



Japan International Cooperation Agency



# A Passage Across Borders

*Towards Growth and Development -  
Transcending Borders in Africa*



## Introduction - Towards Growth and Development in Africa

African nations, especially Sub-Saharan African nations, are struggling against extreme poverty. Having already topped 800 million people, the population of Africa is expected to increase to 1.7 billion by 2050. At the same time, the level of economic development in Africa is rather low compared with that of Asia. Investments in various fields and sectors are essential in order to eliminate the most serious poverty in the world and promote sustainable economic growth in Africa.

As there are numerous small independent countries in Africa, many of which are inland, transportation in Africa requires frequent national border crossings. This imposes extraordinary costs and constitutes a major impediment to economic growth. Therefore, addressing this barrier can reduce transportation cost, as well as promote trade and industry, and regional social and economic integration. These are essential for economic growth to reduce poverty and achieve, Pro-Poor Growth.

JICA has conducted a series of research studies commencing in 2005 to support the development of cross-border transport infrastructure (CBTI). An overall assessment of CBTI and an evaluation of CBTI in the Indochina/Mekong Basin subregion was undertaken in the first and second research projects, respectively. This investigation, which is the third research project in the series, covers Sub-Saharan Africa and studies the possibilities of JICA assistances for CBTI development in Africa, taking into account the previous research results.

Relative Proportion of Each Country's Population (2002)



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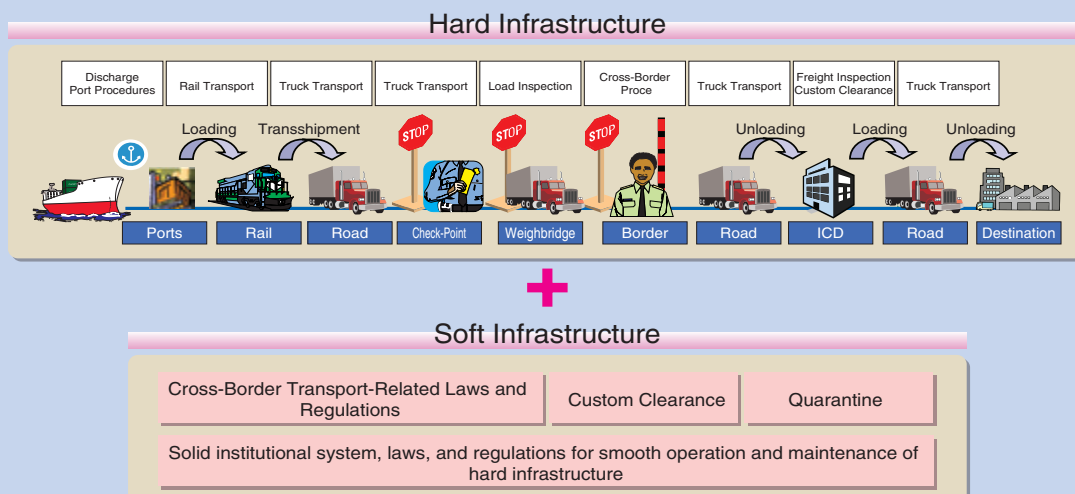
Relative Proportion of Each Country's Population (2050)



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### What is “Cross-Border Transport Infrastructure (CBTI)”?

In this research study, CBTI is defined as the infrastructure required for transportation that crosses multiple national borders, and the infrastructure that comprehensively includes physical “hard infrastructure” such as ports, railroads, highways, cargo transshipment facilities, national border facilities, weighbridges (truck scales), and inland container depots (ICDs), as well as “soft infrastructure” such as cross-border transport laws, regulations related to border crossing (e.g., customs clearance, quarantine), and organizational systems and resources for smoothly operating and maintaining the hard infrastructure mentioned above.

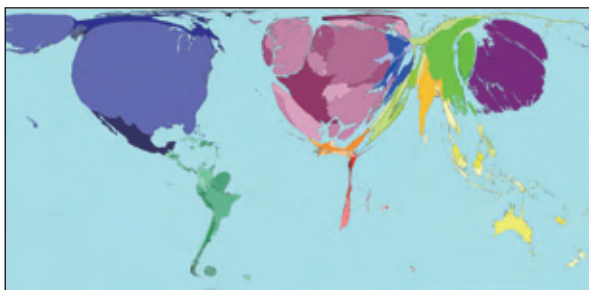


# 1. Sub-Saharan Africa and Cross-Border Transport Infrastructure

## Sub-Saharan Africa, Struggling against Extreme Poverty and Restrictions on Industrial Development

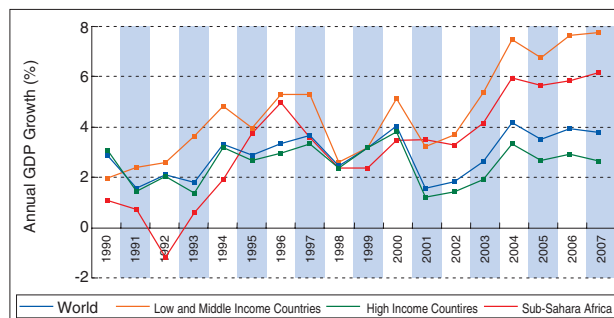
Sub-Saharan Africa is a collective name for the 48 countries in Africa excluding the five countries of North Africa. While Sub-Saharan Africa accounts for 18% of world's area (2.427 million km<sup>2</sup>) and 12% of the world's population (799.8 million, 2007), its GDP is less than 2% (US\$840 billion, 2007) of the world's total, and 30% is accounted for by South Africa. Sub-Saharan Africa's per capita GDP is only US\$752 (2007) if South Africa is excluded. About 400 million people-half of the region's total population live in poverty and subsist on US\$1.25 or less a day; 34 of the 48 poorest countries in the world are in Sub-Saharan Africa.

