

Report No. 8694-AFR

# Africa

## The Great Lakes Corridor Study

March, 1990

Infrastructure Division  
Africa Technical Department

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## GLOSSARY OF TERMS AND ABBREVIATIONS

AMI	Agence Maritime Internationale (Belgian-owned forwarding and clearing company)
BELBASE	Former Belgian concessions at Dar es Salaam and Kigoma
B/L	Bill of Lading
BNR	Banque Nationale du Rwanda
CIF	Cost, Insurance and Freight
C/F	Clearing and Forwarding
CMB	Coffee Marketing Board (Uganda)
CORWACO	Private Rwandese trucking company
DSM	Dar es Salaam
ECA	Economic Commission for Africa
EEC	European Economic Community
ESA	Equivalent Standard Axle
FOB	Free On Board
F/E	Foreign Exchange
GVW	Gross Vehicle Weight
ICD	Inland Clearance Depot
KCHC	Kenya Cargo Handling Company
KPA	Kenya Ports Authority
KRC	Kenya Railways Corporation
L/C	Letter of Credit
Liberation War	Overthrow of General Amin
LLC	Landlocked Country
MAGERWA	Rwandese warehousing company, joint public-private venture
NCTA	Northern Corridor Transit Agreement
NRM	National Resistance Movement
ODA	Overseas Development Administration (UK)
OTRABU	Burundian parastatal trucking company
O/D	Origin/Destination
POL	Petroleum, Oils and Lubricants
PTA	Preferential Trade Area
RCTD	Road Customs Transit Declaration
SOCABU	Burundian parastatal insurance company
STIR	Rwandese parastatal trucking company
TC	Transit Country
THA	Tanzania Harbors Authority
Transocean	Ugandan parastatal clearing and forwarding authority
TRC	Tanzania Railways Corporation
URC	Uganda Railways Corporation
ZBR	Zaire, Burundi and Rwanda

# THE GREAT LAKES CORRIDOR STUDY

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## EXECUTIVE SUMMARY

### Background to the Study

International transport-related trade costs are a serious constraint to the development of the landlocked countries in Africa. The Bank, through its country transport investment programs, has assisted generally in the development of regional infrastructure but has no specific policy toward regional transport development. This study defines the issues and policies required to develop a coherent international transport-transit strategy for East-Central Africa and provides the regional perspective for country economists in the preparation of their projects and in their dialogue with governments. The study assesses the regional infrastructure but focuses primarily on transport operations, the impact of government policies, and the response of shippers and transporters. The study is not prescriptive but presents the policy issues and options for further analysis and discussion.

The landlocked countries surrounding the Great Lakes of Central Africa -- Rwanda, Burundi, Uganda and the Kivu Province of Zaire -- have faced major international transport difficulties during much of the 1970s and 1980s. The traditional transport systems, based on the rail networks through Kenya and Tanzania to the ports of Mombasa and Dar es Salaam, virtually collapsed under the weight of political disagreement, civil disturbance and economic decline. Road transport replaced rail and, although truckers have been able to adapt to changing transit conditions, international transport costs and transit difficulties have increased significantly.

Lower transport costs, reduced dependence on individual transit routes, and greater national control of international transport have become major priorities for government policy in the landlocked countries. These policy objectives may conflict, and a high economic price has perhaps been paid for transit security and national control.

The trade of individual landlocked countries is small but, in aggregate, it forms an important element of regional transport demand, over 1.4 million tons in 1987 and possibly over 2.1 million tons in 1995. International transport generates substantial revenue for some transit countries -- Kenya earns more than \$80 million from international transport in the region -- but can also create serious infrastructure problems. Regional transit-transport strategies must ensure that the economic interests of both the landlocked and transit countries are safeguarded.

### Transit Routes

Most international traffic in the region uses two sets of routes radiating from the ports of Mombasa and Dar es Salaam, known as the Northern and Central Corridors. More recently, a Southern Corridor across Lake Tanganyika has been developed for trade with Southern Africa.

### **Northern Corridor**

Three basic routes connect Kenya to the landlocked countries:

- 1) Road route via Kampala, serving Uganda and ZBR (Zaire, Burundi and Rwanda): Much of the route is in poor condition but a major program of road investment is underway and should be completed by 1992.
- 2) Road route via Mwanza, serving ZBR: Much of the road route in Tanzania is unpaved and, although the road between the Kenyan border and Mwanza may be paved by 1991, there are no plans for upgrading the entire route.
- 3) Rail route, serving Uganda: Since 1986, international rail traffic has been routed via Kisumu and a wagon ferry service to Jinja.

### **Central Corridor**

Three routes are presently used, and a fourth is being developed:

- 1) Rail/Lake Tanganyika: The traditional route from DSM (Dar es Salaam), via Kigoma to ZBR, it is now mainly used by Burundi and Zaire. Pre-independence Belbase concessions in DSM and Kigoma continue to be privately managed.
- 2) Road route, direct trucking to the ZBR countries, via Dodoma, and Isaka: This route has become important recently despite very poor road conditions.
- 3) Rail/Lake Victoria: This route uses wagon ferries over Lake Victoria and is an alternative to the Northern Corridor for Uganda transit traffic.
- 4) Rail/road via Isaka: This route is under development and should be operational by 1992. It was designed primarily to service Rwanda but could also benefit Burundi and Zaire.

### **Southern Corridor**

The Lake Tanganyika route, Mpulungu-Bujumbura: This route was developed mainly for cement and sugar shipments from Southern Africa to Burundi and, to a much lesser extent, Rwanda. The route carries little or no overseas trade and is not considered in detail by the study.

### **Assessment of Present Systems**

The Northern Corridor routes account for 72% of total international transport in the region, and trucks carry just over 75% of traffic on the corridor. Road conditions on the Kampala route will be improved very significantly by 1992 and thus will not represent a significant constraint. The rail/wagon ferry system has the capacity to carry substantially greater traffic and will be improved by a new terminal close to Kampala, additional rolling stock in Uganda, technical assistance to both Kenya and Uganda Railways, and possibly by the upgrading of the Nakuru-Kisumu line which presently is constrained by weight limitations.

Until recently, the Northern Corridor was the more efficient and was preferred by shippers. The situation is changing as DSM improved, and operating difficulties on the Northern Corridor increased: declining efficiency of Mombasa port, frequent verification of containers, police escorts for some commodities, border delays, and the continued need for transit bonds. The Northern Corridor Transit Agreement was expected to significantly reduce these problems, but it is only slowly achieving this objective.

The Central Corridor rail routes are constrained by TRC (Tanzania Railways Corporation) capacity which restricts traffic movement and reduces service levels: 25,000 tons of Ugandan sugar were stranded at DSM for over a year. The TRC Emergency Program will help alleviate the immediate problems but will not generate sufficient capacity for large additional transit flows. Reconstruction of the roads connecting Isaka to Rwanda and Burundi should be completed in 1991, however, paving of the Dodoma-Isaka section of the route from DSM is unlikely in the near future. Capacity is being increased at DSM port but may be exceeded in the mid-1990s, or if Southern Africa transit traffic substantially increases.

The Central Corridor is potentially very attractive for transit traffic for the following reasons: (i) customs arrangements are less costly, simpler and less restrictive; (ii) the number of transit countries is kept to a minimum; (iii) management and labor are more flexible at DSM; and (iv) direct transport costs are significantly lower for ZBR.

Shippers have already responded to the improvements and have increased trade through the Central Corridor. Burundi now imports 80% and Rwanda 30% of their overseas dry cargo through DSM. If the inland movement constraints were removed, the Central Corridor routes would attract even more traffic. The potential loss of their transit traffic and revenue is increasingly realized by the Kenyan transport industry. Competition between the routes for transit traffic may be more effective than regional agreements in changing Kenyan attitudes toward transit controls.

#### Major Issues in the Transit Countries

Deteriorated infrastructure has been a significant issue in the region. However, to a great extent, the ongoing and committed investment program will provide by 1992 the quality and capacity necessary for the traffic. Some parts of the infrastructure, such as TRC track, will not be fully improved by 1992, but these should not be binding constraints to transit movement. Overall, the need for additional investment in transit infrastructure is very limited in the medium term. A more serious issue may be over-investment in transit facilities. Additional road links are proposed between Tanzania and Burundi, partly on the basis of transit security; similarly, a new route between Rwanda and Burundi has been suggested. These links do not reduce transit dependency and should be justified solely on economic criteria.

The major issue will be, however, the maintenance of the infrastructure. The investments being undertaken on the Northern Corridor will largely reinstate what previously existed. If policies toward road use and maintenance are not improved, the situation could again rapidly deteriorate. A series of problems must be solved: (i) maintenance expenditure, funding and organization;

(ii) appropriate axleload and vehicle regulations; (iii) enforcement of the regulations; and (iv) efficient and equitable transit tolls and charges.

Unfortunately, the costs of the transit infrastructure can be incurred in one country while the benefits are enjoyed in others. If decisions are made on purely national considerations, inefficient regional solutions will result. Suitable policies can be formulated, however, which can increase the benefits of both the landlocked and transit countries.

The main physical transport constraint in the Central Corridor is the movement capacity of TRC. The Kigoma and Isaka routes are potentially the lowest cost transit alternatives for Burundi and Rwanda, and the Mwanza route offers Uganda its only feasible alternative to transit through Kenya. All the routes are, however, crucially dependent on an adequate level of rail service through Tanzania.

Substantial investments have been made in the Central Corridor, and the EEC is considering the provision of transit block trains for the transit traffic. Unfortunately, little attention is being given to the operational integration of port, rail, and terminal infrastructure and services. Coordinated transport operating systems are necessary for the transit infrastructure being developed in Tanzania, especially for the Isaka and Mwanza routes. If the routes can be operated efficiently, the potential exists for substantial traffic growth. The systems should include rail, port and terminal operations, and cover ownership, management and pricing policies.

The basic problems on the Northern Corridor are the declining efficiency of Mombasa Port, and the transit and security controls and regulations. The cumbersome transit procedures are exacerbated by the security regulations imposed by Kenya. Unless the system can be streamlined, the Corridor will lose further traffic to DSM.

Rail provided an efficient, low cost transit system on the Northern Corridor until the early 1970s and has the potential for recapturing a substantial share of long distance traffic. The physical capacity will be available, but organization and coordination within, and between, Uganda and Kenya Railways remain major bottlenecks.

#### Issues within the Landlocked Countries

In response to the disruption of their transit routes and dependency on the transport capacity of the transit countries, the LLC (Landlocked Country(ies)) have attempted to diversify their transit options and to encourage national participation in international transport. Some intervention in the international transport sector may be necessary to provide transit security, but the expected benefits must be carefully weighed against the cost of government intervention. In Rwanda, Burundi, and Uganda, the National Banks play an important regulatory role through their control of import licensing and foreign exchange allocation, but more specific government intervention has become common:

**Rwanda:** The Government has, since the early 1980s, pursued an active interventionist policy. A strongly protectionist policy toward international

trucking has been adopted on the Northern Corridor. Rwandese trucks now carry 60% of imports and 100% of exports, but at an additional cost to the economy estimated at \$12.5 million, or 10% of export earnings. Protection is encouraging overcapacity in the trucking sector which could lead the Government to extend controls to the Central Corridor routes. The Government has also introduced mandatory air-freighting from Mombasa for some commodities, irrespective of the cost and availability of capacity, adding a further \$1.5 million to transit costs. Further controls could be introduced if the Mombasa freight terminal is developed and to ensure use of the Isaka Terminal.

**Burundi:** The Government has encouraged the development of local participation in international trucking by manipulating the effective exchange rates at which truckers are paid. All truckers are paid in local currency, but local truckers receive an allocation of foreign exchange to cover trip costs while foreign truckers have to use the parallel market.

**Uganda:** The National Resistance Movement has stated that long distance transport should be carried by rail, and the parastatal companies have been directed to use Uganda Railways. This could be justified if they were making transport decisions on non-commercial grounds, but the lack of transport flexibility generates unnecessary costs. The use of Dar es Salaam has been encouraged for barter trade, but even leasing locomotives to TRC has not provided sufficient movement capacity. Storage costs and higher transport rates increased transport costs in 1987 by \$3 million compared to the alternative of rail transport from Mombasa. The Government has given the monopoly for clearing public sector imports to Transocean, but fortunately this requirement has not been fully applied.

### Policy Considerations

The overall costs of international transport in East and Central Africa are unnecessarily high. These costs are not primarily the result of inadequate infrastructure but are due to a number of factors:

- lack of effective and efficient rail transport
- inefficiencies at Mombasa Port
- border delays and transit regulations on the Northern Corridor
- direction of traffic by government rather than shippers
- high cost of national transport protection
- overloading of vehicles and inadequate road maintenance

The Bank has traditionally adopted a country-based approach to transport investment and policies. The country perspective is important and necessary in developing policy dialogue with the landlocked countries regarding the type and extent of government investment and intervention in their external transport sector. The study has indicated that there is the potential for the landlocked countries to reduce their transport costs significantly by modifying their own policies. These cost reductions can be achieved without the agreement of other governments and they should, therefore, receive high priority.

Reducing the high costs of government intervention must be a priority in all landlocked countries. Shippers are generally far better placed to make rational transport decisions than government officials. The role of the

government should be limited, as far as possible, to establishing the minimum framework of customs and vehicle use regulations with transit countries. Where route or mode diversification for transit security requires more active intervention, the policies adopted must maintain maximum freedom of choice between routes, modes and carriers.

There are, however, several issues in the Great Lakes Region which necessarily involve both the LLC and the transit country. An increase in the capacity of TRC to move transit traffic is crucial to regional transit development, but Tanzania may be unwilling to make the necessary investment as the level of transit traffic cannot be guaranteed. Sharing the risks by joint participation may be necessary and desirable, however, problems of ownership, management and control must be resolved.

Under some circumstances, international cooperation may be best organized on a bilateral basis. There are, however, some issues -- such as transit documentation and road vehicle regulations -- which should be viewed in a wider context. It is debatable whether the broad regional approach advocated by the PTA or a narrower, sub-regional or corridor approach would be more effective.

Regional harmonization of transit regulations has many attractions in terms of overall economic integration but, in the case of the Central Corridor, it could result in the introduction of transit bonds which would not be in the interest of the landlocked countries. Similarly, regionally harmonized transit taxes may not fully take into account the specific interests of both the landlocked countries and the economic and transport realities of particular corridors.

Whichever approach is used within the region, multilateral action is required on several important issues:

- (i) vehicle/axleload regulations, road maintenance funding, and transit taxes to ensure, as much as possible, minimum regional transport costs;
- (ii) effective implementation of the Northern Corridor Transit Agreement and the further reduction of the unnecessary costs of documentation and transit bonds;
- (iii) provision of additional movement capacity on TRC to handle the specific requirements of transit traffic;
- (iv) development of integrated transit-transport operating systems to maximize the potential of the Kigoma, Isaka and Mwanza routes; and
- (v) improved coordination between Uganda and Kenya Railways to increase rail transit capacity.

The Bank has the technical expertise to assist in these areas but lacks the regional perspective developed by institutions such as the EEC and UNCTAD. A dialogue must be established with the countries and the other institutions to ensure that transit improvements and national transport projects be proposed and evaluated within an agreed regional framework, and that the potential contribution of the Bank to the development of regional transport infrastructure and policies be maximized.

## I. INTRODUCTION

### A. Purpose and Scope of the Study

1.01 Inadequately developed infrastructure and high-cost transport services have long been recognized as major impediments to economic growth and trade in Africa. The Second United Nations Transport and Communications Decade for Africa (UNTACDA II) gives first priority to the promotion of regional integration, and intra-regional and international trade. International transport routes have existed in Africa for many years, connecting landlocked countries to the sea, and the transit difficulties encountered on these established routes will probably be replicated elsewhere as intra-regional trade develops. The World Bank is in the process of undertaking a series of regional studies to examine the problems of international transport in Africa and to identify the actions that need to be taken to remove the obstacles to transport and trade.

1.02 This study examines the international transport problems faced by the landlocked regions surrounding the Great Lakes of East-Central Africa and the potential role of the Bank in removing the transport constraints to the development of their external trade. Specifically, the report covers: Burundi, Rwanda, Uganda, and the Kivu Region of Zaire. (Although Zaire has direct access to the sea, transport from Kivu to the port of Matadi is such that the region can be considered as functionally landlocked.)

1.03 Analysis of the transport-transit problems of the landlocked countries must necessarily also consider the objectives and constraints of the transit countries through which the landlocked operate. In the Great Lakes Region, Kenya and Tanzania provide access to the sea and are included in the study. There has been growth in trade from Southern Africa, through Zambia and Zaire to Burundi and, to a much lesser extent, Rwanda. These movements are, to a great extent, commodity specific -- mainly cement and sugar, and may be a relatively temporary phenomenon.

