

**The Project Formulation Study on
Road Transport Network - New Bagamoyo Road
in the United Republic of Tanzania**

Final Report

August 2008

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.

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The exchange rates applied in this Study are:

US\$ 1.00 = Tshs 1,182.27 = Japanese Yen 105.76

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PREFACE

In May 2008, the Fourth Tokyo International Conference on African Development - TICAD IV was held in Yokohama. Towards a Vibrant Africa, the Heads of State and Government discussed three TICAD priorities - Boosting Economic Growth, Ensuring Human Security, and Addressing Environmental Issues / Climate Change and declared the Yokohama Action Plan to provide a road map for the support of African growth and development.

The Government of Japan has taken the initiative to show its strong commitment by announcing the doubling of ODA to Africa by 2012. With the development of agriculture and industry and the acceleration of trade and investments, economic growth in Africa will be achieved through support for infrastructure development. Accordingly, the Government of Japan is expected to play a vital role in developing the regional transport infrastructure, providing financial and technical assistance for the planning, construction and improvement of regional transport corridors and international ports and promoting facilitation of cross-border procedures such as a One Stop Border Post.

In this regards, the Japan International Cooperation Agency (JICA) decided to conduct the Project Formulation Study on Road Transport Network - New Bagamoyo Road. JICA selected and dispatched the Study Team between April 2008 and June 2008.

The Study Team held discussions with the officials concerned of the Government of Tanzania and conducted field surveys at the study area. Upon returning to Japan, the Study Team conducted further studies and prepared this final report.

It is my hope that this report will contribute to development in the United Republic of Tanzania, and to the enhancement of a friendly relationship between our two countries. Finally, I wish to express my sincere appreciation to all the people for their generous cooperation to the Study Team.

August 2008

Eiji Hashimoto
Vice-President
Japan International Cooperation Agency

August 2008

Mr. Eiji Hashimoto
Vice-President
Japan International Cooperation Agency

Letter of Transmittal

Dear Sir,

We are pleased to submit herewith the Final Report of the Project Formulation Study on Road Transport Network - New Bagamoyo Road in the United Republic of Tanzania.

The Study was undertaken in the United Republic of Tanzania from April 2008 through June 2008 by the Study Team.

This report consists of a Summary Report, Main Report and Appendix. It explores to identify the development potential and needs for network and regional development along the Central Corridor and assistance programmes / projects for the development of the Central Corridor. It also tests the feasibility of the New Bagamoyo Road Widening Project and provides information necessary to justify the appropriate road design and section of the Project by Japan Grant Aid. It concludes by providing recommendations in implementing the Project by Japan Grant Aid.

We would like to express our sincere gratitude to all the officials of your agency. We also would like to send our great appreciation to all those who extended their kind assistance and cooperation to this Study Team, in particular, the Ministry of Infrastructure Development. We hope that the report will be able to contribute significantly to development in the United Republic of Tanzania.

Very truly yours,

Kiminari Takahashi
Team Leader, JICA Study Team
Oriental Consultants Co., Ltd.

ABBREVIATIONS

ADT	Average Daily Traffic
AfDB	African Development Bank
B/D	Basic Design
BRT	Bus Rapid Transit
CBD	Central Business District
COMESA	Common Market for Eastern and Southern Africa
DART	Dar es Salaam Bus Rapid Transport (Agency)
D/D	Detailed Design
DRC	Democratic Republic of the Congo
DSM	Dar es Salaam
DMS	Detailed Measurement Survey
EAC	East African Community
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EPZ	Export Processing Zone
EU	European Union
GDP	Gross Domestic Products
GN	Gazette Number
GOT	Government of Tanzania
GRDP	Gross Regional Domestic Products
ICD	Inland Container Depot
IDA	International Development Association
IEE	Initial Environmental Evaluation
IRA	Institute of Resources Assessment
KPA	Kenya Port Authority
MBS	Mombasa
MOID	Ministry of Infrastructure Development
NEMC	National Environment Management Council
PAPs	Project Affected Persons
PCU	Passenger Car Unit
PD	Project Description
RAHCO	Railway Assets Holding Company
RAP	Resettlement Action Plan
ROW	Right of Way
RVR	Rift Valley Railways
SADC	Southern Africa Development Community
SD	Site Description

TANROADs	Tanzania National Roads Agency
TAZARA	Tanzania Zambia Railway Authority
TEU	Twenty Feet Equivalent Unit
TPA	Tanzania Port Authority
TICTS	Tanzania International Container Terminal Services
TRC	Tanzania Railway Corporation
TRL	Tanzania Railway Limited
TSIP	Transport Sector Investment Program
WFP	World Food Program

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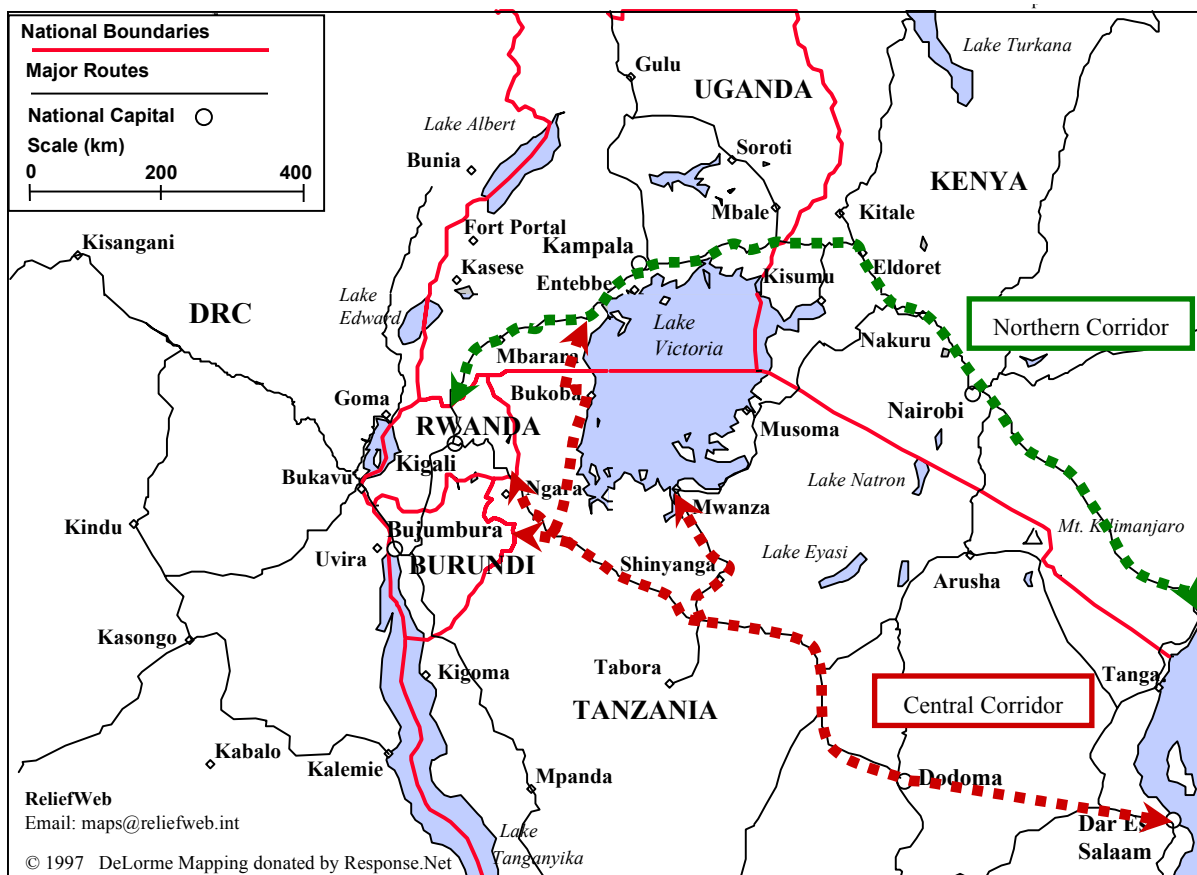
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Part 1:
A Project Formulation Study
on Central Corridor Transport

1. Outline and Objectives of the Study

Following the development declaration explored in NEPAD and establishment of regional economic communities, regional development and transport network improvement becomes a focal issue to achieve sustainable development in Africa. Although a consensus to establish the international transport network has been well shared among donors and regional communities in Africa, concrete measurements on comprehensive transport facilitation have not been yet taken (such as the “Cross Border Transport Agreement” that was made in the Greater Mekong Sub-region), and there has been no physical progress in terms of establishment of international physical distribution network, and increase in the foreign direct investment.

This Project Formulation Study on Road Transport Network, therefore, aims to identify development problems and issues to establish the international transport network and to materialize its potential focusing on central corridor transport development across Tanzania and also to propose necessary assistance to fulfill the development strategy for the central corridor.



Note: Northern Corridor and Central Corridor are mapped based on East African Community Road Network Project (EAC).

Figure 1.1 Central Corridor and Related Countries

2. Summary of Problems and Issues of Central Corridor Transportation by Transport Mode

(1) Road

1) Central Corridor

Although central corridor transport development has not been fully completed for the road network, the road improvement between Dar es Salaam and Manyoni has been completed. Furthermore, donors have committed to finance road improvement between Manyoni and Mwanza through Singida and between Singida and Lushunga. The section, which has not received funding assistance, is between Lushunga and Rusumo. (Note that AfDB may have committed the road rehabilitation project between Lushunga and Rusumo) This road was paved in mid 90's and is observed to be not so deteriorated based on the site survey results by the Study Team. This indicates that further monitoring is required to understand improvement timing referring to forthcoming traffic growth.

In terms of Rusumo Bridge crossing the border, it is necessary to examine the timing and necessity in the reconstruction of the bridge considering progress of deterioration, growth of traffic volume and views of the Government of Rwanda and Tanzania.

On the other hand, detailed design on the road between Nyakanazi and Kigoma is underway but no funding assistance has been committed yet. Without this road improvement, Kigoma, the core city in the west region, will be isolated from the existing arterial road network.

2) Feeder Road Development

Although progress in trunk road development can, to some extent, be observed, feeder roads still remain undeveloped. Especially, the regional road between Kigoma and Tabora stretching in parallel with the railway has no implementation plan for improvement except for the section completed under the assistance by South Korea although the detailed design on the remaining sections was completed.

3) Connection with Neighboring Countries

The connectivity between Rusumo and Kigali, the capital of Rwanda, has been secured by a paved road. There are some routes connecting Bujumbura, the capital of Burundi, and the central corridor: via Kobero and by other roads crossing the border, of which parts are unpaved. It is necessary to establish and develop a major priority route to connect the neighboring countries with Tanzania crossing the border. (Note: JICA¹ have studied a route analysis on the road connectivity crossing the borders among Tanzania, Rwanda and Burundi).

¹ JICA and EAC (2008) Scoping Study on Identification of the Missing Links and Bottlenecks Affecting the Performance of the East African Community Central Corridor

4) Measures for Heavy Vehicles

The Government of Tanzania has changed a regulation on maximum weight of heavy vehicles from 52 to 56 tons to unify it with SADC in 2001. In addition, COMESA agreed to the same regulation and is taking necessary actions to implement this at this moment since the new regulation may cause unexpected deterioration on pavement structure and this may lead to shortening a road- maintenance management cycle. In other words, it is necessary to strengthen the control of overloaded vehicles, an issue which TANROADs has been addressing so far. This indicates that the requirement to strengthen heavy vehicle control including trucking companies as well as drivers is recognized. It is desirable to apply heavy vehicle control measures, which the trucking industry itself needs to enforce.

(2) Railway

1) Securing Rolling Stocks

Currently, TRL is placed in unsatisfactory train-operational situations due to insufficient rolling stocks. It is addressing this issue by lease and purchase to increase operational rolling stocks. It is expected to secure the necessary rolling stocks after some time lag.

2) Maintenance

The rail tracks are deteriorated and so pertinent maintenance works are key to the success for safe and smooth railway operation. TRL is replacing the current track with 80 pound rail on the stretch between Itigi and Tabora, one of key stretches for the central corridor. The current most problematic stretch is between Tabora and Kigoma which is composed of soft and wet ground. The trains are forced to operate as slow as 5 km/h. As the trains sometimes experience derailment, immediate improvement is required.

On the other hand, many sections, where rail tracks are distorted due to insufficient maintenance works, can be observed. To ensure safe and steady railway operation, it is urgent to perform the appropriate maintenance works that will augment transport capacity. The long term improvement of railway maintenance works will be solved by ensuring business profit, and for this end, establishment of railway system to meet long-haul commodity transport is key to the success.

Although an idea of introduction of standard gauge is planned, it is desirable to make good use of existing rail facilities for the time being because the current railway has a long line and standard gauge development inevitably requires long time and huge costs.

3) Transport on Transit and Inland Waterway

Since truck transport is not popular in the central corridor at this moment due to insufficient road development, transit cargoes are transferred from railway to truck at Isaka, and from railway or truck to inland transport at Mwanza and Kigoma. However, this leads to inefficient operation. The number of ferry boats is not sufficient and they have limited carrying capacity. There are two routes to

connect Tanzania with DRC: one is via Kigali and another is via Kalemie by ferry boat crossing Lake Tanganyika. A railway is provided at Kalemie connecting to the inland of DRC. However, the railway is not being operated due to political and social unrest in the east region of DRC, and insufficient maintenance works. Furthermore, large cranes have not been provided at Kalemie and this causes stagnation of loading and unloading of large-sized-cargoes. Hence, ships operated by MSCL have not been in service to Kalemie; only private ships are operated.

As the east region of DRC is rich in mineral resources, considerable volume of cargoes will be transported through the central corridor after future development. It is easily supposed that the development of mineral resources as well as development of nickel deposit in the east region of Burundi will increase the importance of the central corridor.

On the other hand, it is necessary to monitor the development progress of mineral resources to find the right time to develop the inland port infrastructure to deal with the transit cargoes. In other words, the infrastructure-development priority should be placed on railway development initially to maintain stable cargo transport. The inland port development needs to be addressed after the increase of railway cargoes. This means that the ports of Mwanza and Kigoma will inevitably become another bottleneck after the revival of railway transport. Attention should be paid to the progress of mineral resources development in DRC and Burundi as well as the progress of the railway transportation.

(3) Seaport

1) Dar es Salaam Port

The following are the port issues.

a. Hub Function of Port

Dar es Salaam Port has around 10 m depth. Although a depth of over 14 m is required to secure hub-port function in the future, Dar es Salaam Port does not meet the requirement at this moment.

b. Inefficient Container Operation

The biggest cause behind the long dwell time for container handling mainly comes from insufficient yard space.

c. Insufficient Traffic Circulation in System

Roads to connect the port with the hinterland are inadequate. The width of the roads is not sufficient for semi-trailer traffic and poor road surface condition slows traffic and is unsafe. Traffic congestion on arterial roads in the Dar es Salaam City such as Morogoro Road and Nelson Mandela Road is worsening the traffic situation for port related truck circulation year by year, and smooth and speedy cargo transferring cannot be secured.

d. ICD and Its Approach

Kurasini ICD is saturated at this moment. The approach road to Ubungo ICD is inconvenient for making turns and this causes difficulty in smooth semi-trailer traffic flow. Although a side rail line is provided in Ubungo ICD, there is distance between the port and ICD and this causes ineffectiveness in container transferring operation. There are several privately owned ICD in Dar es Salaam City but all the ICDs are controlled by TICTS. Delay in issuance of off-taking permission causes ineffective operation. In addition, shipping companies are reluctant to receive empty container boxes and this is also accelerating the backlog of containers.

e. Ineffective Customs Procedure

TISCAN, a private company, is managing the scanning for containers under contract with TPA which will expire in 2010. It is necessary to make a booking three days prior to the scanning because TISCAN has only one machine to scan the containers. In addition, the Destination Inspection system was introduced recently instead of Pre-Inspection System and this causes disorder in customs clearance procedures due to incomplete application documents. Currently, the dwell time for containers has increased by 3 to 4 weeks so smooth off-taking is not possible.

f. Defective Transferring Facilities to Railway

In terms of connection with railway, two railway side lines have been introduced in Dar es Salaam Port. However, effective transferring has not been put into practice due to insufficient space and equipment. Since TRL cannot provide thorough servicing due to insufficient rolling stocks such as locomotives, the share of railway equipment for throughput of the port is decreasing year by year.

2) Kigoma and Mwanza Port

Kigoma and Mwanza Port function as inter-modal facilities among railway, road and inland waterway. Kigoma Port had a depth around 8 m in the past. However, the current depth is shallow and a barge is required for loading and unloading the cargoes between ships in the offing and the quays. On the other hand, there is a plan to develop a special economic zone development in Kigoma. Kigoma is a core city in the area along Tanganyika Lake and is expected to play an important role in regional development. It is necessary to keep close watch on the progress of regional development as well as the progress of mineral resources development in DRC and Burundi for the time being. On the other hand, the railway development potential is substantial to support Kigoma regional development; steady and rapid transport between Kigoma and Dar es Salaam is required.

As the railway share of transport is decreasing and cranes for containers do not operate, container handling is not in service at Mwanza Port. After revival of railway transport, increase

in carrying capacity at Mwanza Port will be a key to the success for smooth transport in Tanzania. It is necessary to address port related facility development considering railway transit transport.

Without improvement, it is easily seen that Kigoma and Mwanza Port will become a bottleneck in the transport system after the revival of railway in the central corridor. Considering the plan of new railway line development with standard gauge and discord between TRL and RAHCO, it is preferable to keep close watch on the future railway transit transport for development timing of the port related facilities.

3) New Port Plan

Container handling is a forthcoming issue in discussing the seaport and it is obvious to consider additional facility development for Dar es Salaam Port to deal with the issue. To this end, it is necessary to discuss cargo handling capacity at Dar es Salaam port and the plans for expansion to handle the growing volume of cargoes. Dar es Salaam Port has a depth limitation to function as a hub port in the future and this creates the need for construction of a new deep seaport. However, it is necessary to discuss how to share the functions between Dar es Salaam Port and the new port. As huge investment is required in the new port including transport and regional development in the hinterland, it is necessary to consider the results of the master plan study on the port in Tanzania, which is being conducted under the assistance of the WB. In other words, the important point is how to improve and solve the current problems and issues, and how to implement the required measures without duplication of future investment in the improvement of Dar es Salaam Port. After the discussion, appropriate site selection and transport development in the hinterland including EPZ development plan will be coordinated with other related national and regional development plans with a view to its functioning as a container hub port in the future.

4) Customs Clearance and Cross Border Procedure

According to the UNCTAD, there are around 20 to 30 related agencies for custom clearance and nearly 40 documents covering 200 items are required. Much of the information is duplicated and so just wasting time to get over again. As a clear entry method is not described by the code, many importers and forwarders are struggling with following the rules. In sum, the customs clearance documents are inadequate. Moreover, this is prominent in border crossing, especially in border post and customs office. Usually, the two offices are located separately and each office is checking the same documents (Sectoral profiles and business opportunities in East Africa and Indian Ocean countries, INPUT, 2006).

In terms of customs clearance documentation, clear requirements without misunderstanding is required for smooth operation. In other words, improvement of each step without a bottleneck is required through introduction of well-balanced system and arrangement of human and

material resources. In terms of cross-border traffic, common documentation and procedures, namely “one border post one window”, need to be used by the neighboring countries.

5) Related Other Study

The study on effective operation in Dar es Salaam Port including preparation of TOR for the port expansion is being carried out by MOID. The progress of the study will be presented at the meeting on “The 2nd Joint Infrastructure Sector Review (JISR)”, which is going to be held on August 2008.

(4) Summary

Table 2.1 summarizes transport problems and issues.

Table 2.1 Transport Problems and Issues

Facilities	Item	Existing Problems	Development Issues
DSM Port	1) Hub seaport	As the depth of water is around 10 m, the port cannot function as a hub seaport in the future.	New port development will be required to compete with Mombasa Port.
	2) Container handling	Large delay on cargo off-taking occurs due to insufficient yard for container handling.	Securing larger yard through expansion of the existing port and new berth development for container handling.
		Obstacles occur on semi-trailer traffic to connect the port to the hinterland due to inadequate access roads. As the traffic is congested in the city, it impedes smooth container transferring.	Widening of Morogoro Rd. and Mandela Rd. and access road development are required including improvement of major intersections.
		The accessibility by road to Ubungo ICD is not well developed at this moment. It is not efficiently used although the railway line is provided to ICD.	Road improvement and ICD re-development are required in coordination with future ring road development.
	3) Dwell time	Smooth operation is hindered because only one scanning machine is available and this leads to long dwell time for containers around as long as 4 weeks.	Introduction of new scanning machine, additional handling equipment, yard expansion and ICD development are required.
	4) Customs clearance	Chaos can be seen in documentation preparation for customs clearance due to introduction of Destination Inspection System.	Full notice of procedures for importers and forwarder, and simplification of the procedures are required.
5) Inter-modal facilities	Inter-modal transfer function is weak.	Securing necessary space for loading and unloading, and introduction of handling equipment are required. In addition, strengthening railway transport and connectivity with inland waterway is required for establishment of an integrated transport system as a whole.	

Facilities	Item	Existing Problems	Development Issues
Kigoma & Mwanza Port	1) Inter-modal facilities	Water depth is shallow and handling equipment is insufficient. No container ship is in service.	Efficient and comprehensive transport system development including inter-modal facility development in Kigoma and Mwanza Port is required in harmonization with the progress of the port and railway development in the Central Corridor development.
Road	1) Central Corridor	Trunk road is almost developed though some parts still remain unimproved.	Monitoring the traffic between Lusahunga and Rusumo including bridge are required.
	2) Feeder road	Feeder roads have not been developed although the trunk road development is proceeding. Kigoma is isolated from the trunk road.	Feeder road development to access to the Central Corridor should be accelerated to promote regional development.
	3) Connectivity to neighboring countries	Connectivity development to the neighboring countries is hampered due to social unrest in part of Burundi and DRC.	Meeting with neighboring countries, development priority on connecting roads with prompt implementation are required.
	4) Heavy vehicle measures	Measures should be taken for heavy vehicle traffic to deal with SADC standards.	Establishment of road maintenance plans and securing budget are required.
		Pavement deterioration still continues due to overloaded by truck.	Enforcement is required involving all the parties concerned.
Railway	1) Rolling Stock	Available rolling stocks such as locomotives are insufficient and enough trains are not in operation.	TRL is managing increase in locomotives as many as 90 and the problems are well on the way to settlement. Monitoring on the railway operation is required.
	2) Maintenance	Rail maintenance including track development is insufficient and especially improvement between Tabora and Kigoma is urgent.	Necessary budget for maintenance will accrue from management improvement to reach 1.7 million tons of cargo transport, which is a breakeven point in business.
	3) Rail track	Transshipment is required between TRL and TAZARA due to different gauges.	A new railway is planned between Isaka and Kigoma based on the standard gauge. Another study by EAC is on the way to ascertain the possibility to change the current gauge to the standard one.
	4) Transit traffic	Transit cargoes are transferring from railway to inland waterway at Mwanza and from railway to road at Isaka. However, transshipment between rail and water transport at Mwanza and Kigoma has not been efficiently done.	Dredging, channel development, and arrangement of necessary equipment to deal with growing container traffic expectation should be considered at Mwanza and Kigoma Port.
Inland waterway	1) Ferry transport	The number of ferry boats is insufficient for transport between Mwanza and Uganda, and carrying capacity is limited.	Maintenance works for the ferry boats and privatization on ferry service are required.
		Ferry service is not available between Kigoma and DRC due to political and social unrest in DRC. Cargoes are transported to DRC by small private boat on non-regular base.	It is necessary to watch mineral resources development in DRC and monitor what is needed for the time being.
Custom procedures at the border		It takes a lot of time for document inspection to clear customs due to inefficient procedures.	Improvement toward efficient customs procedures at Rusumo is required to meet Central Corridor development.