Relative Proportion of Each Country's GDP (2002)



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GDP Growth Rate



Source: Consultants (prepared from World Bank data)

A total of 20% of Sub-Saharan Africa's GDP is accounted for by agriculture, forestry, and fisheries, while mining accounts for 35% and the service sector for 45%; these percentages have not changed much over the past 40 years. Regarding trade structure, many countries in the region export primary commodities and oil/mineral resources, and import industrial goods.

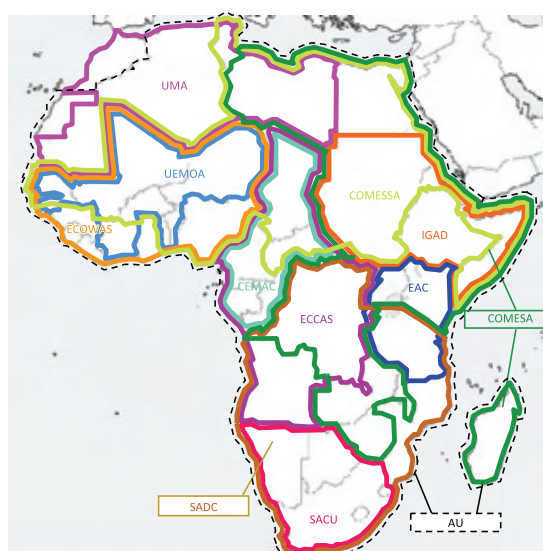
Since 2000, Sub-Saharan Africa has achieved stable economic development. Average annual economic growth rate since 2004 has kept more than 6%. These results are caused by inflation of natural resource prices and associated resources development in inland African countries. Since the recent financial crisis has lowered resource prices, it is doubtful that this economic developments trend can be sustained in the immediate future.

The major constraints on the region's industrial development are: (1) high overhead costs (e.g., cost for transportation, energy, security); (2) low agricultural productivity; and (3) high labor costs. The main factor inhibiting industrial development and economic growth in the region has been high transport costs. For example, the agricultural sector, which employs 60-70% of the region's working population, suffers from very low productivity due to high prices for imported fertilizer as a result of high transport costs.

## Promotion of Local Economic Communities

In Africa, where national borders were established artificially by colonial policies and a number of small countries in terms of both economic scale and population were formed, interregional cooperation and integration has been a longstanding issue. As a result, numerous regional economic communities (RECs) have been established in the region. Major RECs are shown in the figure. Their aim is to integrate the economies of neighboring nations and promote the establishment of customs unions, introduce a common currency, provide for cross-border trading, and create common markets. Some RECs also conduct research studies on transport corridors, e.g., assessing coordination of maintenance activities in different countries, and promoting the conclusion of various agreements to facilitate intraregional movements of people and goods.

Regional Economic Communities (RECs) in Africa



Source: Consultants

## Poor CBTI and High Transportation Cost

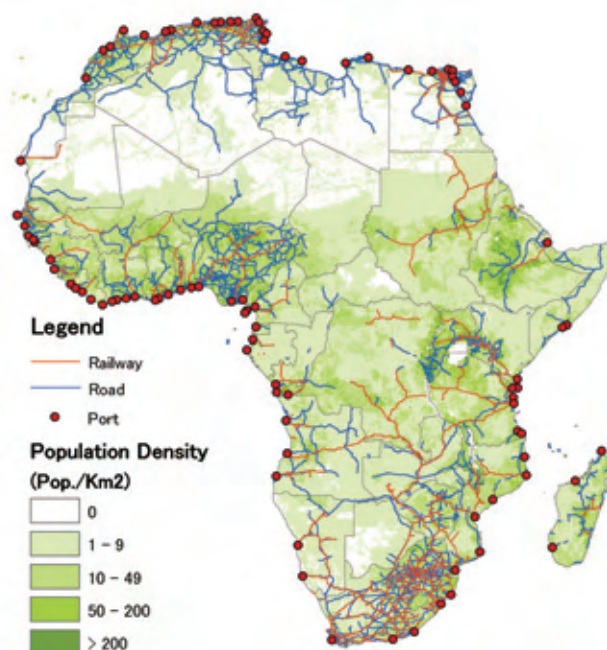
Most of the railways and highways in Sub-Saharan Africa were constructed and established in the colonial period, and they form an inland network that connects densely populated areas with ports. However, the densities of roads and railways are lower than those in the other regions.

In addition, due to the poor maintenance of roads, railways, and ports after independence, most of the region's infrastructure is deteriorating. The percentage of paved roads is only 9%, and even paved roads are often degraded. Regarding railways, since the repair and renewal of rolling stock and track has been delayed, transport volumes have been decreasing.

As good locations for deepwater ports are very limited, only a few international ports, such as Durban in South Africa and Mombasa in Kenya, handle large cargo volumes and long waiting time at the ports becomes a serious problem. A difference in railway gauge makes it difficult to widen the network. The existence of right-hand and left-hand drive traffic regulations in neighboring countries makes it difficult to implement uniform traffic regulations.

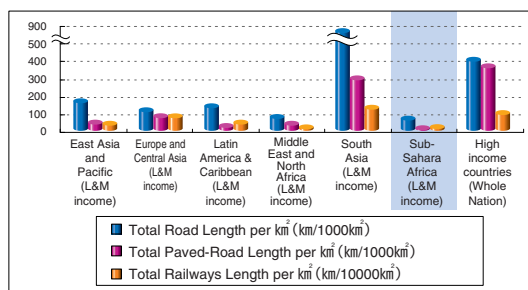
These factors have resulted in high transport costs, which in turn has caused a decline in competitiveness and increased living costs. Especially inland nations tend to face longer transport times, higher transport costs, and (as a consequence) lower GDP growth rates. Therefore, inadequate transport infrastructure is a major cause of intraregional economic disparities in Sub-Saharan Africa.