1.04 The study provides a broad analysis of the infrastructure, transport operations, transit systems and transit policies pursued by both the landlocked and transit governments. The study does not intend to provide a definitive solution to the transit problem, rather the issues and policy options are outlined and discussed as the basis for continuing dialogue within the region and the Bank.

### B. Geo-Political Developments Since 1971

1.05 Major changes have taken place in the political and economic structure of the region since the early 1970s, and these changes have had major implications for the development of the transport routes and transit systems, e.g.:

- breakup of the East African Community and its institutions, resulting in Uganda facing the restrictions of a landlocked country (LLC), a collapse in the operating efficiency and capacity of the traditional rail routes, and considerable mistrust between the former members of the Community;

- decline of the Ugandan economy, resulting in a dramatic fall in Uganda's international trade, and serious domestic financial problems leading to the rapid deterioration of its infrastructure;
- decline in the Tanzanian economy resulting in both inadequate maintenance of its infrastructure and a serious decline in the effective capacity of its railways;
- the Liberation War, overthrowing President Amin, which seriously disrupted transport within Uganda and, indirectly, Tanzania, and dislocated the trade movements of the countries of Zaire, Burundi and Rwanda (ZBR); and
- civil war and continuing insecurity within Uganda and poor political relations between Uganda and Kenya, periodically disrupting transit traffic.

The overall results of these developments have been a significant increase in overall transit costs and the strong desire within the LLC to reduce transit dependency.

### C. The Transit Objectives of the Landlocked

1.06 Past experience within the region has led the Governments of the LLC to pursue several objectives: (i) development of low cost, efficient transit routes; (ii) diversification of transit routes and modes to provide additional transit security; and (iii) development of national capacity for international transport.

1.07 It is clear that increased national control of international transport often results in increased government intervention, direction and control. Unfortunately, the objectives pursued by government often conflict. Under certain circumstances, such as the development of the Isaka road/rail route, the objectives of low-cost transport and increased transit security can both be achieved but, in general, increased transit security will result in higher transport costs. Increased national control can result in neither lowering costs nor increasing security. Past and proposed transit developments in the region should be assessed in light of these objectives. Maintaining a realistic balance between the conflicting aims of policy is now, perhaps, the critical issue for the Governments of the LLC.

1.08 Transit-transport is such that often the objectives of the LLC can only be achieved with the tacit agreement or active participation of the transit countries. The impact of proposed changes in the transit systems must, therefore, be considered in light of the interests of both the LLC and transit countries. The attitudes of coastal countries toward transit traffic are not always clear. Some countries view transit traffic as an important economic factor, while others use it as an instrument for international political influence. In East Africa, a mixture of attitudes prevails; however, in most cases, the interests of transit traffic are subordinate to the national interests of the coastal countries.

1.09 It must be recognized that, given the growing choice of transit routes in the region, it may not be in the economic interest of transit countries to invest in transport capacity for external traffic which cannot be guaranteed in the long term. Joint participation in the provision of both infrastructure and movement capacity may, therefore, be necessary to meet the objectives of the LLC and the legitimate concerns of the transit countries.

## II. PRESENT TRANSIT ROUTES

### A. Introduction

2.01 This section of the report provides a brief description of the present transit routes used within the region, their present condition, and the improvements that are already envisaged.

2.02 Until the early 1980s, the transit routes could be reasonably well typified in terms of corridors: Northern Corridor -- road and rail routes from Mombasa, through Kampala; and Central Corridor -- rail/lake route from Dar es Salaam, through Kigoma. Today, however, the simple corridor description no longer applies, as transporters and governments have responded to changing conditions and problems by developing new routes. The terminology "Northern and Central Corridors" is still used but the Corridors are now collections of routes which converge respectively on the ports of Mombasa and Dar es Salaam (DSM).

2.03 Imports from Southern Africa are shipped across Lake Tanganyika from Mpulungu and Kalemie to Bujumbura. This has been termed the Southern Corridor and is important for cement and sugar imports to Burundi. Local production of sugar and possibly cement could reduce traffic on this corridor, but its importance would be enhanced for other commodities if trade were developed within the Preferential Trade Area (PTA), and if political rapprochement in Southern Africa were achieved. The study does not consider this corridor in detail.

2.04 Recently, the Governments of both Burundi and Rwanda have expressed interest in the potential of the Benguela Railway to Lobito in Angola and thereby providing access to the Atlantic. Even if the line is rehabilitated, the potential advantage for Burundi and Rwanda appears limited in comparison with existing routes.

### B. The Northern Corridor

2.05 Traditionally the Northern Corridor route consisted of the main East African Railway Corporation (EARC) rail line, Mombasa-Nairobi-Malaba-Kampala, and its extension to Kasese. Transit traffic from Rwanda and Kivu was taken by road to connect with rail at either Kampala or Kasese. In the early 1970s, rail carried almost 100% of Uganda's international traffic and most of Rwandese and Zairean traffic. Radical changes have since occurred, and road transport now carries over 75% of total international traffic on the corridor.

**Port of Mombasa**

2.06 Mombasa is a well equipped port with 16 quay berths, six deep water lighterage points, a modern container terminal, and specialized facilities for handling bulk cargoes. The berths can be served by both road and rail, but there has been an increasing trend toward road transport and the number of rail lines in the port has been reduced.

2.07 The slower growth in Kenyan trade in the 1980s, the fall in Ugandan demand, and the growth in containerization from 28% to 45% of general cargo traffic since 1982, have resulted in berth occupancy rates of around 70%, and no expansion in berth capacity is foreseen in the short-medium term. Acquisition of additional handling equipment for both containers and general cargo, and the resurfacing of much of the port area are planned for the period to 1991/92.

**Road Routes**

2.08 The Malaba Route. This forms the main artery of the Northern Corridor road route:

	- Kabale - Gatuna -	
Mombasa-Nairobi-Malaba-Kampala-Mbarara		Kigali-Bujumbura
	- Kagitumba-Kayonza -	

The route, except for short sections on the Rwanda-Uganda border, has been paved. However, several sections in Kenya have deteriorated, much of the route in Uganda has been effectively destroyed, and parts of the route in Rwanda and Burundi are in poor condition. Road distances between the major traffic centers on the route are:

	Kampala	Kigali	Bujumbura
Mombasa	1200 km	1800 km	2100 km
Nairobi	710 km	1310 km	1610 km

2.09 Major investment is being undertaken to upgrade the route; work has already commenced on some sections, and funding has been arranged for the remainder. The details of distances, road conditions, and the investment projects are provided in Annex 1, while the following summarizes the current situation.

- (i) Kenya: The route is paved throughout, but only about 50% of the 958 km is considered in good condition. Rehabilitation, reconstruction and/or strengthening of the remaining 470 km is either on-going or funded. It is expected that by 1991/92, most of the route should be in good condition, although some work on the sections Sultan Hamud-Ulu and Limuru-Lanet will be necessary.
- (ii) Uganda: Much of the main transit route to Rwanda is in very poor condition. Some 200 km have already been reconstructed, and the rest of the work to Kabale should be completed by the end of 1991. Once the Kabale route is improved, there will remain only one short

section of unpaved road (29 km) connecting the Kagitumba road from Rwanda with the Kabale route. There are no plans, at present, to upgrade this section. Unfortunately, there are reports that parts of the road from Malaba to Jinja, reconstructed by force account, are already deteriorating.

- (iii) Rwanda: The Gatuna-Byumba-Kigali road has recently been reconstructed and, except for some very short sections where the road crosses marsh, is in very good condition. Technical solutions for the marsh crossings are being investigated. The alternative route to/from Uganda, via Kagitumba and Kayonza, has recently been upgraded to a paved standard. The Kigali-Burundi road is in generally good condition, but some sections will need strengthening.
- (iv) Burundi: The Rwanda border-Bujumbura road is paved but requires rehabilitation and some geometric improvement. The EEC has agreed to fund this work which should be completed in 1990.

2.10 The Busia Route. The Malaba route is used primarily for the movement of dry cargo. Petroleum tankers generally collect fuel from Nairobi, leave the Malaba route after Nakuru and detour via Kisumu and Busia, rejoining the main transit route after Tororo. Busia has been designated as the main petroleum products (POL) border crossing point. Border delays for tankers are reduced by this specialization as transit procedures for bulk fuels can be completed quickly, and the tankers avoid queuing behind general cargo trucks. The condition of this route is good and no improvement is scheduled.

2.11 Links to Zaire. Zaire is connected to the main Malaba route by links from Bukavu, Goma, and Beni through Rwanda and Uganda. The road links in Rwanda are paved while those in Uganda are in poor condition. The main road network in Eastern Zaire is also in very poor condition.

2.12 The Mwanza Route. Instability within Uganda and the imposition of high transit fees resulted in trucks avoiding Uganda and going south of Lake Victoria, via Kisii, Isebania, Mwanza, and Rusomo Falls/Kobero to reach Rwanda, Burundi and Zaire. In terms of distance, the route is 100 km longer to Kigali and approximately the same length as the Malaba route to Bujumbura. The route within Kenya is paved and generally in good condition. The EEC has been approached, however, to contribute funds for the rehabilitation of 50 km of the route between Kisii and the Tanzanian border (Isebania) which was not designed for heavy transit traffic.

2.13 Within Tanzania much of the route is unpaved. The 182 km Musoma-Mwanza-Usagara section has been paved, and the EEC has invited tenders for the design of the Kenya border-Musoma section. There are, however, no plans for the paving of the Usagara-Biharamula section. The constraints imposed by the ferry crossing between Kikonga and Busisi have been largely removed with the new ferry which has the capacity for four to five trucks per crossing. As an alternative, trucks can travel via Shinyanga to the new roads connecting Isaka to Rwanda and Burundi (see this Chapter, section: C. The Central Corridor).

2.14 Trucks travelling to Burundi use either the direct Kobero track or pass through Rwanda. The direct route has poor vertical and horizontal alignment and is only passable for the most powerful truck-trailer combinations. Semi-trailers and less powerful trucks are forced to use the longer Rwanda route. This restriction will be removed with the improvement of the Kobero route (see this Chapter, section: C. The Central Corridor)

#### Rail Routes

2.15 The main line. In terms of the quality of the rail infrastructure, the main line to Uganda is the Mombasa-Malaba-Jinja-Kampala route, a total distance of 1,338 km. The section Nakuru-Malaba-Jinja now carries, however, insignificant levels of transit traffic.

2.16 The operational route. Almost all Ugandan rail transit traffic on the Northern Corridor now uses the wagon ferry service across Lake Victoria, between Kisumu and Jinja, a 12-hour voyage of 233 km. The Kisumu branch of Kenya Railways connects with the Malaba line at Nakuru. Despite the need for an additional transfer, this routing has several advantages for Uganda:

- shorter overall distance, approximately 100 km;
- shorter distance within Kenya, 150 km;
- utilizes available ferry capacity, releasing locos for other traffic; and
- more efficient interchange system between the Uganda Railways Corporation (URC) and Kenya Railways Corporation (KRC).

For KRC, however, the present traffic routing has significant disadvantages. The Kisumu line has lighter rail than the main line, and locomotive and train weights are restricted by the bridges and viaducts. Class 62 locos are used and their lack of availability is creating problems for KRC. An investigation of the strengthening requirements to eliminate these constraints is proposed under the present Bank/U.K. assistance project to KRC.

2.17 The wagon ferry operation will be further strengthened by a Danida project which will construct a new ferry terminal at Port Bell and a short rail link to Kampala. Once this project is completed, international rail traffic to Kampala will be able to avoid the steep gradients and train weight restrictions on the Jinja-Kampala section.

2.18 The Kasese Line. Transit traffic ceased to use this 332 km Kasese-Kampala line in the mid-1970s, and it is now in a seriously deteriorated condition. Although the Ugandan Government has expressed its intention to upgrade the line, the proposed Bank project includes only very limited improvements to maintain operations. This could develop into the progressive rehabilitation of the track if traffic were to substantially increase, however, there is little prospect of transit traffic returning to the line in the near future.

## **The Kenya Pipeline**

2.19 POL traffic to the LLC generally starts at Nairobi where the white oil pipeline terminates. The extension of the pipeline to the west has been under consideration since the conception of the original project. A feasibility study has been undertaken, and it is believed that the Kenyan Government intends to extend the pipeline to both Kisumu and Eldoret. Work carried out by the Bank suggests that the project may not generate much higher economic returns than a revitalized rail-based operation. If an extension is undertaken, Kisumu should receive priority.

2.20 The pipeline extension and the pricing policies used for cost recovery could have important implications for the LLC. Competition from the Central Corridor should, however, limit Kenya's freedom of action in setting prices, especially if Tanzania Railway Corporation (TRC) capacity is expanded. A pricing dispute between the oil companies and the Kenyan Government severely disrupted oil supplies in 1989, and Burundi, for example, was able to shift to a road-based supply route from Dar es Salaam with relatively few problems and at comparable costs. Once the roads in Tanzania are rehabilitated, and the operating restrictions on the LLC tanker fleet removed, the potential of the DSM route will increase significantly.

## **Transport and Transit Operators**

2.21 Although the railways carry about 250,000 tons of international Ugandan traffic, the majority of traffic using the Northern Corridor routes is carried, at present, by private road transporters contracted by private forwarding and clearing agents. Parastatal companies do play an important role:

STIR: a Rwanda government-owned trucking company, established in 1972, which now also undertakes C/F activities. In addition to its own fleet, the company controls and often manages sub-contracted vehicles and has a key role in the control of Rwandese cargo movements through Kenya.

OTRABU: a Burundi government-owned transport company.

Transocean: a Uganda government clearing and forwarding (C/F) company which also used to be a major transport company on the route. Recently the company has been given a monopoly for the clearing of all government and parastatal import cargo and would like to re-establish its transport capacity and take over C/F for the export of coffee.

2.22 The participation of national transport operators varies considerably between the LLC. The majority of Rwandese traffic on the Northern Corridor is now carried in Rwandese trucks, mainly organized by STIR and CORWACO, a private trucking company which also has a fleet of sub-contractors. Burundi has developed a local international trucking capability, sufficient for 60%-70% of Burundi traffic on the Northern Corridor. The majority of Ugandan international road traffic is carried by Kenyan-registered vehicles.

### C. The Central Corridor

2.23 The Central Corridor has been operational as a transit route since the early part of the 20th century, and specific institutional arrangements were agreed in the 1920s for ZBR cargo at Dar es Salaam and Kigoma, the Belbase concessions. The legal position of the Belbases is now rather ambiguous but their de facto role has continued. While they may not ideally suit modern logistical requirements, the Belbase arrangements do confer some benefits to ZBR and may be difficult to modify. Additional routes from DSM became operational during the mid-1980s and others are planned.

#### Port of Dar es Salaam

2.24 By the late 1970s, the port had an unenviable reputation for congestion, inefficiency and pilferage. There have been marked improvements and these, combined with a fall in traffic, have eliminated major ship delays. The port is now often preferred to Mombasa despite its more limited infrastructure. Berth No. 1 and the surrounding area is the former Belgian concession, till known as Belbase and operated by AMI, a Belgian owned C/F company which is part of a larger company with extensive transport interests. Despite the concessions in port charges for ZBR cargo using Belbase, C/F agents other than AMI use the normal port facilities for ZBR cargo.

2.25 The Port Rehabilitation Project, designed to increase capacity to 3.7 million tons, is ongoing. The new container facilities are operational, and the rehabilitation of the general cargo berths is expected by the end of 1991. The project will ease immediate constraints, but further capacity, especially for container traffic, will be necessary in the relatively near future. A second project to raise container handling capacity is being negotiated. The project will also include a longer-term development study of berth extension which may be necessary after 1995.

#### Rail/Lake Route via Kigoma

2.26 The traditional route for ZBR cargo is the 1,254 km central line of TRC to the port of Kigoma, transshipment to Arnolac barges, and final delivery to the port of Bujumbura. Other than TRC, management of the system is undertaken by the private sector; the Belbases at DSM and Kigoma are managed by AMI, Arnolac is privately owned, and Bujumbura port, though government owned, is privately managed.

2.27 During the 1960s and 1970s, Rwanda ceased to use the route and concentrated its traffic on the Northern Corridor. Burundi shifted traffic to Mombasa when the Kigoma route almost ceased to function at the time of the economic crisis generated by the Liberation War. Conditions have improved but TRC remains a weak link in the transport chain.

2.28 Much of the fixed infrastructure of TRC is old and requires replacement but, in the short term, the track is not the major constraint to increased performance. Work is continuing on relaying track, ballasting and replacing/strengthening bridges. The capacity of TRC to undertake such work is limited, and it will probably be spread over a ten-year period.

2.29 The port of Kigoma has recently been rehabilitated, and the container handling constraint will soon be removed by the provision of a Belgium-funded container crane. The port will then have considerable excess capacity.

2.30 The Arnolac fleet is old but has sufficient barge capacity (5,500 tons), and a new 350 ton container vessel for the Kigoma traffic. Other Burundi operators will soon possess 2,500 tons of capacity. Their barges operate to Zambia but if the Government's forecasts are correct, this traffic will decline in the 1990s, and the capacity will be available for the Kigoma route.

