of the region in a relatively peripheral position.¹³ This development is most apparent in air transport, with the international route network increasingly focused on a few hub airports (e.g., Nairobi and Addis Ababa in East Africa, Johannesburg in Southern Africa, Abidjan and Dakar in West Africa). Regarding sea transport, there is strong competition among ports to achieve hub status, with sea transport becoming increasingly hub and spoke oriented with the increase in containerization, although to some extent such concentration of traffic has been limited by the poor state of cross-border land transport.
- (vi) Although infrastructure networks remain important, new efficient forms of supply management and information systems, which coordinate transport and storage with production and marketing, are more important than previously. These new forms of logistic organization are more difficult to develop with donor funding, but are necessary to link with the global economy.¹⁴

2.2.2 Road Sector

(1) Overview

Road transport is the most important mode of transport in Sub-Saharan Africa. Road network development in the region, however, has lagged far behind that in other parts of the world. According to the World Bank's World Development Indicator, the total length of highways in Sub-Saharan Africa is 1.66 million km, with a highway density of 104km/1,000km².¹⁵ Only 9% of the total length has been paved and even arterial highways are largely left unpaved (Figure

¹¹ Licensing of trucks for hire was administered less strictly beginning in the 1990s. For example, in Kenya by 2002 fees on licenses for trucks for hire (and on buses) were abolished and licenses are now issued on request; today anyone with a truck can transport goods for others. Patrick O. Alila, Meleckidzedek Khayesi, Walter Odhiambo, and Poul Ove Pedersen, *Development of African Freight Transport – The Case of Kenya*, DIIS [Danish Institute for International Studies] Working Paper No. 2005/6, 2005, pp. 18, 46. Also, the number of small trucks per hire increased in the cotton-growing areas of Zimbabwe in the late 1990s and in the coffee-growing area of Moshi, Tanzania a taxi-like system of pickups developed. Poul Ove Pedersen, *The Logistical Revolution and the Changing Structure of Agriculturally Based Commodity Chains in Africa*, CDR [Centre for Development Change] Working Paper 2.12, October 2002, p. 14.

¹² As ships became larger, inefficiency in freight handling leads to longer waiting times for ships, while the costs of waiting increase. While there has been increasing pressure from the shipping industry to increase port efficiency, ports have been major revenue earners for the governments and for politically powerful groups that benefit from inefficient and corrupt practices at the port. Attempts to reorganize the region's ports have met with great resistance, although progress has been achieved in recent years.

¹³ Maersk became a dominant shipping line in Africa in the 1990s when it established a hub-and-spoke system based on a round-the-world route linking the east coast of North America–the Mediterranean Sea–Singapore–Hong Kong–the west coast of North America. Similar, less successful attempts have been made to create hub-and-spoke networks within Africa (e.g., Durban, Abidjan, and Dakar have to a limited extent served as hub ports). However, many of the ports that aspire to hub status have serious capacity problems that constrain their development as hubs. Poul Ove Pedersen, *The Logistical Revolution and the Changing Structure of Agriculturally Based Commodity Chains in Africa*, CDR [Centre for Development Change] Working Paper 2.12, October 2002, p. 13; and Poul Ove Pedersen, *The Changing Structure of Transport under Trade Liberalisation and Globalization and its Impact on African Development*, CDR Working Paper 00.1, January 2000, p. 7.

¹⁴ While the development of such new logistic systems in the industrialized countries were driven by increasing wages and cost considerations, they are more expensive than traditional systems of transport organization in low-income countries, reducing the incentive for change.

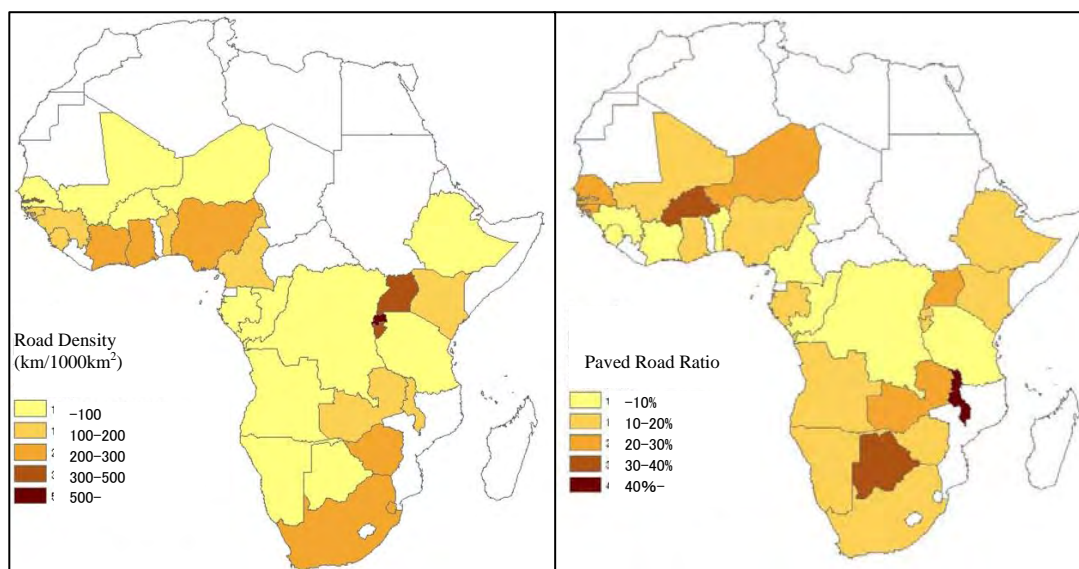
¹⁵ Values of road density compared for reference: 3,160 for Japan, 1,600 for the UK, 1,030 for India, 700 for the United States, 190 for Indonesia, and 110 (km/1,000km²) for Thailand. Source: World Road Statistics, 2005 from the Japan Road Association

2.2.1). Regarding road density, while South Africa and Nigeria have a high-density network of roads, in other Sub-Saharan countries, the density is very low. Such scarce road infrastructure is considered a major cause of high transport costs in the region (see Chapter 1).

Moreover, there are many problems regarding maintenance management. Due to the chronic shortage of maintenance and rehabilitation budgets, operation by overloaded trucks, and the lack of capacity by contractors to effectively maintain and rehabilitate roads, even already paved road sections are deteriorated rapidly in the region. These factors are also a major cause for high transport costs.

Considering this situation, various international development partners are actively supporting road improvement. Trunk roads along each international transport corridor (mentioned below) in particular have received support from many development partners, including from Japan, the World Bank, the European Union (EU), and the African Development Bank (AfDB). Development partners are providing active support for roads in East Africa and West Africa as shown in Figure 2.2.2. In addition, recognizing that securing financial resources for road maintenance is an important task, a Road Funds has been established, a World Bank-led special fund to establish an institutional scheme for suitable road maintenance.

In addition, there are many other problems with the legal system for road transport. Integration of regulations of cross-border transport including traffic regulations is underway in the region, but harmonization issues remain. Legal and institutional aspects of these issues are detailed in Chapter 4 mainly for the case of East Africa.



Source: The Study Team (based on the World Development Indicator Database)

Figure 2.2.1 Road Density and Paved Road Ratio