3. Assistance Measures and Action Plans for Central Corridor Development

3.1 Assistance Measures

Transport facility development in the central corridor is still underway and cargo movement is small at this moment. When truck roads are developed and privatized TRL is strengthened in cargo transport, the cargoes, which are partly transported from Uganda, Rwanda and Burundi to Mombasa Port, will change their mother port from Mombasa Port to Dar es Salaam Port.

Also, it is important to develop the central corridor to secure an alternative route for import and export, and to encourage price competition in transport with a view to maintaining low transport costs. This will greatly contribute to economic activation in East Africa. Against this background, the following short term measures are considered for immediate assistance.

(1) Immediate Improvement of Dar es Salaam Port

It is most urgent to improve Dar es Salaam Port, which is the bottleneck in the central corridor at this moment. Port capacity is determined by channel carrying capacity, quay capacity including crane handling capacity, total container operation capacity, size of back yard, size and location of ICD including accessibility conditions, transshipment capacity with railway, tariff system, road network conditions in the port and outside the port, custom clearance procedures and port management ability. Port improvement covers all the items mentioned above although it is very complicated and has much variety. Each element needs to keep the same level of handling or carrying capacity that is consistent with the total capacity of the port. This brings about most efficient operation system. It is necessary to dispatch port experts with a view to examining the bottlenecks in the port cargo-operation system, customs clearance procedures and others. Necessary measures to improve the port will be realized through the dispatch of the following experts.

- Dispatch of port expert to MOID (new)
- Dispatch of customs clearance expert to SUMATRA (new)

As it is necessary to coordinate with related agencies with a view to effectively improving Dar es Salaam Port, current transport and customs clearance experts dispatched to EAC need to be continued.

- Dispatch of transport and customs clearance experts to EAC (need to be continued)

Furthermore, road circulation improvement project and reducing dwell time in container operation in Dar es Salaam Port is proposed as a pilot project for the port experts mentioned above.

(2) Inter-modal Facility Development

An inter-modal facility development study including physical distribution in EAC (with the main country as Tanzania and including others surrounding countries) is proposed with a view to realizing

promising port improvement measures, the measures for the central corridor development and viability of high priority measures. The following are the major items to be examined.

- Mid and long term measures to deal with container operation
- How to improve Dar es Salaam Port in future and which roles and functions need to be transferred to the new port under the new port plan. However, it is necessary to coordinate with the results of the port master plan study, which is underway under assistance of the WB.
- Improvement measures for Kigoma and Mwanza Port to strengthen their inter-modal functions and facilities.
- Measures to solve inter-modal-facility bottlenecks including transferring nodes to maximize carrying capacity of transport system in total.
- Measures to improve cross-border procedures including manpower capacity development in customs office.

3.2 Action Plan

Table 3.1 shows action plans for the mid and long term measures proposed by the Study Team.

Table 3.1 Proposed Action Plan

Category	No.	Description	Implementation Agencies		Implementation Schedule								Preliminary Cost (100 million Yen)	Remarks
			Agencies	Other related Agency	FY2008	2009	2010	2011	2012	2013	2014	2015-2020		
Master Plan Study/ JICA Expert/ Technical Cooperation Project	a-1	Dispatch of experts to EAC (transport and customs clearance procedures)	EAC	MOID, TRA	→								0.4	Continued
	a-2	Dispatch of port expert to MOID or TPA	TPA	MOID		↓	→						0.3	Solving bottlenecks in DSM Port
	a-3	Dispatch of expert to SUMATRA (customs clearance procedures)	SUMATRA	MOID		↓	→						0.3	Strengthening cooperation with experts dispatched for trade facilitation in Kenya.
	a-4	Dispatch of expert (promoting PPP) to MOID, technical and project assistance for promotion of privatization.	MOID					→					0.8	Watching the policy on introduction of private finance initiative on infrastructure.
	a-5	Study on improvement of inter-modal facilities including physical distribution in EAC.	MOID			→							2.5	
	a-6	Project and technical assistance in strengthening road maintenance.	TANROADs	MOID	→								-	Continued
	a-7	Project and technical assistance in strengthening cross border facilitation.	SUMATRA	TRA, MOID				→					1.5	Improvement of customs clearance procedures at Rusumo and Kobero
Feasibility Study/ Grand Aid and Loan	b-1	Improvement to reduce dwell time of container off-taking and road circulation development to connect N. Mandela Road.	TPA	MOID			↓	→					0.5	As a pilot project in association with the dispatch of port expert
	b-2	FS on expansion of container terminal and other facility development (loan base)	MOID	TPA		↓	→						1.5	Harmonization with the results of port MP study by the WB
	b-3	Expansion development of DSM Port.	TPA	MOID				↓	→				100	Harmonization with the results of port MP study by the WB
	b-4	New port development and transport network development in the hinterland.	TPA, TANROADs	MOID								→	500	After the decision of location of new port
	b-5	EPZ development in association with new port	MOITM	MOID, TPA								→	150	After the decision of location of new port
	b-6	FS on replacement of Rusumo Bridge and necessary road improvement (Loan base)	TANROADs, MOID	Neighboring Countries				↓	→				1.5	Implementation according to the traffic growth and deterioration of the roads
	b-7	Solving missing link between Kigoma and Tabora.	TANROADs	MOID					↓	→			200	
	b-8	Infrastructure development of Kigamboni bridge and flyovers to improve accessibility within the city.	DCC/ TANROADs	MOID					↓	→			100	
	b-9	Cross-border facilitation development like one stop border post integrated with road improvement.	TRA, TANROADs	MOID					↓	→			10	
	b-10	ICD expansion at Sinyanga and Mwanza including equipment procurement.	TRL, RAHCO	MOID								→	40	
	b-11	Facility development to increase cargo handling capacity at Kigoma and Mwanza.	TPA	MOID								→	30	
	b-12	Implementation of measures to cope with overloaded vehicles.	TANROADs	MOID	→								-	Coordination with a-6
	b-13	Extending loan to support transport infrastructure development under the scheme of privatization.	MOID									→	200	

Chapter 1 Introduction

1.1 Study Background

1.1.1 New Partnership for Africa's Development (NEPAD)

In the past, development policies of African countries heavily depended on donor-led approaches such as the Structural Adjustment in 1980s and the Poverty Reduction Initiatives in 1990s. However, it was common that ownership of these policies by the policy makers was not sustained. In July 2001, the New Partnership for Africa's Development (NEPAD) was approved among the policy makers in Africa and became a new initiative adopted for all African Union member countries.

Following the development discussions explored in NEPAD, regional development and transport network improvement has become a key point for development of the Central Corridor. The development policy of NEPAD, which emphasizes the importance of improving the international transport network, securing funding including foreign direct funding, opening the market through diversifying local industry and encouraging exports, is well shared among the policy makers of African countries.

1.1.2 Regional Economic Community

Southern African Development Community (SADC)

In 1992, SADC was constituted by 14 member countries, including Tanzania, to promote regional development, poverty reduction, and regional integration amongst the member countries¹. Spatial Development Initiative² was adopted as the development policy and approach among SADC member countries. One of the initiatives, Maputo Development Corridor, has attracted private investment and has been successfully developed. This initiative emphasizes the importance of development along the central corridor and identifies development potential and approaches along the corridor.

¹ <http://www.mofa.go.jp/mofaj/area/africa/sadc.html>

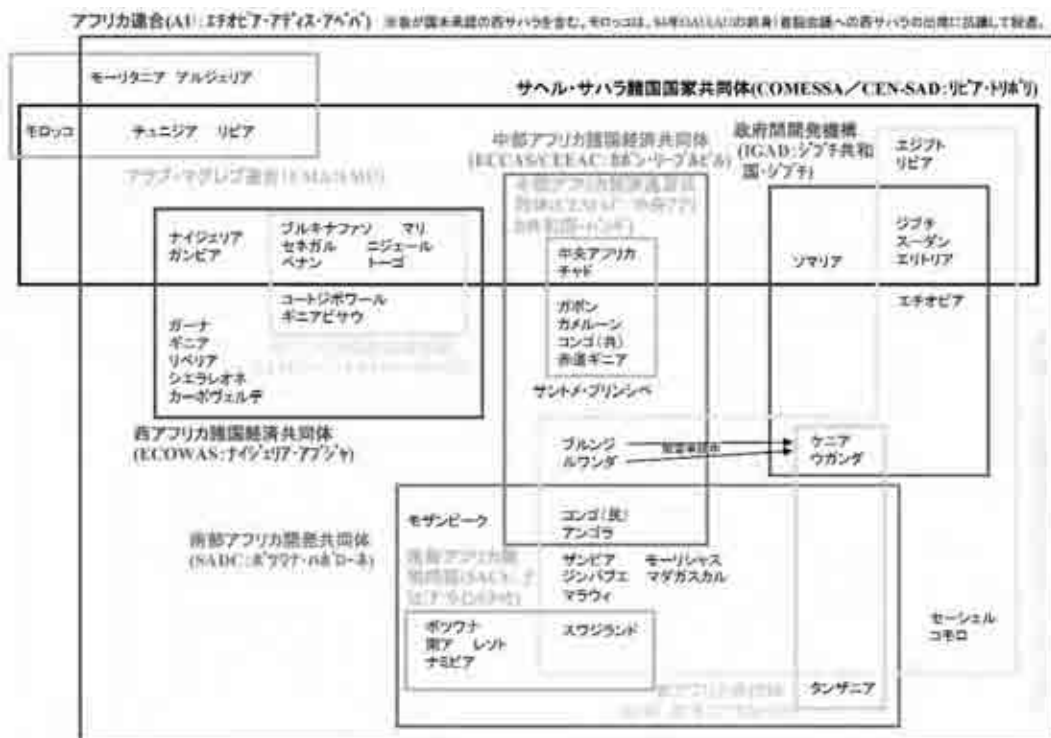
² Spatial Development Initiatives, initially established by the Government of South Africa to promote PPP for the corridor development, was lately adopted as the development policy at SADC.

East Africa Community: EAC

EAC was originally constituted by 3 member countries, Tanzania, Kenya and Uganda, and approved to include two new members, Rwanda and Burundi, in July 2007. One long-term aim of EAC is to promote and balance development among the member countries and to enhance regional integration like the European Union. In order to establish a comprehensive development strategy along the corridor, EAC is now preparing to conduct the master plan study on road development.

Following the development declaration explored in NEPAD and establishment of regional economic communities, regional development and transport network improvement has become a focal issue to achieve the sustainable development in Africa. Although a consensus to establish the international transport network has been well shared among donors and regional communities in Africa, concrete measurements on comprehensive transport facilitation has not yet taken (such as the “Cross Border Transport Agreement” that was made in the Greater Mekong Sub-region), and there has been no physical progress in terms of establishment of international physical distribution network, and increase in the foreign direct investment.

This Project Formulation Study on Road Transport Network, therefore, aims to identify development problems and issues to establish the international transport network and to materialize its potential focusing on the central corridor transport development across Tanzania and also to propose necessary assistance to fulfill the development strategy for the central corridor.



Note: Rwanda and Burundi joined EAC in July 2007
Source: Ministry of Foreign Affairs http://www.mofa.go.jp/mofaj/area/af_data/pdfs/sokan.pdf

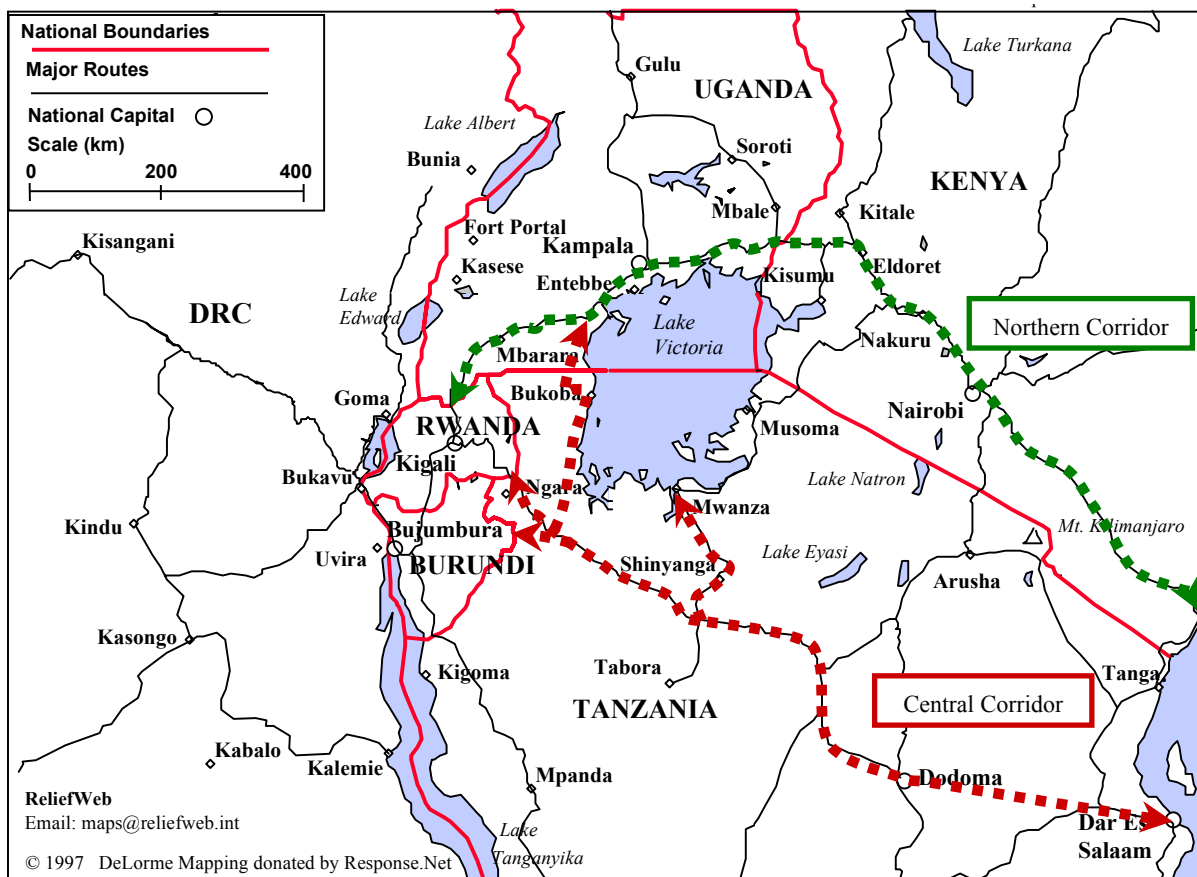
Figure 1.1.1 Relations in Regional Economic Community

1.2 Study Objectives

The Project Formulation Study on Road Transport Network - New Bagamoyo Road (hereinafter referred to as the Study) aims to develop the central corridor and has the following two specific objectives: (i) to identify the development potential and needs for network and regional development along the central corridor and (ii) to provide mid- and/or long-term assistance programmes/projects for development of the central corridor.

1.3 Study Area

The Study of the central corridor covers five countries: namely Tanzania, Kenya, Uganda, Rwanda and Burundi and other neighboring countries such as Congo (Republic), Zambia and Malawi (see Figure 1.3.1).



Note: The northern corridor and central corridor are mapped based on East African Community Road Network Project (EAC).

Figure 1.3.1 Central Corridor and Related Countries

Chapter 2 Transport Network and Traffic Conditions of Central Corridor

2.1 Features of Central Corridor

2.1.1 Corridor Transport

(1) Background of Corridor Development

The economy of the countries in Sub-Sahara Africa lagged behind, except that of South Africa, due to political instability following the end of the Cold War, mono-cultural economy which discourages industrialization. Amongst these countries, South Africa developed and maintained a high economic growth due to the rich mineral resources and industrialization in South Africa. The economic growth in South Africa further contributes to that in neighbouring countries in southern Africa accelerating the foreign direct investment and trade among them. In other words, the imbalance and vertical relations in the economic and trade activities between South Africa and neighbouring countries still maintain.

On the other hand, looking at trade between southern Africa and oversea, trade with the West including Europe and North America has been traditionally dominant, mainly importing consumption goods. A current trend in trade with China, India and the Middle East shows a steady increase and development of the transport corridor which connects the major ports and the regions becomes a focal issue in SADC and EAC. The transport corridors in eastern and southern African is illustrated in Figure 2.1.1.

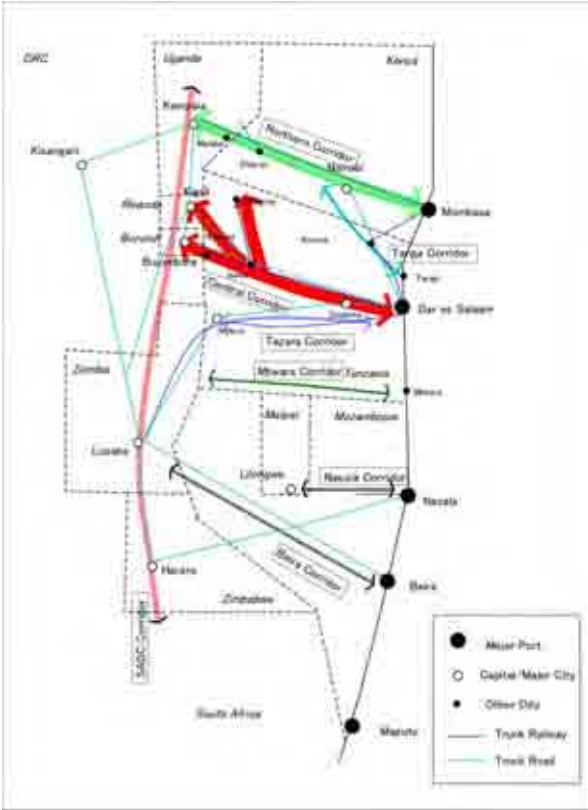


Figure 2.1.1 Transport Corridor in East and South Africa

SADC has set up development programmes along entire corridors in the southern African region and initiated development of the inter-modal facilities, such as major ports, international airports, trunk roads, and railways in order to balance the regional development in the member countries of SADC. Coastal countries like Tanzania, Kenya and Mozambique have long enjoyed regional development and major ports such as Mombasa Port, Dar es Salaam Port, Nacala Port, and Beira Port have long played a key role in importing to/exporting from other continents.

On the other hand, development of the landlocked countries, including Uganda, Rwanda, Burundi, heavily rely on trade with the coastal countries. In order to balance and sustain the development in Sub-Sahara Africa, improvement of the international transport network, which can contribute to enhancing accessibility to the major ports at the coastal countries, is a key issue, especially for the landlocked countries. Figure 2.1.1 shows the development corridors in southern African countries.

Looking at the Study Area, the central corridor, together with the northern corridor, is expected to significantly reduce the freight cost, travel time and distance between Dar es Salaam to Rwanda and Burundi, both of which joined the EAC in 2007. As is well acknowledged, passengers and cargo traffic has deteriorated on occasions, especially at the cross boarder between Kenya and Uganda, due to the unstable political situation caused by the national election in Kenya. The central corridor is, therefore, expected to improve redundancy and provide an alternative transport network as well.

(2) Northern Corridor and Central Corridor

Figure 2.1.2 and Table 2.1.1 summarize the distance between Mombasa Port/Dar es Salaam Port and the capital of the landlocked countries neighbouring Tanzania. Dar es Salaam Port is geographically far from Uganda, comparing with Mombasa Port, but is closer with Rwanda. Also, apart from the geographical distance, cargos need to pass at least 2 countries to transport them to Mombasa Port, which may consume time and cost.

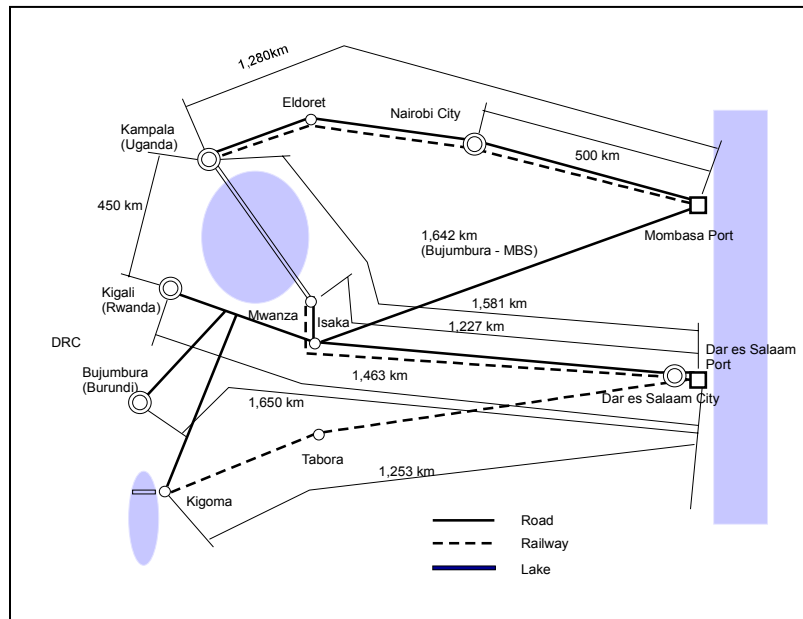


Figure 2.1.2 Geographical Feature of Northern and Central Corridor

Table 2.1.1 Distance between Gateway and Landlocked Countries

City (Country)	Distance (km)	
	Dar es Salaam Port	Mombasa Port
Kampala (Uganda)	1,581 (1 border)	1,280 (1 border)
Kigali (Rwanda)	1,463 (1 border)	1,730 (2 borders)
Bujumbura (Burundi)	1,650 (1 border)	1,642 (2 borders)
Congo Republic	Depends on destination (2 borders except Tanzania)	

Note: The distance shown in the table is measured in the map, and accordingly it may differ from the actual operation length, especially that of the inland water transport. The distance between Bujumbura and Mombasa is calculated via Arusha.

(3) Port Facilities

The port facilities of Mombasa Port and that of Dar es Salaam Port are summarized in Table 2.1.2. The basic port facilities do not differ. It should be noted that the container backyard of Mombasa Port is much larger than that of Dar es Salaam Port though both ports accommodate 3 berths each.

Table 2.1.2 Facilities of Mombasa Port and Dar es Salaam Port

Port	Facilities	Unit	Quantity	Remarks
Mombasa Port	Berth	Berth	16	Deep water public
	Quay length	m	3,044	
	Depth	m	11	
	Container	Berth	3	Backup area of 20ha
	ICD	Spot	3	Nairobi, Kisumu and Eldoret (all are linked by regular container rail services)
	Gantry Crane	No.	4	40 tons
Dar es Salaam Port	Berth	Berth	11	Deepwater public
	Quay length	m	3,554	Including coastal quay
	Depth	m	9-10.5	
	Container	Berth	3	Stacking area of 13ha
	ICD (Own by Authority)	Spot	2	Kurasini, Ubungo
	Gantry Crane	No.	4	40 tons and one is not workable

Source: TPA and KPA

(4) Cargo Traffic Volume

Cargo volume at Mombasa Port and that at Dar es Salaam Port are shown in Table 2.1.3. The volume handled at Mombasa Port is 14.4 million tons in 2006 and is almost double larger than that at Dar es Salaam Port which handles 6.7 million tons in 2006. On the other hand, the container traffic in Mombasa reaches 600,000 TEU whereas that in Dar es Salaam Port exceeds 330,000 TEU.