2.31 The port of Bujumbura has capacity to handle at least 400,000 tons, and is only 50% utilized. The maintenance of the port infrastructure has been the responsibility of the Government rather than the concessionaire and was neglected for many years. To remedy the accumulated maintenance needs, the French Government funded a port rehabilitation project which was completed in early 1989. The planning of this project was undertaken without the participation of port management, and the works were to an unnecessarily high standard, while other desirable improvements were not included. No additional capacity will be required at the port for many years. The French Government has cancelled part of the debt, but it is highly unlikely that the port can generate sufficient revenue to service the outstanding loan.

#### All-Road Route to ZBR

2.32 Road transport from Dar es Salaam to ZBR has only developed recently. The route DSM-Dodoma-Singida-Lusahunga-Rusumo Falls-Kigali is described in Annex 1. The overall length of the route to Kigali is 1,530 km, and about 45% is still earth/gravel. Serious problems were experienced in 1987 when the road between Manyoni and Issuna was closed during the rains, and traffic had to detour via Arusha.

2.33 Trucks to Burundi either pass via Kigali (total distance 1,800 km) or use an earth track from close to Rusumo Falls and pass via Kobero and Muhinga. This alternative reduces the total distance by 170 km and eliminates one transit country, but the road is not all-weather and cannot be used by semi-trailers.

2.34 Roads in Tanzania are generally in very poor condition, but a major rehabilitation project, designed to raise the proportion of trunk roads in good condition from 40% to 70%, is in the course of preparation and funding. This rehabilitation program should allow more reliable road communications for the ZBR countries, especially the improvement of the Manyoni-Issuna section which was included in the 1988 budget. The Dodoma-Mwanza road is currently the subject of a feasibility study and while some improvement may take place, major upgrading cannot be expected in the near term.

2.35 The all-road route to Rwanda and Burundi will be improved by the completion of the road infrastructure planned for the Isaka route, described below.

### **Isaka Rail/Road System**

2.36 The creation of a rail/road transport system to Rwanda has been under discussion since the late 1970s. Funding for the interchange terminal has been agreed, and the contract for the first stage of the project is out to tender. The terminal will provide facilities for 46,000 tons of general cargo and 43,000 tons of container traffic. Construction is expected to take 18 months, and the terminal should be operational by 1992.

2.37 The road infrastructure from Isaka to Rwanda is now completed or funded: Rusumo Falls to Lusahunga, 95 km, completed; Lusahunga to Bukombe, 127 km, construction on-going, completion 1989; and Bukombe to Isaka, 112 km, out to tender, completion 1990/91.

2.38 The EEC is financing the updating of the design study to link Burundi directly to the Rusumo Falls-Lusahunga route by upgrading the Muyinga-Kobero-Nyaka Sanza road (86 km). It seems likely that financing of the construction will then be agreed.

### **Rail/Lake Route via Mwanza**

2.39 The rail/lake route via Mwanza to Uganda began operations in 1986/87 using URC wagon ferries. The route comprises the 1,229 km Mwanza line of TRC, 359 km by ferry across Lake Victoria, and 80 km rail from Jinja to Kampala -- a total distance of 1,668 km. Kampala will be more directly served by the route when the Danida-funded Port Bell ferry terminal is completed.

2.40 Severe capacity constraints have been experienced on TRC, and some Ugandan imports have been stranded at DSM for over a year. In an attempt to alleviate the capacity constraints, URC has hired up to four locos to TRC. There have been attempts to truck cargo between DSM and Mwanza where cargo is transshipped to/from URC wagons. This is, however, considered as only an emergency measure. Delays on the route may have also been caused by the problems that Tanzanian transport operators face in obtaining payment for Ugandan traffic.

### **Transport and Transit Operators**

2.41 Until relatively recently, transit traffic along the Central Corridor was moved under the effective control of only three organizations: AMI -- managing Belbase and Kigoma port, and monopoly C/F agent; TRC -- providing transport capacity between DSM and Kigoma; and Arnolac and Bujumbura Port -- effectively the same management.

2.42 The development of the road transport alternative to ZBR countries has introduced effective competition to the traditional route and operators. STIR operates from DSM but only uses foreign sub-contractors on the route. OTRABU also has offices in DSM.

2.43 Traffic to Uganda, using the rail/ferry route, is almost exclusively organized for imports by Transocean and for coffee exports by the Uganda Coffee Marketing Board.

**D. Potential New Transit Routes**

2.44 The main developments planned for the transit network have been described in the previous sections. Several other potential routes for transit traffic have been discussed and are briefly outlined below.

**Lake Transport: Kisumu-Kemondo Bay**

2.45 The use of the KRC/TRC wagon ferries to move trucks/trailers across Lake Victoria, thus avoiding Uganda, has not only been discussed but trial runs have been made. The system is technically feasible especially if some improvements were made to the steep gradients on the Bukoba-Lusahunga road. There was such a wide difference in the price asked by the railways, based probably pro-rata to the revenue from the Jinja-Kisumu route, and the truckers willingness to pay that no further action was taken. Many private truckers saw the ferry operation as running contrary to their commercial interests.

**Lake-River Transport: Kisumu-Kagituma**

2.46 The use of oil barges from Kisumu, across Lake Victoria, and up the Kagera river to Kagitumba has been suggested, and a preliminary study was undertaken by the Economic Commission for Africa (ECA). Potentially, the system might be attractive to Rwanda, but there is no information on the navigability of the river nor the improvements that would be required. There is apparently a disused hydro-electric generating plant on the river which would suggest that severe problems could be encountered. The present Rwanda POL demand of 90,000 tons is too small to justify substantial investment.

**Rail Transport: Kampala-Kasese**

2.47 Reactivation of rail/road transport along the Northern Corridor would seem a logical long-term development if the operating efficiency and coordination of KRC and URC were improved. Substantial investment on the Kasese Line would not seem to be justified for the traffic demands from either Rwanda or Burundi. Their other alternatives and the advantage of Kasese over Kampala as a railhead would be small. The Kasese line would have significant potential benefits for North-Eastern Zaire.

**Rail Transport: Musoma-Tanga**

2.48 Over the years the construction of a new transit route for Uganda traffic to Tanga, with an extension of the TRC network from Arusha to Musoma, has been discussed several times. It is always possible that the concept will be resurrected. Preliminary studies have indicated, several times, that the investment would generate low economic returns if based only on Uganda traffic. The project could also probably cause severe environmental damage.

**Road Route: Mwanza-Arusha-Mombasa**

2.49 Transport distances to Mombasa from both Rwanda and Burundi would be considerably shortened by the construction of a direct road connection across the Serengeti connecting with Arusha, accompanied by the construction of a bridge for heavy commercial traffic at Taveta. The traffic flows generated by Burundi and Rwanda are so low that they alone could not justify the magnitude of the investment required.

**E. Additional Investment Studies**

2.50 The opportunities for economic investment in new transit infrastructure are limited. Lake transport from Kisumu to Kemendo Bay might provide benefits for both Rwanda and Burundi, but this would depend on the scale of road improvements required and the pricing of the ferry crossing. In view of the competing demand for the Kenyan wagon ferry, the potential for the route is limited unless there is major investment in new lake capacity.

2.51 The use of bulk oil barges across Lake Victoria could be very attractive for Uganda and perhaps also Rwanda and Burundi, if the Kenyan Government were to extend their pipeline from Nairobi to Kisumu. A new oil jetty would be required at Kisumu, and a somewhat more extensive investment would be necessary to connect Port Bell with the existing tank farm in Kampala. The costs of oil barges and the associated infrastructure would have to be assessed against the costs of shipping fuel by tanker wagon using the wagon ferries.

2.52 Other than these studies, the real priorities for the governments and aid agencies should be to ensure that the planned rehabilitation program be completed, and that the infrastructure then be maintained at the service standards expected to be attained by 1992.

**III. TRAFFIC FLOWS**

**A. Total International Traffic**

3.01 Overall, there are about 1.4 million tons of reported international trade movements within East Africa (Table 3.1). The majority of the traffic has its origin/destination outside the region, but there is significant reported regional trade. It is important to distinguish between regional and non-regional trade, as direct trade between neighboring countries does not follow transit procedures.

Table 3.1 East Africa LLC Trade (1987) (1)  
(000 tons)

	<u>Imports</u>			<u>Exports</u>			<u>Total Trade</u>
	<u>Non-Region</u>	<u>Region</u>	<u>Total</u>	<u>Non-Region</u>	<u>Region</u>	<u>Total</u>	
Dry Cargo	485	180	665	340	15	355	1020
POL	390		390				390
Total	875	180	1055	340	15	355	1410

(1) Based upon reported transport flows.

3.02 All Petroleum products are classified as essentially non-regional trade. Over 80% of the POL movements are included in Kenya's export trade statistics, but this is not reflected in the trade statistics of Rwanda and Burundi. In any case the Kenyan value added on petroleum exports would be limited.

3.03 Regional trade is essentially exports from Kenya to the LLC, accounting for about 85% of regional trade along the Northern and Central Corridors. The domestic value added of some Kenyan regional exports may be limited; work by the UNDP Transport Planning Project, RWA/86/005, in Rwanda suggested that some 50% were actually re-exports. In addition to regional trade within East Africa, 87,000 tons were imported from Southern Africa across Lake Tanganyika.

3.04 A large import imbalance in the direction of dry cargo trade is indicated in Table 3.1, with imports some 85% higher than exports. These aggregate data mask an export imbalance from Zaire and 4:1 import imbalances for Burundi and Rwanda.

#### B. Growth Trends in International Traffic

3.05 International traffic has shown little consistent growth during the 1980s. Over a long period there has been significant growth in the flow of traffic to Burundi and Rwanda, but this has been more than balanced by the dramatic fall in Ugandan traffic (in 1971, Ugandan traffic was 1.36 million tons, about double the 1987 flow).

3.06 In the light of past experience in the region any forecasts of future traffic must be treated with caution. Only Burundi has attempted long-term forecasts of future traffic; the other projections in Table 3.2 are based upon available material and discussions within the region.

**Burundi:** Import estimates from the Ministry of Planning reflect the planned local production of sugar and cement. POL estimates appear low and could be 20,000 tons higher. Coffee exports increase at 3.3%, other exports by 10%.

**Rwanda:** Import estimates for 1990 increased at an average rate of 4% per annum, coffee exports growing at 2% and other exports at 4.5%.

**Uganda:** Dry cargo imports growing at 4.5%, POL increasing at 5.5%, reflecting the release of suppressed transport demand. Total exports grow at 7% per annum.

**Zaire:** Flows will probably continue to show marked fluctuations. The estimates are based on a 4% growth from the average of flows during the mid-1980s.

Table 3.2 Present and Potential 1995 International Traffic  
(000 tons)

<u>1987:</u>	<u>Imports</u>			<u>Total Exports</u>	<u>Total Trade</u>
	<u>Dry</u>	<u>POL</u>	<u>Total</u>		
Rwanda	165	90	255	58(1986)	313
Burundi	175	52	227	50	277
Uganda	332	200	532	173	705
<u>Zaire</u>	<u>50</u>	<u>49</u>	<u>99</u>	<u>89*</u>	<u>189</u>
<u>Total</u>	<u>722</u>	<u>391</u>	<u>1113</u>	<u>356</u>	<u>1469</u>
<u>1995:</u>					
Rwanda	286	139	425	72	497
Burundi	228	52	280	71	351
Uganda	492	307	799	286	1085
<u>Zaire</u>	<u>51</u>	<u>53</u>	<u>104</u>	<u>142*</u>	<u>246</u>
<u>Total</u>	<u>1057</u>	<u>551</u>	<u>1608</u>	<u>571</u>	<u>2179</u>

\* includes exports of copper and zinc from Shaba

Overall traffic in the region could increase from between 1.4-1.5 million tons to over 2.1 million tons in 1995.

### C. Commodity Composition: International Trade

#### Imports

3.07 Present imports and a scenario for 1995 are outlined in Tables 3.1 and 3.2, but, except for petroleum products, no commodity breakdown is attempted. Full import commodity classifications are only available for Burundi and Rwanda, and some broad magnitudes can be deduced for Uganda. It is clear, however, that new industrial projects and the re-activation of installed capacity within Uganda could have marked effects upon the total volume and nature of imports.

**Burundi:** combined cement and sugar imports account for over 40% of total dry cargo imports and local production of both commodities is planned. Sugar production is expected to start in 1989; cement production is more uncertain but the Ministry of Planning assumes before 1995. If cement production is not developed dry cargo imports would increase by about 45,000 tons. This would have little impact upon transit routes to the sea as cement comes primarily from Zambia and Zaire, using barges across Lake Tanganyika.

**Uganda:** major imports are sugar (60,000 tons), salt (45,000 tons), molasses (23,000 tons), and cement (43,000 tons). Uganda used to be a major producer of all these commodities, with the installed capacity to meet at least local needs. The import estimates make some allowance for increased local production and a shift toward higher value imports.

**Rwanda:** cement imports have been replaced but local production of other bulk imports sugar (16,000 tons), salt (30,000 tons), iron and steel (33,000 tons)

seems unlikely. A significant increase in Uganda production could, however, shift trade from Kenya and overseas.

### Exports

3.08 Coffee is the primary export from Burundi, Rwanda and Uganda and almost 50% of Zaire's exports through East Africa (Table 3.3). Coffee production and prices are crucial in determining total export earnings within the region. Tea has developed as a significant second crop and probably has a higher growth potential.

Table 3.3 Exports Composition: East Africa  
(000 tons)

	Rwanda (1986)	Burundi (1986)	Uganda (1987)	Zaire (1987)
Coffee	41.2	28.3	150	143
Tea	10.3	3.5	N.A	}
Metals	1.2			46
<u>Other</u>	<u>5.0</u>	<u>10.5</u>	<u>23</u>	<u>-</u>
Total	57.7	42.3	173	89

3.09 The import imbalance makes export composition of limited importance in determining transport requirements. In certain circumstances, however, the established marketing channels make route decisions relatively insensitive to the price of transport. Coffee is the dominant export but there are several marketing arrangements:

- Rwandese coffee is sold by auction at Mombasa;
- Burundi coffee is sold through limited tender with established shipping arrangements through Dar es Salaam; and
- Ugandan robusta coffee is sold in New York or London and can be shipped through either Mombasa or Dar es Salaam; Arabica is sold at Mombasa.

Tea is generally sold at either the Mombasa or London auctions, and routing through Mombasa has become standard.

### D. Distribution of Traffic by Mode and Corridor

3.10 Estimates of the route and modal distribution for transit traffic in 1987 are shown in Table 3.4; a small volume of direct overseas air cargo and some local regional trade are excluded. The estimates have been made from a variety of sources and may not fully correspond with other data. The routing of transit traffic has shown marked changes during the period 1978-1987. Burundi imports have, for example, shifted from almost total dependence on the Central Corridor to extensive use of the Northern Corridor and then back again to DSM.

3.11 Rwanda is now making increasing use of DSM. Until 1984, less than 5% of Rwanda's dry cargo imports used DSM but during the period 1986-88, Rwandese imports via the Central Corridor quadrupled from 17,000 tons to 69,000 tons, around 40% of total dry cargo imports. Rwandese exports continue to use Mombasa, but all coffee exports are trucked south of Lake Victoria rather than passing through Uganda.

3.12 Table 3.4 indicates that 95% of POL was routed through the Northern Corridor. The internal supply problems within Kenya reduced POL traffic during 1989; Burundi and, to a lesser extent, Rwanda obtained fuel via DSM. POL has since shifted back to the Northern Corridor, but experience has shown that use of DSM for POL supplies is technically and economically feasible.

Table 3.4 Traffic Distribution (1987): Corridor and Mode  
(000 tons)

(a) Northern Corridor

Imports:

	<u>Mombasa</u>	<u>POL</u>	<u>Regional</u>	<u>Total</u>	<u>Road</u>	<u>Rail</u>	<u>Air</u>
Rwanda	84	82	48	214	210		4
Uganda	171	188	125	484	346	138	
Burundi	17	46	5	68	68		
Zaire	18	49	18	85	85		
Total	289	365	186	850	709	138	4

Exports:

Rwanda	46		3	49	44		5
Uganda	125			125	13	112	
Burundi	4			4	4		
Zaire	43			43	43		
Total	218		3	221	104	112	5

(b) Central Corridor

Imports:

	<u>DSM</u>	<u>POL</u>	<u>Regional</u>	<u>Total</u>	<u>Road</u>	<u>Rail</u>
Rwanda	35			35	35 <sup>(1)</sup>	0
Uganda	36	12		48		48
Burundi	73	5	11	89	20	70
Zaire	14			14	5	9
Total	158	17	11	186	60	126

(1) May include some traffic transhipped from rail at Shinyanga

Exports:

Rwanda	1			1	1	
Uganda	48			48		48
Burundi	37			37	8	30
Zaire	46			46	11	35
Total	132			132	20	113

**(c) Southern Corridor**

Imports:

Burundi	87
<u>Rwanda</u>	<u>6</u>
Total	93

3.13 In terms of total traffic, the Northern Corridor dominates with 75% of total imports and over 60% of exports. Sixty-five percent of total transit traffic is moved by road. Road traffic has increased significantly on the Central Corridor, from less than 5% in 1982, but it still only accounts for about 25% of traffic.