Main Roads, Railways, and Ports with Population Distribution



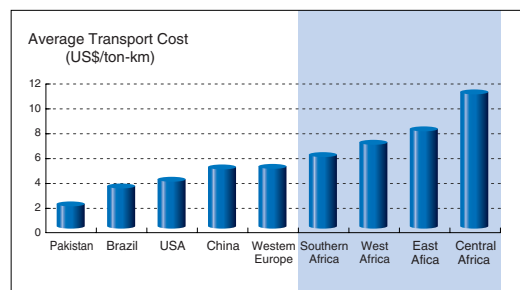
Source: Consultants (prepared from various sources)

Comparison of Road and Railway Infrastructure



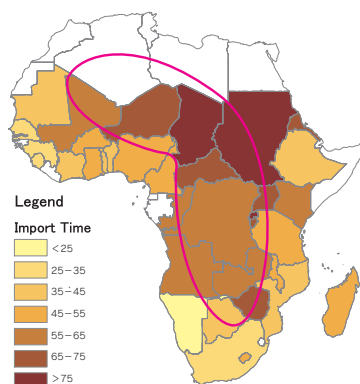
Source: Consultants (prepared from World Bank data)

Comparison of Average Transport Cost

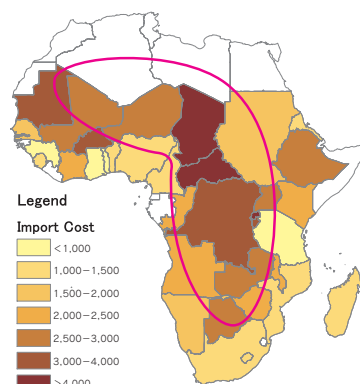


Source: Consultants (prepared from World Bank data)

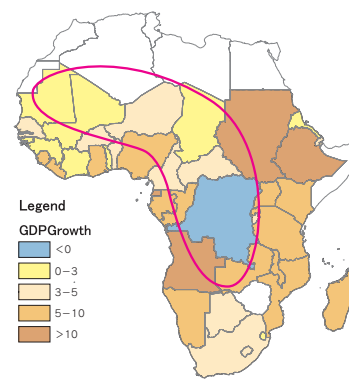
Average Import Time (day)



Average Import Cost (US\$)



GDP Growth Rate (2007) (%)



Note: Time and costs for transporting 20-foot containers from the nearest port Source: Consultants (prepared from World Development Indicators)

## ● Huge Trade Potential on International Transport Corridors

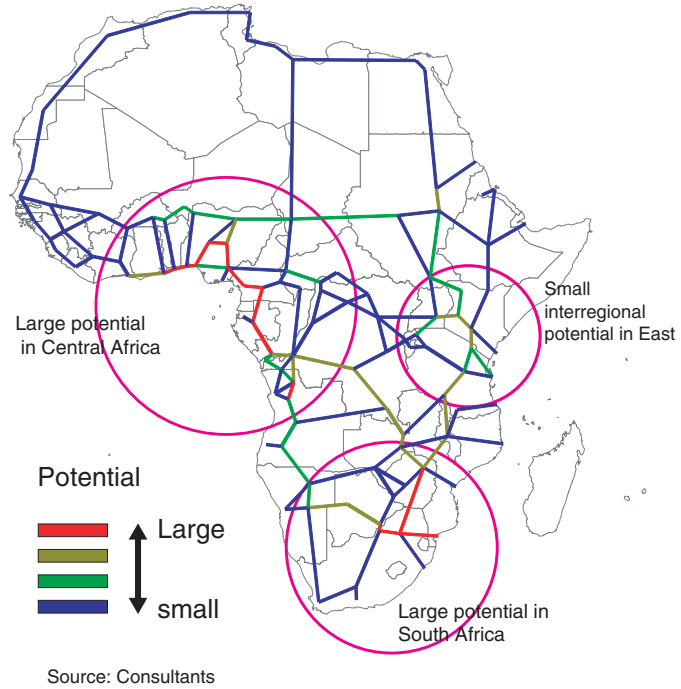
In Sub-Saharan Africa, there are many existing and planned international transport corridors, e.g., the Trans African Highways (TAH) and the Sub-Saharan Africa Transport Policy Program (SSATP) regional economic corridors. In order to determine the maintenance priorities for these corridors, the Study Team carried out analyses of intraregional trade potential in Sub-Saharan Africa along each corridor and of potential trade demand between Sub-Saharan Africa and the rest of the world.

As the available information is limited, the GDP of each country was assumed as their potential, and the container transaction volume of major ports was assumed to be proportional to the port capacity of each country. A gravity model (an econometric model describing the trade volume between two countries based on the distance between and on the size of their economies) was used to calculate the trade potential origin-destinations (OD) between each country pair and between each country and port. The results were allocated on major corridor networks by the shortest path search method.