Table 2.1.3 Cargo Volume at Mombasa Port and Dar es Salaam Port

Unit: 1,000 ton

Port	Item	2002	2003	2004	2005	2006
Dar es Salaam Port	Import	3,630.7	4,041.8	4,763.5	4,829.0	5,225.4
	Export	724.3	881.3	914.9	1,051.2	1,004.0
	Transshipment & bunker	169.4	245.8	375.6	404.9	428.1
	Sub Total	4,524.4	5,168.9	6,054.0	6,285.1	6,657.5
Mombasa Port	Import	7,844.0	9,332.0	10,018.0	10,700.0	11,846.0
	Export	2,380.0	1,994.0	2,494.0	2,278.0	2,255.0
	Transshipment	340.0	605.0	409.0	303.0	318.0
	Sub Total	10,564.0	11,931.0	12,921.0	13,281.0	14,419.0

Source: KPA and TPA

Note: The above figure includes container cargo and liquid bulk.

(5) Road Conditions

Roads in the northern corridor were paved in the whole section under the support of various donors although the surface conditions are observed in a bad condition in some sections. It is mainly caused by insufficient maintenance. A109 connecting Mombasa Port and Nairobi and A104 connecting Nairobi, Malaba (Uganda Border) and Kampala are international trunk roads which connect Kenya and Uganda, and they are considered important trunk roads for other landlocked countries.

In the central corridor, the road section from Dar es Salaam to Manyoni has been improved. However, the road sections from Manyoni to Rwanda, Kigali and Kigoma are still under construction or are expected to be developed.

(6) Railway Conditions

The railways in EAC had not been operated properly since they were managed by Kenya, Uganda and Tanzania individually. However, the railway public corporations of Kenya and Uganda were privatized in 2005, and Rift Valle Railways, of which 60% of the share belongs to Sheltan Trade Close Company was granted the concession for 25 years. Both Kenya and Uganda Government would continue to manage the railway by holding the asset and monitoring the operation. Rift Valle Railways started its operation in 2006 after waiting long time due to the negotiation process for the agreement. It was reported that derailment accident and transport period were decreased from 61 times to 10-12 times and from 7-29 days to 4-7 days, respectively by the privatization (Herald Tribune, 25 July 2007) although Kenya Port Authority alleged that decreased performance of railway caused losses to freight transport. The transport volume in initial eleven months after the privatization in 2006 increased to 1.6 million ton, i.e. 1.7 million ton/year, which is twice as much as that of TRL (TRC) in Tanzania.

On the other hand, Tanzania Railway Corporation (TRC) which had long operated its railway in Tanzania was privatized in 2007. Tanzania Railway Limited (TRL), of which 51% of the share is owned by RITES Company in India was granted the concession for 25 years by the privatization. However, TRL has aggravated relations with Railway Assets Holding Company (RAHCO) which is in charge of the monitoring due to the decreased transport volume caused by lack of locomotive, change of business policy (cargo transport for only major customer) and so forth.

The rate of railway utilization for container traffic from Mombasa or Dar es Salaam Port is shown in Table 2.1.4. The rate of railway utilization at Mombasa Port is higher than that at Dar es Salaam Port.

Table 2.1.4 Rate of Railway Utilization from Mombasa or Dar es Salaam Port

Dar es Salaam Port		Mombasa Port	
Year	Rate	Year	Rate
2000	0.13	1996	0.15
2001	0.14	1997	0.14
2002	0.12	1998	0.16
2003	0.11	2000	0.19
2004	0.10	-	-
2005	0.08	-	-
2006	0.07	-	-
2007	0.06	-	-

Source: Development of African Freight Transport DISS 2005/6 for Mombasa Port
(unpublished data from KPA)
TPA for Dar es Salaam Port

(7) Transit Cargo

The volume of transit cargos at Mombasa Port and Dar es Salaam Port is shown in Tables 2.1.5 and 2.1.6. A current trend shows the transit cargo volume at both ports increases steadily. Looking at the share of transit cargos between Dar es Salaam Port and Mombasa Port by different country, dominant transit cargos to/from Zambia and Malawi (100%) and large amount of transit cargos to/from Congo (60% of the transit) uses Dar es Salaam Port (see Table 2.1.7). Transit cargos of Congo may be transported via Kigoma. On the other hand, a large share of transit cargos to/from Rwanda, of which the geographical distance to Dar es Salaam Port is closer than that to Mombasa Port, still use Mombasa Port. Accordingly, this implies that the transport network, including ports and railways, in Tanzania, and its service are deteriorated and the forwarding businesses in Tanzania are not developed yet. Cargoes handled at Dar es Salaam Port may have no alternative port. The share of transit cargos at Dar es Salaam Port is relatively small and accounts for only 20% of the total cargo volume handled at the port.

Table 2.1.5 Country-wise Cargo Volume at Dar es Salaam Port (Dry Cargo)

Unit: Tons

Year	2000	2001	2002	2003	2004	2005	2006	2007
Tanzania	1,675,446	1,925,391	2,094,762	2,690,531	2,742,605	2,872,505	2,997,932	3,533,913
Zambia	199,687	167,123	176,784	176,640	292,890	298,026	346,517	419,319
D.R. Congo	70,958	101,804	100,998	117,929	170,562	211,996	334,131	427,013
Burundi	107,436	89,122	64,852	72,902	92,685	146,928	95,892	114,703
Rwanda	86,186	70,978	48,284	50,661	63,392	83,506	77,918	88,456
Malawi	5,177	5,661	66,534	28,963	24,559	28,530	77,357	51,255
Uganda	137,943	111,860	40,432	69,747	111,811	83,592	46,855	37,452
Others	8,723	3,198	2,018	3,615	2,427	2,632	2,357	22,203
Total	2,291,556	2,475,137	2,594,664	3,210,988	3,500,931	3,727,715	3,978,959	4,694,314

Source: TPA

Table 2.1.6 Country-wise Cargo Volume at Mombasa Port (Dry Cargo)

Unit: Tons

Year	2002	2003	2004	2005	2006
Tanzania	156,969	181,780	229,853	281,427	270,144
Zambia	-	-	-	-	-
D.R. Congo	100,225	71,591	106,944	134,194	226,466
Burundi	28,760	4,205	19,769	28,775	67,460
Rwanda	80,822	176,802	201,817	218,590	253,113
Malawi	-	-	-	-	-
Uganda	1,710,098	1,893,690	2,209,894	2,680,230	2,822,131
Others	138,083	124,523	122,320	190,498	278,530
Total	2,214,957	2,452,591	2,890,597	3,533,714	3,917,844

Source: KPA

Table 2.1.7 Country-wise Share of Transit Cargo at Dar es Salaam Port

Country	2002	2003	2004	2005	2006
Uganda	0.02	0.04	0.05	0.03	0.02
Rwanda	0.37	0.22	0.24	0.28	0.24
D.R. Congo	0.50	0.62	0.61	0.61	0.60
Burundi	0.69	0.95	0.82	0.84	0.59
Zambia	1.00	1.00	1.00	1.00	1.00
Tanzania	0.93	0.94	0.92	0.91	0.92
Malawi	1.00	1.00	1.00	1.00	1.00
Others	0.01	0.03	0.02	0.01	0.01
Total	0.54	0.57	0.55	0.51	0.50
Except Tanzania	0.20	0.19	0.22	0.21	0.21

Note: The above share is estimated by cargo volume (Dar) / (cargo volume (Dar + Mombasa))

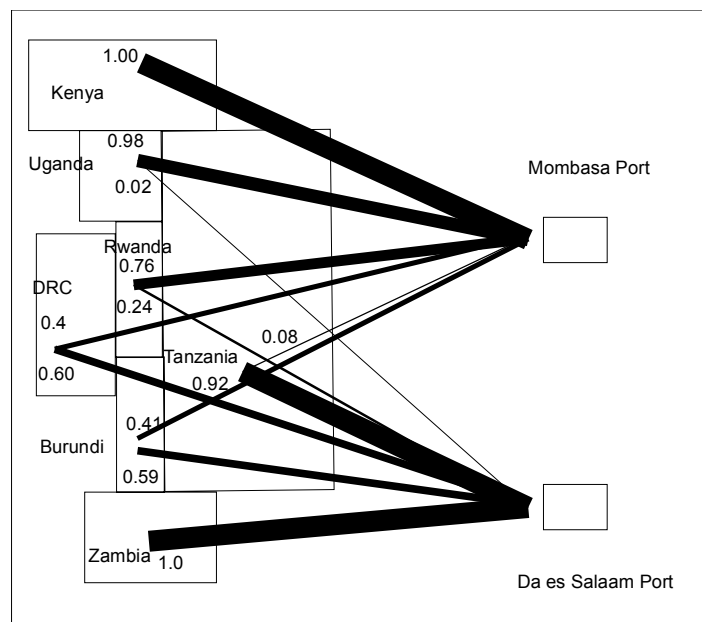


Figure 2.1.3 Country-wise Share of Mombasa Port and Dar es Salaam Port (2006)

(8) Level of Transport Service

1) Freight Charge by Transport Mode

Table 2.1.8 summarizes freight charge for 40 feet containers when transporting them between Dar es Salaam Port/Mombasa Port and the landlocked countries. Comparing the central corridor and northern corridor, freight charge by road between Dar es Salaam Port and Kigali (Rwanda) is cheaper by US\$2,300 than that between Mombasa Port and Kigali. On the other hand, freight charge by rail between Dar es Salaam Port and Kampala (Uganda) only costs US\$1,500 (excluding the charge by inland water transport). Noting that freight charge by rail is determined lower than that by road in many developing countries, the charge by railway is considered considerably low.

Regarding the time, it takes 2 weeks by railway to transfer cargos from Mombasa Port to Kampala

and 6 days by road. Not to mention that most cargos are currently transported by road and the freight cost by railway is not available in the table.

Table 2.1.8 40 Feet Container Freight Charge by Corridor

City	Country	Transit Corridor	Distance (km)	Time (days)	Mode	Rate (US\$)	Port
Lusaka	Zambia	Southern	2,400	8	Road	3,600	Dar es Salaam
Lilongwe	Malawi		2,100	8	Road	3,600	Dar es Salaam
Kigali	Rwanda	Central	1,530	5	Road	4,200	Dar es Salaam
Kampala	Uganda		1,688	4	Rail	1,500*	Dar es Salaam
Kampala	Uganda	Northern	1,300	6	Road	3,500	Mombasa
Kigali	Rwanda		1,800	9	Road	6,500	Mombasa

Source: Improving Transit Transport in East Africa: Challenges and Opportunities, UNTAD, 2007

Note: The above figures are surveyed before 2007 and the current freight cost may exceed them.

Table 2.1.9 shows freight charge along the central corridor by mode of transport. Comparing with the previous table, freight charges shown in both table are not identical because they are surveyed by different method and at different time.

Table 2.1.9 Freight Charge along Central Corridor by Transport Mode

Destination	Country	Mode		Distance in KM				Unit Cost		Cost for 30 tons (USD)
		Main	Sub	Road	Rail	Ferry	Total	USD/ton	USD/ton-km	
Kampala	Uganda	Rail	Mwanza-ferry	0	1,230	360	1,590	77.0	0.048	2,310
Kigali	Rwanda	Rail	Isaka-road	580	990	0	1,570	85.2	0.054	2,555
		Road		1,500	0	0	1,500	105.0	0.070	3,150
Bujumbura	Burundi	Rail	Kigoma-ferry	0	1,250	180	1,430	67.1	0.047	2,013
		Rail	Isaka-road	730	990	0	1,720	95.6	0.056	2,868
		Road		1,660	0	0	1,660	116.2	0.070	3,486

Source: Tanzania Trade and Transport Facilitation Audit, NEA, WB, 2004

2) Latest Freight Charge

JICA Study Team has interviewed Tanzania Freight Forwarders Association and obtained the latest freight charges (2008) of 20 feet and 40 feet containers, as summarized below.

Table 2.1.10 Container Freight Charge by Truck

Unit: USD

Port	City	Country	20'	40'
DSM	Kigali	Rwanda	2,700-3,000	5,500
	Bujumbura	Burundi	2,800-3,700	5,700-5,900
	Goma	DRC	2,800-3,100	4,000-5,100
	Mwanza	Tanzania	1,800-2,500	3,600-4,900

Source: Interview survey by JICA Study Team

(9) Progress for Trade and Transport Facilitation

The trade and transport facilitation agreement along the northern corridor has enacted since 1985

followed by the negotiation among related countries. On the other hand, EAC initiated the trade and transport facilitation among East African countries, and along the central corridor especially, and is implementing East Africa Trade and Transport Facilitation Project. Under this project, a coordination and strategic approach have been encouraged among SUMATRA (establishment of Central Corridor Transport Facilitation Agency and capacity building), TPA (formulation of the port master plan, port security system, port-assist IT system), TANROADs (weighbridges) and TRA (one-stop border port and trade facilitation).

(10) Summary

As discussed above, regarding the port, Mombasa Port is much advanced in terms of the facility and the transport infrastructure to the landlocked countries and enjoys handling much cargos, especially that of the containers, than Dar es Salaam Port. The road network along the northern corridor is maintained in better condition than that along the central corridor, but it should be noted that the current improvement projects will contribute to establishing an efficient road network along the central corridor. Furthermore, the railway business has been contracted out to the private operator. However, the political scandal and the current revision work on all the concession agreements at the MOID discourages the private operator to procure the locomotives and therefore to revive the railway business. The railway along both corridors face the same problem, which needs to be addressed to enhance the freight transport.

Considering the privatization of the railway business in Tanzania and current improvement projects along the central corridor, the potential of the central corridor transport will much gain and become competitive with the northern corridor transport. Also, passengers and cargo traffic has deteriorated on occasions, especially at the cross border between Kenya and Uganda, due to the unstable political situation caused by the national election in Kenya. Soon or later, once the transport network along the central corridor is developed and the freight business along both corridor is enhanced, the freight cost to the landlocked countries in East Africa may be significantly reduced.

2.2 Transport Network and Infrastructure in Central Corridor

2.2.1 Network

In Tanzania, the routes connecting Dar es Salaam Port and landlocked countries such as Rwanda, Burundi and Congo, via Mwanza Port and Kigoma Port. are generally defined as the central corridor. In Transport Sector Investment Program (TSIP)¹, the central corridor is defined as follows.

- Dar es Salaam - Kigoma - Bujumbura : Road, Railway, Water transportation 1,436 km
- Dar es Salaam - Kigoma - Kalemie : Road, Railway, Water transportation 1,374 km
- Dar es Salaam - Isaka - Kigali : Road, Railway 1,463 km
- Dar es Salaam – Mwanza - Portbell : Railway, Water transportation 1,581 km

¹ In East African Community Road Network Project (EAC), the central corridor is defined as “Dar es Salaam-Dodoma-Isaka-Mutukura-Masaca(Uganda)”.

The central corridor is comprised of roads, railway and water transportations in the Lake Victoria and Lake Tanganyika.

2.2.2 Road

(1) Road Network

1) Road Conditions

TANROADS administrates trunk roads and regional roads in Tanzania. A road network and pavement conditions for trunk roads are illustrated in Figure 2.2.1. Trunk roads have 2-lane carriageway in most of road sections and 4-lane carriageway around city areas.



Figure 2.2.1 Trunk Road Network in Tanzania

Pavement and road surface conditions are described in Table 2.2.1. 40% of the road sections are paved, and 70 % of paved road maintains good surface condition.

Table 2.2.1 Pavement and Road Surface Conditions

Unit: Km

Type	Pavement	Good	Fair	Poor	Total
Trunk	Paved	2,739	900	274	3,913
	Unpaved	1,927	2,493	1,589	6,009
	Sub Total	4,666	3,393	1,863	9,922
Regional	Paved	278	41	7	326
	Unpaved	7,079	7,191	4,285	18,555
	Sub Total	7,357	7,232	4,292	18,881
Total		12,023	10,625	6,155	28,803

Source: TANROADS

2) Central Corridor

In the central corridor, the road section from Dar es Salaam to Dodoma has been improved and maintains good surface condition. In the road section from Dodoma to Nzega, the improvement has been completed by Tanzania own found, IDA and AfDA fund. The current road conditions along the central corridor is summarized in Table 2.2.2. EAC together with JICA surveyed road conditions along the central corridor and cross-border roads between Rwanda and Burundi in 2008². In the report, it was recommended that the following road sections, Rusumo - Kayonza in Uganda, Kobero - Kayanza - Bujumbura, Bugarama - Gitega and Kirundo - Gashoho in Burundi should be improved.

Table 2.2.2 Condition of Cross-border Roads

City	Isaka - Lusafunga	Via	Condition
Kampala (Uganda)	Relatively good	Bukoba	Relatively good, but traffic speed is reduced in a unpaved section.
Kigali (Rwanda)		Rusumo	Road section from Lusafunga to Rusumo is paved by SBST, and keeps good condition. Rusumo Bridge has only 1-lane carriageway, but traffic volume is small. Soundness of the bridge is required to be investigated.
Bujumbura (Burundi)		Rusumo - Kobero	Unpaved in a part section, but no problem for autotruck to drive.
Kalemie (Congo via Kigoma)		Lusafunga - Kigoma	Water transport is utilized in Tanganyika Lake, but Congo is politically-unstable. Water transport is operated by private company.
Kigali - Kampala		Kabale (Uganda)	Mountain sections are a bottleneck for large-sized vehicle.

Source: Site survey and Interview

² JICA and EAC (2008) Scoping Study on Identification of the Missing Links and Bottlenecks Affecting the Performance of the East African Community Central Corridor



Figure 2.2.2 Rusumo Bridge (1-lane, with Load Limits)

3) Fund and Investment Program

In Tanzania, Road Funds is comprised of the fuel levy, transit charges and overloading charges. Heavy vehicle licensing fees was abolished in 2005. Tax on gasoline and diesel was raised from Tshs100/liter to Tshs 200/liter in 2007/08. The revenue from each source is summarized in Table 2.2.3. Fuel levy accounts for 95 % of the total revenue.

Table 2.2.3 Revenue by Source in Road Fund

Unit: Billion Tsh.

Item	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
Fuel Levy	44.940	50.131	55.867	64.113	67.845	69.524	94.850
Transit Charges	1.150	1.302	1.516	1.406	1.658	1.951	2.885
Overloading	1.162	1.356	1.856	1.634	3.525	1.606	3.480
Heavy Vehicle Licensing Fees	0.000	0.092	0.152	0.188	0.177	0.000	0.000
Total	47.252	52.881	59.391	67.341	73.205	73.081	101.215

Source: Road Fund Board Budget (2006/07)

90 % or more is disbursed for maintenance works of existing roads and 10 % or less is disbursed for new road development from the revenue of Road Funds. Road maintenance and development are implemented based on the Transport Sector Investment Program (TSIP) which determines a short/middle-term plan in the transport sector. As of today, TSIP has completed Phase 1 (2001/02 - 2005/06), and initiated Phase 2 (2008/09 - 2011/12) programme. The disbursement in Phase 1 is shown in Table 2.2.4.

Table 2.2.4 Disbursement by Agency (2001/02 – 2005/06)

Unit: Tsh. Billion

Agency	Actual					Budget
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07
MoW/MoID	3.49	4.45	4.47	5.09	5.19	5.92
TANROADs	31.39	41.65	40.21	45.79	46.74	53.32
PRO-RALG	15.24	19.3	19.15	21.8	22.26	25.44
RFB	0.62	0.67	0.69	0.73	0.86	1.05
Total	50.74	66.07	64.52	73.41	75.05	85.73

Source: TSIP

4) Support by Donors

In Tanzania, road development, mainly improvement and rehabilitation, has been implemented by Tanzanian own fund, World Bank, AfDB and EU Fund. As shown in Figure 2.2.3 (condition of road development in/around the central corridor), the road section from Dar es Salaam Port to Dodoma has been paved. In the east section of Dodoma, all sections are expected to be improved by Tanzania own fund, AfDB and EU Fund except the road section from Lusafunga to Rusumo (the improvement work of this section may be committed by AfDB).

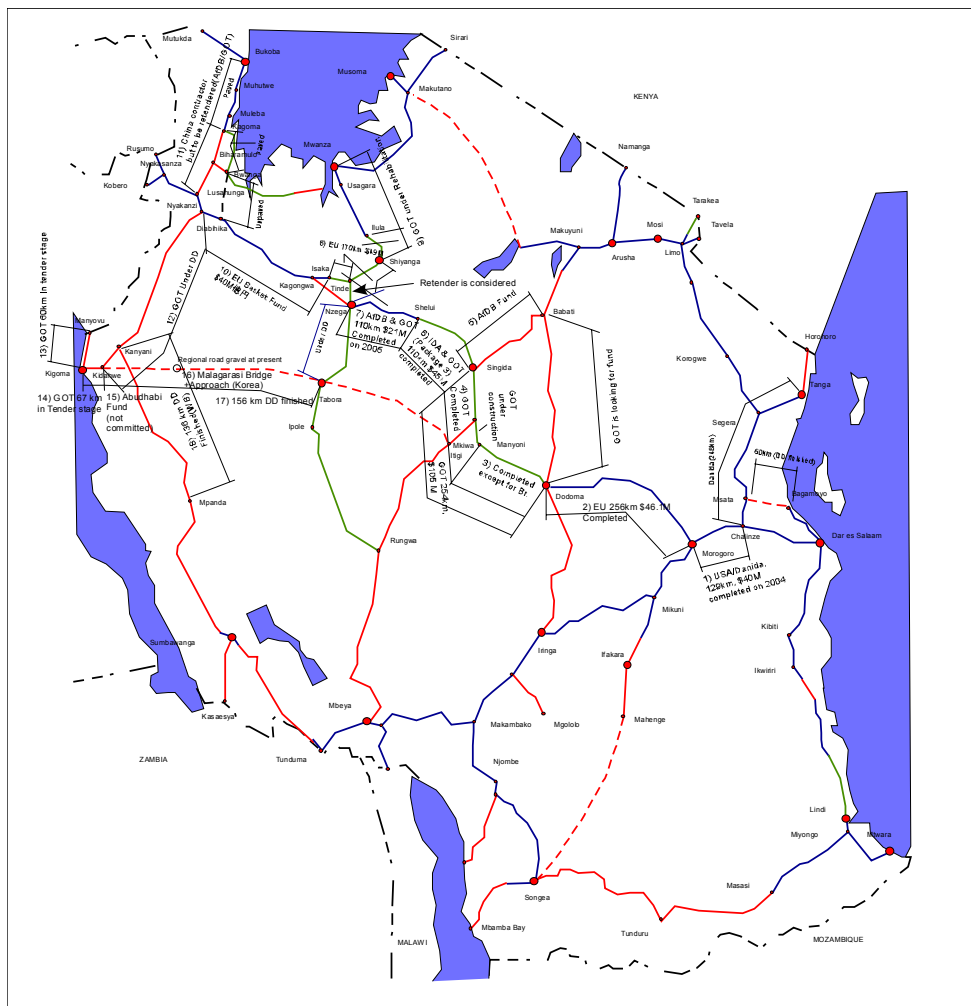


Figure 2.2.3 Condition of Road Development in/around the Central Corridor

Table 2.2.5 Condition of Road Development

Area	No	Stretch		Km	Fund		Remarks
					(US\$ million)		
Chalinze - Dodoma	1	Chalinze	Morogoro	129	USA/ DANIDA	40	Completed
	2	Morogoro	Dodoma				
Dodoma - Lusahunga	3	Dodoma	Manyoni	254	GOT	154	Completed except bridge
	4	Manyoni	Singida				
	5	Singida	Babati	178	AfDB		
	6	Singida	Shelui	110	IDA/GOT	45	Completed
	7	Shelui	Nzega	110	AfDB/GOT	21	Completed
	8	Nzega	Shinyanga	170	EU	49	To be partly re-tendered
	8	Tinde	Isaka				
	8	Shinyanga	Ilula				
	9	Ilula	Mwanza	150	GOT		Under construction
	10	Isaka	Lusahunga	230	EU	40	
		Lusahunga	Rusumo border	93			No fund at this moment
	11	Lusahunga	Kagoma	100	AfDB/GOT		To be re-tendered
Kigoma - Kidahwe	12	Nyakanazi	Kidahwe	265			DD finished by GOT
Kigoma Surrounding Area	13	Kigoma	For Burundi border	30	GOT		In tender stage
	14	Kigoma	Kidahwe	67	GOT		In tender stage
	15	Kidahwe	For Tabora	No decided	Abudhabi		Not committed
	16	Malagarasi Bridge			Korea		Including approach
	17	Kidahwe	For Tabora	156			DD finished but no fund
	18	Kidahwe	Mpanda	136	WB		DD finished but no fund

Source: Interview to TANROADs

2.2.3 Railway

(1) Railway Network

In Tanzania, railway is managed by TRL (Tanzanian Railway Limited) which was privatized in 2007 and TAZARA which is still owned by Government of Tanzania and Government of Zambia. The railway length of TRL is estimated at 2,700 km, and that of TAZARA is 970 km in Tanzania and 1,860 km in Zambia. The railway network of TRL and TAZARA is shown in Figure 2.2.4. A trunk rail line of TRL is comprised of the sections from Dar es Salaam to Mwanza and Kigoma. From Mwanza the line connects Portbell (near Kampala) through the water transport in Lake Victoria, and from Kigoma it connected Mpanda. Another line connects Kiroso located at the west side of Morogoro and Kidatu where TRL is connected to TAZARA. However, cargoes should be transhipped in Kidatu since TAZARA applies cape gauge (1,067 mm) which is applied mainly in southern Africa whereas TRL applies meter gauge (1,000 mm). In addition, the cargoes from Trans Africa Railway utilizing TAZARA rail is transhipped to TRL in Kidatu. In the northern area, the rail line from Dar es Salaam to Arusha via Moshi has operated, however, it does not provide services at present.