**E. Relative Importance of Transit Traffic**

3.14 The previous sections discussed the absolute magnitudes of transit traffic without indicating its scale relative to total traffic in the transit countries and thus its likely importance in transport decision-making.

**Kenya**

**(i) Port of Mombasa:**

	1987 Traffic (million tons)	
	<u>Dry Cargo</u>	<u>POL</u>
Total	3.699	2.849
Transit	0.479	0.365
Transit %	12.9	12.8

**(ii) Kenya Railways:**

	1987 Traffic (million tons)	
	<u>Tons</u>	<u>Ton-kms</u>
Total	3.03	1.727
Transit	0.25 *	221
Transit %	8.3	12.8

\* includes regional trade from Kenya.

(iii) Roads: On the basis of 1987 cargo flows and an average payload of 30 tons, it is estimated that the daily flow of transit trucks through Kenya is about 130, approximately 75 loaded and 55 empty.

(iv) Summary: Transit flows are of significance but not of major importance at the present time to either KPA or KRC. It is possible, however, that the potential exists for transit traffic to become very much more important to KRC;

130 heavy trucks per day is an important factor in determining decisions in the roads sector.

**Tanzania**

**(i) Port of Dar es Salaam (THA):**

1987 Dry Cargo  
(million tons)

Total	2.080
Transit	0.298 *
Transit %	14.3

\* Central Corridor traffic only -- total transit traffic, including traffic to Malawi, Zambia and Southern Zaire, accounts for 52% of dry cargo movements.

**(ii) Tanzania Railway Corporation:**

1987 Traffic  
(million)

	<u>Tons</u>	<u>Ton-kms</u>
Total	0.79	632
Transit	0.24	292
Transit %	30.3	46.2

(iii) Roads: Transit traffic flows, by road, along the Central Corridor are still very low, averaging about ten trucks per day.

(iv) Summary: Transit traffic using the Central Corridor routes is a relatively small proportion of total dry cargo traffic at DMS port. Transit flows, by road, are still very low, but transit traffic is of considerable importance to TRC, generating over 30% of tons and around 45% of ton-kms. The future of transit traffic should be of crucial importance to decision-making in TRC.

#### IV. MAJOR ISSUES WITHIN THE NORTHERN CORRIDOR

##### A. Infrastructure

###### General Conditions

4.01 By 1992, the general condition of the infrastructure on the Northern Corridor should be relatively good and will not be a serious issue. The present poor operating conditions on some of the road sections within Kenya and much of the Ugandan network will have been remedied. The port infrastructure at Mombasa needs no expansion, and the infrastructure of KRC and URC should not be the limiting factor to traffic expansion.

###### Specific Problems

4.02 While, in general, the condition of the infrastructure will be adequate, a number of specific problems will remain. These, as well as the more general issue of maintaining the system are discussed below.

Kagitumba-Uganda Road Link: It has been the Rwandese Government policy since the late 1970s to develop the Kayonza-Kagitumba road as its major link to the Northern Corridor. The upgrading of the earth track to a paved road was completed in 1988. Rwanda has, therefore, two paved connections with the Northern Corridor: via Gatuna, and via Kagitumba.

4.03 The route via Gatuna has recently been reconstructed and reduces trip distance by 52 kms. Unfortunately, the vertical alignment of the route is difficult and there are some long, steep downhill gradients for incoming trucks. Despite the distance saving, heavily laden trucks carrying imports may prefer to use the Kagitumba route. It is possible that a circular movement pattern may develop with import trucks entering via Kagitumba, and export and empty trucks exiting via Gatuna.

4.04 The upgrading of a 29 km section of road is still required to complete the paving of the Kagitumba route. The short section, within Uganda, links Kagitumba to the main Kabale-Mbarara road. It is very unlikely that this section has high priority in Ugandan road planning and thus Rwanda should be prepared to fund the necessary improvements.

Nakuru-Kisumu Rail Link: Uganda now routes most of its rail transit traffic through Kisumu rather than Malaba.

###### Uganda Rail Transit Traffic: Northern Corridor (tons)

	KISUMU			MALABA		
	<u>Imports</u>	<u>Exports</u>	<u>Total</u>	<u>Imports</u>	<u>Exports</u>	<u>Total</u>
1987	135,800	104,000	239,800	3,500	12,200	15,700
1988	124,000	121,100	245,100	4,700	11,800	16,500

4.05 The construction of a wagon ferry terminal at Port Bell will further increase the cost effectiveness of the Kisumu route, and a major shift in traffic back to the Malaba route seems unlikely in the foreseeable future. Train costs on the Kisumu branch line are higher than on the Malaba mainline as a result of the train load restrictions. KRC may recover these higher operating costs in the tariffs that have been negotiated with URC, but the strengthening of the bridges and viaducts, to allow normal train operations, may be both economically and financially justified. The ongoing assistance project to KRC includes investigation of the engineering needs and costs on the Kisumu line. Once these costs have been assessed an investment appraisal should be undertaken.

Road Maintenance: Almost all ongoing investments in reconstruction and rehabilitation aim to reinstate the existing network of paved roads. The road deterioration can be ascribed to the combination of three factors:

- (i) the roads were not designed for heavy commercial traffic which was supposed to move by rail;
- (ii) excessive damage of the roads by trucks overloaded in relation to legal limits and road standards; and
- (iii) inadequate and/or delayed road maintenance.

4.06 It is reasonably clear that unless overloading and road maintenance funding are controlled, and organization and implementation are raised to the levels commensurate with investment, there will again be a gradual decline in the quality of the infrastructure. Maintenance and its financing are the key issues for infrastructure on the Northern Corridor.

#### **Potential Issues and Problems**

4.07 A number of potential routing issues may have to be faced by the LLC as a consequence of investments either being made or being proposed by the Transit Countries. Essentially, these investments could shift traffic from road to rail and would dovetail with the desire to preserve the newly improved road network. Three investments, in particular, could have an impact:

(i) Extension of the Kenya Pipeline: When the pipeline is extended west from Nairobi it is almost inevitable that the LLC will be required to move their white oils from the new terminal. Whether this will be to their benefit will depend upon the pricing arrangements for the extension. If the extension is made to Eldoret or Malaba there could be the incentive to require on-ward movement by rail, thus utilizing the available capacity on the Malaba line. This possibility also applies, however, from the existing terminal at Nairobi.

(ii) Inland Container Depot (ICD) at Malaba: Cargo transshipment, from rail to road at Malaba, was proposed by the World Bank in 1980 but no effective action was taken. KPA now proposes the creation of new ICDs for containers, similar to Embakasi, and Malaba is their first priority. Use of the existing ICD is not mandatory for Kenyan importers but, if a similar facility were created at the border, it may be in the interests of both KPA and KRC for the Government to require all transit containers to use the new ICD.

4.08 Such direction would not be in the interests of the LLC, given the comparative road and rail rates for containers and the additional movement time

by rail. A integrated KRC-URC through container rail service Mombasa-Kampala, possibly customs controlled and accompanied, might be attractive but not a part rail service with transshipment at the border.

(iii) Reactivation of the Kasese Line: The immediate investment proposed for the Kasese line is to maintain basic operations, but the NRM Government has made it clear that total rehabilitation/upgrading is their ultimate objective. If the NRM objective is achieved there would be strong pressure to maximize the use of the line, and this could include transit traffic. The Government has already shown its willingness to intervene and directly assign traffic to particular modes and simple cost calculations might suggest that use of the Kasese line was the least-cost alternative for both domestic and transit traffic.

4.09 These potential problems follow from the combination of investment and government direction. In the case of Kenya it might be argued that, given the political power of the Kenyan trucking lobby, such direction of traffic would be resisted as have been attempts to control vehicle overloading. It is possible, however, to contemplate a scenario of much greater Kenyan Government intervention:

- desire to preserve new road investment;
- inability to control transit vehicle overloading;
- financial deficit on KRC, government reluctance to finance unremunerative services and need to increase KRC revenue; and
- reduced Kenyan earnings from international trucking as Uganda shifts to rail and the ZBR countries use their own trucks.

4.10 Under these circumstances, maximization of net transit revenues to Kenya could require the direction of transit traffic to rail. The reduced international demand for Kenyan trucking could diminish the resistance of the trucking lobby to such direction. The other routes available to the LLC would, however, limit the impact of intervention as traffic could divert to DSM.

## B. Movement Capacity and Efficiency

### Mombasa Port

4.11 The reputation of Mombasa as a modern and efficient port has fallen very considerably during the last few years. Port users tend to cite the merger of the cargo handling company (Kenya Cargo Handling Company) with the KPA as the real start of the downward trend in productivity and efficiency. The fall in productivity has not noticeably increased berth congestion as the port has excess berth capacity, especially for general cargo.

4.12 Most port users complain about the inflexibility of KPA management at both the top and middle levels. The low level of labor morale, the lack of commitment, restrictive practices by the union, and the need to make informal payments are also frequently mentioned by port users. There is general agreement that the port is grossly over-staffed with about 10,000 employees when 7,000-8,000 would be sufficient. Low wages may be one cause of poor labor morale; however, although rates are below those of the private sector, KPA employees remain among the best paid in the public sector.

4.13 Shippers complain about the slow rate of ship turnaround, the unpredictability of port charges, and KPA's interpretation of the tariff structure. C/F agents complain about the slow rate of clearance from the port, a lack of functioning equipment, and the poor quality of handling and loading that takes place within the port. Direct loading for onward transit movement rarely takes place at the port, and almost all cargo is taken to outside warehousing where it is reloaded. This short distance transport adds \$5-\$7 per ton to the cost of transit.

4.14 During the first six months of 1989, ship-to-shore container handling productivity fell to levels experienced before the introduction of the container terminal. The Conference lines estimated that they lost \$500,000 from shipping delays and introduced a container surcharge of \$78/TEU. The surcharge led to rapid action by the port management to increase availability of equipment, obtain spares, and manage more effectively. Ship-to-shore productivity rose quickly and the surcharge was lifted in October. The situation is still closely monitored by the Conference who will have little hesitation in reimposing the surcharge if productivity falls again.

4.15 While the loading/unloading of container ships has improved, there has been little improvement in other aspects of Mombasa port performance. Shore handling of containers is still slow, and breakbulk and bulk handling continue to have low rates of productivity. According to one shipping agent there is an implicit surcharge on bulk charters to Mombasa through high rates and demurrage payments.

4.16 Management and labor problems are major causes of the decline in port performance, but a lack of functioning handling equipment also contributes to the problems. The fourth container crane is being erected; unfortunately, it is the same design as the two existing French gantry cranes which have a poor reputation among port users. It has also been suggested that the supply of spare parts is a major cause of low equipment availability. Now that the port is charging shipping dues in foreign exchange, it might be desirable if the KPA were to be allowed an overseas account for the purchase of spare parts, rather than having to go through the Central Bank.

4.17 The KPA has recently introduced a new tariff structure which has raised very considerably shipping and cargo handling rates. A recent consultant study recommended these increases but accompanied by a significant reduction in wharfage payments, the new rates reduced wharfage by only 0.05%. It has been suggested that the new tariff makes Mombasa the most expensive port in the region, and one of the more expensive ports in the world. Under the new tariff the KPA has maintained the concessions in port charges for transit traffic: wharfage on imports, 0.95% of CIF value rather than 1.45%; and preferential storage charges.

4.18 In general, port charges are a relatively small proportion of total transport-transit costs. Speed and efficiency in cargo handling are often of greater importance in the choice of port than small differences in port charges. On the other hand, it does seem possible that Mombasa is becoming inferior to DSM in terms of both cost and efficiency. The shipping agents believe that

Mombasa is now the most expensive port in the region, lacking a comparable level of services.

4.19 KPA management recognizes that there are problems and that the port has lost transit traffic to other routes. Management views the major problems as largely beyond its control, created by customs and the Kenyan security services (see this Chapter, section: C. Transit Regulations). To a considerable extent, this view is probably justified by the specific difficulties faced by transit traffic. The more general problems of declining port performance are, however, much more the responsibility of KPA management.

#### Kenya Railways

4.20 KRC still faces problems in increasing efficiency and becoming more commercially orientated. Assistance from the Bank/U.K. project is directed toward helping KRC in these respects. Domestic KRC traffic appears static and the introduction of class 94 locos has given KRC sufficient movement capacity to handle more transit traffic. In Uganda the view was expressed that KRC had the movement capacity but lacked both the political goodwill and commercial interest in moving more traffic. This may be simplistic but the apparent lack of KRC interest in developing transit traffic has puzzled observers for a number of years. Given the traffic and the length of haul, transit traffic would appear potentially a very profitable rail traffic.

4.21 Developing the potential transit market will require closer working relations with URC which are still characterized by mutual suspicion regarding invoicing, wagon interchange, and rental payments. It will also require the streamlining of KRC's operation and the re-establishment of block marshalling from Mombasa if not block trains through to Kisumu. Revision of tariffs and faster transit times are prerequisites if KRC-URC are to take a substantial share of the container market which is likely to increase as Uganda regains economic momentum and container handling facilities are developed. At present, rail cannot compete with road transport for container traffic on either tariff or service levels.

#### Road Transport

4.22 Road transport has dominated the Northern Corridor since the mid-1970s. Initially the Kenyan road transport almost monopolized traffic, but growing Rwanda and Burundi national fleets have depressed demand for Kenyan trucks and created some excess capacity. Increased competition for the remaining traffic has reduced substantially the rates. It is difficult to see present transport rates covering full vehicle costs (Annex 10) unless:

- actual loads are well in excess of the 30 tons assumed;
- export backhauls are much more extensive than the trade statistics suggest;
- costs are reduced by truckers taking advantage of the distorted exchange rates in the region, changing currency on the unofficial market and then purchasing vehicle inputs at official prices (the high transit tolls imposed by Uganda were intended to compensate for this activity); and
- vehicle operating costs are overestimated by the standard models for this type of operation and/or owner.

It is also possible that many of the present vehicles are relatively old and that their owners are willing to operate at little more than variable cost.

4.23 Loaded transit trucks operating on the Northern Corridor commonly have axleloads and gross vehicle weights well above national limits and those established under the Northern Corridor Transit Agreement. The lack of effective vehicle weight control has encouraged truckers to purchase vehicles with the highest possible load potential. The absence of coordination between the Ministries of Transport and those responsible for issuing import permits has meant that vehicles have been imported into the LLC which make nonsense of the regulations.

4.24 Kenya has, for many years, accepted the need to control vehicle overloading and, on occasion, control has been attempted. The political power of the trucking industry and the prevalence/effectiveness of unofficial payments have soon ended such attempts. The situation is viewed seriously by the Ministry of Public Works, and heavy commercial vehicles have not been allowed to use the new Limuru-Nakuru road. There are also serious worries over the design life of the proposed Kabete-Limuru road reconstruction and widening, if axleloads are not limited.

4.25 Consequently, the Kenyan Government is again trying to enforce the national ten-ton axleload limit which has also been agreed by the NCTA, and is proposed as the standard for the PTA. The Government recognizes that past attempts to enforce loading limits, using fixed weighbridges, have not been successful, and therefore intends to use portable weighbridges operated on an irregular schedule. If effective, the control could bring about quite major changes and create major short-term problems for the LLC, especially for the movement of petroleum products. The road transport industry is not, however, overly concerned and is confident that eventually this attempt at control will be no more successful than previous efforts.

4.26 Active enforcement of the ten-ton axleload limit would undoubtedly raise significantly the cost of using the Northern Corridor. Short-term dislocation in the petroleum supply industry would be experienced as so few transit tankers can meet the ten-ton limit. Even if there were only enforcement on axleloads in excess of 13 tons, which are the real target of Kenyan enforcement policy, there would still be serious problems for the tanker fleet.

4.27 In a situation of static traffic patterns, Kenya could benefit considerably from enforcement of axleloads: reduced road damage/road maintenance costs; increased demand for transport services; more transit vehicles and thus more transit fees; and increased diesel sales and fuel taxes.

4.28 It is clear, however, that the LLC have become increasingly flexible with regard to transit routing. Enforcement of axleload and vehicle weight restrictions in Kenya could result in the shift of transit movement to DSM and the Central Corridor. Regional enforcement of harmonized regulations would, however, leave the comparative advantage of the routes unchanged. The PTA has argued for regional harmonization of vehicle regulations, transit licenses and road-user taxes. Whether this harmonization, as proposed by the PTA, is in the

interests of either the LLC or transit countries is discussed later (see Chapter IX, section: K. Transit Costs to the Transit Countries).