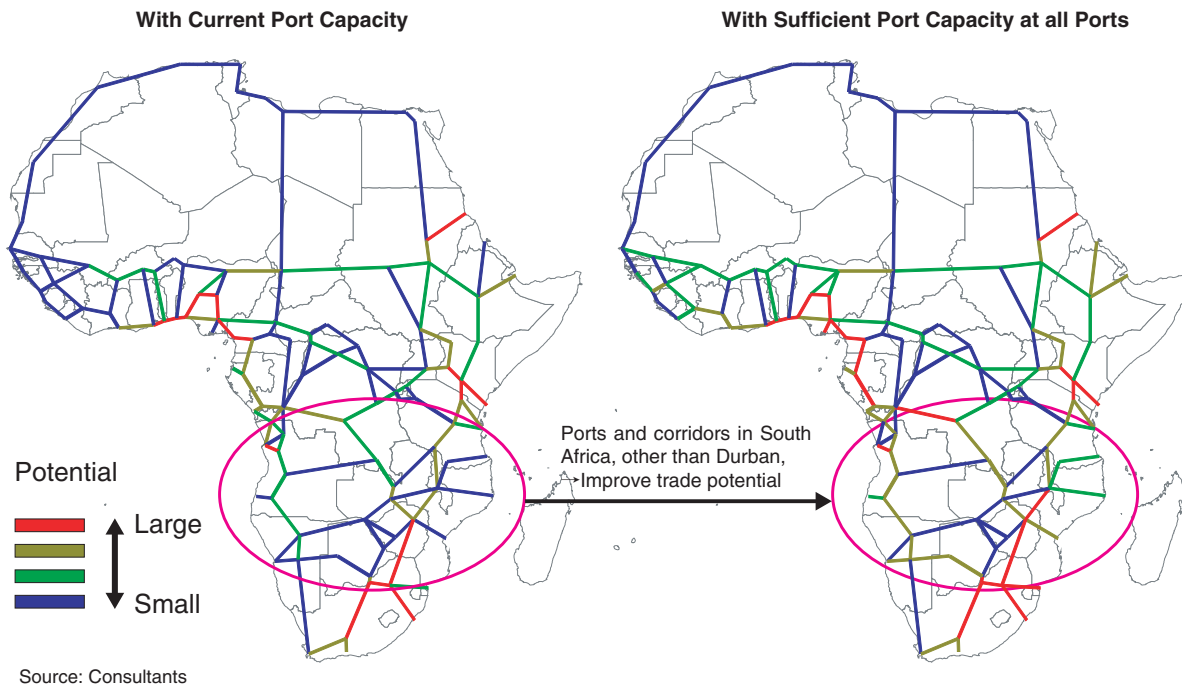
The results of the analysis showed that there is a large potential in corridors around South/Central African nations in terms of intraregional trade, moderate potential in long-distance corridors that link South/Central Africa and East Africa, and small interregional potential in the East Africa region.

Also, the analysis of potential between Sub-Saharan Africa and the rest of the world showed that trade volume will increase in many ports as well as in inland corridors assuming that port capacity constraints are resolved, especially in South Africa. This result suggests the necessity of future improvement in ports and corridors.

**Simulation Results - Potential Volume of Interregional Trade in Sub-Saharan Africa**



**Simulation Results - Potential Volume of Interregional Trade Sub-Saharan Africa and the Rest of the World**



Note: In these analyses, the state of the infrastructure and the cost and time required for crossing borders were not considered. Therefore, the results serve the relative comparison of each corridor's potential as input for broadly assessing relative maintenance priorities.

## 2. Case Study of CBTI in East Africa

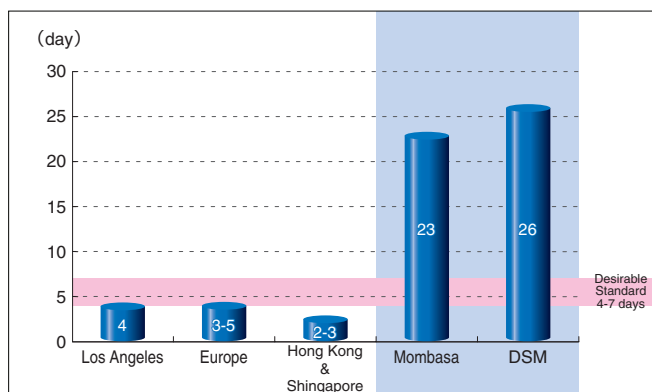
In order to formulate a model program for CBTI development, a case study was undertaken for two major international corridors (the Northern Corridor and the Central Corridor) in three countries in East Africa: Uganda, Kenya, and Tanzania, in which JICA is promoting projects for CBTI.

### ● Serious Lack of Railway and Port Cargo Capacity

#### Ports

The performance of the region's ports has been poor. The ports of Mombasa and Dar es Salaam are always crowded because their cargo handling capacity is lagging behind the increasing demand. Import and export procedures require considerable time, and the detention of goods at port has become a major obstacle to distribution.

Waiting Time at Major Ports in East Africa

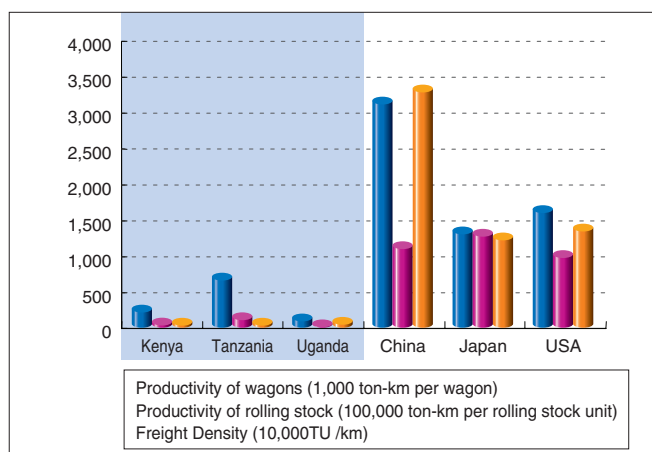


Source: Consultants (prepared from various sources)

#### Railways

The transport capacity of the region's railways has been deteriorating. The railways have been privatized based on concession agreements. However, when the operating companies took over the railways, the track and the rolling stock was degraded. Therefore, transportation volumes after privatization have fallen far behind the demand. This in turn has resulted in very long waiting times at ports before loading cargoes on trains, causing extremely low productivity. The railway ferry on Lake Victoria stopped its regular operation because of poor maintenance.