The rail of TRL applies 80, 60 or 55 pound rail per meter for each section. In the railway section from Itigi to Tabora, where rail is deteriorated, the rail is being replaced to 80-pound rail. In the railway section from Tabora to Kigoma, trains are required to reduce their speed due to the soft ground.

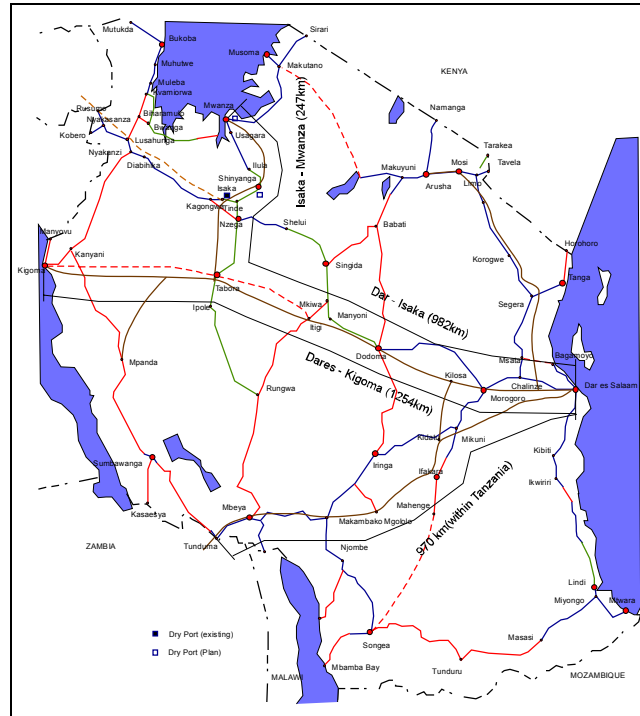


Figure 2.2.4 Railway Network in Tanzania

(2) Locomotive and Wagons

It is urgent for TRL to secure locomotives and wagons. When the RITES purchase 51 % stocks of TRL in 2007, it is expected that the privatization contribute to the enhancement of railway operation. However, the number of available locomotive reduced to twenty due to the insufficient maintenance as of 2007 although ninety locomotives were available in 2004 when the privatization was considered. Today, approximately fifty locomotives are expected to be secured by the procurement of second hand locomotives from India, lease from other companies or repair of existing ones. TRL projected to secure ninety locomotives for the time being although the number of workable wagons has also been decreasing due to the insufficient maintenance and lack of parts.

Table 2.2.6 Available Locomotive for Freight and Passenger of TRL

Unit: Locos

Class	Type	2007	Plan			
			Jan. 08	Mar. 08	Jun. 08	Sep. 08
Freight and passenger operation	88, 89	12	14	14	16	18
	73,73R	8	12	16	20	25
Freight operation	88, 89	12	14	15	16	18
	73,73R	3	7	8	12	17
Total		35	47	53	64	78

Source: Interview to RAHCO

Table 2.2.7 Freight Car of TRL

Unit: Wagons

Type	Serviceable					Not Serviceable	Total
	A	B	C	For Rail Track	S Total	D & E	
Covered	249	224	126	66	665	211	876
High	75	71	44	35	225	79	304
Low	78	57	22	26	183	81	264
Sub Total	402	352	192	127	1,073	371	1,444
Livestock	5	24	4	1	34	32	66
Tank	105	27	29	15	176	44	220
Total	512	403	225	143	1,283	447	1,730

Note: 1) As of May, 2008. 2) Low type is wagons for container transport.

3) "A" indicates good, "B" fair, "C" needs repair but workable.

Source: Interview to RAHCO

Only thirty-five wagons were available in 2007, therefore, TRL operates with lease of 23 cars from RITES.

(3) Operation Conditions

1) Freight Service

The freight train does not operated regularly but operates according to the order. TRL does not accept the freights below the pre-determined volume in order to increase business efficiency although TRC accepted short-distance and small freight. Major goods carried by freight train for are summarized below.

- Dar es Salaam - Mwanza : Everything, Petroleum products
- Dar es Salaam - Kigoma : Everything, Petroleum products
- Dar es Salaam - Isaka : Everything
- Ulanbo - Morogoro : Cigarette
- Dar es Salaam - Tabora : Cigarette, Timber, Manure, Petroleum products
- Pongwe - Mwanza : Cement

Days required to transport cargos from Dar es Salaam to Mwanza or Kigoma are 7 days on average although it is not constant due to occasional technical faults and accidents.

2) Passenger Service

Trains operate twice a week between Dar es Salaam and Mwanza, and Dar es Salaam and Kigoma at present. The train between Dar es Salaam and Kigoma operates on Thursday and Sunday, and arriving at Kigoma at 7:30 Am and leaving from Kigoma at 6:00 PM. It takes 36 hours. In the future, the operation will increase to 6 times a week according to the concession agreement.

2.2.4 Ports

There are 3 major ports in Tanzania, namely Tanga Port, Dar es Salaam Port and Mtwara Port. All these ports are under jurisdiction of Tanzania Port Authority (TPA).

(1) Port Facilities of Dar es Salaam Port

Table 2.2.8 summarizes the port facilities of Dar es Salaam Port.

Table 2.2.8 Facilities of Dar es Salaam Port

Item	Berth/Jetty	Quay (m)	Major Equipment	Storage Facility
General Cargo Terminal	8	1,478	Portal cranes, mobile-cranes front loaders, reach stacker and others	7 main transit sheds and open storage area
Container Terminal	3	550	3 ship to shore gantry cranes, 18 rubber tired gantry crane, 1 railway mounted gantry cranes serving two railway line (TAZARA & TRL) and others	19,000 m ² for 650 TEU and Berth No. 7 is for container stock yard
Oil Terminal	1		Single mooring for Zambia through TAZAMA pipe line	
Kurasini Oil Jetty	2			Oil tank is at back side of quay

Source: TPA



Figure 2.2.5 Container Terminal of Dar es Salaam Port

The channel of Dar es Salaam Port was once narrow and bend which did not allow the vessels to operate at night. Since 1997, the dredging work has been carried out and 10.5m deep sea and 140m channel were constructed in 1998. Accordingly, the maximum length of 234m long vessels can operate for 24 hours at Dar es Salaam Port.

(2) Container Handling Charges

Handling charges of the containers are summarized below.

1) Working Hours

Working hours of the container terminal are 7:00 – 15:00 throughout the weekday. Holidays include Saturday, Sunday and Christmas Holidays. Working hours of the ICDs are 8:00 – 18:00.

2) Handling Charges

Handling charges of the containers at Dar es Salaam Port are tabulated in Tables 2.2.9 to 2.2.12. Those charges are set relatively higher than other ports.

Table 2.2.9 Handling Charge (Full Import Container)

No.	Service Details	Stevedoring (US\$)		Handling (US\$)	
		20'	40'	20'	40'
1	Domestic FCL Discharge from Ship to CY, store free of charge for a period of 7 days and deliver to road transport or load to train at a terminal railhead	71	107	79	119
2	Domestic LCL Discharge from Ship to CY, deliver to CFS, strip and place the empty container in stack and store free of charge for a period of 5 days	142	226	See container freight station, LCL containers	
3	FCL Transit Containers (to inland countries) Discharge from Ship to CY, store free of charge for a period of 21 days and deliver to road transport or load to train at terminal railhead	80	120	70	105
4	LCL Transit Containers (cargo to inland countries) Discharge from Ship to CY, deliver to CFS strip and place the empty container in stack and store free of charge for a period of 5 days	160	255	See container freight station, LCL containers	

Source: Tariff revised edition 10th Sep. 2004 by TPA

Table 2.2.10 Handling Charge (Full Export Container)

No.	Service Details	Stevedoring (US\$)		Handling (US\$)	
		20'	40'	20'	40'
1	Domestic FCL Receive to CY from road transport, store free of charge for a period of 7 days and load to vessel	71	107	79	119
2	Domestic LCL Receive empty container at CFS, stuff cargo and transfer laden container to CY, store free of charge for a period of 7 days and load to vessel	142	226	See container freight station, LCL containers	
3	FCL Transit Containers (from Inland Countries) Receive to CY from road transport or from train at terminal railhead, store free of charge for a period of 21 days and load to vessel	80	120	70	105
4	LCL Transit containers (cargo from Inland Countries) Receive empty container at CFS, stuff cargo and transfer laden container to CY, store free of charge for a period of 21 days and load to vessel	160	225	See container freight station, LCL containers	

Source: Tariff revised edition 10th Sep. 2004 by TPA

Table 2.2.11 Storage Charge

No.	Service Details	20' (US\$)	40' (US\$)
1	Domestic Imports First 7 days free including Saturday, Sunday and Public Holiday, thereafter per day	20	40
2	Transit Imports First 21 days free including Saturday, Sunday and Public Holiday, thereafter per day	20	40
3	Domestic Exports First 7 days free including Saturday, Sunday and Public Holiday, thereafter per day	16	32
4	Transit Exports First 21 days free including Saturday, Sunday and Public Holiday, thereafter per day	16	32
5	Transshipment First 15 days free Saturday, Sunday and Public Holiday, thereafter per day	20	40
6	Empty Containers First 10 days free for Imports, First 5 days free for Exports, including Sunday and Public Holiday, thereafter per day	10	20

Source: Tariff revised edition 10th Sep. 2004 by TPA

Table 2.2.12 Other Charges (LCL Container)

No.	Service Details	Charge (US\$)
1	Domestic Import Cargo Handle cargo from container to warehouse and store free of charge for a period of 7 days, then deliver to road transport (direct delivery to road/rail transport)	4.0 per freight ton
2	Transit Import Cargo Handle cargo from container to warehouse and store free of charge for a period of 21 days, then deliver to road transport (direct delivery to road/rail transport)	3.5 per freight ton
3	Domestic Export Cargo Receive from transport and transfer to stuffing yard	3.5 per freight ton
4	Transit Export Cargo Receive from transport and transfer to stuffing yard	3.5 per freight ton
5	Transferring Cargo Shifting cargo from one container to another	20' - US\$140 40' - US\$280
6	FCL Cargo Stuffing or tripping cargo for one shipper or consignee	20' - US\$140 40' - US\$280

Source: Tariff revised edition 10th Sep. 2004 by TPA

(3) Port Facilities of Tanga and Mtwara Port

Port facilities at Tanga Port and Mtwara Port are summarized below.

Table 2.2.13 Facilities of Tanga and Mtwara Port

Port	Facilities	Unit	Quantity	Remarks
Tanga Port	Berth	Berth	2	Loading /unloading is by barge
	Quay length	m		One is damaged and out of use
	Depth	m	3.5	At Low tide
	Container	Berth	-	
	ICD	Spot	-	
	Gantry Crane	No.	-	
Mtwara Port	Berth	Berth	1	Two ships and coastal vessels are allowed at a time
	Quay length	m	385	
	Depth	m	9.8	
	Container	Berth	-	
	ICD	Spot	-	
	Gantry Crane	No.	-	

Source: TPA

There are also inland-water ports along the central corridor, namely Mwanza Port, Bukoba Port (both in the Lake Victoria) and Kigoma Port (the Lake Tanganyika). All the ports are under jurisdiction of the TPA. Marine Service Company Limited (MSCL) operates the vessels mainly for the passenger traffic. Table 2.2.14 tabulates the facilities at the inland-water ports.

Table 2.2.14 Facilities of Inland-water Ports

Port	Quay	Length (m)	Depth (m)	Remarks
Bukoba	1	100	3	
Mwanza	1	100		Passenger and parcel Railway siding
Mwanza South	1	247		Transit cargo and workshop
Kigoma	1 for cargo 1 for passengers	310m for cargo 100m for passengers	3	Berth for 3 vessels at cargo berth

Source: TPA

2.2.5 Inland Container Depot/Dry Port

(1) Dar es Salaam

There are 7 inland container depots in Dar es Salaam: 2 are operated by TPA and TICTS and other 5 depots are operated by the private operators.

1) TPA • TICTS

Kurasini ICD, owned by the TPA, is located near the container terminal of Dar es Salaam Port and Ubungu ICD, also owned by the TPA and operated by TICSTS, is located near Ubungu Intersection and Industrial Area. The container volume at Dar es Salaam Port rapidly increased and therefore that handled at Kurasini ICD already over-saturated its handling capacity. On the other hand, the container volume at Ubungu ICD shows less than its handling capacity because the

containers need to be transferred by railway and the condition of the access road to this ICD is deteriorated.

Also, there are other 5 ICDs, owned by the private operators, mainly the shipping companies.

Table 2.2.15 Features of Inland Container Depots in Dar es Salaam

ICD		Construction & Operation	Land Size (ha)	Capacity in TEU	Annual Handling in TEU
1	Kurasini (KICD)	Constructed by TPA in 1995 and operated by TICTS	11	3,000	22,000
2	Ubungo (UICD)	Constructed by TPA in 2007 and operated by TICTS	16	2,000	18,000
3	MCCL	Operation started in 2007 (Malawi Cargo Container)	9	1,500	17,500
4	DSM ICD	Operation started in 2008	7	500	7,800
5	Mukuba	Operation started in 2007	10	1,600	18,000
6	AMI	Operation started in 2007	7	750	8,750
7	TRH	Operation started in 2007	10	2,100	20,000
			70	11,450	112,050

Source: Interview survey by JICA Study Team



Figure 2.2.6 Ubungo Inland Container Depot

(2) Isaka Dry Port

Isaka Dry Port handles both containers and other general cargos and mainly transit cargos to/from Burundi, Rwanda and Congo, where customs clearing and forwarding service are attainable. Shippers, consignees and the forwarding companies can clear the customs of their cargos at Isaka Dry Port. The facilities of Isaka Dry Port include a space of 4,000 m² and stockyards, sidings and reach stackers and forklifts. A current tendency in cargo volume handled at Isaka Dry Port shows decreasing. The container traffic handled last year recorded more than 10,000 TEU but handled only 356 TEU as of May 2008. Cargos mainly handled at this port is wheat flours destined to Congo.

There is a plan to newly construct 2 ICDs at Mwanza and Shinyanga, under the support of Belgian Government. Isaka Dry Port functions for transit cargos whereas new ICD at Shinyanga functions for domestic cargos. There is also a plan to build the ICD at Ilaka in Dar es Salaam.



Figure 2.2.7 Isaka Dry Port

2.2.6 Pipeline

Zambia has constructed the 1,750km pipeline from Dar es Salaam to Ndola (Zambia) by 1968 to import liquid oil and refine oil at the refining factory in Ndola. The pipeline is designed at 8 inch and 12 inch diameters and to transport 1.1 million tons annually. Current capacity of the pipeline is 600,000 tons annually. Transport cost for the pipeline is Tshs. 3.4 per m³ and almost equals to the freight cost by road transport.

Both Government of Tanzania and Zambia reached to the agreement that operation of this pipeline is contracted out to Tazama Pipeline Ltd.. The oil products, such as white oil, are not transported by the pipeline.

2.3 Traffic and Transport Condition in Central Corridor

2.3.1 Road

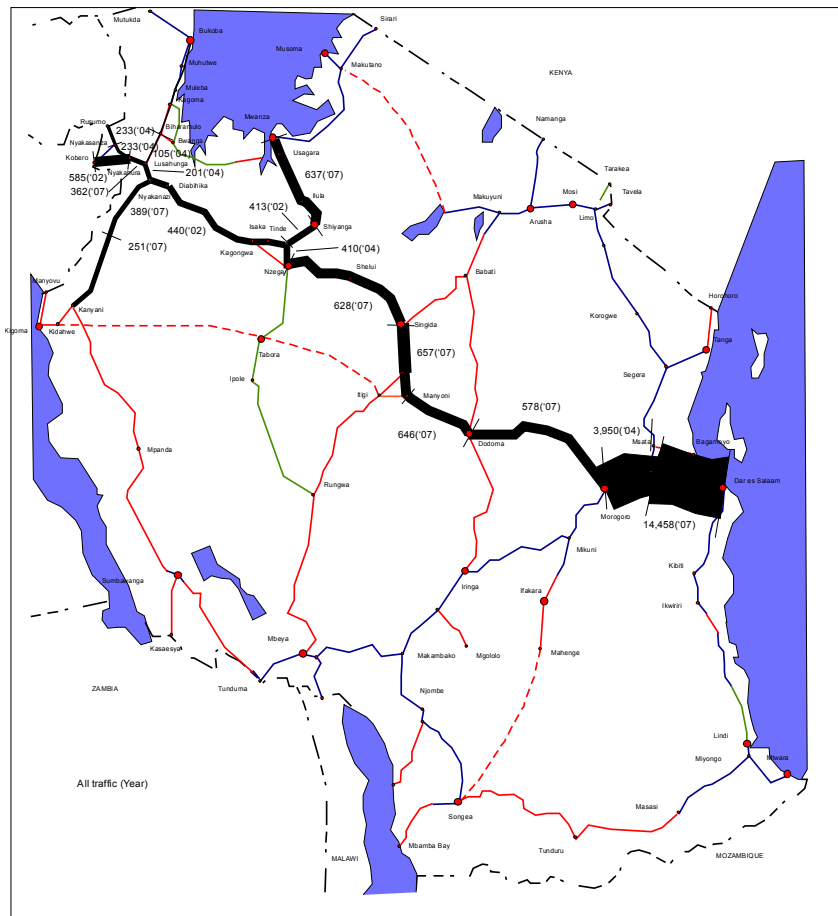
(1) Traffic Survey and Volume

TANROADs conducted traffic count surveys at trunk roads throughout the country in 2002, 2004 and 2007. However, it is difficult to determine how much traffic volume has increased from the result of traffic counts since the traffic counts were conducted at different locations at different time. As the result of survey, ADT (Average Daily Traffic) was estimated based on the traffic volume by type. In the survey, the type of vehicle is classified into of 1) private car, 2) pickup, 3) small truck, 4) middle truck, 5) large truck, 6) trailer, 7) small bus and 8) large bus. Non motorized vehicles

such as 1) pedestrian, 2) bicycle and 3) hauling vehicle were also counted in the limited locations.

1) Total Traffic Volume

Total daily traffic volume including all vehicle types based on the traffic surveys in 2002, 2004 and 2007 is illustrated in Figure 2.3.1. The figure shows the traffic volume for each road section, ranging between 4,000 and 15,000 vehicles/day between Dar es Salaam and Morogoro, between 400 and 600 vehicle/day between Morogoro and Lusafunga and between 200 and 300 vehicles/day in the west section of Lusafunga.

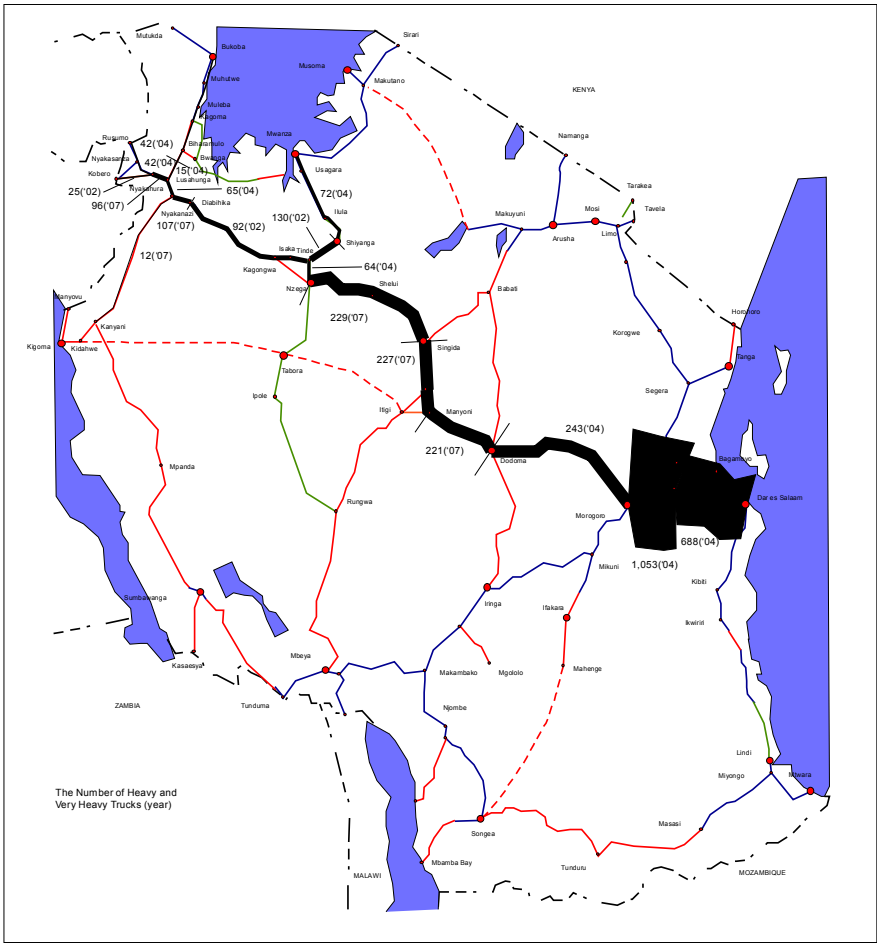


Source: TANROADS

Figure 2.3.1 Average Daily Traffic in Central Corridor

2) Large Vehicle Volume

Traffic volume of large vehicles (truck and trailer) is shown in Figure 2.3.2. It shows the same tendency in total traffic volume along the central corridor. Traffic volume of large vehicles accounts for the large portion of the total traffic volume in the road section from Chalinze to Morogoro. The volume in the road section from Lusafunga to Rusumo and around Burundi border is 50 vehicles/day.