### C. Transit Regulations

#### Northern Corridor Transit Agreement (NCTA)

4.29 Customs regulations and documentation have long been recognized as an important cost-creation center on the Northern Corridor. The regulations increase the cost of C/F activities and raise transport costs by reducing vehicle utilization through lengthy delays at border crossings. After several years of negotiation, supported by UNCTAD and the EEC, the Governments of Kenya, Uganda, Rwanda and Burundi signed the NCTA in 1985; Zaire acceded to the agreement in 1987.

4.30 The NCTA established a single road transit document which was supposed to meet the customs requirements throughout the Northern Corridor. The Road Customs Transit Declaration (RCTD) has been introduced on the Corridor and has been accepted as the norm by other members of the PTA. The reports of C/F agents on the success of the RCTD are mixed. Overall there have been some distinct benefits, but documentation costs and border delays have not been significantly reduced. One of the tangible benefits is the introduction of direct transit across Rwanda; previously, transit vehicles had to report to Magerwa in Kigali.

4.31 The general impression is that Kenya creates the major problem, as the system works well in other countries. It is inevitable that the coastal country would require a document in addition to the RCTD which covers only a truck load rather than the total consignment. Kenya uses the RCTD, signed at the border, to cancel the transit bond established on the basis of the C-34 which is also used to calculate port charges. Malaba Customs still requires occasionally other documents to be produced.

4.32 The objectives of the RCTD system have been agreed and its application is improving. Further improvements are possible, but the benefits of the RCTD will always be limited as long as national transit bonds are required and suspicion continues both between and within customs' administrations.

#### Transit Bonds

4.33 All transit goods passing the Northern Corridor have to be transit bonded in each transit country. These bonds cover the loss of customs duty and sales tax if the goods are diverted into the domestic market of the transit country. As customs duties and sales taxes differ between countries, a standard bond cannot be issued. The required separate bond in each country is an important cause of the problems encountered in implementing unified customs documentation.

4.34 The bonds are arranged with local banks and insurance companies who basically guarantee payment of the duty if the goods are lost and the C/F agent defaults. In essence, therefore, the bond is less for the goods and more for

the C/F company. According to the main C/F agents, the loss on road transport and thus payable duty is very small, and the bond only generates revenue for the banks/insurance companies and indirectly for the C/F agents. Monitoring the movement of goods to ensure the speedy cancellation of bonds is a significant part of the C/F agents overall costs but also provides large profits. Depending upon the commodity the bond can add 1-2% of the CIF value to the cost of transit.

4.35 One of the principal advantages of the Central Corridor is the use of the Transit Pass to control the movement of transit goods. The Transit Pass allows goods to pass through Tanzania without the need for transit bonds, reducing both the costs and administrative inconvenience. It is clear that transit countries require some control over transit cargo but the use of national transit bonds does appear excessive on the Northern Corridor:

- transit goods can only be smuggled into one country, but the system can require several bonds;
- the bond is required even if the movement of cargo is undertaken by government-owned transport, e.g., KRC; and
- the bond is required even if the goods must travel under police escort.

4.36 According to the Secretariat of the NCTA, several countries are prepared to introduce the Transit Pass, but Kenya is insistent that the bond system continue. Even if the continued use of bonds must be accepted there should be ways in which the costs could be reduced and the formalities streamlined. A regional transit bond, guaranteed by either the member governments of the NCTA or an international insurance company, would be one step to simplification. To reduce border formalities a single bond covering all countries is necessary. At present C/F agents have to complete the bond information at the border for each transit country.

### Security Regulations

4.37 Cumbersome customs regulations have been exacerbated in Kenya by additional restrictions, regulations and formalities on transit vehicles. During the 1980s, a number of regulations were imposed and then removed: for example, the ban on night driving, escorts for coffee trucks, and 100% verification of all transit containers at Mombasa. The additional formalities which now have to be followed by transit traffic in Kenya are:

Verification of Containers at Mombasa: Although 100% verification is no longer applied, a very significant proportion of containers (25%-30%) are still subject to verification at Mombasa. The verification has to take place in the presence of KPA, the police, Customs, the Audit Department, the Administrative police, and the C/F agent.

Presentation of Original Import License: This is a new requirement recently introduced. A copy of the original import license, issued in the LLC, must be presented before the goods can be cleared from the port. The measure seems specifically directed at Uganda, a special dispensation is given to Rwanda and Burundi allowing the Rwandese Consul and the representative of OTRABU to sign for the goods. In addition to the import

license, the Ugandan importer must also produce a copy of the company's Certificate of Incorporation.

P27: The police have recently introduced a new truck control system on transit vehicles. All transit trucks have to register at a series of police checkpoints as they travel through Kenya.

Police Escort of Sensitive Cargo: A number of "sensitive" commodities are required to travel by escorted convoy through Kenya. The list of sensitive goods includes such items as secondhand clothes, tires and spare parts. The C/F agents estimate that about 40% of containers have to travel in convoy. The impact of the convoy system on the transit times is dramatic, raising the round trip time to Kampala from about eleven days to three weeks. Even if a truck is escorted in a convoy, the P27 formality must still be followed.

4.38 These additional formalities have been imposed not by customs but by the security services. The security services rather than the customs are now seen as the major impediment to the smooth operation of the transit corridor. The KPA, KRC and C/F agents all agree that these regulations are the primary cause of dissatisfaction with the route and the shift of traffic to the Central Corridor. C/F agents estimate that it takes 24/25 different stamps on documents and 10-12 days to clear goods out of the port ready for onward transit, while it should only take three days. Even with the elaborate customs and security systems, trucks and containers are subjected to further inspection at both sides of the Kenya-Uganda border; unbroken seals from Kenya Customs in Mombasa are apparently little valued by Kenya Customs at Malaba, and even less by Uganda Customs.

4.39 Corridor or regional transit agreements have a role in establishing the framework for efficient transit services, but they cannot guarantee efficiency. Loss of transit traffic to the Central Corridor and declining transit revenues in Kenya may stimulate pressure from the transporters and clearing agents and help to generate political awareness of the economic costs that the present restrictions are imposing.

V. MAJOR ISSUES WITHIN THE CENTRAL CORRIDOR

A. Infrastructure

Roads

5.01 Roads in Tanzania have been allowed to seriously deteriorate but action is now underway to fund a major rehabilitation program for the main road network. Road connections between DSM and the LLC are likely to remain difficult for the next few years, and it is possible that the projects will not proceed as fast as hoped. Assuming that the critical sections in the network receive priority, road transport will continue to be a feasible alternative for the ZBR countries.

5.02 While road rehabilitation is essential, it is critical that an effective system for both funding and undertaking future maintenance is installed. Previous maintenance neglect was the critical factor in generating the present situation and if this neglect is repeated, the benefits of the proposed rehabilitation program will be short-lived.

Rail

5.03 While the fixed infrastructure of TRC is weak, it is not the critical constraint to operations on the corridor. On the other hand if transit traffic were to reach the levels implied in Chapter X, section: B. Traffic Distribution 1995: Least Cost Assignment, the infrastructure would have to carry freight of two million tons per annum, in addition to passenger traffic, and it is possible that track capacity on some critical sections may need to be raised. Such issues have been addressed by the TRC Development Study.

DSM Port

5.04 The mid-term review of the THA Rehabilitation Project assumes a dry cargo throughput of three million tons in 1992; 50% of the traffic is forecast to be containerized. The Project is expected to sufficiently raise capacity at the port to handle this level of traffic, but a lower rate of containerization could quickly result in congestion at the general cargo berths.

5.05 In 1987, container traffic accounted for about 28% of total dry cargo; this is expected to rise to 53% in 1992. Container penetration of the transit market is expected to be high by 1992:

	Imports	Exports
ZBR	50%	70%
Uganda	60%	60%

5.06 In 1986, 7% of Rwanda dry cargo was containerized, and this is only expected to rise to 13% by 1990, possibly an overly optimistic estimate. Rapid growth in containerization may be desirable, but it may require much more rapid improvement in inland transport than is likely by 1992. The issues connected with the containerization of LLC traffic in the region are discussed further in Annex 11.

5.07 The infrastructure of the inland transport systems will be in place by 1992: Kigoma will hopefully be equipped with adequate container handling facilities; the Isaka terminal and associated road network should be operational; and the Port Bell wagon ferry terminal should be operational.

5.08 The major issue will be whether TRC has both the movement and management capacity to handle the traffic and allow the turnaround of containers within the time permitted to avoid demurrage. It would appear that many of the containers delivered to Bujumbura are retained within Burundi and not returned. At present, road transport for Rwanda and Burundi seems the only feasible way to transport containers within the time constraints and, even then, turnaround times are slow. It is possible, therefore, that containers destined for the LLC may have to be stuffed/stripped at DSM to avoid port congestion outside storage facilities.

5.09 If the forecast rate of containerization does not take place and congestion at the conventional berths becomes serious, it is probable that transit traffic from ZBR and Uganda will diminish as shippers transfer back to the Northern Corridor. C/F agents see the two corridors as very competitive and have developed very flexible attitudes toward traffic routing.

5.10 The organization and provision of storage facilities for the ZBR and Uganda at DSM needs to be considered, bearing in mind the potential developments elsewhere in the transit systems and the possibility of using Block Trains operated by/for the LLC. Belbase continues to function, but if the forecasts of the Mid-Term Review are correct, there will be almost 0.5 million tons of ZBR cargo transiting the port in 1992, well above the capacity of the present Belbase facilities.

5.11 Perhaps the space and capacity limitations of the port, which have encouraged the establishment of terminals for Malawi and Zambia outside the immediate port area, should be recognized and steps taken to apply similar solutions to other transit cargo. The reorganization and relocation of Belbase could well assist in the functioning not only of the port, but also of onward transport. This issue is discussed further in this Chapter, section: C. Transit Systems for the Central Corridor.

## B. Movement and Handling Capacity

### DSM Port

5.12 It is generally agreed that much improvement has taken place at the port during the last couple of years. Much of the change has been brought about by THA management adopting a flexible approach to the problems and accepting assistance from not only the aid community but also the shipping lines and principal shippers. The attitude is reflected both in terms of accepting the use of private equipment in the port and in terms of port handling charges to new customers such as STIR and Transocean. Long-term users of the port report that the initial labor problems that faced the port after the creation of THA

have now been resolved and that labor relations and productivity have improved substantially.

5.13 It is possible that some of the flexibility was forced on port management through its recognition of the deficiencies of the port. There is a danger, therefore, that once the port rehabilitation is complete and the container terminal fully operational, THA management will return to the attitudes more characteristic of previous periods. To maintain and strengthen the competitive edge of the Central Corridor, which should be to the long-term advantage of Tanzania, the present operational flexibility at DSM must be maintained. Despite ongoing investment, capacity constraints may reoccur during the mid-1990s and, to avoid major additional investment, increased productivity requiring flexibility from both THA and port users will be essential.

5.14 The port has limited space available for the storage of containers and thus the rapid throughput of containers is essential. Unfortunately, a combination of cashflow problems among parastatal importers, cumbersome procedures, and a less than fully motivated customs service have combined to produce very long dwell times for domestic containers. While this long dwell time is not an immediate problem for transit containers, storage congestion at the port would quickly affect all container cargo, domestic and transit.

5.15 Considerable emphasis is given in the proposed port project to strengthening management and improving productivity at the port. A much more arms-length relationship between the port and the government is suggested with port management being given much greater financial freedom in return for the payment of higher returns back to the Treasury. Incentives to both port management and labor will be provided by performance related bonus payments which will be a condition of the loan. Improving staff productivity through better motivation is critical for the port.

## TRC

5.16 Increased movement capacity and efficiency on TRC is central to the development of the transit system in East-Central Africa. TRC is the link which prevents fuller exploitation of the Central Corridor:

- Uganda has sufficient wagon capacity;
- DSM port is being preferred to Mombasa and will soon have much improved container handling facilities;
- Kigoma port has been rehabilitated and should soon have container handling capacity well above its needs;
- capacity on Lake Tanganyika and at the Port of Bujumbura is available; and
- funding for the Isaka terminal and the associated road network has been agreed.

5.17 Unless TRC can move the traffic, Rwanda, Uganda and, to a lesser extent, Burundi will have to continue to rely upon the Northern Corridor, and the very substantial investments made to achieve route diversification will not realize their potential and provide the cost reduction and increased transit security anticipated. Similarly, if transit times by TRC are not reduced, the development of containerization through DSM will be hampered. The movement constraints upon TRC are recognized and are addressed in the Emergency Program

which is intended to increase both motive and wagon capacity. The additional capacity will be largely absorbed by increased Tanzania domestic movements, and further additions will be necessary if the potential total traffic demand of two million tons by 1995 is to be met.

5.18 Transit traffic in both East and Southern Africa has been volatile, and it may be neither in the financial interests of TRC nor in the economic interest of Tanzania to invest for traffic which could revert to other routes. It could be in the interests of all if the additional capacity was provided by the LLC themselves. This issue was raised by Burundi as far back as 1979 when TRC was prepared to accept additional rolling stock but was not prepared to concede its dedicated use for Burundi traffic nor the concept of Burundi trains. For Rwanda and Burundi traffic, the use of dedicated trains may, given the imbalances in traffic, appear inefficient, increasing empty running. But if the customer is willing to pay for the enhanced service, then TRC should be willing to provide it, especially if its domestic traffic capacity is not affected. The EEC is actively considering the provision of complete block trains to assist the movement of transit traffic. Initially the trains were to be given to the LLC but this plan has been modified, and TRC would receive the locos and wagons. Burundi, under UNDP funding, is also receiving technical assistance to define its equipment needs for operating Burundi unit trains on TRC.

5.19 Uganda's fleet of locomotives and wagons is being expanded very significantly with 13 additional locomotives and 600 wagons. URC should have the capacity to run its own unit trains to DSM; it already provides almost all the wagon stock used on the DSM-Jinja route. The 13 locomotives may be needed, however, within Uganda if the economy and URC traffic regain previous levels. In the event of the Ugandan Government wishing to make full security use of the DSM route, it may be faced with a choice between purchasing more locomotives or allocating domestic locomotives to international traffic.

5.20 The provision of locomotives and rolling stock is relatively easy, dependent only on funding and the time necessary for delivery. Making the equipment work efficiently, deciding the pricing of services, providing the management, and determining the division of responsibilities between TRC and the LLC, with appropriate and enforceable penalties for the non-fulfillment of contractual obligations, could be much more difficult. TRC management is weak, and labor morale and motivation are very low. Unfortunately, unlike THA, the financial position of TRC is also very weak and, consequently, management may not be able to consider the immediate inclusion of performance-related payments as part of the regular labor payment system.

5.21 There is general agreement that progress in improving the situation will be slow and although movement capacity will expand, the present system would be incapable of handling the volumes of traffic that Uganda may choose to route via DSM. If Uganda were forced to rely heavily on the Mwanza-DSM link, a very heavy involvement by URC would be necessary. Given the rapidity with which events in the region change, some prior contingency planning would be desirable as well as more general planning to improve the efficiency with which more normal levels of transit traffic are handled.

5.22 It is essential that a full study be undertaken of the possible arrangements for the ownership and operations of block trains before any negotiations between the LLC and TRC take place. While Tanzania may have become more flexible, the concept of non-national trains running over TRC track is new to TRC management, and the details and implications will need to be fully explored. In the context of the limited management capacity of TRC, it seems essential that the simplest operation be undertaken. This may require:

- a scheduled regular service which runs irrespective of whether a full train load is available;
- a point-to-point service: this might require the establishment of rail-served entrepôts outside the port area since attempting to operate from within the port would be difficult and probably further limit port capacity;
- a homogeneous train composition: this might take the form of either container trains or trains with fixed proportions of container flats, covered wagons, etc.; and
- train and wagon maintenance under contract to either TRC or perhaps to URC, if there is sufficient spare capacity at the new workshop.

5.23 There would also be the problem of fixing the appropriate charging principles for use of TRC track, train running services, etc. Overall, the study would need to be very detailed if it were to establish the principles for service and lay the framework for the actual operating agreements. Given the crucial nature of capacity constraints for both TRC and the LLC, it would be most appropriate if the study were to overlap with the present TRC Development Study.

#### **Kigoma Port**

5.24 With the rehabilitation of the port and the provision of a container crane, Kigoma should not be a constraint on the system, as long as the availability of shunting capacity is maintained. Unfortunately, there have been delays in arranging for a suitable container crane, and some uncertainty regarding the project has developed.

### **C. Transit Systems for the Central Corridor**

#### **The Transit Pass and Transit Formalities**

5.25 One of the main advantages for the LLC in using the Central Corridor has been the relaxed transit system employed by the Tanzanian Government. The system was developed for ZBR cargo and works well. Transit goods are carried under a transit pass which is cancelled when the goods leave Tanzania. Originally, all transit goods were moved by rail and were thus effectively under government control. There was thus no logical need for shippers to provide transit bonds.