Productivity of Rail Transport in East Africa



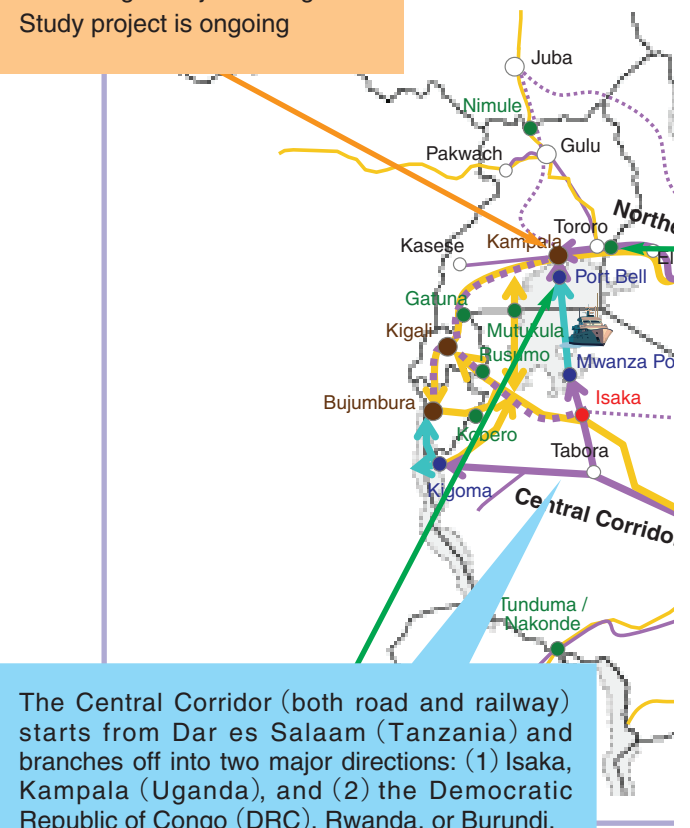
Source: Consultants (prepared by World Bank Data)

### ● Improvement of the Road Network

#### Roads

Roads in the major corridors are being improved, with... However, there have been problems in maintaining... established and institutional capacities have been... strengthen the lack of capacity of private companies...

Nile Bridge Project in Uganda: Study project is ongoing



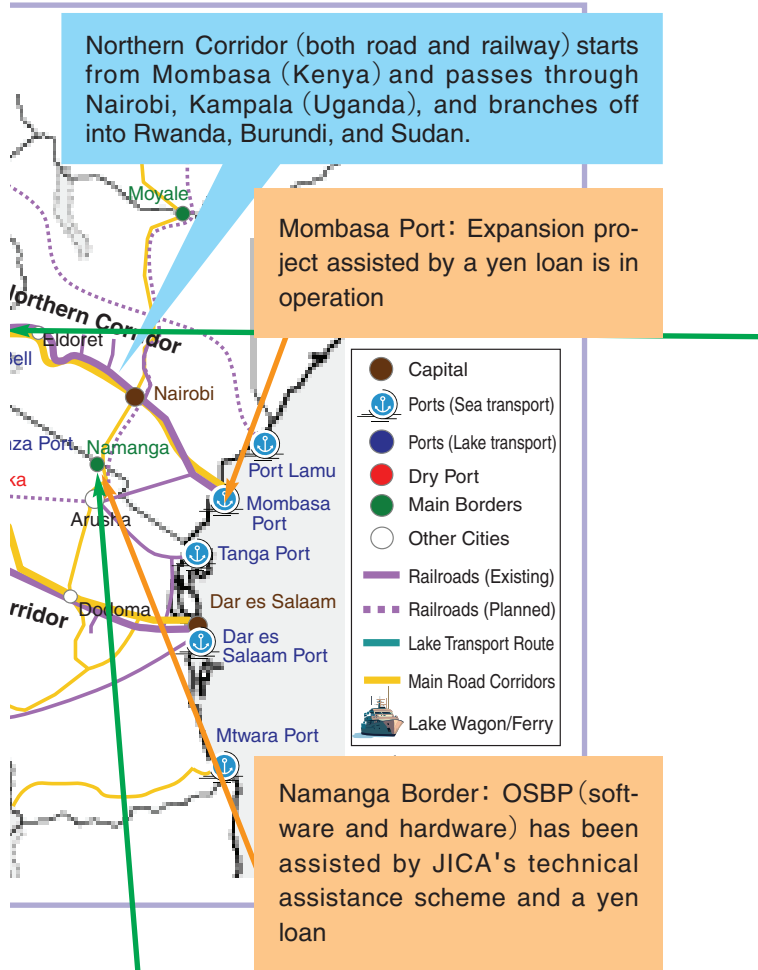
The Central Corridor (both road and railway) starts from Dar es Salaam (Tanzania) and branches off into two major directions: (1) Isaka, Kampala (Uganda), and (2) the Democratic Republic of Congo (DRC), Rwanda, or Burundi.



Port Bell and Broken URC Wagon Ferry (Uganda)

## ork but a Maintenance Problem

support from international development partners. pavements. Road bureaus and road funds are being enhanced to improve maintenance. Assistance to that undertake road repair work is also necessary.



Road Maintenance Site between Nairobi (Kenya) and Arusha (Tanzania)

## Improvement of Cross-Border Transportation Systems under Regional Cooperation

### Border Facilities

One-Stop Border-Posts (OSBPs) are now being established at national borders, supported by the World Bank, the United States Agency for International Development (USAID), and JICA. At the Namanga border between Kenya and Tanzania, OSBP support is provided in terms of both soft and hard aspects through JICA technical cooperation and yen loans. In Malaba between Kenya and Uganda, the first railway OSBP in East Africa was opened in 2007, and border-crossing times for railway freight were reduced to 30 minutes to one hour, while previously 1-2 days was required. Meanwhile, HIV infections spread by truck drivers remains a serious problem.