Source: TANROADS

Figure 2.3.2 Large Vehicle Traffic in Central Corridor

(2) Cargo Volume

Cargo volume originated from Dar es Salaam Port was surveyed by Ministry of Communication and Planning in 2002. The result of the survey is shown in Table 2.3.1 and Figure 2.3.3. The cargo volume originated from/destined to Dar es Salaam accounts for 40 % of the total traffic. However, the considerable cargo volume is observed in Mwanza, Kigoma and Mbeya.

Table 2.3.1 Cargo OD (Tons)

No.	0 - D	Consumption	Sugar	Cattle	Cotton	Coffee	Cashew	Timber	Drinks	Petroleum	Cement	Steel	Fertilizer	Tabacco	Oil	Other	Total
1	Dar	Morogoro	21,364	31,866					18,258	20,457	17,938	2,510		8,014	15,088	58,332	193,827
2	Dar	Iringa	41,411							8,827	1,115	1,115			5,927	1,223	58,503
3	Dar	Mbeya	96,553	2,462	1,166	7,738		7,497	63,928	84,597	3,347	3,347			4,935	61,248	333,471
4	Dar	Songea	19,734	986		7,262			4,691	5,747		2,789			5,287	30,786	77,282
5	Dar	Lindi	9,889								22,222	669				272	33,052
6	Dar	Mtwara	0						36,483	4,738	107,625	3,626			5,139	1,524	159,135
7	Dar	Tanga	14,318					334	16,076	33,695	2,231	2,231			10,867	103,118	180,639
8	Dar	Moshi	4,071	4,760		798			20,653	8,319	17,938	2,789			5,378	1,157	65,863
9	Dar	Arusha	29,647	11,819					76,935	27,154	11,158	11,158			4,976	43,346	205,035
10	Dar	Dodoma	18,473						17,331	7,484	82	2,231			4,835	18,092	68,528
11	Dar	Manvoni	3	456							697	781					1,937
12	Dar	Singida	14,244	8,208					10,670	1,957	4,685	7,253				2,571	49,588
13	Dar	Tabora	2,995	1,803	22			1,917	12,804	12,867	35,875	558			4,935	31,201	104,977
14	Dar	Shinyanga	61,292	54,749	19,210	4,088			20,487	15,400	3,347	3,347			4,993	100,362	283,928
15	Dar	Mwanza	44,353	10,548	6,128	38,548			64,241	131,401	3,277	12,274			3,216	330,560	644,546
16	Dar	Musoma	0	1,483					14,939	7,021	4,106						27,549
17	Dar	Bukoba	176			15,121					27	2,231				8,299	25,854
18	Dar	Kigoma	44,719	164		21,095			8,536	57,765	2,789	2,789			3,004	196,581	334,653
19	Dar	Rukwa	1,662	342				3,266								908	6,178
20	Dar	S'wanga	20						12,804	3,056	781					137	16,798
21	Dar	Mafindi	29,623			14,129		40,502	4,691								88,945
22	Dar	Ifakara	10,972	18,350													29,322
23	Dar	Rwanda	0														2,315
24	Dar	Brundi	0														2,315
25	Dar	Zambia	0	255		3,817			14,599	315						44,486	63,472
26	Dar	Malawi	1,097														1,097
27	Dar	Other Dar	50,552	7,869			2,574		62,084	1,508,524	20,429	111,586	523		108,599	223,532	2,096,272
28	Dar	Other Tanga	0								234,901	174,065				3,451	3,451
Total			517,168	62,845	93,275	112,596	2,574	53,516	480,210	1,939,324	234,901	174,065	523	8,014	195,260	1,257,735	5,158,532

Source: Former Ministry of Communication and Planning (2002)

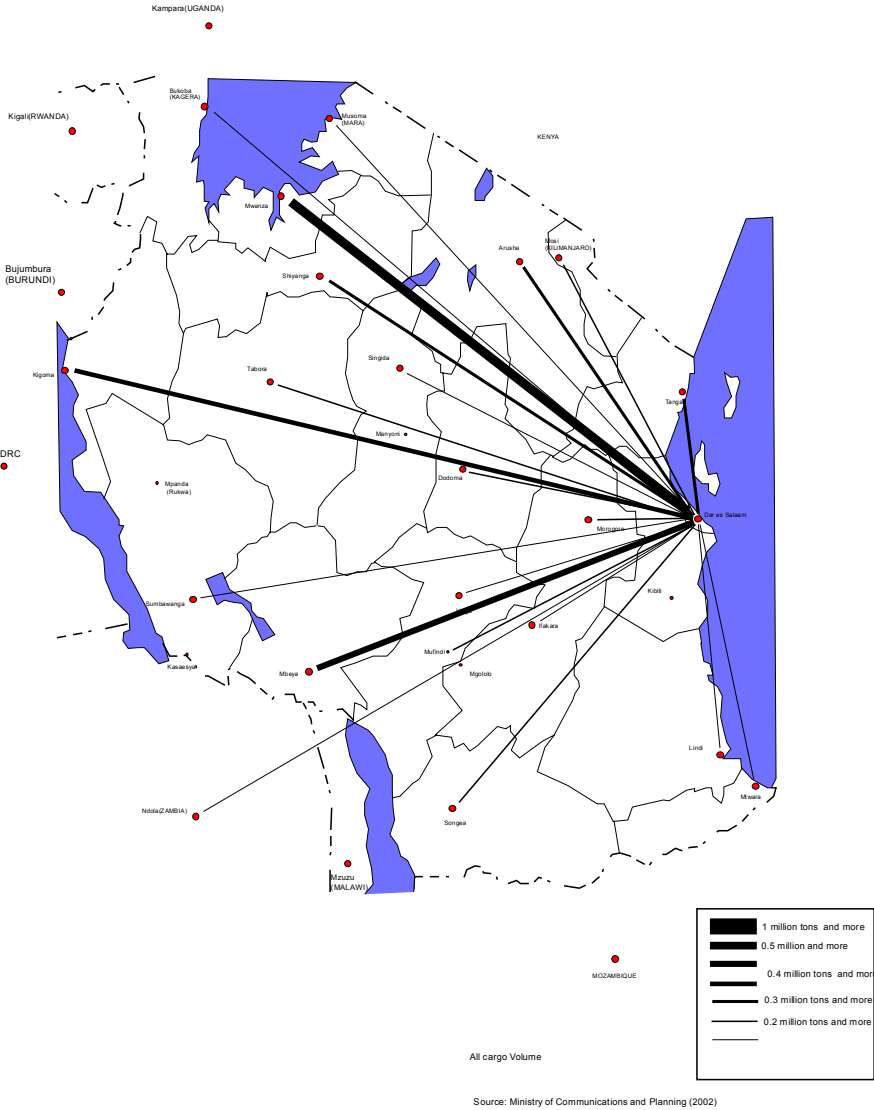


Figure 2.3.3 Cargo Flow (Truck)

Cargo volume by commodity type in Kigoma, Shinyanga, Mwanza and Bukoba is shown in Figure 2.3.4. A similar trend of goods component is observed in Mwanza and Kigoma, which are comprised of mainly petroleum, consumption and coffee. Cargo volume at Shinyanga shows the higher rate of cattle than other cities.

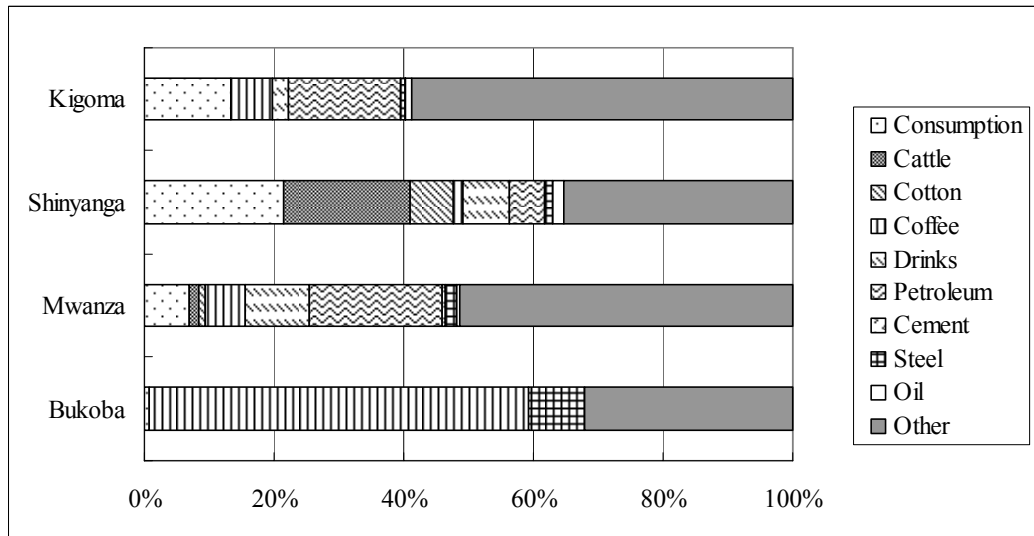


Figure 2.3.4 Major Goods in Each Cities

2.3.2 Railway

(1) TRL

1) Freight Transport

Freight transport volume of TRL (TRC) is shown in Table 2.3.2. The volume carried by TRL shown a constant decrease year by year. Freight transport volume in 2006 was 775,000 tons although it recorded over 1 million tons in 2005. In addition, according to the interview by JICA Study Team, freight transport volume in 2007 was 400,000 tons despite the projection of 800,000 tons. This is mainly caused by the deterioration of locomotive, freight train, passenger car, rail, communication facility due to insufficient maintenance. The freight transport volume is expected to increase when the transition to privatization is completed.

WFP food assistance and transit cargos account for the largest share of the freight, followed by general cargo, oil, cement and maize. Transit cargos excluding WFP amounts to 173,000 tons 2006 and 67,000 ton for WFP.

Table 2.3.2 Freight Transport Volume of TRL

Unit: Tons

Category	Commodity Type	2001	2002	2003	2004	2005	2006
Domestic	1 Cement	119,806	85,516	81,511	97,054	101,624	71,801
	2 Coffee	16,027	18,915	16,233	17,837	20,500	12,020
	3 Cotton	38,565	44,646	33,418	19,919	6,006	352
	4 Cotton cake	13,824	16,809	25,351	9,005	12,825	2,687
	5 Fertilizer	11,413	18,262	21,065	28,782	20,093	13,565
	6 General cargo	308,090	390,437	428,919	348,870	294,105	200,518
	7 Grains	20,030	49,080	34,149	21,127	20,458	16,328
	8 Gypsum	12,476	24,271	16,873	6,363	4,183	3,186
	9 Livestock	11,899	13,539	19,405	16,716	14,929	8,013
	10 Maize	26,755	59,942	48,276	40,204	40,258	56,106
	11 Pol	131,358	151,829	146,422	132,569	126,113	96,146
	12 Salt	24,838	25,920	31,127	25,243	25,154	13,925
	13 Sugar	40,047	41,890	45,806	46,763	31,593	17,234
	14 Timber & logs	8,792	11,072	13,153	12,501	12,013	5,279
	15 Tobacco & cigar	21,995	18,462	21,622	24,530	25,275	10,828
	16 Parcels and luggage	20,155	17,731	14,237	11,175	10,143	6,783
	Domestic Total	826,070	988,321	997,567	858,658	765,272	534,771
Transit+WFP	Transit & WFP	524,555	447,436	445,146	474,691	363,236	240,510
Invoiced Traffic	Total	1,350,625	1,435,757	1,442,713	1,333,349	1,128,508	775,281

Source:RAHCO

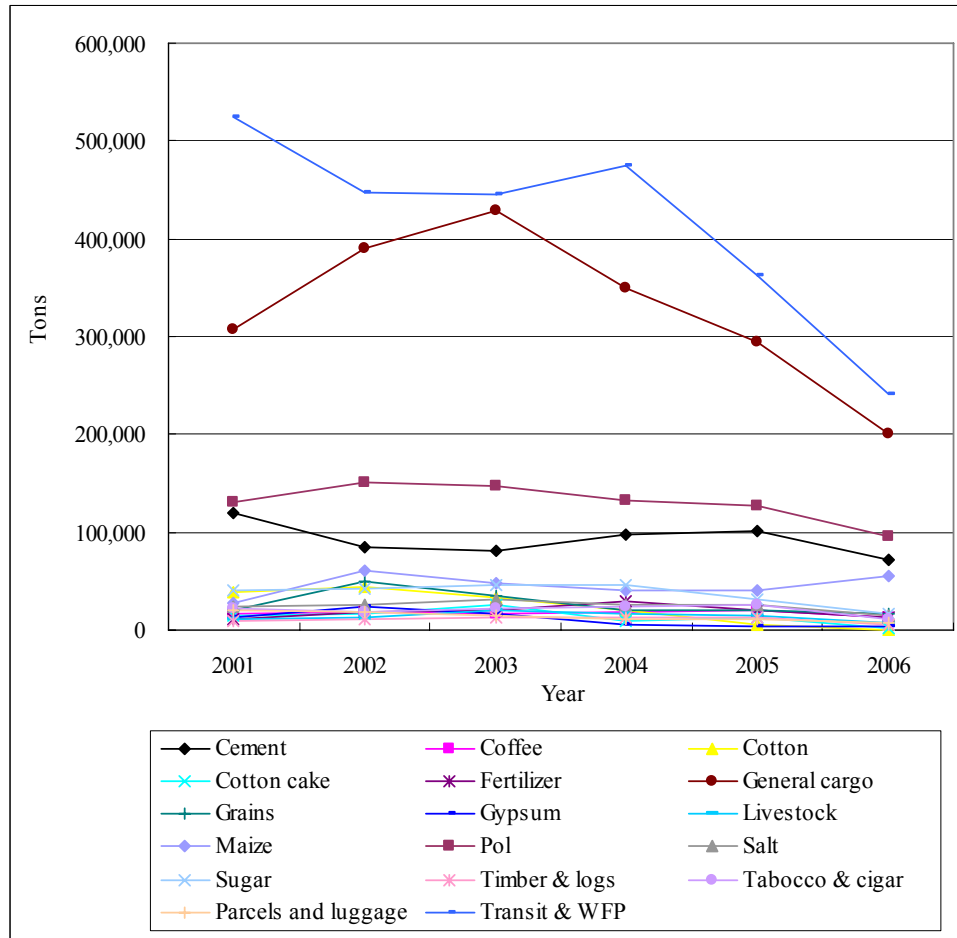


Figure 2.3.5 Freight Transport Volume by Goods

The freight charge between Dar es Salaam and Kigoma is shown in Table 2.3.3, which was modified in February 2008.

Table 2.3.3 Freight Charge between Dar es Salaam and Kigoma

Item	Charge	Note
Distance	1,254 km	
13.5 ton Loaded Vehicle	2,086,000 Tsh.	Small vehicle with 4 wheel
40 ton Loaded Vehicle	4,638,000 Tsh.	Large vehicle with 8 wheel
20 feet Container	2,325 USD	
40 feet Container	3,950 USD	

Source: Interview to Station Master in Kigoma

Note: Freight charges from Dar es Salaam Port to Isaka for 20' and 40' container are \$1,800 and \$2,200, Tanzania Freight Forwarders Association

2) Passenger Transport

Passenger traffic volume is shown in Table 2.3.4. The volume of the passenger traffic shows slightly decreasing year by year, however, the tendency shows less decrease than the freight cargos.

Table 2.3.4 Passenger Transport Volume of TRL

Unit: Tons

Year	2001	2002	2003	2004	2005	2006
No. of Passenger	728,000	684,796	683,481	627,969	674,029	594,089

Source:RAHCO

3) Progress of Privatization

a. Supports by Donors

In East Africa, state owned railway companies have been privatized by the support of World Bank. In Tanzania, TRC was privatized and Tanzania Railway Limited (TRL) was established in 2007, and TAZARA is under discussion for the privatization. On the other hand, public railway corporation of Kenya and Uganda was privatized to Rift Valley Railway in 2005.

For the privatization of TRL, the sponsors invested \$ 34 million, and the World Bank provided \$ 77 million (\$ 33 million by IDA and \$ 44 million by IFC). TRL implements rail development, communication facility development and procurement of wagons and locomotives using this fund.

b. Progress of Privatization

As of today, much improvements under this privatization exercise is not observed since TRL undertook the operation of railway only for half an year. Instead, TRL has aggravated relations with RAHCO since TRL proceeds to build the transport network without meeting the basic requirement of concession agreement, due to the lack of locomotive and other facilities.

(2) TAZARA

Freight transport volume of TAZARA is shown in Table 2.3.5. Import from/export to Zambia accounts for a large portion of the freight transport volume.

Table 2.3.5 Transit Freight Transport Volume for Each Country of TAZARA

Unit: Tons

Item	Country	2000/2001	2001/2002	2002/2003
Import	Zambia	45,728	79,663	107,591
	D.R. Congo	68,515	76,013	68,780
	Malawi	11,147	24,900	42,979
	Zimbabwe		8,347	2,547
	Tanzania	14,731	6,203	19,675
	S. Total	140,121	195,126	241,572
Export	Zambia	156,082	164,682	175,975
	SAR	17,319	14,826	4,045
	D.R. Congo	17,909		
	Malawi			
	Tanzania	15,062	10,408	15,173
	S. Total	206,372	189,916	195,193
Local	Tanzania	227,624	155,820	108,615
	Zambia	19,652	36,345	68,313
	S. Total	247,276	192,165	176,928
G. Total		593,769	577,207	613,693

Source: TAZARA (East African Railways Master Plan Study, Interim Report, EAC, 2008)

Note: Except for above, the freight transport volume from TRANS AFRICA is 39 thousand ton in 2006.

2.3.3 Ports

(1) Dar es Salaam Port

1) Number of Vessels

Table 2.3.6 shows the number of vessels disembarked at Dar es Salaam Port. The number of deep sea vessels exceeds roughly 1,000 ships.

Table 2.3.6 Number of Vessels at Dar es Salaam Port

Unit: Vessels

Year	Deep sea	Coastal	Total
2000	847	258	1,105
2001	885	238	1,123
2002	922	483	1,405
2003	878	624	1,502
2004	884	796	1,680
2005	906	790	1,696
2006	1,060	709	1,769
2007	1,013	608	1,621

Source: TPA

2) Cargo Traffic Volume

a. Transit Cargo

Table 2.3.7 and Figure 2.3.6 show transit cargo volume by country. As shown in Figure 2.3.6, the cargo volume of Zambia and that of Congo show dominant and relatively larger than other transit cargos. The transit cargos to Congo is mainly consisted of the food assistance under WFP programme.

Table 2.3.7 Country-wise Transit Cargo Volume (Dry Cargo) at Dar es Salaam Port

Unit: Tons

Year	2000	2001	2002	2003	2004	2005	2006	2007
Tanzania	1,675,446	1,925,391	2,094,762	2,690,531	2,742,605	2,872,505	2,997,932	3,533,913
Zambia	199,687	167,123	176,784	176,640	292,890	298,026	346,517	419,319
D.R. Congo	70,958	101,804	100,998	117,929	170,562	211,996	334,131	427,013
Burundi	107,436	89,122	64,852	72,902	92,685	146,928	95,892	114,703
Rwanda	86,186	70,978	48,284	50,661	63,392	83,506	77,918	88,456
Malawi	5,177	5,661	66,534	28,963	24,559	28,530	77,357	51,255
Uganda	137,943	111,860	40,432	69,747	111,811	83,592	46,855	37,452
Others	8,723	3,198	2,018	3,615	2,427	2,632	2,357	22,203
Total	2,291,556	2,475,137	2,594,664	3,210,988	3,500,931	3,727,715	3,978,959	4,694,314
Without Tanzania	616,110	549,746	499,902	520,457	758,326	855,210	981,027	1,160,401

Source: TPA

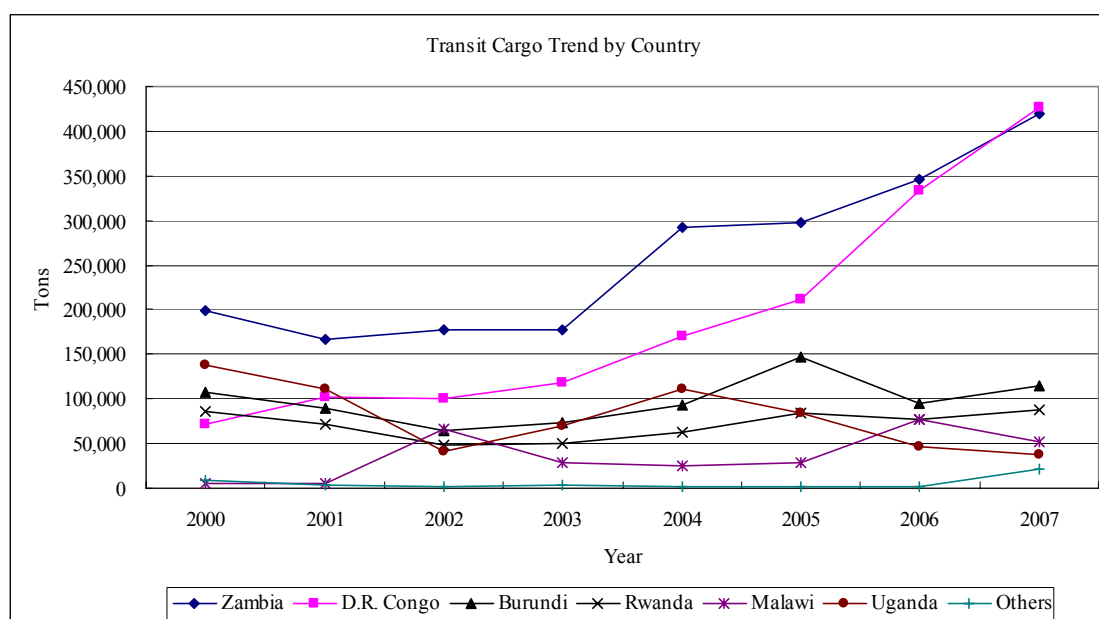


Figure 2.3.6 Country-wise Transit Cargo Volume (Dry Cargo) at Dar es Salaam Port

b. Container Cargo

Table 2.3.8 and Figure 2.3.7 show container cargo volume handled at Dar es Salaam Port. Container traffic has shown a rapid increase and reached 334,000TEU in 2007. This figure includes empty containers and the number of import and export containers shows almost equal accordingly.

Table 2.3.8 Container Cargo Volume at Dar es Salaam Port

Unit: TEU

Year	Import	Export	Trans shipment	Total
2000	62,119	60,549	1,980	124,648
2001	68,921	66,519	6,280	141,720
2002	73,090	68,297	12,409	153,796
2003	90,135	77,663	18,319	186,117
2004	105,594	93,730	27,790	227,114
2005	115,215	113,515	29,661	258,391
2006	121,471	120,776	30,453	272,700
2007	160,100	145,065	28,815	333,980

Source: TPA

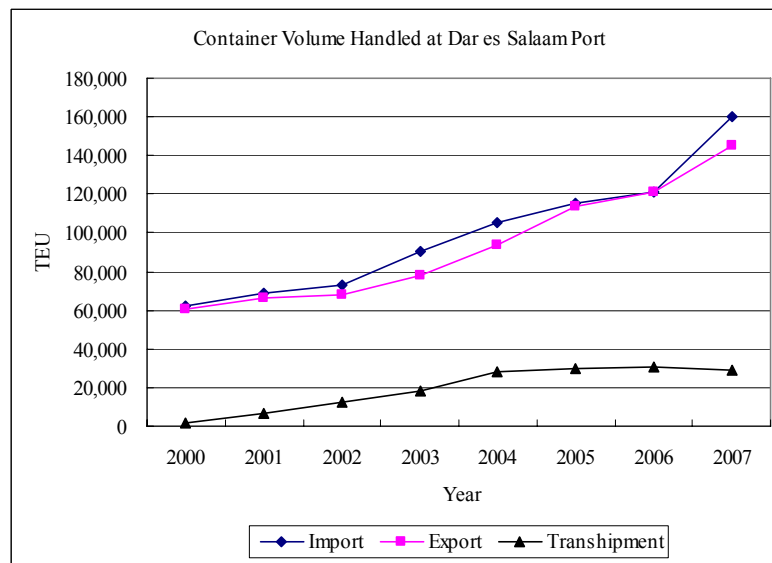


Figure 2.3.7 Container Cargo Volume at Dar es Salaam Port

c . Share by Transport Mode

Table 2.3.9 and Figure 2.3.8 show road/rail share of transit cargos handled at Dar es Salaam Port. The transit cargos transported by rail is losing its share, especially the share by TRL (TRC) is decreasing rapidly.