5.26 The advent of road transport to the ZBR countries and of significant volumes of Uganda cargo has resulted in two transit systems. For ZBR cargo moved by TRC and by some approved C/F agents using road transport, such as STIR,

the transit pass system is used. Some transporters still have to use the transit bond. When Uganda cargo started to use the route, a transit bond system was required; this has since been changed and Uganda traffic now also uses the transit pass system.

5.27 Unlike Mombasa and the Northern Corridor, transit regulations for containers are straight forward. Unless the seals have been broken or tampered with, transit containers are neither opened nor inspected at DSM, or at the border. The container storage problems at DSM are mainly the result of customs inspection of domestic Tanzanian containers and the shortage of TRC movement capacity to move transit containers.

5.28 In terms of the development of an overall transit system for movements through DSM, a unification of procedures within Tanzania might be useful. A regional approach to transit facilitation has been encouraged by the PTA but extending the Northern Corridor Transit Agreement would be counter-productive. As far as possible, the essential elements of the present Central Corridor system should be maintained. According to a PTA expert:

"The transit facilitation system on the Central Corridor is definitively superior to any other transit system within East Africa, in particular, and in the entire PTA subregion, in general; hence it is desirable that the modus operandi of extending it to the entire subregion should be considered."

5.29 Unfortunately, toward the end of 1989, the Tanzanian Government, through the Central Bank, started to introduce new transit documentation designed to control the foreign exchange generated by the transit system. The TT2 form created considerable confusion within the transit industry as there were many uncertainties and ambiguities regarding its application. There were fears, in Burundi at least, that the form was designed to give complete control to Tanzanian-registered companies. The Central Bank has explained that the form is simply to assist in maintaining records of foreign exchange transactions for Tanzanian companies. Fortunately the idea of the TT2 was dropped before it was actually introduced, although it is perhaps too early to say whether this is only a temporary postponement. The effect of such documentation is unclear, but at best it will simply generate additional, unnecessary and costly formalities and, at worst, it could seriously undermine the competitive advantage that the Central Corridor has achieved.

5.30 The Tanzanian Government is concerned that there is a leakage of foreign exchange obtained by Tanzanian companies operating in the transit industry. It is feared that foreign exchange is converted on the parallel market rather than through official channels. To a certain extent this is true, and the costs charged by truckers on the route reflect this situation. If Tanzanian truckers were to change all their earnings at the official rate, the rates they would have to charge would rise very significantly, and they and the route would become uncompetitive. By trying to increase official holdings of foreign exchange, therefore, the Tanzanian Government could substantially reduce foreign exchange earnings.

## **Belbase, Kigoma and AMI**

5.31 The present arrangements have served Burundi and Zaire reasonably well, especially during periods when conditions in the port and on TRC resulted in severe operational problems. Management at both Belbase and the Port of Kigoma is competent and has often appeared well above the standards found on the rest of the network. It is understandable that the LLC are unwilling to give up the present arrangements without substantial compensation in either financial terms or alternative transit arrangements. There are, however, drawbacks in the system:

- Disruption in the port of DSM has been a complaint frequently raised by THA management. In the past, the problems have been minor and the argument weak, but dual management could become a more serious problem in the future. The space available at the port is limited and integrated port management may be the smooth functioning of the port;
- The present legal status of Belbase is unclear and there is reluctance to finance rehabilitation and improvements until the status is resolved;
- In the medium term, additional berths will be required at DSM. One option for the expansion would entail construction of additional berths alongside Belbase. If this option were adopted, the continuation of the Belbase arrangements would seem undesirable;
- Belbase is a relatively small area and is not the most suitable place to organize the movement of regular block trains which should become an increasingly important part of transit to the ZBR countries; and
- Belbase and its management by AMI intend to distort the choice of transit routes. Only cargo consigned through AMI or Transintra, which has close connections with AMI, uses the Kigoma route. Cargo handled by other transitaires is moved by road.

5.32 The dual role of AMI, C/F agent and managing agent for the Belbases gives the company a quasi-monopoly upon the Kigoma route. Other C/F agents can only obtain the concessionary rates for ZBR cargo if they use Belbase, and they then have to pay AMI management fees, prepay charges in F/E, and the goods pass under AMI's control. Consequently other C/F agents use the general port facilities, pay the normal wharfage and storage rates, and transport cargo to the ZBR countries by road. For low-value bulk commodities, however, the wharfage concession may be little advantage to AMI, as it is a very small component of total transit-transport costs.

5.33 Rwanda cargo is a minor part of Belbase traffic, while Burundi imports and coffee exports, together with Zaire copper/zinc exports, are the main commodities handled. For a number of years Burundi has had the intention to construct its own terminal in DSM and this may be a more viable long-term solution. Belbase covered storage would form part of the general port

infrastructure and the open area could continue to act as a holding ground for Zaire metal exports.

5.34 If the Isaka route handles traffic for all the ZBR countries, rather than just Rwanda, then a new consolidated transit storage area, with the capacity to handle the expected growth in traffic, potentially around 150,000 tons, may be desirable. Management of such facilities would need careful consideration and a renewable management contract, open to both AMI and other companies, may be one alternative to explore.

### **The Isaka System**

5.35 The Isaka route is a major development in the region's transit infrastructure. The capital costs associated with its development have been considerable with the construction of over 330 km of paved roads and a rail/road interchange terminal. The development of the route has been discussed since the late 1970s, but unfortunately the discussions have rarely proceeded beyond generalities. The lack of attention to the details of what is actually required at the Isaka terminal, the arrangements for management, and relations between the terminal and TRC may have been factors in the recent delays in proceeding with the final agreement for construction of the terminal. The delays introduced by the Tanzanian authorities may also have been related to inter-governmental discussions on other issues.

5.36 The terminal should now be completed by 1992, and it is essential that an efficient operating system be in place when the route becomes operational. This system must include not only the terminal itself, which will be managed by Magerwa, but also the management of the port/rail interchange at DSM and the organization of the train movement between DSM and Isaka. The Isaka route will mirror the present transport chain to Kigoma, and it will be important for its efficiency to avoid the type of monopolistic elements that have developed on the Kigoma route and to introduce a management pattern that maintains freedom of choice between routes, C/F agents and transporters.

5.37 This is basically a problem for Rwanda, which has been leased the terminal site, but the system will also require terminal arrangements at DSM, either within or outside the port area, and an operating agreement with TRC. The terminal is expected to be operational by 1991/92, and serious discussions on the operating arrangements should now be a high priority.

5.38 There is still doubt over the role of the Isaka terminal in relation to non-Rwandese traffic. Clearly whether other traffic will use the terminal will influence the scale of facilities required. From the viewpoint of Burundi, access to Isaka is desirable as an insurance against a major breakdown on the Kigoma route. It is perhaps doubtful whether Burundi would be prepared to make a long-term commitment if the Isaka terminal was owned and operated entirely by Rwandese-based organizations.

## VI. TRANSIT ISSUES WITHIN THE LLC: RWANDA

### A. Infrastructure

6.01 The quality of the road infrastructure within Rwanda has been improved considerably since 1980. With the completion of the paving of the Kayonza-Kagitumba road and the reconstruction of sections of the Kigali-Gatuna road, there is little or no additional investment required within Rwanda for international traffic.

6.02 Maintenance of the existing improved road network must now become the main priority. A Road Fund, drawing revenue from tolls and fuel tax, has been established to finance road maintenance. Unfortunately, the projected revenue for the fund, RwF 730 million, is significantly below total estimated road maintenance requirements, and additional resources from the general budget will be necessary. If sufficient funds cannot be generated, then priorities between roads will have to be set and very careful consideration given to any further extension of the network.

### B. Government Intervention: Present Situation

6.03 Rwanda has been faced with serious disruption to its transit routes on a number of occasions. The Government has responded by placing considerable emphasis on national control of its transit traffic and, to a lesser extent, diversification of routes. Planning for route diversification seems largely inspired by crises within the transit network. The Isaka terminal is about to be constructed but discussions on the project were initiated almost ten years ago. With the improvement of the Northern Corridor, following the Liberation War in Uganda, the impetus waned only to be revived with the transit problems of 1985.

6.04 Rwanda has adopted one of the most interventionist policies toward international traffic. In some respects, the policies have achieved their objectives, and the international land movement of Rwanda trade is largely under Rwandese control. The objectives have, however, been achieved at a high cost to the Rwandese consumer. The Government is making statements indicating a relaxation of the rigid controls and the stimulation of greater competition within the Rwandese industry, as well as allowing more competition from the nationals of other countries. These statements have yet to be translated into policy changes and in some respects government control may even increase.

### Road Transport Policy

#### The Policy

6.05 Rwanda is almost totally dependant upon trucking for its international transport. This situation will continue as the economic prospects for viable rail connections, proposed by the Kagera Basin Organisation (KBO), are remote. The Rwanda Government has made great efforts to minimize dependence upon foreign trucking capacity. This policy has been pursued by the creation and financial support of the parastatal transport company STIR, and by

administrative protection of all Rwandese truckers. The details of the policy have changed but not the broad framework, for example:

- transport can only be arranged through approved transport companies. The requirements for these companies is such that, at present, only two companies -- STIR and CORWACO (a private company) -- fully qualify, and a third -- Interfreight -- has partial recognition;
- all other transporters must act as sub-contractors to the approved companies who charge a 5% commission;
- transport from Kenya has to be approved by the Rwandese consuls, acting on behalf of the Ministry of Transport, who issue an Authorization for Transport (ITAR); Kenyan trucks are only used when Rwandese trucks are not available; and
- maximum transport rates, for both dry cargo and petroleum products, have been set by Government. The actual rates charged are slightly lower than the official maximum, but there is little price competition and the same rates are charged for both import and export cargo.

#### The Effect

6.06 Under this protection the Rwandese heavy truck fleet, operating almost exclusively on international routes, has grown rapidly from 229 trucks in 1982 to 565 in 1987. The growth is reflected in the proportion of Rwandese imports carried by national vehicles, from 10% in 1981, to 31% in 1985, and 59% in 1987.

6.07 All exports by road are carried in Rwandese trucks. There is continuing investment in heavy commercial vehicles, and the danger of excess capacity exists, especially for petroleum products as Rwandese trucks already move more than 75%. The policy of administrative protection has only been applied to the Northern Corridor, and there are no restrictions on road transport from DSM. As a consequence, while Rwandese trucks have almost 70% of the market on the Northern Corridor, they have less than 7% on other international routes.

#### The Costs

6.08 Protection of the national fleet and the administrative allocation of transport have resulted in higher transport charges than would be expected from a competitive industry. The tariff for the Mombasa-Kigali route has been set at RwF 16,800/ton, approximately \$210. Increasing capacity in the Rwandese trucking industry has led to some limited price competition and, for very large consignments or for regular clients, the rates may fall to RwF 14,500/ton, but the majority of cargo is still carried at the administrative rate. These rates must be compared with rates of around \$190 - \$200 for traffic between Mombasa and Bujumbura, a trip of an additional 290 km and another border crossing.

6.09 A free market rate for Rwandese cargo might be around \$160/ton for dry cargo. In very broad terms, the present system of national protection probably costs Rwanda about \$50/ton for dry cargo imports and \$45/ton for petroleum products. In 1987, Rwandese trucks carried 143,800 tons of cargo (POL: 62,300 mt; Dry Cargo: 82,500 mt) at a total additional cost of \$6.9 million.

6.10 In addition, there is no backhaul rate for export traffic which is charged the same rate as imports, i.e., Rwf 16,800/ton. Burundi exports to Mombasa are charged a backhaul rate of \$125/ton, and there would seem little reason for a backhaul rate of higher than \$100/ton for Rwanda exports. The extra costs for 50,000 tons of exports are thus \$5.5 million. Overall, therefore, the present system of national protection could be costing Rwanda around \$12.5 million per annum. These estimates must be qualified by a number of factors:

- Rwanda vehicle operating costs include local direct and indirect taxes but Kenyan charges include the Rwandese transit tax of \$142/trip;
- the Rwanda franc is overvalued, possibly by 30-50%, thus Kenyan rates understate their real economic cost to Rwanda. Devaluation would, however, also increase Rwandese trucking costs which have a 50% foreign exchange component;
- the assumed backhaul rate is speculative and, if seasonal factors and Zaire's export surplus are considered, may be slightly optimistic;
- the increase in Rwandese trucking capacity has helped to depress the market rates charged by Kenyan truckers; and
- Kenyan rates have fallen significantly, from \$205-\$235 per ton in 1980, and may reflect short-term overcapacity in the sector. The present Kenyan rates may not, therefore, be sustainable in the longer term (Annex 10). On the other hand, the rates quoted for traffic to Burundi are quoted by Burundi truckers.

6.11 Despite the qualifications it must be concluded that the costs of protection are high, and recent calculations even suggest that the present administrative rates are uneconomic for Rwandese trucks and increases have been requested. Rwandese trucking is a high cost operation:

- vehicle utilization is very low -- average annual utilization of the fleet is only 8.5 international trips, compared to 12-18 for Kenyan trucks and 24 for Kenyan tankers;
- vehicle input prices are high, partly as a result of the distance from the sea, partly from limited competition within Rwanda;
- owners expect very short vehicle lives and thus require very high returns, to repay loans and generate profits; and

- most vehicles are purchased with loans which require very expensive comprehensive insurance, approximately 16% of the vehicle value per annum.

6.12 The present arrangements provide little incentive for competition or efficiency within the Rwandese trucking sector. During part of 1989, coffee exports from Rwanda were substantially reduced as a response to low coffee prices and, as a consequence, there was a major shortage of Rwandese trucks at Mombasa. The flow of imports was seriously disrupted and eventually Kenyan trucks had to be subcontracted. Basically, Rwandese trucks do not leave Rwanda without a load of either coffee or tea, preferring to operate loaded in both directions rather than achieving a higher annual rotation.

6.13 The structure of ownership in the trucking industry (parastatal, or influential members of the civil and military elites) ensures that the dangers of the non-competitive, cost-plus approach to protect the least efficient will continue. Rather than reducing the rates to Mombasa as a means of encouraging the more efficient utilization of trucks, export loads have been restricted to 24 tons to ensure that more trucks receive some load. It is not surprising that efficient companies, such as Interfreight, are content with the arrangements as they must be making very substantial profits.

6.14 It has been suggested that Rwandese trucks' costs may be artificially inflated to increase the allocation of foreign exchange provided by the Central Bank, foreign exchange which is then either kept outside the country or used to purchase goods which are smuggled back into Rwanda. Conventional estimates of vehicle operating costs, based on Rwandese truck operating characteristics, suggest that Rwandese trucks may not be covering full costs. Given the complications of calculating costs when the use of black market exchange rates is endemic, the possibility that foreign exchange is being exported cannot be rejected.

6.15 Rwandese trucks have taken a substantial share of the market previously supplied by the Kenyan road transport industry. If Rwandese trucking capacity continues to expand, it is possible that 100% of Rwandese traffic on the Northern Corridor will be carried in Rwandese trucks. The Kenyan truckers will thus be effectively excluded from the Rwandese market and the possibility of retaliatory action by Kenya must exist. This could take the form of mandatory traffic sharing as occurs on some West African transit corridors, enforcement of vehicle regulations or mandatory use of KRC for transit through Kenya with transshipment at the terminal planned for Malaba.

#### Possible Improvements

6.16 The present policy may cost Rwanda \$12.5 million per annum, approximately 4% of imports or 10% of export earnings (rather less if the currency over-valuation is taken into account). The policy does give Rwanda considerable flexibility in terms of movement capacity, and it might be argued that 3% of total trade value is not an unreasonable insurance premium for this level of transit security.

6.17 It is unlikely that the Government would be willing to totally deregulate and risk a return to almost total dependence on foreign truckers. There should be changes to the present policy, however, which would preserve Rwandese participation while reducing the costs of protection. Essentially competition must be introduced into the Rwandese industry and increased vehicle utilization encouraged. Various policy initiatives such as those described below should be evaluated:

- privatize STIR either as a single company or as separate transport and C/F companies;
- dissolve STIR and sell the assets to the private sector. This could allow smaller, more efficient Rwandese truck operators to expand their fleets, and new companies to enter the industry at relatively low cost;
- auction the ITAR rights for carrying transit cargo. A quota of ITARs could be reserved for Rwandese trucking companies, and the remainder auctioned on an open basis;
- reduce the restrictions on registration of approved transport companies and encourage the growth of professional transporters rather than simply ownership of vehicles;
- differentiate between the rates for import and export cargo to discourage truckers from waiting excessive periods for return loads or simply allow open competition for export cargo; and
- encourage tendering for the movement of government and parastatal transport.