Malaba Border between Kenya and Uganda

### Cross-Border Transportation Regulations

The three case study countries have already concluded a road transportation agreement. Also regarding the bond (guarantee for customs duties) system, which is one of the factors that delays cross-border transportation, a pilot project has been already started in the Northern Corridor with support from USAID to establish a common bond in the Common Market for Eastern and Southern Africa (COMESA) countries. Weighbridges, police checks (inspections), and escorts (police running side by side with cargo vehicles) to prevent smuggling and evasion of customs duties are also factors that cause delays in cross-border transportation, but these are expected to be improved by the introduction of a global positioning tracking system with World Bank assistance.

## What are the causes of the long transport times and high transport costs?

In order to identify the cause of the long transportation times and high transportation costs, the transportation time and cost for cargo imported from overseas along the Northern Corridor (from Mombasa to Kampala) was analyzed.

**Long port waiting time:** Waiting time at port accounts for a significant proportion of the total time required for transportation along this corridor: 61% for road transport, and 85% for railway transport (including waiting time for railway). Especially for railway, cargo is detained for periods of up to 40 days due to a serious shortage of railway capacity exacerbated by a shortage of port infrastructure capacity including berths and yards and delays in customs clearance procedures.

**Relatively short transit time for crossing borders and ICDs:** The transit time at the Malaba border crossing along the Northern Corridor has been reduced to 6-8 hours by road, and only about one hour by rail. Conversely, a few days are required at the ICD at the destination (Kampala) to carry out clearance.

**Psychological burden of weighbridges, police checks, and police escorts:** At some weighbridges, about five hours may be required for transit due to con-

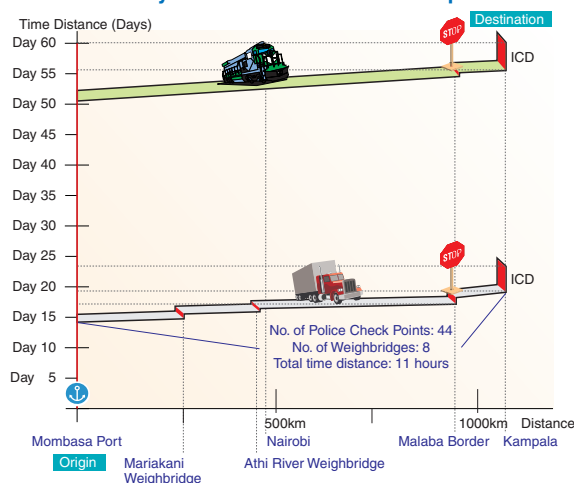
gestion. Also, unofficial payments have been reported, imposing a significant psychological burden on private sector.

**Slow travel speed of railway:** Trains cannot operate fast due to poor track maintenance; their average speed is about only 10 km per hour. The travel speed of trucks is fast due to good pavement conditions, but normally trucks do not run at night because of security concerns.

**Required cost for a return run:** A key factor causing the high transport cost is the additional costs associated with a return run. Since the cargo volume of the homeward trip (from inland to port) is much smaller than that of the outward trip (from port to inland), loads are carried virtually one-way only, and consequently the cost of the homeward trip is included in the cargo transportation fee for the outward trip.

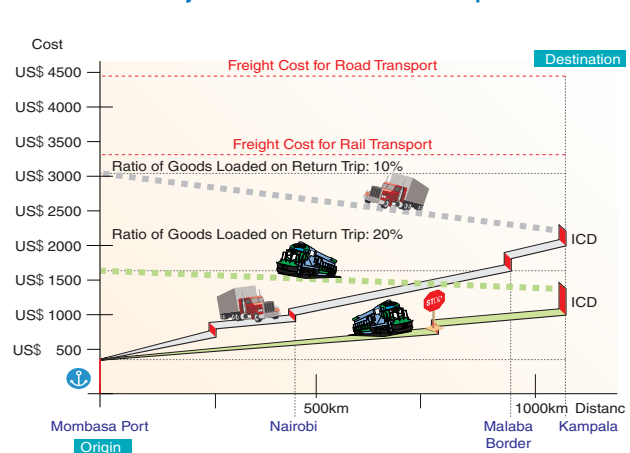
**The economic cost for railway is half of that for truck:** Railway requires a lower transport cost than truck, and the economic cost for railway is half that for truck. If the problem of long transport time can be resolved, the significant potential of the railway mode can be achieved.

Time Analysis between Mombasa-Kampala

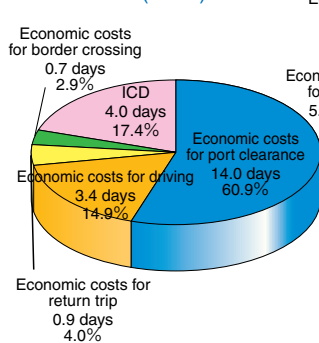


Source: Consultants

Cost Analysis between Mombasa-Kampala

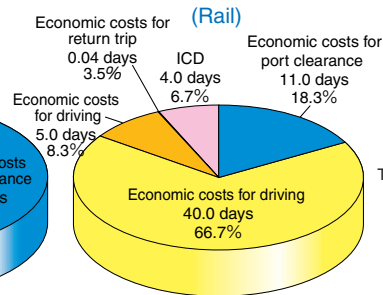


Breakdown of Time Distance (Road)