Table 2.3.9 Road/Rail Share of Transit Cargo at Dar es Salaam Port

Unit: Tons in upper column

Mode		2001	2002	2003	2004	2005	2006	2007
Road	Volume	1,060,998	1,159,775	1,307,432	1,605,771	1,645,694	2,069,234	2,477,608
	Road share	0.84	0.88	0.90	0.91	0.88	0.91	0.92
Railway	TRC/TRL	168,032	103,616	89,078	78,834	185,039	132,720	83,115
		0.13	0.08	0.06	0.04	0.10	0.06	0.03
	TAZARA	35,359	56,579	50,871	72,887	47,586	75,012	121,020
		0.03	0.04	0.04	0.04	0.03	0.03	0.05
	Sub Total	203,391	160,195	139,949	151,721	232,625	207,732	204,135
	Rail share	0.16	0.12	0.10	0.09	0.12	0.09	0.08
G. Total		1,264,389	1,319,970	1,447,381	1,757,492	1,878,319	2,276,966	2,681,743

Note: The upper row shows traffic volume and the lower row shows share.

Source: Brief on Dar es Salaam Port, TPA, 2008

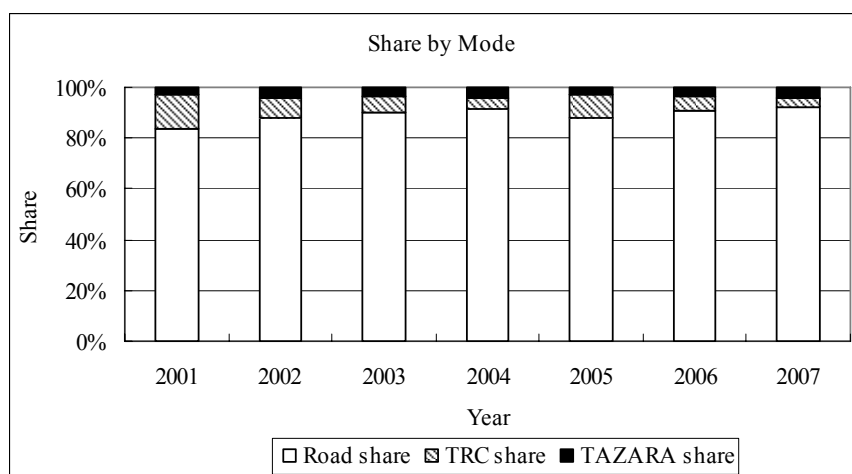


Figure 2.3.8 Road/Rail Share of Transit Cargo at Dar es Salaam Port

On the other hand, Table 2.3.10 shows road/rail share of container cargos handled at Dar es Salaam Port. The share of container traffic transported by rail decreased rapidly and became half as much as that of 2000.

Table 2.3.10 Road/Rail Share of Container Cargo at Dar es Salaam Port

Year	TEU			Share	
	Road	Rail	Total	Road	Rail
2000	42,322	6,100	48,422	0.87	0.13
2001	54,013	9,074	63,087	0.86	0.14
2002	63,700	8,384	72,084	0.88	0.12
2003	74,015	9,051	83,066	0.89	0.11
2004	84,879	9,164	94,043	0.90	0.10
2005	103,452	9,556	113,008	0.92	0.08
2006	110,767	8,786	119,553	0.93	0.07
2007	140,562	8,958	149,520	0.94	0.06

Source: Brief on Dar es Salaam Port, TPA, 2008

3) Port Efficiency

a. Ship Turn Around

Table 2.3.11 shows ship turn around, the time required for the vessel to disembark, off-load cargos and embark. The average ship turn around was recorded at 2.3 days in 2005 but increased to 5.7 days, due to the increase in the number of vessels at Dar es Salaam Port.

Table 2.3.11 Ship Turn Around at Dar es Salaam Port

Unit: Days

Year	Waiting Time	Service Time	Turn Around Time
2000	0.4	2.4	2.8
2001	0.3	1.9	2.2
2002	0.3	2.0	2.3
2003	0.2	1.8	2.0
2004	0.8	2.1	2.9
2005	0.4	1.9	2.3
2006	1.6	2.2	3.8
2007	3.1	2.6	5.7

Source: Brief on Dar es Salaam Port, TPA, 2008

b. Level of Service for Container Cargo

The crane productivity, as indicated in Table 2.3.12, shows a slight decrease and reached 18.5 moves per hour in 2007.

Table 2.3.12 Crane Productivity at Dar es Salaam Port

Unit: Move/hour

	2000	2001	2002	2003	2004	2005	2006	2007
Crane Productivity	15	19	20	23	23.5	23.6	22	18.5

Source: Brief on Dar es Salaam Port, TPA, 2008

Table 2.3.13 shows dwelling time of container cargos at Dar es Salaam Port. The largest dwelling time is shown for the container cargos to Burundi and amounts to 30 days in the average. The average of dwelling time for all container cargos is about 20 days. According to the interview by JICA Study Team, the dwelling time of container cargos tends to increase and the figures shown in the table may be understated.

Table 2.3.13 Dwelling Time of Container Cargo at Dar es Salaam Port

Unit: Days

Country	2000	2001	2002	2003	2004	2005	2006	2007
Tanzania	32.7	26.6	19.8	16.1	16.6	19.7	19.7	17.5
Zambia	20.9	16.3	10.4	13.4	19.0	19.6	19.7	19.8
D.R. Congo	27.1	30.5	13.1	13.3	18.2	28.1	28.5	26.3
Burundi	26.5	12.4	10.3	14.6	23.8	36.3	32.9	30.4
Rwanda	16.3	13.8	11.4	12.8	17.9	29.2	24.4	19.3
Uganda	23.7	11.2	10.6	12.2	15.9	32.5	20.3	13.5

Country	2000	2001	2002	2003	2004	2005	2006	2007
Malawi	14.0	5.1	6.3	8.0	11.6	21.1	20.7	22.7
All	25.9	16.6	16.7	12.9	17.1	20.2	22.2	19.8

Source: Brief on Dar es Salaam Port, TPA, 2008

Table 2.3.14 shows berth occupancy rate at Dar es Salaam Port. The occupancy rates are 71% at the container terminal and 47% at the general terminal.

Table 2.3.14 Berth Occupancy Rate at Dar es Salaam Port

Unit: %

Berth	2000	2001	2002	2003	2004	2005	2006	2007
Container Terminal (Berth 9-11)	45.0	43.5	47.5	48.5	46.3	53.8	59.2	71.2
General Terminal (Berth 1-8)	41.1	33.4	40.6	32.4	46.6	32.7	43.6	47.1
Overall (Berth 1-11)	43.1	38.5	44.1	40.4	46.5	43.3	51.4	59.2

Source: Brief on Dar es Salaam Port, TPA, 2008

As seen above, the handling volume of cargos and that of container especially increases and the efficiency of the port operation is considered increasing. This may have been achieved by the privatization of the port operation which was signed in 2003. However, due to the rapid increase in container traffic and the lack of the backyard for container traffic, the berth occupancy for containers is increasing which may deteriorate the efficiency of the port operation.

(2) Mwanza Port

Table 2.3.15 shows transit cargo volume at Mwanza and Kigoma Port. As seen in the table, the cargo volume handled at Mwanza Port shows a steady increase, especially that to/from Uganda and Burundi. According to the interview by JICA Study Team, the commodity transported to Uganda is mainly wheat flour. Ferry boats, which is equipped with the railway line and can transport the 20 rail wagons, operate between Mwanza and Uganda, Kenya and Rwanda. At present, only 3 ferry boats operate, one ferry owned by Tanzania (2 ferries are under repair work) and other ferries owned by Uganda and Kenya.

Table 2.3.15 Transit Cargo Volume at Mwanza and Kigoma Port

Unit: Tons

Port	Country	2001	2002	2003	2004	2005	2006
Mwanza	Uganda	253,900	252,565	237,465	309,502	348,748	265,877
	Burundi	197,744	148,209	141,012	100,795	121,086	128,876
Kigoma	DRC	86,794	70,810	72,582	39,729	56,521	54,074
	Burundi	108,670	77,399	68,430	60,866	62,565	39,576
Total		647,108	548,983	519,489	510,892	588,920	488,403

Source: TSIP and Interview survey by JICA Study Team



Figure 2.3.9 Ferry Boat at Mwanza Port

(3) Kigoma Port

Cargo volume handled at Kigoma Port shows a considerable decrease, especially that to/from Congo and Burundi. Since the railway operates between Dar es Salaam Port and Kigoma Port, containers are handled at the port during the site visit by the Study Team. The transit cargos are transported to the quay, using the siding. The facilities at Kigoma Port include 1 gate crane for container cargos and 3 movable cranes (one is under repair works). All the transit cargos shipped to/from Kigoma is the break-bulk and no cargos are shipped with the containers during the site visit.

Minerals, such as nickel, construction materials are shipped from Congo and coffee beans from Burundi. Coffee beans in the bag are transported from Burundi and loaded into the containers at Kigoma Port and then carried to Dar es Salaam Port. The food under the WFP programme accounts to a large share of transit cargos to Congo. During the site visit, aid food such as wheat flour and salt are loaded to the vessels leaving for Congo and the special tents constructed by the WFP for the stock yard are seen in the port.

According to the interview by JICA Study Team, the railway conditions in Congo, and especially that connecting Kalemie Port in Congo, is not well maintained. Also, there is not sufficient port facility, such as a crane which can handle the containers. It should be also noted that there is no ferry boat which can load the rail wagons, because of the security and safety problem in Congo. Currently private shipping companies operate small boats between Kalemie Port and Kigoma Port. Katanga Region is rich in minerals such as uranium, nickel, gold, tin, and iron ore. It was heard that China has already bought a mining concession and mined those minerals, which are transported to India, China and other Asian countries. Also, Msongati Region in Burundi is said to be rich in the minerals such as nickel and 180 – 200 tons of nickel may lie under the ground. Once this mining at

Msongati is implemented, most of this traffic pass through Kigoma Port and is transported via Dar es Salaam Port.

2.4 Customs Clearance Procedures

(1) Customs Clearance Procedures at Dar es Salaam Port

1) Import Container

Customs clearance procedures for import cargos at Dar es Salaam Port differ from those for transit cargos. Since 2004, when the destination inspection system was introduced, procedures necessary for import cargos became much more complex. Table 2.4.1 summarizes customs clearance procedures necessary for importing cargos.

Table 2.4.1 Customs Clearance Procedures for Import Container at Dar es Salaam Port

Steps	Procedures	Approx. days	Fee / Charge	
1	a. Lodging electronic IDF to TISCAB	An importer has to lodge the Electronic IDF provided through Website of TRA and TISCAN. Attachments Proforma Invoice, Bill of Lading, Packing list etc. and be submitted electronically to TISCAN for approval.	7	1.2% of FOB
	b. Issuance of DCVR by TISCAN	Because of the requirements of RFI (Request for information) from a supplier. Who will submit PCVR electronically also.	2	
2	DCVR lodged at customs for issuance of Tan SAD	Provisional Classification and on acceptance of PCVR, the TISCAN will issue DCVR (Declared Classification Valuation Report)	1	
3	Assessment on Tan SAD by customs process	The DCVR will be lodged to customs Long Room at DTI (Direct Trader Input) bureau for TanSAD entry fillings. TanSAD will be produced under ASYCUDA ++ System, It's a customs processing of assessment.	1-2	
4	Payment at the bank	If the TanSAD has been assessed will be subject for payment at the contracted bank (City Bank)	1-2	Custom duties and other taxes
5	Release order issued by customs	Release order will be issued by customs.	1-2	
6	a. TanSAD is dispatched to the port customs wharf	The TanSAD will be dispatched to the port customs wharf section. Where distribution will be made according to the location of the container, may be either directed to TICTS or TPA or ICDs	1-7	
	b. Inspection	The container will be classified into 3 types by ASYCUDA++: Green Channel, Yellow Channel and Red Channel.		
	c. Shipping line delivery order issuance	Release order of customs and Delivery order from shipping lines.	2	Delivery order fees (\$40-60) Container deposit (\$2100-4000)
7	Lodgment of release order and delivery order to TICTS, TPA or ICD	Lodged at TPA or TICTS or ICDs, pending payments of port charges and handling charges.	2 or more	Port charge & handling charge (\$79-95/20', 119-190/40')

Steps	Procedures	Approx. days	Fee / Charge
8	Permit for a vehicle to load containers for off-taking from the port The permit for the vehicle to load the cargo from TICTS or TPA will be issued on condition that the following are presented together. The Registration card of the vehicle and trailer and License of the driver.	1-2	
9	Issuance of gate pass The container will be released out of the port or ICDs on presentation of the gate pass at the Gate.		

Source: Tanzania Trade and Transport Facilitation Audit, NEA, WB, 2004, and Interview survey by JICA Study Team

2) Transit Container

Customs clearance procedures necessary for transit cargos differs depending on the destination of the cargo and are exempted at Dar es Salaam Port.

Table 2.4.2 Customs Clearance Procedures for Transit Container at Dar es Salaam Port

Steps	Procedures	Approx. days	Fee / Charge
1	Invoice, B/L & others & declaration on ASYCUDA electrically The B/L, Invoices and packing lists are received by the C&F Agents from the importers, the documents are processed through DTI at the offices or customs DTI bureau. That's declaration, the TanSAD document is submitted to customs electronically, for assessment on classification and valuation The TanSAD document will be assessed through customs ASYCUDA++ and be subjected for payment at contracted bank (City Bank)	1	Application fee (\$10)
2	Release order The customs will approve the TanSAD and issue a Release order electronically.	1	
3	TanSAD is dispatched to the port customs wharf The TanSAD will be dispatched to the port at the customs wharf section. For distribution to either TPA, or TICTS or ICDs.	1	
4	Delivery order The C&F agent to get a release order from customs and make collection of Delivery order from a shipping line.	1 or more	Delivery order fee (\$40-80), Container deposit (\$2000-4000), Clearing charge (\$20-40)
5	Payment C&F agent will attach the above documents and lodge to TICTS, TPA or ICDs pending for payment of port and handling charges.	2 or more	
6	Issuance of gate pass TICTS or TPA to issue permit for a vehicle to load the cargo from TICTS, or ICDs on condition that the agents presents the followings: A Registration card of a vehicle, License of the driver and C.65 customs prescribed form		

Source: Tanzania Trade and Transport Facilitation Audit, NEA, WB, 2004 and Interview survey by JICA Study Team

3) Export Container

Customs clearance procedures necessary for export cargos are relatively simple and the documents necessary for the procedures include certificates of origin issued by Chamber of Commerce Industry and Agriculture (TCCIA).

(2) Transit Cargos by Road

1) Checkpoints

For transit cargos, it takes time to pass through the checkpoints (weighbridge and customs block) located along the central corridor. According to the interview by JICA Study Team, those checkpoints will help to discourage the trucking and forwarding company, which commit illegal activities, such as selling the gasoline and diesel when transporting them to other countries. Considerable time consumes at the checkpoints, so the authority may need to impose the compliance to the trucking and forwarding companies and monitor the progress.

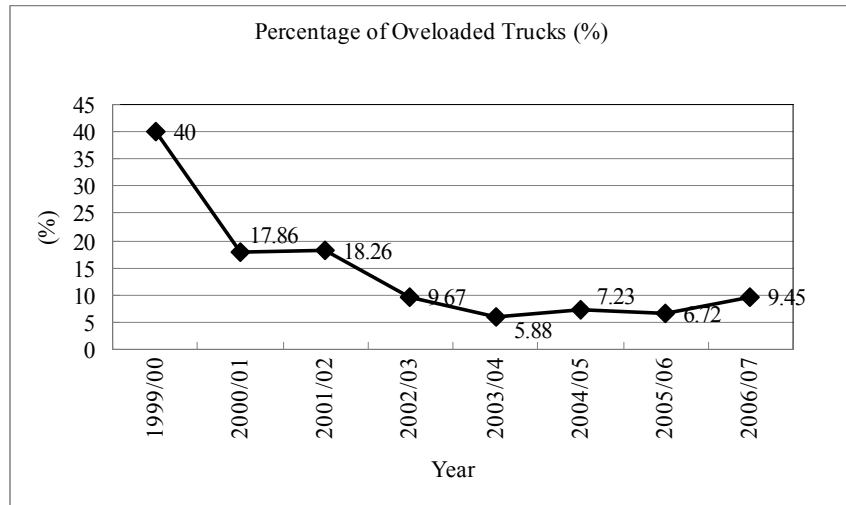
Table 2.4.3 Checkpoints along Central Corridor

Type	Location
Customs Check Point	Mbezi
	Chalinze
	Isaka
	Rusmo falls
Weigh Bridge	Kurasini
	Kibaha
	Mikese
	Dodoma
	Kahama
	Ilagringwa



Figure 2.4.1 Checkpoint

Also, it is important to tackle the overloaded trucks, in terms of maintaining the road surface in good condition and road safety. Weighbridges are situated all over Tanzania by TANROADs and enforcement by them contributed to a decrease in percentage of overloaded trucks in recent years. This effort should be continued in order to maintain the road condition and traffic safety.



Source: MoID

Figure 2.4.2 Percentage of Overloaded Trucks

2) Cross Border

The number of trucks at the cross border along the central corridor (such as Rusumo) is observed relatively small. Most of transit cargos to/from Uganda is transported via Mwanza Port by the ferry boats.

(3) Size of Vehicle

In Tanzania, The Road Traffic (Maximum Weight of Vehicles) Regulations enacted in 2002. According to this regulation, the maximum weight and size of the vehicles and tandem axles are determined as summarized in the following table. Maximum width of the vehicles is 2.6m (generally 2.5m in other countries) and maximum tandem axle is 50 tons for semi-trailers and 56 tons for draw-bar trailer vehicles. Also there are other regulations prepared by EAC and SADC. The standards prepared by EAC and that by SADC used to differ but currently becomes almost identical.

Table 2.4.4 Maximum Weight and Size

Item		Unit	Dimension
Width		m	2.6
Height			4.6
Length	Rigid vehicle		12.5
	Articulated vehicle		17
	Combination vehicle	22	
Gross vehicle mass	2 axle vehicle	tons	18
	3 axle vehicle		26
	Semi Trailer with 6 axles		50
	Draw-bar trailer with 7 axles		56

Source: The Road Traffic (Maximum Weight of Vehicles) Regulations, 2001

Table 2.4.5 Standards for Tandem Axle

Unit: Tons

Country	Tandem Axle Dual Tire	Tandem Axle twelve Tire	Combination
South Africa	18	24	56
Tanzania	18	24	56
Kenya	16	24	56
SADC	16	24	56
COMESA	16	24	56

Source: TANROADs

(4) Transport Facilitation at EAC/SADC/COMESA

The number of transit trucks along the central corridor is observed relatively few and the customs clearance procedures at the border post does not consume considerable time and is not a focal issue in the central corridor transport. However, a tendency shows an increase in those transit trucks once the road network is improved and central corridor transport network is established. Accordingly, the trade facilitation is becoming a key issue and efforts at SADC, COMESA and EAC has been made to enact the trade and transport facilitation agreements and implement the following related projects.

- Introduction of common documents and procedures for customs clearance
- Application of customs assurance system (SADC and COMESA both reached to the agreement)
- Establishment of one-stop border posts
- Capacity buildig of the customs officials

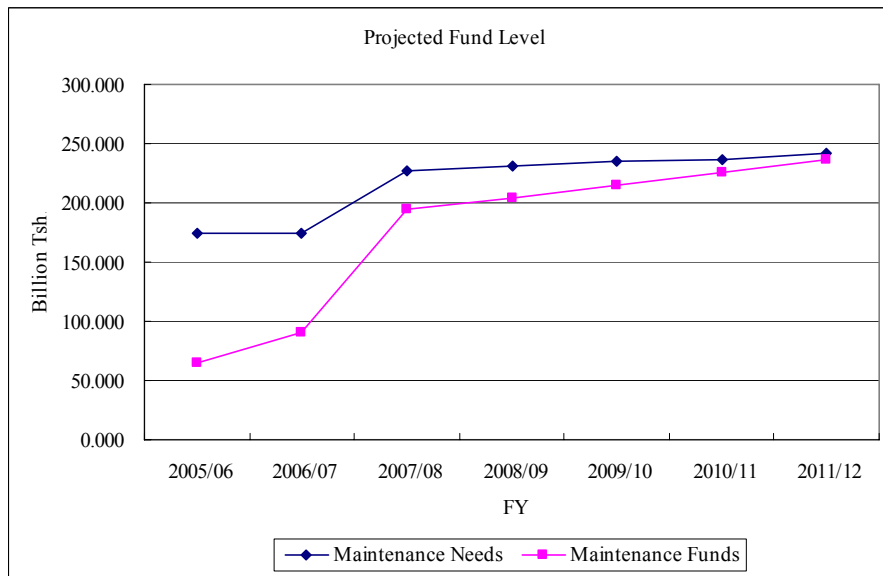
As seen in the above projects, current exercise concentrates on establishment of the one-stop border post and trade facilitation. Under the support of the World Bank and AfDB, the one-stop border posts are being constructed at 4 locations, namely Horohoro, Horiri, Surari and Namanga.

2.5 Development Plan of Central Corridor

2.5.1 Road

(1) Road Fund

A transport development plan is determined by the TSIP. According to the TSIP, the most of road fund are channeled to the regular maintenance and overlay of the major trunk roads, and road development and major road rehabilitation work is still supported by the donor agencies due to the financial constraints.



Source: Joint Infrastructure Sector Review, MoID, 2007

Figure 2.5.1 Maintenance Needs and Actual Disbursement

(2) Development Plan

The road rehabilitation projects in the following 3 road sections are not committed by any agencies.

- Lusahunga – Rusumo (93 km): including one way carrigeway bridge and customes facility
- Kigoma – Kanyani –Nyakanazi (265 km): the detail design completed by GOT
- Kigoma –Tabora (300 km): part of the road section and bridge constructed under the support of South Korea

The major trunk road network in Tanzania is almost formed and the remaining projects and plan should focus on the access road to connect the major trunk road network, of which some road sections are now under construction. This may contribute to balancing the regional development across Tanzania.

2.5.2 Railway

The railway development plan is listed below, referring to the business plan prepared by TRL, the railway master plan prepared by EAC and interviews with the relevant officials.