6.18 The Rwandese trucking sector has grown very rapidly in response to positive government protection. It is possible that, given the lack of active management participation by many owners, the industry would be seriously disrupted by sudden exposure to full international competition. Some transitional arrangements may be necessary, initially encouraging competition within the Rwandese industry. Transitaires must also now be registered and meet various requirements regarding capital, ownership, etc. It is redundant to have this control on transitaires and still insist on the use of approved transport companies. An initial step toward competition within the industry might be to allow any nationally-registered transitaire to contract any Rwandese trucking company for the movement of cargo. Another possible approach would be to move to the Burundi system where the industry is open to all, but rates are paid in local currency. Rwandese truckers would receive an allocation of foreign exchange for their external costs while foreign truckers would have to convert their earnings on the parallel market. This would effectively replace the present quota system by tariff protection for the domestic trucking industry.

## **Air Transport Policy**

6.19 Serious dislocation of coffee exports was threatened in 1979 and, largely in response, Rwanda purchased a Boeing 707 freighter to move coffee to Mombasa and carry high value imports as return cargo. It is debateable whether the B707 was the right aircraft for the Mombasa route, but it did give Air Rwanda the additional capability of flying directly to Europe.

6.20 Unfortunately, the price charged for air cargo between Mombasa and Kigali, Rwf 40/kg, is unattractive under normal circumstances for almost all cargo when compared with the road rate of \$210/ton. Shippers are normally prepared to pay a premium for reduced transit times, higher reliability and reduced risks of loss and damage, but a premium of \$300/ton is excessive when the shippers have already used sea transport to bring the cargo to Mombasa.

6.21 To provide cargo for the B707, the Government has made it mandatory for certain specified commodities to be flown from Mombasa. At the same time the B707 has been sub-contracted for direct flights to Europe and can only make limited flights to Mombasa. This places importers of the specified commodities in a very disadvantageous position since they have to pay the high cost of air transport, while not reaping the full benefits. Not only are goods delayed at Mombasa but often the Rwandese Government insists that containers, with the specified cargo, be stripped at Mombasa for onward air transport. Loss and damage are thereby increased, and the importer loses in a third fashion. The present regulations increase total import costs by over \$1.5 million without conferring any real benefits.

6.22 The utilization pattern of the B707 must change. From January 1990, it will no longer be allowed to land in Europe because it cannot meet noise regulations. The resale value of the aircraft is low, but it has an operational life of at least another five years if a substantial refit is undertaken in the near future, costing around \$2 million. The future role of the B707 and air transport generally is already the subject of studies financed by CIDA and ICAO.

6.23 With the development of alternative transit routes through Tanzania, the security offered by domestic air transport is no longer of primary importance. The first policy priority must be the abolition of the obligatory air-freighting of cargo from Mombasa; the second priority must be to assess whether the forthcoming maintenance of the B707 is justified either nationally or within the context of the regional airline to which the countries of the CEPGL are supposedly committed. Rwanda's air transport needs are relatively small, and it may make far better economic and commercial sense to develop a single, regional air-freight company rather than a number of small national companies.

## **Magerwa**

6.24 All domestic imports have to pass through Magerwa which provides cargo storage and secure parking for vehicles. Customs can authorize direct delivery of cargo; otherwise goods have to be stored at Magerwa until documentation is completed. Magerwa allows 15 days free storage for documentation. Prior to 1989, all transit trucks also had to pass through

Magerwa for weighing and the collection of transit fees. Rwanda has now agreed that with the RCTD this is no longer necessary, and transit trucks can now pass directly from border to border.

6.25 Magerwa charges importers 4% of the CIF value, for the services rendered. This may appear high, but 3% of the CIF value goes to the Development Budget and is thus a blanket import tax. The net fee to Magerwa, 1% CIF, is similar to the wharfage payment at Mombasa. A change to a cost-related charging system has been suggested, with fees related to actual services and differentiated by type of cargo.

6.26 Magerwa centralizes customs clearance in Kigali but given the route structure, this probably does not create significant additional costs. Any losses will be further reduced with the planned new Magerwa facilities at Butare and Gisenyi. The need to either detain vehicles or off-load and store cargo does create additional costs, and a more streamlined customs clearance procedure increasing the possibility of direct delivery from the border, would be desirable.

#### National Bank of Rwanda (BNR)

6.27 BNR plays a pervasive role in Rwanda's international transport. The Bank has the power through its approval of import licenses, as separate proforma invoices for goods and transport are required, and through its allocation of foreign exchange for the transport costs. The intervention of the Bank covers a wide spectrum:

- it established the list of commodities which must be carried by air from Mombasa;
- it has influenced/directed the use of conference and non-conference shipping;
- it has attempted to reduce the use of direct air transport from Europe; and
- it has probably restricted the use of containers by refusing to release F/E for rental surcharges.

More generally the delay of two months in transferring funds for the payment of transport from port to Rwanda raises the total costs to the consumer as the charges are prepaid by the C/F agents who pass the cost to the importer.

6.28 There is obviously an important role for BNR in Rwanda's international trade, but it is questionable whether the staff have the specialized transport-transit expertise to make decisions upon detailed transport issues without, it appears, significant interaction with the Ministry of Transport.

#### C. Government Intervention: Possible Extension

6.29 Government intervention is already pervasive but further controls may be introduced. If this occurs, it is highly probable that the domestic economy will pay an even heavier price for external trade security.

## **Extension of Road Transport Restrictions**

6.30 International road transport is seen as profitable by those who have the influence to obtain credit. High returns are required to service the loans and, partly as a consequence, transport rates to Mombasa are high. Increasingly, importers are finding the use of DSM attractive due to better service from the port, simpler transit regulations, no transit bonds, and lower transport costs (\$150 rather than \$210/ton). Rates are low on the DSM route because the Mombasa system of national protection has not been applied, and competition between truckers prevails.

6.31 Traffic is moving from the Northern Corridor and Rwandese are still investing in trucks for the international market. If Rwandese truckers find over-capacity on the Mombasa route, they will try to persuade the government to extend the transport authorization system to all international routes, including DSM.

6.32 Rwandese truckers have offered to operate from DSM as long as national protection was provided and the price was fixed at \$200/ton. Calculations in Rwanda suggest that \$200/ton may be below their costs but still considerably higher than the present market rates. If it were applied on the route, the additional costs to the importer would total about \$2.8 million (1987 import tonnage) and raise the total annual costs of protection to about \$16 million.

### **Rwanda Entrepot: Mombasa**

6.33 For some years the Rwanda and Kenya Governments have discussed the establishment of a Rwandese entrepot at Mombasa, and a study was undertaken in 1980. A site of 12.9 ha has now been leased to Rwanda for the construction of the terminal. The original studies were based on an entrepot within the port area; unfortunately the actual site is 9.2 km from the port and, under present conditions, it is difficult to envisage the investment producing very significant benefits. Port storage charges are unlikely to be reduced as the major C/F agents already move the cargo to their own storage facilities. A centralized facility will simply add to existing capacity. Centralization could limit the role of the private C/F agents and give the Government greater control, possibly protecting private or parastatal Rwandese C/F agents.

6.34 The depot site is about 500 m from a KRC siding, and there may be some merit in a centralized facility if block trains were to move cargo upcountry to either Malaba or Kampala/Kasese; but a voluntary return to a rail/road solution along the Northern Corridor seems unlikely in the short term. More disturbing is the suggestion that rail would be used to transfer goods from port to entrepot. Short distance road transport in Mombasa may be expensive but very short distance rail transport is likely to be even more expensive as well as considerably less flexible and efficient.

6.35 The ADB has been approached for the funding of the project, and an appraisal mission has completed its investigations. The Rwandese Government is hopeful that ADB funding will be approved. Unfortunately, investment in the terminal is very probably a misallocation of scarce resources as the project

will provide little economic benefit. One of the main attractions for the Government appears to be the increased control the terminal will give over transit traffic as it has been suggested that all imports will be obliged to use the terminal. The Rwandese authorities should be persuaded to delay the implementation of the project and devote available resources to the Isaka route which offers the prospect of far greater economic and security benefits.

### **The Isaka Route**

6.36 Considerable international funding has been allocated to the development of the Isaka route, and the required infrastructure should be completely open around mid-1991. Very much less attention seems to have been given to the operational issues, such as who will operate the system, how will the system operate, what will be the role of the C/F agents, how will the services be priced, who will have access to the terminal, and what additional facilities are required in DSM.

6.37 The Government has decided that Magerwa will operate the Isaka terminal and has established a committee to determine the detailed operational aspects of the system. Unfortunately, the working party is only drawn from the government, and no representatives from either the transitaires or transport companies are included. It is very hard to envisage an efficient system being devised without the participation of the potential users.

6.38 The EEC is considering the financing of block trains to run between DSM and Isaka. In some respects, the most attractive scenario would be trains operating between consolidated terminals at DSM and Isaka. The problems are to identify suitable facilities in DSM (Belbase has insufficient capacity, and the involvement of AMI would deter other C/F agents), and to determine the form of management necessary to achieve the economies of scale while preserving competition within the transit industry.

6.39 Unless a considered and coherent operating system is developed prior to the opening of the facility it is quite easy to envisage the following scenario:

- (a) Terminal managed by Magerwa, this has now been announced;
- (b) Transport Isaka-Kigali contracted to Rwandese truckers;
- (c) Initial operating problems on the route, little coordination;
- (d) C/F agents continue to use all-road solution from DSM;
- (e) Isaka terminal underutilized and incurs operating losses;
- (f) Rwandese Government makes it mandatory that the Isaka terminal has to be used on Central Corridor;
- (g) Private C/F agents switch back to Northern Corridor; and
- (h) Rwandese Government, through BNR, extends powers to direct traffic to corridors, routes, modes and transporters.

6.40 The allocation system might look plausible on paper but would be almost certainly extremely inefficient and costly in practice. The Rwandese Government would achieve effective total national control but at considerable cost. The Isaka route has the potential to significantly reduce Rwanda's total transit costs, but it is crucial that the system attract traffic through cost

and efficiency rather than Government direction. Importers must retain the freedom to determine route, mode and transporter.

6.41 Without a much more detailed study, it is not possible to put forward the precise system that should be introduced on the Isaka route. It is, however, very clear that a full study of the operations for the Isaka route is essential. Such a study must include: the ownership and management of the facilities, including potential block trains; organization of movement within and from DSM; organization of movement from Isaka; relationship of terminal management with importers, government, C/F agents, TRC and road transporters; and accessibility of the terminal to Burundi and Zaire traffic.

6.42 The EEC has been largely responsible for the funding of the infrastructure associated with the Isaka route, and it might be appropriate if they were encouraged to fund the operational study. The Bank was, however, closely involved in the development of the DSM transit system for Malawi which is quite similar to the Isaka route. It would be beneficial if the experience gained on the Northern Corridor were transferred to those developing the Isaka route.

## VII. TRANSIT ISSUES WITHIN THE LLC: BURUNDI

### A. Infrastructure

#### Present Transit Network

7.01 The present transit network and developments already funded provide Burundi with as much infrastructure and transit security as the country is likely to achieve:

- Bujumbura-Kigoma-DSM: rail/lake route;
- Bujumbura-Kigali-Kampala-Mombasa: road route;
- Bujumbura-Mwanza-Nairobi-Mombasa: road route;
- Bujumbura-Isaka-DSM: road and possibly rail/road route; and
- Bujumbura-Mpulungu-Lusaka-Harare: road/lake route.

7.02 Considerable route diversification has been achieved when compared to the almost total dependence upon the Kigoma route during the 1970s. Despite the available transit routes, however, the Burundi economy lost substantial foreign exchange earnings when TRC was unable to move coffee exports in 1986. Those responsible for coffee marketing in Burundi were unable to organize movement by other routes and modes and thus failed to benefit from the high prices. The experience suggests that more routes will not necessarily solve the transit problem unless accompanied by sufficient management capability and flexibility on the part of shippers.

7.03 Conditions on some road sections to Rwanda and Tanzania are not ideal, but rehabilitation and reconstruction have already been agreed. Once these projects are completed, there would seem little potential for further improvement to the transit infrastructure within Burundi.

## **Planned Developments**

7.04 Over-investment is probably now a greater potential problem than an inadequate infrastructure. Several recently completed, committed or proposed projects are, at least, partly justified on the basis of improving transit connections or route diversification:

- Gitega-Cankuzo-Tanzania link with Isaka;
- Road Link with Kigoma;
- Additional road link with Rwanda via Kirundo;
- Bujumbura Port rehabilitation and improvement; and
- New shipyard at Bujumbura.

7.05 It is difficult to envisage Burundi's international traffic justifying substantial new road links, especially given the existing infrastructure. Careful consideration is required to ensure that these investments are really justified by cost savings or revenue generation as they will not increase Burundi's transit security.

7.06 There are still problems in the transit system but increasingly these revolve around movement and handling capacity, management and organization. The limitations on the Northern and Central Corridors have been discussed in Chapters IV and V and need not be repeated.

7.07 Burundi also receives a substantial volume of bulk cargo from the port of Mpulungu in Zambia. Inadequate handling capacity and the general inefficiency of the port are said to be constraints. Burundi has already sent one crane to Mpulungu but additional improvements are necessary. The future flow of imports through the Southern Corridor is, however, somewhat uncertain. At present they consist very largely of cement and sugar. Sugar imports will soon be replaced by local production, and a local cement plant may be constructed in the 1990s. Additional trade may, however, develop through Burundi's membership of the PTA, but such trade is unlikely to generate the volume of flows presently handled.

## **B. National Transit Policies**

7.08 The Burundi Government has played an active role in improving the country's transit position. The Government has established a parastatal trucking company, and obtained additional lake transport capacity and improvements in infrastructure within transit system. Burundi is a signatory to the Northern Corridor Transit Agreement and has established regular bilateral transit negotiations with Tanzania on the Central Corridor. Government intervention in transit operations may not be as extensive as some other governments in the region, but it is still considerable.

### **The Role of the Central Bank (BNB)**

#### **Route and Mode Choice**

7.09 The Central Bank in Burundi plays an important role in the control of Burundi's foreign trade and in the organization of transit. The BNB allocates import licenses, fixes the routes for imports, and allocates funds to

transporters. Until recently, for example, the Bank only allowed the import of vehicle spares by sea; this regulation has now been modified and most spares are flown to Bujumbura. Air transport may have a higher direct transport cost but may be preferable in terms of generalized transit-transport cost, including transit time, loss/damage, inventory cost, etc.

7.10 Unfortunately the Central Bank, according to the C/F agents, has a very restricted perspective on transport costs, considering direct rather than total costs. More particularly, once decisions are made there is little flexibility to adapt these to changing circumstances. The time validity for import licenses has recently been extended from four to eight months, but some goods are still delayed at port waiting for new licenses to be issued. Container movements to/from Bujumbura are slow, and the BNB is reluctant to fund the demurrage payments which are often necessary. This may have reduced significantly the use of door-to-door containers. Containerization of import traffic is probably inevitable, and Burundi must have the administrative procedures to take the maximum advantage from the development.

7.11 One of the major complaints from the transit industry is the arbitrary nature of the involvement of the Central Bank. The rules are not clearly established and may not be applied for extended periods of time. Importers and transitaires become used to one operating environment when suddenly the BNB changes the parameters. It is clear from discussions that the BNB has little intention of relaxing its control, and it is also clear that the level of its knowledge regarding detailed transport issues is limited. It is of paramount importance that, if the BNB is going to continue playing a role, the policies and regulations be clearly defined and transparent in order that the industry has confidence in the environment within which it must operate.

#### Protection of Domestic Trucking

7.12 Central Bank policy has also a distorting effect upon competition between local and foreign trucking companies. The BNB generally refuses to allocate F/E for international road transport which has to be paid in FBU. The Bank will, however, issue to local truckers a fixed F/E allocation to meet costs in transit countries (fuel, transit tolls, crew expenses). Foreign truckers can still carry cargo, but they are paid in FBU and receive no allocation of F/E and must convert their revenue on the parallel market. The BNB does show some flexibility with regard to this policy and will authorize payment of F/E to foreign truckers if there are no Burundi trucks available to move the cargo. The recent movement of POL from DSM was largely undertaken by foreign trucks because Burundi truckers were either unable or unwilling to operate on the route.

7.13 It is difficult to determine the level of protection provided by the Central Bank. The parallel currency market is illegal and thus payment in FBU should have no interest for foreign truckers. On the other hand, the parallel market exists and FBU can be exchanged at a discount of 20%-25%. Truck drivers certainly use the unofficial currency markets, but trucking companies may be unwilling to rely on such markets.

7.14 It is not clear whether the local currency payment requirement has had the effect of totally eliminating international competition on the Mombasa route. It is thought that about 70% of trucks operating to Kenya are now

Burundi registered. Kenyan trucks still operate the route and have a considerable share of dry cargo movements, but this does not mean that such trucks are prepared to accept FBU and use the illegal parallel market. There are still a number of CIF Bujumbura contracts, generally aid-financed goods, for which international road transport would be paid in foreign currency.