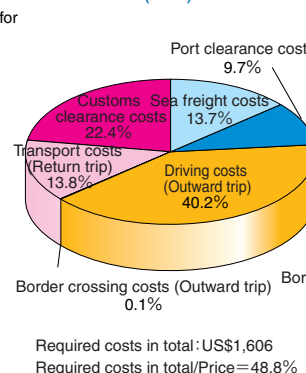


Source: Consultants

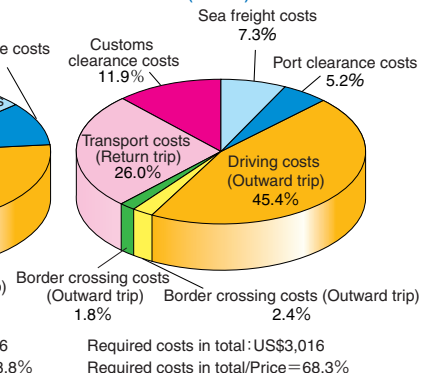
Breakdown of Time Distance (Rail)



Breakdown of Required Cost (Rail)



Breakdown of Required Cost (Road)





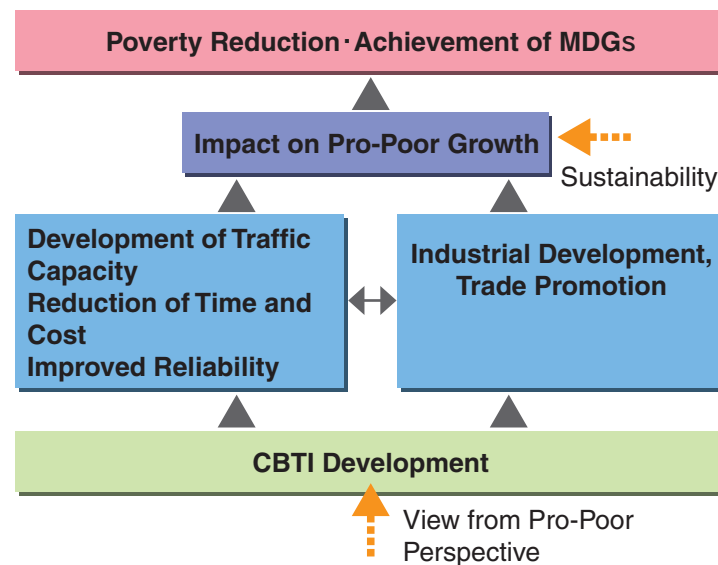
### 3. Strategic Directions for CBTI Development in Sub-Saharan Africa

CBTI development is essential for facilitating industrial development, trade, economic revitalization, and poverty reduction in Sub-Saharan Africa. However, complex factors are inhibiting the facilitation of cross-border transport, and it is impossible to fully improve the entire cross-border transport system by implementing individual projects. Therefore, when forming and implementing CBTI projects, a program approach is needed, increasing effectiveness by keeping the entire vision and strategy of CBTI development in mind, and considering the synergy with related projects currently implemented by various development partners. Accordingly, the future directions of CBTI development for Sub-Saharan Africa as well as a model program of CBTI development in Eastern Africa were prepared.

#### ● CBTI Development Contributing to Pro-Poor Growth

In Sub-Saharan Africa, poverty reduction is the most important development goal. CBTI development is expected to contribute to Pro-Poor Growth, i.e., economic growth that is sustainable and contribute will reduce poverty, and contribute to achievement of the Millennium Development Goals (MDGs), which is an international commitment concerning poverty reduction.

Specifically, CBTI development will not only increase traffic capacity by reinforcing physical infrastructure, but also reduce transportation costs, and improve transport system reliability. These benefits are expected to facilitate industrial and commercial development as well as sustainable Pro-Poor Growth.



#### ● Directions for Implementing CBTI Development in Sub-Saharan Africa: Two Comprehensive Themes and Four Strategic Directions

The proposed comprehensive themes showing the future direction of CBTI development in Sub-Saharan Africa consist of two pillars: "intraregional integration" and "interregional linkages." Furthermore, the four items are recommended as the strategic directions for implementing CBTI development in order to achieve the comprehensive themes.

##### Comprehensive Themes

##### 1. Integration of Sub-Saharan Africa:

By providing seamless and efficient transportation services on an integrated transportation network, promote gradual economic and social integration between and among countries in Sub-Saharan Africa, as currently promoted by several RECs.

##### 2. Linkage between Sub-Saharan Africa and the rest of the world:

By providing seamless and efficient transportation services with the rest of the world, promote economic and social linkages between Sub-Saharan Africa and the global economy.

##### Strategic Directions for CBTI Development

**Perspective as a system:** Consider all CBTI elements as a system, and carry out improvements after understanding mutual relations and the significance of each element.

**Coordination with RECs:** Carry out CBTI development in coordination with "soft" infrastructure improvement measures implemented by RECs.

**Effective linkage with trade and industrial development:** Carry out CBTI development linking with trade promotion and industrial development policies.

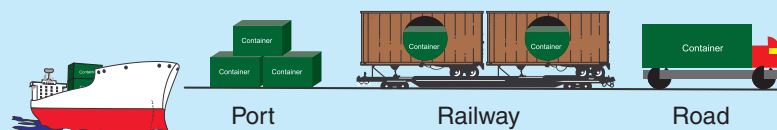
**Introduction of public private initiatives/cooperation:** By understanding the needs of the private sector, carry out CBTI development that reduces the business risks of the private sector.

## ● Model Program for CBTI Development in East Africa: Measures for CBTI Develop

Based on above-mentioned comprehensive themes and strategic directions for CBTI development, this section summarizes important sectors and priority measures for CBTI development and suggested CBTI model programs.

### Perspective as a System

To promote integration in Sub-Saharan Africa, improvement of the road sector and cross-border system is important. In addition, for the linkage between the world and Sub-Saharan Africa, improvement of ports and rail transport, which can promote trade, is important.