- Procurement of loco-motives, wagons for both cargos and passengers
- Rail rehabilitation, including that between Tabora and Kigoma
- Improvement of communication systems and passenger terminals at major stations
- Development of the standard-gauge railway line between Isaka and Kigali (The master plan study for this project is being conducted in the railway master plan by EAC. According to the newspaper, this project is initiated by US-based Burlington Northern Santa Fe Railway (East African Mar. 10-16, 2008)
- Development of the railway line between Arusha and Musoma (This project aims to enhance the transport capacity between Tanga Port and Uganda. It may affect the natural environment since some of the railway section passes through Serengeti National Park.)
- Development of the railway line between Uvinza and Msongati (Budundi) (This project aims to transport 180 to 200 million tons of nickel at Msongati.)

2.5.3 Ports

(1) Dar es Salaam Port

Table 2.5.1 summarizes the port development plan referring to Port Plan and Project, prepared by the TPA.

Table 2.5.1 Port Development Plan at Dar es Salaam Port

Immediate	Medium Term (0-3 yrs)	Long Term (4-10 yrs)
<ul style="list-style-type: none"> • Development of Phase I – berths 13 & 14 to handle container traffic 	<ul style="list-style-type: none"> • Development of Phase II – container terminal 	<ul style="list-style-type: none"> • Development of Phase III – container terminal
<ul style="list-style-type: none"> • Develop modern oil handling facilities • Development of multi story for car parking 	<ul style="list-style-type: none"> • Development of waterfront area with modern passenger terminal 	<ul style="list-style-type: none"> • Dar es Salaam Port to cater for Panamax vessels
<ul style="list-style-type: none"> • Acquire additional land at Vijibweni Kurasini and Bagamoyo • Develop Master Plan 	<ul style="list-style-type: none"> • Development of CFS and ICD 	<ul style="list-style-type: none"> • Development of new port at Bagamoyo

Source: Port Plan & Project, TPA, 2008

Port development projects are summarized below.

1) Short and Mid-term Plan

- An urgent project includes development of the container backyard to handle increasing container traffic. The berth No. 8 has been modified and currently used for container traffic. However, space of the container backyard is not still sufficient enough and the current port

expansion project, development of the berth No. 13 and 14 with the quay of 450m and 1 ha yard space, may improve efficiency of the port operation especially for container traffic. In the mid and long-term solution, further port expansion, development of the berth No. 15, is necessary.

- The oil jetty in Kurasini is shifted to Kigamboni.
- The ICD in Kurasini is planned to be expanded for new development of CFS/ICD in this area.

2) Long-term Plan

The TPA plans to construct 800m berth for the container, dry cargo traffic and passenger ferry. Also, the jetty at the traffic head land at Kigamboni will be moved to allow the Panamax vessels (especially full Panamax-length vessels).

(2) Others

Development of a new port in Mbegani of Bagamoyo is currently included in the project list prepared by the TPA (Port Plan & Project, 2008). The new port may contribute to improving the transport system and physical constraints associated with Dar es Salaam Port. It also aims to ease the traffic congestion within Dar es Salaam City. The new port is planned to accommodate 14m deep sea and a container terminal (Phase 1) and a general cargo terminal (Phase 2).

In 2007, the TPA preliminarily studied the optimum location of the new port and Mbegani of Bagamoyo was selected based on the evaluation results on the 10 alternative sites. According to the interview by JICA Study Team, the progress of the project includes application to the land acquisition and resettlement to District Executive Director to secure 4 km² land for development of the new port and yards.

(3) Kigoma Port

1) Regional Development Plan

National Development Corporation planned the EPZ development strategy in 2002, in which 8 locations, including Tanga, Arusha, Bagamoyo, Mtwara, Bukoba, Mwanza, Shinyanga and Kigoma, were selected for the EPZ development. Accordingly in Kigoma, development of the Special Economic Zone (SEZ), including following facilities, is in progress and about 3,000 ha land is being secured.

- Free trade zone
- Trade logistics hub
- EPZ
- Free port operation

The feasibility study on the development of the SEZ will be carried out in 2009.

2) Port Development Plan

Kigoma Port will be equipped with the following facilities.

- Dredging to maintain 8m water depth
- Procurement of 5 tons loadable forklift and 20 tons loadable movable crane
- Development of the passenger terminal

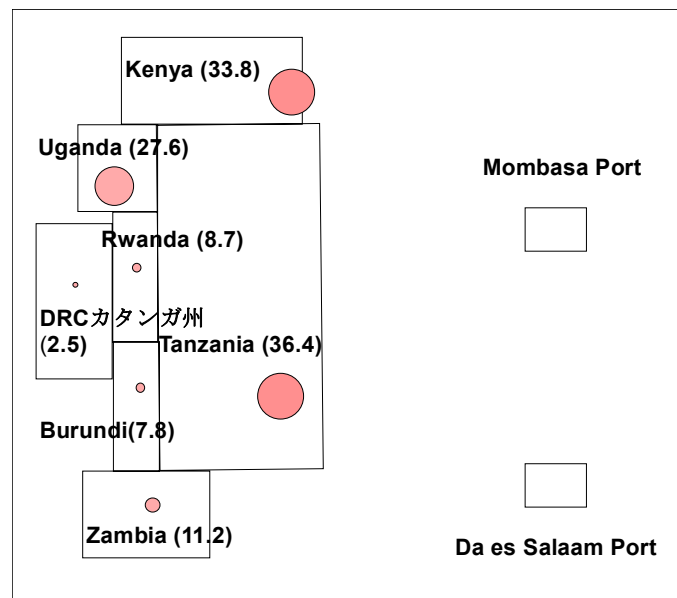
Chapter 3 Issues and Strategy for Central Corridor Transportation Development

3.1 Problems and Issues of Central Corridor Transportation

3.1.1 General

(1) Geographical Potentials of Northern Corridor and Central Corridor

Cargo volume, especially that of the containers, at both Mombasa Port and Dar es Salaam Port shows a rapid increase by 12.5% (2006/2002) and 15.1% (2007/2000) per annum, respectively. The population distribution in the study area is illustrated in Table 3.1.1.



Unit: million persons. Note: The population in Katanga Province in Congo is estimated by JICA Study Team

Figure 3.1.1 Population Distribution of Study Area

Population of Uganda is 27.6 million and accounts for a large share of the total in the study area, followed by that of Zambia, where cargos to/from Mombasa Port are rarely observed. Although

the detailed analysis on the freight traffic demand is required, the current trend in transit cargos can be summarized below.

- Most of transit cargos to/from Uganda are handled at Mombasa Port. Transit cargoes to/from other countries, for instance, 76% of Rwandan cargos and 41% of Burundian cargo, are also handled in Mombasa. It may be because the transport network, including ports and railways, in Tanzania, and its service are deteriorated and the forwarding businesses in Tanzania are not developed yet.
- Population of Rwanda and Burundi, where transit cargos can be handled at Dar es Salaam, totals only 16.5 million and accounts for a small share of the total population in the study area.
- All transit cargoes to/from Zambia use Dar es Salaam Port and this tendency will not change. Transit cargos to/from Congo can use both Mombasa Port and Dar es Salaam Port.
- Share of transit cargos at Mombasa Port is much larger than that at Dar es Salaam Port and is estimated at 44% (2006) and 25% (2007), respectively.
- Cargos to/from Kenya and Tanzania may be determined based on the consumption and production activities at both countries and this tendency will not change unless other incidents, like political instability, occur.

In this respect, cargo volume at Mombasa Port and Tanzania may be heavily determined by transit cargos to/from Uganda, Rwanda and Burundi and therefore the economic activities of those landlocked countries. More transit cargos to/from Rwanda and Burundi may potentially use Dar es Salaam Port once the transport network and the level of its service maintains efficient level, since the distance between Dar es Salaam Port and those countries is closer than that from Mombasa Port geographically. Thus, the key issue is how to transfer transit cargos currently handled at Mombasa Port to Dar es Salaam Port. Handling capacity of Dar es Salaam Port as a gateway, the transport network to the landlocked countries and the trade and transport facilitation all become the determinants which realize the potential of the central corridor.

(2) Other Potentials

The notable feature of the central corridor is that at Dar es Salaam Port transit cargos to/from Rwanda is relatively small and accounts for only 24% and the rest of cargoes still use Mombasa Port. Also transit cargos to/from Congo tend to use Mombasa Port and account for 60% of cargos handled at Mombasa Port and Dar es Salaam Port. This may be caused by the inefficient transport network and its level of service in Tanzania. (Note that a large share of transit cargoes to/from Congo is the aid of the donor agencies such as WFP.)

Considering inefficient transport infrastructure and its management at Dar es Salaam Port, cargoes handled at Dar es Salaam Port may have no alternative port, and therefore, once the transport network is developed along the central corridor, there is much possibility that transit cargos currently

handled at Mombasa Port may be transferred to Dar es Salaam Port. This may happen even for transit cargos to/from Uganda, especially that to/from southern Uganda, which can enjoy geographical benefit, using Dar es Salaam Port.

It should be also noted that there is much potential in the mineral industry in eastern Congo (such as Katanga Province). If the mineral resources in Congo is developed, most of this minerals will be transported via Dar es Salaam Port. Cargoes from Congo will benefit to reduce the transport cost since import cargoes are dominant and export cargoes from Congo are relatively small. A central issue is the political stability in Congo and other landlocked countries.

In this regards, in order to provide the efficient transport network and quality service level, the railway business, which can serve the long-distance transport service at low cost, should be revived. Also, the inter-modal facility development should be achieved in order to realize comprehensive transport network along the central corridor. In other words, the potential of the central corridor will be realized through identifying and improving the bottlenecks in terms of the physical transport.

3.1.2 Issues of Central Corridor Transport by Transport Mode

(1) Road

1) Central Corridor

Although central corridor transport development has not been fully completed for the road network, the road improvement between Dar es Salaam and Manyoni has been completed. Furthermore, donors have committed to finance road improvement between Manyoni and Mwanza through Singida and between Singida and Lusahunga. The section, which has not received funding assistance, is between Lusahunga and Rusumo. (Note that AfDB may have committed the road rehabilitation project between Lusahunga and Rusumo) This road was paved in mid 90's and is observed to be not so deteriorated based on the site survey results by the Study Team. This indicates that further monitoring is required to understand improvement timing referring to forthcoming traffic growth.

In terms of Rusumo Bridge crossing the border, it is necessary to examine the timing and necessity in the reconstruction of the bridge considering progress of deterioration, growth of traffic volume and views of the Government of Rwanda and Tanzania.

On the other hand, detailed design on the road between Nyakanazi and Kigoma is underway but no funding assistance has been committed yet. Without this road improvement, Kigoma, the core city in the west region, will be isolated from the existing arterial road network.

2) Feeder Road Development

Although progress in trunk road development can, to some extent, be observed, feeder roads still remain undeveloped. Especially, the regional road between Kigoma and Tabora stretching in parallel with the railway has no implementation plan for improvement except for

the section completed under the assistance by South Korea although the detailed design on the remaining sections was completed.

3) Connection with Neighboring Countries

The connectivity between Rusumo and Kigali, the capital of Rwanda, has been secured by a paved road. There are some routes connecting Bujumbura, the capital of Burundi, and the central corridor: via Kobero and by other roads crossing the border, of which parts are unpaved. It is necessary to establish and develop a major priority route to connect the neighboring countries with Tanzania crossing the border. (Note: JICA¹ have studied a route analysis on the road connectivity crossing the borders among Tanzania, Rwanda and Burundi).

4) Measures for Heavy Vehicles

The Government of Tanzania has changed a regulation on maximum weight of heavy vehicles from 52 to 56 tons to unify it with SADC in 2001. In addition, COMESA agreed to the same regulation and is taking necessary actions to implement this at this moment since the new regulation may cause unexpected deterioration on pavement structure and this may lead to shortening a road- maintenance management cycle. In other words, it is necessary to strengthen the control of overloaded vehicles, an issue which TANROADs has been addressing so far. This indicates that the requirement to strengthen heavy vehicle control including trucking companies as well as drivers is recognized. It is desirable to apply heavy vehicle control measures, which the trucking industry itself needs to enforce.

(2) Railway

1) Securing Rolling Stocks

Currently, TRL is placed in unsatisfactory train-operational situations due to insufficient rolling stocks. It is addressing this issue by lease and purchase to increase operational rolling stocks. It is expected to secure the necessary rolling stocks after some time lag. It should be noted that all the concession agreements are now under revision works by the Government of Tanzania and the assistance policy should be determined when the revision work is done. Especially, private participation for railway business may be enhanced when the concession that allows monopoly is revised. (Interview by JICA Study Team)

2) Maintenance

The rail tracks are deteriorated and so pertinent maintenance works are key to the success for safe and smooth railway operation. TRL is replacing the current track with 80 pound rail on the stretch between Itigi and Tabora, one of key stretches for the central corridor. The current most

¹ JICA and EAC (2008) Scoping Study on Identification of the Missing Links and Bottlenecks Affecting the Performance of the East African Community Central Corridor

problematic stretch is between Tabora and Kigoma which is composed of soft and wet ground. The trains are forced to operate as slow as 5 km/h. As the trains sometimes experience derailment, immediate improvement is required.

On the other hand, many sections, where rail tracks are distorted due to insufficient maintenance works, can be observed. To ensure safe and steady railway operation, it is urgent to perform the appropriate maintenance works that will augment transport capacity. The long term improvement of railway maintenance works will be solved by ensuring business profit, and for this end, establishment of railway system to meet long-haul commodity transport is key to the success.

Although an idea of introduction of standard gauge is planned, it is desirable to make good use of existing rail facilities for the time being because the current railway has a long line and standard gauge development inevitably requires long time and huge costs.

3) Transport on Transit and Inland Waterway

Since truck transport is not popular in the central corridor at this moment due to insufficient road development, transit cargoes are transferred from railway to truck at Isaka, and from railway or truck to inland transport at Mwanza and Kigoma. However, this leads to inefficient operation. The number of ferry boats is not sufficient and they have limited carrying capacity. There are two routes to connect Tanzania with DRC: one is via Kigali and another is via Kalemie by ferry boat crossing Lake Tanganyika. A railway is provided at Kalemie connecting to the inland of DRC. However, the railway is not being operated due to political and social unrest in the east region of DRC, and insufficient maintenance works. Furthermore, large cranes have not been provided at Kalemie and this causes stagnation of loading and unloading of large-sized-cargoes. Hence, ships operated by MSCL have not been in service to Kalemie; only private ships are operated.

As the east region of DRC is rich in mineral resources, considerable volume of cargoes will be transported through the central corridor after future development. It is easily supposed that the development of mineral resources as well as development of nickel deposit in the east region of Burundi will increase the importance of the central corridor.

On the other hand, it is necessary to monitor the development progress of mineral resources to find the right time to develop the inland port infrastructure to deal with transit cargoes. In other words, the infrastructure-development priority should be placed on railway development initially to maintain stable cargo transport. The inland port development needs to be addressed after the increase of railway cargoes. This means that the ports of Mwanza and Kigoma will inevitably become another bottleneck after the revival of railway transport. Attention should be paid to the progress of mineral resources development in DRC and Burundi as well as the progress of the railway transportation.

4) Pipeline

There is not close relations to the central corridor.

(3) Seaport

1) Dar es Salaam Port

The following are the port issues.

a. Hub Function of Port

Dar es Salaam Port has around 10 m depth. Although a depth of over 14 m is required to secure hub-port function in the future, Dar es Salaam Port does not meet the requirement at this moment.

b. Inefficient Container Operation

The biggest cause behind the long dwell time for container handling mainly comes from insufficient yard space.

c. Insufficient Traffic Circulation in System

Roads to connect the port with the hinterland are inadequate. The width of the roads is not sufficient for semi-trailer traffic and poor road surface condition slows traffic and is unsafe. Traffic congestion on arterial roads in the Dar es Salaam City such as Morogoro Road and Nelson Mandela Road is worsening the traffic situation for port related truck circulation year by year, and smooth and speedy cargo transferring cannot be secured.

d. ICD and Its Approach

Kurasini ICD is saturated at this moment. The approach road to Ubungo ICD is inconvenient for making turns and this causes difficulty in smooth semi-trailer traffic flow. Although a side rail line is provided in Ubungo ICD, there is distance between the port and ICD and this causes ineffectiveness in container transferring operation. There are several privately owned ICD in Dar es Salaam City but all the ICDs are controlled by TICTS. Delay in issuance of off-taking permission causes ineffective operation. In addition, shipping companies are reluctant to receive empty container boxes and this is also accelerating the backlog of containers.

e. Ineffective Customs Procedure

TISCAN, a private company, is managing the scanning for containers under contract with TPA which will expire in 2010. It is necessary to make a booking three days prior to the scanning because TISCAN has only one machine to scan the containers. In addition, the Destination Inspection system was introduced recently instead of Pre-Inspection System and this causes

disorder in customs clearance procedures due to incomplete application documents. Currently, the dwell time for containers has increased by 3 to 4 weeks so smooth off-taking is not possible.

f. Defective Transferring Facilities to Railway

In terms of connection with railway, two railway side lines have been introduced in Dar es Salaam Port. However, effective transferring has not been put into practice due to insufficient space and equipment. Since TRL cannot provide thorough servicing due to insufficient rolling stocks such as locomotives, the share of railway equipment for throughput of the port is decreasing year by year.

2) Kigoma and Mwanza Port

Kigoma and Mwanza Port function as inter-modal facilities among railway, road and inland waterway. Kigoma Port had a depth around 8 m in the past. However, the current depth is shallow and a barge is required for loading and unloading cargoes between ships in the offing and the quays. On the other hand, there is a plan to develop a special economic zone development in Kigoma. Kigoma is a core city in the area along Tanganyika Lake and is expected to play an important role in regional development. It is necessary to keep close watch on the progress of regional development as well as the progress of mineral resources development in DRC and Burundi for the time being. On the other hand, the railway development potential is substantial to support Kigoma regional development; steady and rapid transport between Kigoma and Dar es Salaam is required.

As the railway share of transport is decreasing and cranes for containers do not operate, container handling is not in service at Mwanza Port. After revival of railway transport, increase in carrying capacity at Mwanza Port will be a key to the success for smooth transport in Tanzania. It is necessary to address port related facility development considering railway transit transport.

Without improvement, it is easily seen that Kigoma and Mwanza Port will become a bottleneck in the transport system after the revival of railway in the central corridor. Considering the plan of new railway line development with standard gauge and discord between TRL and RAHCO, it is preferable to keep close watch on the future railway transit transport for development timing of the port related facilities.

3) New Port Plan

Container handling is a forthcoming issue in discussing the seaport and it is obvious to consider additional facility development for Dar es Salaam Port to deal with the issue. To this end, it is necessary to discuss cargo handling capacity at Dar es Salaam port and the plans for expansion to handle the growing volume of cargoes. Dar es Salaam Port has a depth limitation to function as a hub port in the future and this creates the need for construction of a new deep

seaport. However, it is necessary to discuss how to share the functions between Dar es Salaam Port and the new port. As huge investment is required in the new port including transport and regional development in the hinterland, it is necessary to consider the results of the master plan study on the port in Tanzania, which is being conducted under the assistance of the WB. In other words, the important point is how to improve and solve the current problems and issues, and how to implement the required measures without duplication of future investment in the improvement of Dar es Salaam Port. After the discussion, appropriate site selection and transport development in the hinterland including EPZ development plan will be coordinated with other related national and regional development plans with a view to its functioning as a container hub port in the future.

4) Customs Clearance and Cross Border Procedure

According to the UNCTAD, there are around 20 to 30 related agencies for custom clearance and nearly 40 documents covering 200 items are required. Much of the information is duplicated and so just wasting time to get over again. As a clear entry method is not described by the code, many importers and forwarders are struggling with following the rules. In sum, the customs clearance documents are inadequate. Moreover, this is prominent in border crossing, especially in border post and customs office. Usually, the two offices are located separately and each office is checking the same documents (Sectoral profiles and business opportunities in East Africa and Indian Ocean countries, INPUT, 2006).

In terms of customs clearance documentation, clear requirements without misunderstanding is required for smooth operation. In other words, improvement of each step without a bottleneck is required through introduction of well-balanced system and arrangement of human and material resources. In terms of cross-border traffic, common documentation and procedures, namely “one border post one window”, need to be used by the neighboring countries.

5) Related Other Study

The study on effective operation in Dar es Salaam Port including preparation of TOR for the port expansion is being carried out by MOID. The progress of the study will be presented at the meeting on “The 2nd Joint Infrastructure Sector Review (JISR)”, which is going to be held on August 2008.

(4) Summary

Table 2.1 summarizes transport problems and issues.

Table 3.1.1 Transport Problems and Issues

Facilities	Item	Existing Problems	Development Issues
DSM Port	1) Hub seaport	As the depth of water is around 10 m, the port cannot function as a hub seaport in the future.	New port development will be required to compete with Mombasa Port.
	2) Container handling	Large delay on cargo off-taking occurs due to insufficient yard for container handling.	Securing larger yard through expansion of the existing port and new berth development for container handling.
		Obstacles occur on semi-trailer traffic to connect the port to the hinterland due to inadequate access roads. As the traffic is congested in the city, it impedes smooth container transferring.	Widening of Morogoro Rd. and Mandela Rd. and access road development are required including improvement of major intersections.
		The accessibility by road to Ubungo ICD is not well developed at this moment. It is not efficiently used although the railway line is provided to ICD.	Road improvement and ICD re-development are required in coordination with future ring road development.
	3) Dwell time	Smooth operation is hindered because only one scanning machine is available and this leads to long dwell time for containers around as long as 4 weeks.	Introduction of new scanning machine, additional handling equipment, yard expansion and ICD development are required.
	4) Customs clearance	Chaos can be seen in documentation preparation for customs clearance due to introduction of Destination Inspection System.	Full notice of procedures for importers and forwarder, and simplification of the procedures are required.
	5) Inter-modal facilities	Inter-modal transfer function is weak.	Securing necessary space for loading and unloading, and introduction of handling equipment are required. In addition, strengthening railway transport and connectivity with inland waterway is required for establishment of an integrated transport system as a whole.
Kigoma & Mwanza Port	1) Inter-modal facilities	Water depth is shallow and handling equipment is insufficient. No container ship is in service.	Efficient and comprehensive transport system development including inter-modal facility development in Kigoma and Mwanza Port is required in harmonization with the progress of the port and railway development in the central corridor development.
Road	1) Central Corridor	Trunk road is almost developed though some parts still remain unimproved.	Monitoring the traffic between Lusahunga and Rusumo including bridge are required.
	2) Feeder road	Feeder roads have not been developed although the trunk road development is proceeding. Kigoma is isolated from the trunk road.	Feeder road development to access to the central corridor should be accelerated to promote regional development.
	3) Connectivity to neighboring countries	Connectivity development to the neighboring countries is hampered due to social unrest in part of Burundi and DRC.	Meeting with neighboring countries, development priority on connecting roads with prompt implementation are required.
	4) Heavy vehicle measures	Measures should be taken for heavy vehicle traffic to deal with SADC standards.	Establishment of road maintenance plans and securing budget are required.
		Pavement deterioration still continues due to overloaded by truck.	Enforcement is required involving all the parties concerned.