**Port Improvement:** As the problem of insufficient cargo handling capacity is becoming more serious, both hard and soft infrastructure improvement will be crucial. In particular, as the demand for container cargo is expected to increase, improvement of container ports is necessary.

**Railway Improvement:** As the cost of railway transport is lower than that of truck transport, railway should be a focus for improving long-distance transport between ports and inland countries. To address the aging infrastructure, efficient implementation of the operation system/framework (including privatization) is urgently required.

**Improvement of Cross-Border System:** Weighbridges and border crossings which cause uncertainty and psychological burden should be improved. Establishment of a cross-border system is also important.

Improvement of facilities and operation efficiency at Mombasa Port and Dar es Salaam Port

Support for container terminal operation by private initiative

Improvement of management and organization; Review of privatization method (concession)

Improvement and reinforcement of rail, vehicle, and facilities

Improvement of weighbridges and border crossings

Improvement of third-party

Assistance for

### Effective Linkage with Trade and Industrial Development, Introduction of Public-Private Initiatives

To leverage the benefit that CBTI development reduce transport cost most, export promotion of agricultural products and development of mineral resource are important. In addition, to attract private investments for them, measures to hedge the business risks of the private sector are necessary.

Promoting deregulation of transport/distribution industry in Kenya

Comprehensive support along the value chain of agricultural products: Support at each phase of production, processing, distribution, and export

Linkage with mineral resource development along the Mtwara Corridor, and in Burundi and Kenya

Development of distribution infrastructure in relation to horticulture products

Support for Corporate Social Responsibility activities of private companies that will move into export processing/special economic zones (EPZs/SEZs)

Enhancement of market information accessibility for small-scale and horticulture farmers



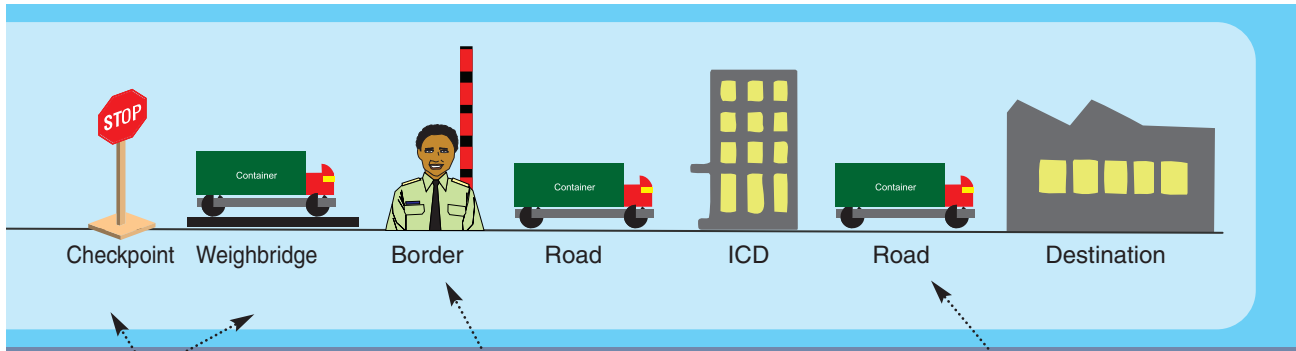
Trucks waiting for cross-border procedures at Chirundu border (Zambia and Zimbabwe)



OSBP facilities at Nemba border (Rwanda and Burundi)

## ment for East Africa

- Priority measures for CBTI development in East Africa
- Recommended complementary measures in conjunction with CBTI development in East Africa



**Cross-Border Transport**  
 dges and police checks,  
 -tainty of arrival time  
 r dens, should be im-  
 it of common traffic rules

**Improvement of National Borders:** The estab-  
 lishment of OSBPs should be continously pro-  
 moted and measures against HIV/AIDS should  
 be taken.

**Road Improvement:** In addition to trunk road  
 development, the development of secondary  
 and rural roads is also important. Future assis-  
 tance for road operation and maintenance  
 should be reviewed considering coordination  
 with road maintenance organizations and funds  
 supported by the World Bank.

- bridge and police system
- party vehicle insurance
- for NCTCA

- OSBP development
- Measures against HIV/AIDS at borders
- Capacity development of customs officers at borders; anti-corruption measures for customs clearance

- Development of secondary and rural roads

### Coordination with RECs

Despite the improvements in the efficiency of cross-border procedures, problems related to software still remain. It is important to cooperate with the EAC and COMESA in fostering these improvements.



## Directions of Japan's Official Development Assistance in East Africa

For the expansion of JICA's assistance for CBTI development, it is needed to consider assistance programs that focus on the comparative strengths of Japan, together with coordination with other development partners. Also, strategic views from both "hard" and "soft" infrastructure aspects are indispensable for effective aid delivery, because institutional and organizational weaknesses remain. Among the above long list of priorities for CBTI development in East Africa, the following columns show selected areas that can fully utilize the past experience and know-how of Japanese foreign assistance.

**Port Development:** Port-related infrastructure provision, institutional support for simplification of port procedures, and improvement of accessibility to arterial roads and railways.

**Rail Transport Improvement:** Streamlining operation and management of business administration, increase in rolling stock, rail track rehabilitation.

**Cross-Border System Improvement:** Introduction of information technology in customs clearance procedures in coordination with OSBP development, prevention of contraband traffic, improvement of weighbridges and decrease of police checks with utilization of a global positioning vehicle tracking systems.

**Industrial Development Support:** Agro-processing industry development, mineral resource development, human resource development, construction of EPZs/SEZs at ports, nodes, and borders on regional corridor networks.

This leaflet summarizes the results of the Research Study on Cross-Border Transport Infrastructure (CBTI) in Africa-Phase III, conducted by the Economic Infrastructure Department of the Japan International Cooperation Agency (JICA).



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