Facilities	Item	Existing Problems	Development Issues
Railway	1) Rolling Stock	Available rolling stocks such as locomotives are insufficient and enough trains are not in operation.	TRL is managing increase in locomotives as many as 90 and the problems are well on the way to settlement. Monitoring on the railway operation is required.
	2) Maintenance	Rail maintenance including track development is insufficient and especially improvement between Tabora and Kigoma is urgent.	Necessary budget for maintenance will accrue from management improvement to reach 1.7 million tons of cargo transport, which is a breakeven point in business.
	3) Rail track	Transshipment is required between TRL and TAZARA due to different gauges.	A new railway is planned between Isaka and Kigoma based on the standard gauge. Another study by EAC is on the way to ascertain the possibility to change the current gauge to the standard one.
	4) Transit traffic	Transit cargoes are transferring from railway to inland waterway at Mwanza and from railway to road at Isaka. However, transshipment between rail and water transport at Mwanza and Kigoma has not been efficiently done.	Dredging, channel development, and arrangement of necessary equipment to deal with growing container traffic expectation should be considered at Mwanza and Kigoma Port.
Inland waterway	1) Ferry transport	The number of ferry boats is insufficient for transport between Mwanza and Uganda, and carrying capacity is limited.	Maintenance works for the ferry boats and privatization on ferry service are required.
		Ferry service is not available between Kigoma and DRC due to political and social unrest in DRC. Cargoes are transported to DRC by small private boat on non-regular base.	It is necessary to watch mineral resources development in DRC and monitor what is needed for the time being.
Custom procedures at the border		It takes a lot of time for document inspection to clear customs due to inefficient procedures.	Improvement toward efficient customs procedures at Rusmo is required to meet central corridor development.

3.2 Assistance Measures and Action Plans for Central Corridor Development

3.2.1 Assistance Measures

Transport facility development in the central corridor is still underway and cargo movement is small at this moment. When truck roads are developed and privatized TRL is strengthened in cargo transport, the cargoes, which are partly transported from Uganda, Rwanda and Burundi to Mombasa Port, will change their mother port from Mombasa Port to Dar es Salaam Port. It should be noted that all the concession agreements are now under revision works by the Government of Tanzania and the assistance policy should be determined when the revision work is done.

Also, it is important to develop the central corridor to secure an alternative route for import and export, and to encourage price competition in transport with a view to maintaining low transport costs. This will greatly contribute to economic activation in East Africa. Against this background, the following short term measures are considered for immediate assistance.

(1) Immediate Improvement of Dar es Salaam Port

It is most urgent to improve Dar es Salaam Port, which is the bottleneck in the central corridor at this moment. Port capacity is determined by channel carrying capacity, quay capacity including crane handling capacity, total container operation capacity, size of back yard, size and location of ICD including accessibility conditions, transshipment capacity with railway, tariff system, road network conditions in the port and outside the port, custom clearance procedures and port management ability. Port improvement covers all the items mentioned above although it is very complicated and has much variety. Each element needs to keep the same level of handling or carrying capacity that is consistent with the total capacity of the port. This brings about most efficient operation system. It is necessary to dispatch port experts with a view to examining the bottlenecks in the port cargo-operation system, customs clearance procedures and others. Necessary measures to improve the port will be realized through the dispatch of the following experts.

- Dispatch of port expert to MOID (new)
- Dispatch of customs clearance expert to SUMATRA (new)

As it is necessary to coordinate with related agencies with a view to effectively improving Dar es Salaam Port, current transport and customs clearance experts dispatched to EAC need to be continued.

- Dispatch of transport and customs clearance experts to EAC (need to be continued)

Furthermore, road circulation improvement project and reducing dwell time in container operation in Dar es Salaam Port is proposed as a pilot project for the port experts mentioned above. A feasibility study on the development of the container berths (especially No13 and 14) and backyards should be included as the short-term priority project.

(2) Inter-modal Facility Development

An inter-modal facility development study including physical distribution in EAC (with the main country as Tanzania and including others surrounding countries) is proposed with a view to realizing promising port improvement measures, the measures for the central corridor development and viability of high priority measures. The following are the major items to be examined.

- Mid and long term measures to deal with container operation
- How to improve Dar es Salaam Port in future and which roles and functions need to be transferred to the new port under the new port plan. However, it is necessary to coordinate with the results of the port master plan study, which is underway under assistance of the WB.
- Improvement measures for Kigoma and Mwanza Port to strengthen their inter-modal functions and facilities.
- Measures to solve inter-modal-facility bottlenecks including transferring nodes to maximize carrying capacity of transport system in total.

- Measures to improve cross-border procedures including manpower capacity development in customs office.

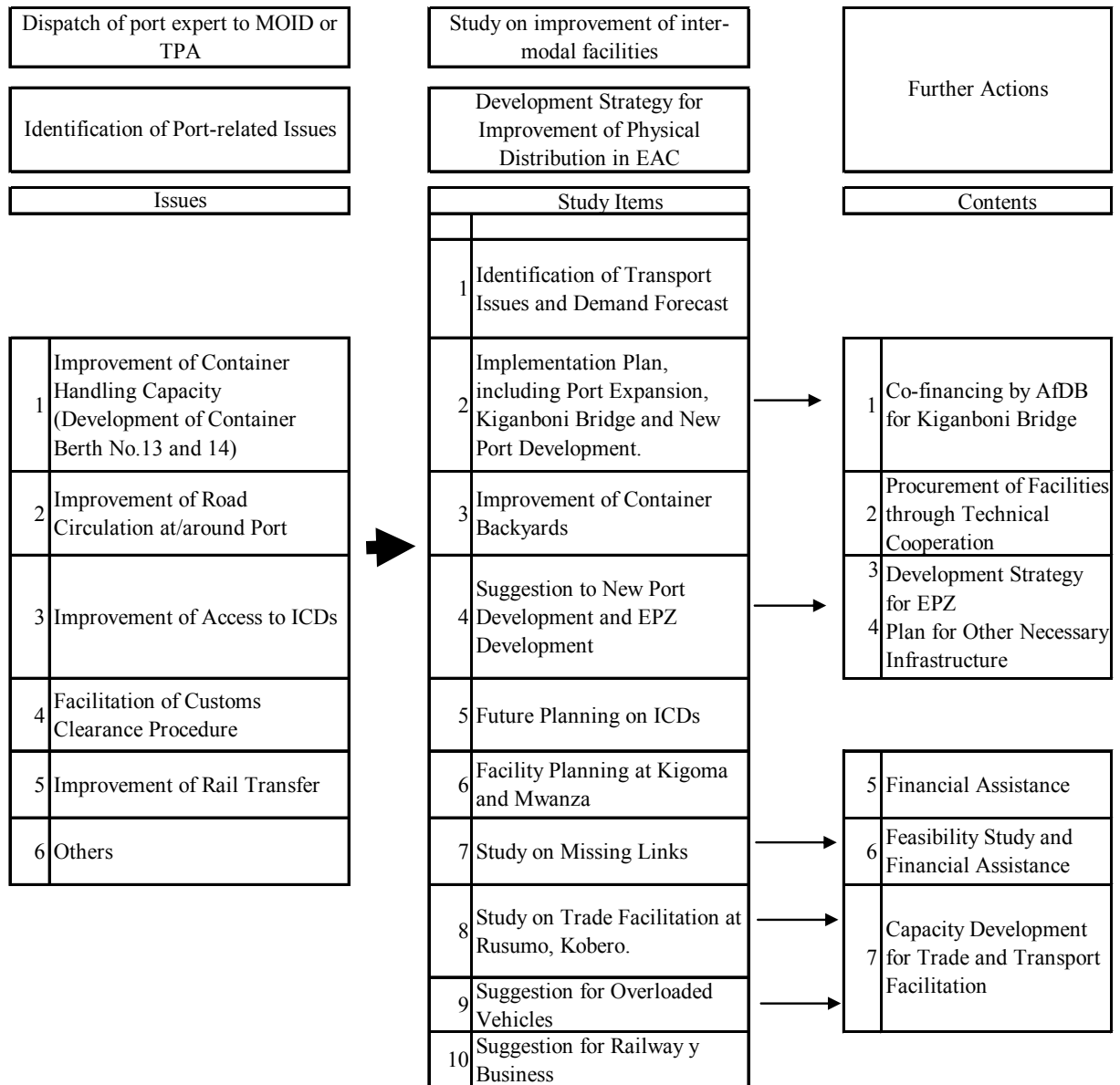


Figure 3.2.1 Assistance Approach by Japanese ODA

Table 3.2.1 Long List of Proposed Projects

Category	No.	Description	Evaluation Criteria *1				Implementation Schedule *2		
			Policy Relevance	Emergence	Project Progress	Environment Impact	Short Tem	Mid Tem	Long Tem
Master Plan Study/ JICA Expert/ Technical Cooperation Project	a-1	Dispatch of experts to EAC (transport and customs clearance procedures)		○	○		*		
	a-2	Dispatch of port expert to MOID or TPA		○	○		*		
	a-3	Dispatch of expert to SUMATRA (customs clearance procedures)		△	○		*		
	a-4	Dispatch of expert (promoting PPP) to MOID, technical and project assistance for promotion of privatization.		△	▲			*	
	a-5	Study on improvement of inter-modal facilities including physical distribution in EAC.		○	○		*		
	a-6	Project and technical assistance in strengthening road maintenance.		○	○		*		
	a-7	Project and technical assistance in strengthening cross border facilitation.		△	▲			*	
Feasibility Study/ Grand Aid and Loan	b-1	Improvement to reduce dwell time of container off-taking and road circulation development to connect N. Mandela Road.	△	○	△	○	*		
	b-2	FS on expansion of container terminal and other facility development (loan base)	○	○	△	▲	*		
	b-3	Expansion development of DSM Port.	○	○	△	▲		*	
	b-4	New port development and transport network development in the hinterland.	△	▲	▲	▲			*
	b-5	EPZ development in association with new port	△	▲	▲	▲			*
	b-6	FS on replacement of Rusumo Bridge and necessary road improvement (Loan base)	○	△	△	▲		*	
	b-7	Solving missing link between Kigoma and Tabora.	○	△	△	△		*	
	b-8	Infrastructure development of Kigamboni bridge and flyovers to improve accessibility within the city.	○	○	○	△		*	
	b-9	Cross-border facilitation development like one stop border post integrated with road improvement.	△	△	△	○		*	
	b-10	ICD expansion at Sinyanga and Mwanza including equipment procurement.	△	▲	○	○			*
	b-11	Facility development to increase cargo handling capacity at Kigoma and Mwanza.	○	△	▲	○			*
	b-12	Implementation of measures to cope with overloaded vehicles.	△	○	△	○	*		
	b-13	Extending loan to support transport infrastructure development under the scheme of privatization.	△	▲	△	△			*

Note 1: Evaluation criteria imply ○ (very related), △ (related), ▲ (less related) blank (not related)

Note 2: Implementation schedule indicates Short-term (up to 2010), Mid-term (2011-2014), Long-term (After 2015).

3.2.2 Action Plan

Table 3.2.2 shows action plans for the mid and long term measures proposed by the Study Team.

Table 3.2.2 Proposed Action Plan

Category	No.	Description	Implementation Agencies		Implementation Schedule								Preliminary Cost (100 million Yen)	Remarks
			Agencies	Other related Agency	FY2008	2009	2010	2011	2012	2013	2014	2015-2020		
Master Plan Study/ JICA Expert/ Technical Cooperation Project	a-1	Dispatch of experts to EAC (transport and customs clearance procedures)	EAC	MOID, TRA	→								0.4	Continued
	a-2	Dispatch of port expert to MOID or TPA	TPA	MOID		↓	→						0.3	Solving bottlenecks in DSM Port
	a-3	Dispatch of expert to SUMATRA (customs clearance procedures)	SUMATRA	MOID		↓	→						0.3	Strengthening cooperation with experts dispatched for trade facilitation in Kenya.
	a-4	Dispatch of expert (promoting PPP) to MOID, technical and project assistance for promotion of privatization.	MOID					→					0.8	Watching the policy on introduction of private finance initiative on infrastructure.
	a-5	Study on improvement of inter-modal facilities including physical distribution in EAC.	MOID			→							2.5	
	a-6	Project and technical assistance in strengthening road maintenance.	TANROADs	MOID	→								-	Continued
	a-7	Project and technical assistance in strengthening cross border facilitation.	SUMATRA	TRA, MOID				→					1.5	Improvement of customs clearance procedures at Rusumo and Kobero
Feasibility Study/ Grand Aid and Loan	b-1	Improvement to reduce dwell time of container off-taking and road circulation development to connect N. Mandela Road.	TPA	MOID			↓	→					0.5	As a pilot project in association with the dispatch of port expert
	b-2	FS on expansion of container terminal and other facility development (loan base)	MOID	TPA		↓	→						1.5	Harmonization with the results of port MP study by the WB
	b-3	Expansion development of DSM Port.	TPA	MOID				↓	→				100	Harmonization with the results of port MP study by the WB
	b-4	New port development and transport network development in the hinterland.	TPA, TANROADs	MOID								→	500	After the decision of location of new port
	b-5	EPZ development in association with new port	MOITM	MOID, TPA								→	150	After the decision of location of new port
	b-6	FS on replacement of Rusumo Bridge and necessary road improvement (Loan base)	TANROADs, MOID	Neighboring Countries				↓	→				1.5	Implementation according to the traffic growth and deterioration of the roads
	b-7	Solving missing link between Kigoma and Tabora.	TANROADs	MOID					↓	→			200	
	b-8	Infrastructure development of Kigamboni bridge and flyovers to improve accessibility within the city.	DCC/ TANROADs	MOID					↓	→			100	
	b-9	Cross-border facilitation development like one stop border post integrated with road improvement.	TRA, TANROADs	MOID					↓	→			10	
	b-10	ICD expansion at Sinyanga and Mwanza including equipment procurement.	TRL, RAHCO	MOID								→	40	
	b-11	Facility development to increase cargo handling capacity at Kigoma and Mwanza.	TPA	MOID								→	30	
	b-12	Implementation of measures to cope with overloaded vehicles.	TANROADs	MOID	↓	→						a	-	Coordination with a-6
	b-13	Extending loan to support transport infrastructure development under the scheme of privatization.	MOID									→	200	

3.3 A Study on Improvement of Inter-modal Facilities for Physical Distribution Improvement

As discussed above, an inter-modal facility development study is proposed with a view to realizing port improvement measures, the measures for the central corridor development, and the viability of high priority measures. Accordingly, the following discussion will draft the application for the technical cooperation, based on the stakeholder meeting with the MOID officials.

3.3.1 Draft Application

(1) Background of the Project

Tanzania has a large area of 880,000 km² and crosses borders with eight neighbouring countries: namely Kenya, Uganda, Rwanda, Burundi, Congo, Zambia, Malawi and Mozambique. Tanzania has also a 700-km coastline, where three major ports are located: namely Dar es Salaam Port, Mtwara Port and Tanga Port. The population of Tanzania reached 38 million inhabitants (2004) and that of Dar es Salaam, the largest city in Tanzania, has 2.5 million inhabitants but accounts for only 7% of the national population. Also, Tanzanian economy heavily relies on the primary industry, mainly agricultural production, of which the gross domestic production accounts for 43% of the national production (2006). All these figures imply that both population and economic activities are widely spread in every region of the country. Therefore, the transport and trade sector in Tanzania enhances connectivity between these regions and plays an essential role in achieving the national development goals of balanced regional development and poverty reduction.

The National Transport Policy was formally approved in 2003, aiming to achieve development of effective and efficient seamless transport infrastructure, to ensure the access to all the regions to alleviate poverty, and to enable the transport sector to facilitate the growth of key economic sectors including agriculture, manufacturing, mining, tourism and trade. The strategy of this policy is well translated into the action plan - the 10-year Transport Sector Investment Programme (TSIP). The TSIP emphasizes the importance of corridor-type transport development in order to reach full potentials for multi-sectoral integrated development built around a backbone transport infrastructure linking the region to gateway for international trade. The TSIP, so far, identifies four development corridors; namely Dar es Salaam Development Corridor (South Development Corridor), Central Development Corridor, Tanga Development Corridor and Mtwara Development Corridor and encourages the government and donor community to channel the considerable amount of investments to the transport sector, mainly development of road network along these corridors.

The countries which benefit from this corridor-type transport development will not only be Tanzania but also include the landlocked countries, e.g., Rwanda and Burundi. The transport of transit cargos to/from these landlocked countries, when importing consumer goods and exporting local products, heavily relies on the port of Dar es Salaam and inland transport within Tanzania.

Accordingly, establishment of efficient and economic transport system in Tanzania will promote the trade industry of these landlocked countries and hence will contribute to generating and balancing regional economic development. However, the existing ineffective transport and trade system in Tanzania largely hinders the regional development of the landlocked countries. An empirical study by JICA (2008) shows only 24% of transit cargos to/from Rwanda is handled at the port of Dar es Salaam and the remaining of transit cargos is through the port of Mombasa, although the geographical distance between Dar and Kigali is shorter than that between Mombasa and Kigali. Taking an example of the Central Development Corridor, the major constraints listed in the TSIP include poor condition of the infrastructure for both rail and road, delays in cargo off-take especially at the port of Dar es Salaam due to shortage of wagons and low availability of locomotives, delays in cargo clearance at the port of Dar es Salaam due to incompetence of some clearing and forwarding agents and documentation procedures.

The stakeholders in Tanzania and the landlocked countries well acknowledge the transport and trade issues and the importance of comprehensive transport and trade network and system in order to enhance trade facilitation within Tanzania and between Tanzania and the landlocked countries. In this respect, the Government of Tanzania has requested the Government of Japan for the technical assistance to formulate a long-term multimodal transport and trade system development master plan and to conduct the feasibility study on the short-term priority project, such as the port expansion project at the port of Dar es Salaam.

(2) Outline of the Project

1) Project Purpose

The purpose of the Project is listed below.

- To formulate a long-term multimodal transport and trade system development master plan and its strategy with the target year of 2025 and hence to enhance transport and trade facilitation within Tanzania and between Tanzania and the landlocked countries.
- To conduct the feasibility study on short-term priority projects, such as the port expansion project at the port of Dar es Salaam and to propose the financial scheme, e.g., PPP, for infrastructure development and its operation and maintenance.
- To propose the institutional and regulatory framework to realize the multimodal transport and trade system development strategy and to enhance capacity development of the relevant stakeholders.

2) Overall Goal

The overall goal of the Project includes:

- The overall goal of the Project is to achieve development of effective and efficient seamless transport infrastructure, to ensure the access to all the regions to alleviate poverty, and to enable

the transport sector to trigger and facilitate the growth of key economic sectors including agriculture, manufacturing, mining, tourism and trade by 2025.

- To realize a safe and reliable international transport network and to generate economic and trade exchange between Tanzania and the neighbouring countries and therefore to balance the regional development and economic gap in the Eastern and Southern African countries.

(3) Project Area

The study area will not be limited to Tanzania but also include neighbouring countries such as Rwanda, Burundi, and DRC.

(4) Implementing Agency

The Ministry of Infrastructure Development is a main implementing agency. Other stakeholders are listed below.

- Tanzania National Roads Agency
- Tanzania Port Authority
- Surface and Marine Transport Regulatory Authority

It should be noted that agencies and institutions such as TAZARA, Tanzania Railway Limited, Tanzania Airports Authority, are involved in this Study as the member of the steering committee.

(5) Project Period

The Study will take around 18 months.

Tasks	Year											
	1 st Year						2 nd Year					
Preparatory work	■											
Submit and discuss the inception report		▲										
Collect and analyze the transport and related data		■	■	■								
Survey logistics and development potentials in Tanzania and neighbouring countries		■	■	■	■							
Scope the Project for a feasibility study					■	■						
Submit and discuss the progress report						▲						
Organize the 1st stakeholder meeting						▲						
Formulate the multimodal transport and trade system development master plan							■	■	■			
Study the implementation plan of the short-tem priority projects								■	■	■		
Conduct a feasibility study on the priority project							■	■	■	■		
Submit and discuss the draft final report											▲	
Organize the 2nd stakeholder meeting											▲	
Submit the final report												■

(6) Tasks

1) Preparatory Phase

- (i) Review the existing data and materials
- (ii) Establish the study plan/approach
- (iii) Prepare the inception reports.

2) Implementation Phase

- (i) Submit and discuss the inception reports
- (ii) Collect and analyze the transport and related data
 - Data collection and analysis of the regional economy
 - Data collection and analysis of the industrial production
 - Data collection and analysis of the traffic and transport information
 - Information collection of related transport programme/projects
- (iii) Survey logistics and development potentials in Tanzania and neighbouring countries
 - Inventory survey (Tanzania and neighbouring countries): transport network, the condition of the infrastructure, handling equipment, and handling capacity
 - Logistics survey (Tanzania and neighbouring countries): freight volume by origin/destination and by mode of transport and by commodity type
 - Development potential survey (Tanzania and neighbouring countries): production and investment performance by industrial sector
 - Data collection and analysis of the clearing and forwarding process
- (iv) Scope the Project for a feasibility study
- (v) Prepare, submit and discuss the progress report
- (vi) Organize the 1st stakeholder meeting
- (vii) Formulate the multimodal transport and trade system development master plan
 - Identification of transport and trade infrastructure and system issues
 - Establishment of socio-economic framework
 - Traffic demand forecast
 - Review of upper and related projects
 - Formulation of the multimodal transport and trade system development master plan

- (viii) Study the implementation plan of the short-term priority projects (up to 2015)
- Economic and financial analysis and risk analysis
 - Study on the project implementation plan
 - Study on the institutional and regulatory framework
- (ix) Conduct a feasibility study on the priority project
- Traffic demand forecast and capacity analysis, comparing the alternative development corridors, such as the northern corridor
 - Topographic and bathymetric survey
 - Preliminary engineering study and cost estimation
 - Economic and financial analysis and risk analysis
 - Social and natural environmental consideration
 - Formulation of the institutional development plan for O&M
- (x) Prepare, submit and discuss the draft final report
- (xi) Organize the 2nd stakeholder meeting
- (xii) Submit the final report.

3.3.2 Stakeholder Meeting

A stakeholder meeting was held in the premise of the Ministry of Infrastructure Development on June 19, 2008 to finalize the application form for Japan's technical assistance. Some of the comments raised by the key stakeholders are listed below.

Date and time: 2008/6/18 14:30~15:30

Participants: Director of Transport, Assistant Director of Transport (MOID)

The meeting was held to discuss the development direction of the physical distribution network in Tanzania and the future cooperation between Tanzania and Japan. The meeting is summarized below.

- The officials of the MOID expressed appreciation for the technical cooperation by Japan and especially the proposed project for the improvement of inter-modal facilities for physical distribution improvement.
- Development of the port and rail infrastructure is currently encouraged under the PPP scheme. However, this does not limit the use of ODA for infrastructure development.
- The MOID welcomed Japanese ODA for the forthcoming projects such as the port expansion project.

- The key stakeholder for this Study will be the port master of the TPA. The stakeholder meeting will be separately arranged on 19 July.

Date and time: 2008/6/19 10:00~11:30

Participants: Mr. Meena, Dr. Kaira (Dept. of Policy and Planning), Mr. Laiser (Statistics), Mr. Mujwahuzi (Assistant Director, Department of Road), and other officials

Some of the comments raised by the key stakeholders are listed below.

- The outcome of this study should incorporate the projects and programme proposed in the National Transport Policy, Transport Sector Investment Plan and transport development plans (such as Port Development Plan) in order to harmonize the study with the policy guideline.
- The on-going studies, including the Port Master Plan and Railway Master Plan, should be carefully reviewed, and may provide essential inputs to this study.
- The development strategies by sector, such as Agricultural Development Plan and Integrated Industrial Development Strategy, should also be reviewed in order to discuss the economic framework for each sector and the future freight demand.
- The pipeline, as a mode of transport, should not be neglected, and it may influence the modal choice of freight transport.
- The study should also focus on the development corridors identified in the TSIP, which may attract investors once the transport and trade facilitation is accomplished.
- The information and data collected during the study should be compiled into a database. An analytical tool should be also prepared in the study. The database and analytical tool may be useful to monitor and evaluate the progress of the proposed projects in the study.
- The stakeholders involved in the transport and trade business are widely diverse. All the relevant stakeholders should be involved and informed throughout implementation of the study.