7.15 While the policy undoubtedly raises the financial costs of road transport, its impact upon the national costs of transport is less clear and will depend upon a number of factors, such as: (i) the overvaluation of the Burundi franc and the level of the foreign exchange payments made to Burundian truckers; (ii) the incidence of Burundi taxation on vehicles and vehicle inputs; (iii) the relative efficiency of the Burundi industry and the extent to which companies such as OTRABU act as price fixers; and (iv) the premium which the country is prepared to pay for the flexibility of its own international trucking fleet.

7.16 On the basis of approximate calculations of F/E, local cost and tax elements in vehicle operating costs (Annex 13), the distortion caused by the policy is relatively small, and the additional costs to the Burundi economy are probably rather less than 5% of transport charges. Certainly the policy appears less damaging than the more direct intervention policy applied in Rwanda which fixes rates and allocates transport.

7.17 There has been a definite decrease in the cost of road transport during the last few years. Transport rates on the Northern Corridor have fallen from around \$340/ton in 1980 to \$180-\$200/ton in 1988. The policy pursued by the Central Bank gives a cost advantage to the Burundian truck but does not inhibit competition within the Burundian trucking industry nor prevent competition with international trucking companies for, at least, some contracts.

7.18 Competition within the international trucking sector could be further increased if privatization were to bring about more efficient performance by OTRABU, the largest Burundi trucking company. The Government has taken the decision to privatize the company, but there are still very significant doubts over the extent of private participation and management control. There is the danger that the Government is intent on achieving formal privatization while retaining ultimate control of the company.

7.19 While the present trucking policy is preferable to that pursued in Rwanda, it still gives considerable arbitrary power to BNB to allocate transport on the basis of transport cost. The system could be made more transparent if the BNB was to issue tariff guidelines, for the use of foreign trucks, based on the type of analysis used in Annex 13. If importers can obtain tariff rates from foreign truckers below these guidelines, they should have the automatic right to employ these truckers. This would remove the illegality of the present system and increase effective competition.

## **Other Transport Policies**

### **Import Insurance**

7.20 Until a year ago all import cargo into Burundi had to be insured through the parastatal SOCABU. Insurance rates were high, possibly three times higher than normal international insurance, and probably reflected the company's monopoly as much as high risks. A private insurance company has been operating in Burundi for the last year, and this has slightly reduced the rates. Much greater competition may be necessary before insurance rates fully reflect the inherent risks of transit.

### **International Agreements**

7.21 NCTA: Burundi is at the end of the Northern Corridor and consequently has proportionately more transit documentation costs and delays than the other countries, and thus has more to gain from international transit facilitation than either Rwanda or Uganda. On the Northern Corridor, Burundi must transit three transit countries from Mombasa, while Rwanda faces only two border crossings and Uganda one. Burundi would thus gain significantly if documentation costs and border delays were reduced by full implementation of the NTCA, as well as its extension to cover such areas as long-term visas for truck drivers operating within the region, regional vehicle insurance, etc.

7.22 Transit tolls: Harmonization of transit tolls and vehicle regulations are major policy priorities of the PTA. In general, the simplification of transit regulations is in the interests of LLC, such as Burundi. Unfortunately, the present proposals of an axleload limit of ten tons and a simple vehicle-km transit toll could cause disruption to Burundi's fuel supplies, and a significant increase in transit costs for all commodities. Severe disruption of fuel supplies would occur since very few Burundi tankers would be able to meet the axleload limit and, consequently, the fleet would have to be re-equipped with new tanks. Increased costs would result from the lower vehicle payloads that the regulations would impose. Burundi should seek harmonization of tolls using a more flexible approach based on the likely road damage attributable to different vehicles. One possible approach is outlined in Annex 14.

### **Isaka Rail/Road Route**

7.23 Burundi would like to be an active participant in the use and management of the Isaka rail/road interchange terminal. Forecasts, prepared for the Kobero road study, suggested that a significant volume of Burundi traffic would use the terminal, if an adequate level of rail efficiency were achieved. The Burundi Government argues that as the development of the route was financed from regional funds, it should benefit the region rather than only Rwanda and should be regionally managed. The land for the terminal has, however, been leased by the Tanzanian Government to Rwanda, and it is unlikely that Rwanda will agree to management participation as it has stated that Magerwa will operate the terminal.

7.24 There is a need to ensure that the size and type of facilities are related to the likely traffic demand and that, once constructed, they are utilized. Burundi should try to reach an agreement with Rwanda upon the type

of management, availability of capacity, and tariff structure. Alternatively, Burundi could contemplate the construction of its own limited terminal at Isaka. It is difficult, however, to see enormous advantage for Burundi in using Isaka rather than the existing Kigoma route. Transport costs DSM-Bujumbura will be substantially lower via Kigoma than through the Isaka route which includes a costly trucking component (see Chapter IX, section: A. Transit Costs to the LLC: Introduction). Isaka may be cheaper for traffic to the North and East of Burundi, but changes in Burundi customs procedures will be needed.

7.25 The Isaka route will only work well if there is a tremendous improvement in the performance of TRC. If such a change occurs on the Mwanza line it could equally occur on the Central line. The road improvements constructed for the Isaka route may give more benefits to Burundi than the route itself as they will reduce the costs and transit times on the road routes to DSM and to Kenya via Mwanza.

#### Burundi Terminal at DSM

7.26 There has been a long standing agreement with Tanzania for the construction of a Burundi terminal at DSM but no effective action has yet been taken. If the concept of block trains for transit traffic on both the Isaka and Kigoma routes were seriously considered, the terminal could form part of the overall operating system and could even act as reciprocal participation for the Rwanda terminal at Isaka. It should form part of an overall operational strategy study for the transit route development (see Chapter VI, section: C: Government Intervention: Possible Extension).

#### Lake Transport

7.27 Lake transport capacity to Kigoma is largely provided by the private company Arnolac. Increasing capacity is now being developed by other companies but, in view of the low rates to Kigoma, they operate almost exclusively to Mpulungu. The lake transport rates, for commodities other than coffee, have recently been increased for the first time since 1980. Arnolac argues that the increased revenue has been offset by higher payments at Kigoma, and the rates are not sufficient to meet operating costs. If operating capacity is to be maintained on the route, the rates may have to be further increased. Alternatively, given the increasing lake transport capacity, the rates could be freed and competition between Arnolac and the other companies encouraged.

#### Coffee Marketing

7.28 Coffee has traditionally been exported through the Kigoma route to DSM. The transit time can typically be two months which can seriously affect the quality and thus price of the coffee. Erratic delays on the Kigoma route effectively prevent Burundi from reacting rapidly to changes in the world market price and selling on the spot market with guaranteed delivery dates at DSM. The Bank suggested very strongly for a number of years that Burundi should consider exporting its high quality "fully washed" coffee by road. The Government rejected these suggestions on the grounds that the coffee might be stolen and that road transport was more expensive. During 1989, the increase in the flow of imports coming from DSM to Burundi by road has created a significant backhaul capacity to DSM.

7.29 Trucking companies have offered extremely low rates for carrying coffee as backhaul and as a consequence a significant volume of coffee is now being exported by road. Rates for coffee as backhaul have fallen to \$65/ton, lower than the costs by the traditional lake-rail route. Exporting coffee by road is particularly attractive for the high quality coffee which is grown in the north and east of the country and thus convenient for the new Isaka road network. Direct export avoids the need to transport the coffee to Bujumbura with the associated costs and losses of additional handling.

### Supply of Petroleum Products

7.30 POL imports form a major part of Burundi's total imports and are critical to the functioning of the economy. The Burundi Government is faced with a number of important issues if fuel security is to be improved and fuel costs reduced.

Route Security: Secure supply routes for POL imports are the major priority for the Government, low cost supply routes would be a further advantage. Burundi's main supply route shifted to the Northern Corridor in the late 1970s and POL imports now form the main Burundi traffic on this corridor. Supplies were, however, threatened by the recent domestic problems in Kenya, and the petroleum companies were forced to use Dar es Salaam as a supply point, mainly trucking the POL to Burundi.

Contrary to previous preconceptions regarding supply through DSM, the petroleum companies found that supply could be arranged relatively easily and the route worked well, at costs comparable with those on the Northern Corridor. The main problem with the road option through Tanzania is that the present Burundi tanker fleet, which has sufficient capacity to move almost all Burundi POL imports, was either unable or unwilling to go to DSM and consequently foreign truckers had to be used. Completion of the Kobero road link to Tanzania and the general improvement of road conditions should significantly reduce the impediments to local truck participation. The Tanzanian experience does indicate the potential and adds to fuel security for Burundi.

Burundi Tanker Capacity: The present composition of the Burundi tanker fleet is a major obstacle to increased use of road routes to DSM. The fleet will also face major problems if Kenya seriously enforces its policy on axleloads, as hardly any Burundi tanker can meet the ten-ton axle limit and relatively few could meet a 13-ton axleload limit. Serious enforcement could, therefore, lead to the short-term immobilization of the fleet while tanks were modified to meet the load limits or new trailers were purchased. The Burundi Government should seriously consider the effects on Burundi trucks before agreeing to harmonized transit tolls based on rigid axleload limits as a more flexible approach might be preferable.

Kigoma Supply Route: Although some fuel has continued to be supplied through Kigoma the amounts have been very limited. The costs by the Kigoma route are, however, considerably lower than via road routes from Kenya or DSM (Table 7.1).

**Table 7.1** **Burundi POL Supply Costs**  
(FBU per liter)

	Petrol			Diesel		
	Kigoma	DSM	Nairobi	Kigoma	DSM	Nairobi
Supply cost	44.81	31.69	36.17	41.77	27.37	31.21
Transport	1.27	28.02	24.57	1.31	27.95	24.51
Other costs	1.85	1.62	1.66	1.82	1.57	1.61
Margins	15.00	12.00	12.00	15.00	12.00	12.00
Ex-tax cost	62.93	73.33	74.40	59.90	68.89	69.33
Tax	37.07	26.67	25.60	32.10	23.11	22.67
Pump price	100	100	100	92	92	92

7.31 While there is relatively little difference in the costs between road routes from Nairobi and DSM, the Kigoma route is significantly cheaper for Burundi even when the FBU 3/liter (in 1988 FBU 2.5) incentive for the oil companies is included in the calculation. The present cost structure may give a greater incentive to use Kigoma; previously the added margin was more than offset by the differences between the official transport cost and the rates that the oil companies were actually paying.

7.32 It is difficult to see why the oil companies in Burundi should be paid a FBU 3/liter incentive for using Kigoma. Some added margin may be necessary as the oil companies would need to hold somewhat greater stocks, but FBU 3 is probably excessive. For the Burundi oil companies the supply route from Kigoma is the simplest of the alternatives. The major problem on the Kigoma route is getting the fuel to Kigoma, and that part of the operation is under the responsibility of the oil companies in Tanzania.

7.33 Increased use of the Kigoma route would result in significant cost savings to the Burundi economy. Providing an additional margin for the oil companies could encourage increased use of the route, but this margin must enable the incentive to be passed to the companies in Tanzania who supply the oil to Kigoma. Transport capacity on the Central Line of TRC is limited and informal arrangements have often to be made to secure movement. Burundi must also compete with Zaire for the oil that is available at Kigoma. Essentially the oil companies in Burundi need more price flexibility in bargaining with their counterparts in Tanzania.

7.34 There is the danger that an increased foreign exchange allocation for the Kigoma route would simply result in an outflow of F/E without any increased supply through Kigoma. To guard against this possibility, the added incentive could become effective only for supplies above the average level of the past few years. Burundi could gain F/E savings of about FBU 12/liter by switching supplies to the Kigoma route, and thus the potential for increasing payments on the route and reducing overall F/E costs is considerable.

## **Customs Facilities**

### **Clearance Facilities**

7.35 Central customs clearance may have been adequate when economic activity was concentrated around Bujumbura and the Kigoma route carried all transit traffic. It will become increasingly costly as development spreads and other transit routes are used. Central clearance may be administratively convenient, but it is costly to have goods brought specifically to Bujumbura and then sent back to towns like Gitega and Kayonza. In view of the increasing development of the Northern region, it would be appropriate to have full customs clearance at Kayonza and, when the Isaka infrastructure is completed, full clearance facilities at Kobero. (The Government has already made the decision to establish customs clearance at Gitega.)

### **Container Inspection**

7.36 Customs decided in 1988 that all containers must be opened and stripped at the Port of Bujumbura. The decision was taken to improve the level of control over customs revenue, and perhaps also over customs' officials. It does, however, increase the costs relative to direct delivery and customs inspection at the final destination. At the very least, the appropriate infrastructure needs to be developed at the port to minimize the delays and ensure the safety of the cargo. A system based upon sample checks and heavier penalties might be more cost-effective. The full costs of centralized clearance for containers has been avoided by the number of exceptions allowed by Customs. The decision has not been officially altered but, in practice, it has been allowed to lapse.

## **VIII. TRANSIT ISSUES WITHIN THE LLC: UGANDA**

### **A. Introduction**

8.01 Uganda is the major generator of international traffic in the East African region and a key transit country. Events within Uganda and between Uganda and its neighbors have largely dictated the diversification of routes that has taken place in the region during the last 15 years. Uganda could have the objectives of both a transit and landlocked country: maximizing the benefits from transit traffic through Uganda, while minimizing the costs for its own international traffic and ensuring its own transit security. Uganda is faced with a number of important issues, largely revolving around the extent of government control and regulation.

### **B. Traffic Direction**

8.02 The National Resistance Movement (NRM) Government has issued instructions to the major government and parastatal importers and exporters regarding transport mode, transport route, and C/F agent. Given the importance of these organizations, such as the Coffee Marketing Board and the Food and Beverages Corporation, government direction has a significant impact upon the overall orientation of Uganda's international transport system.

8.03 The Government has instructed that:

- (a) all long distance transport be undertaken by rail. To achieve this, URC entered into a service agreement with KRC for the movement of 150,000 tons in each direction for Uganda;
- (b) barter coffee exports be routed through Dar es Salaam, as return cargo for barter imports; and
- (c) all government and parastatal imports be cleared by Transocean, the government-owned C/F agent.

8.04 The Government's objectives are understandable, given the availability of wagon ferry capacity, the length of haul from Mombasa, the limited capacity of Uganda's international trucking fleet, and the desire for reduced dependence on Kenya. Some aspects of government direction, however, increase total transit costs. These aspects as well as the impact of government intervention are discussed below.

#### Mode Direction

8.05 There has been some success in shifting traffic to rail; over 90% of exports and almost 50% of total traffic are moved by rail. URC statistics show their international movements have increased from 169,000 tons in 1985 to 278,000 tons in 1987, and 368,000 tons in 1988 (KRC and TRC statistics often show somewhat higher flows). Transferring imports from road to rail reduces direct movement costs from Mombasa from around \$90 per ton to about \$49 per ton (1989 cost levels). The savings are less for exports because the same rail rate is charged, and a lower back-haul road rate would probably apply.

8.06 The direct cost savings from using rail for imports will be partly offset by higher indirect costs (longer transit times, greater unreliability, and heavier loss and damage). On the other hand, the traffic carried by rail is usually low-value, bulk commodities. KRC statistics on cargo to/from Uganda illustrate the commodity distribution (Table 8.1).

Table 8.1 Uganda Traffic: Kenya Railways (1988-89)  
(000 tons)

Imports		Exports	
Cement	35	Coffee	128
Salt	19	Timber	6
Wheat	14	Hides/skins	3
Gunny	7	Other	5
Sugar	6		
Lime	5	Total	142
Textiles	4		
Fertilizer	3		
Other	26		
Total	119		

8.07 For coffee exports escorted to Mombasa and shipped from port stocks, the additional indirect costs are probably relatively small, and the major additional costs will be incurred by imports. The Coffee Marketing Board would, however, prefer to have the freedom to use both road and rail, suggesting that GMB could be incurring some unnecessary costs. Unfortunately, choices by parastatals between state-owned rail and private sector trucking companies are not always based on purely commercial grounds. Private inducements by trucking companies for transport contracts are relatively common and make it difficult to assess the real economic cost of directing traffic to rail.

8.08 The major issue for Uganda is to improve the efficiency of the rail route, increase capacity, and reduce the additional indirect costs of rail transit by raising service levels. Despite the increase in rail tonnage, Ugandan traffic has still not reached the flow levels agreed with Kenya Railways. The reasons for the shortfall in traffic are very difficult to determine. Kenya Railways suggests that URC efficiency is still too low and cites the very low rate of utilization of two locomotives leased to URC. URC suggests that political difficulties are the main factor underlying the traffic levels and that KRC has been instructed, from time to time, not to load cargo for Uganda. Traffic flows of both petroleum products and cement have failed to meet realistic expectations, but this could be explained by supply problems within Kenya. Certainly good political relations can facilitate the operating relationships between railways.

#### Route Direction

8.09 Less overall success has been achieved with regard to the policy of route diversification. Barter goods, possibly unwelcome in Mombasa, have been imported to Dar es Salaam; some coffee has also been exported by this route. Although URC traffic through Mwanza increased from 42,000 tons in 1987 to 106,000 tons in 1988, the increase came about at a high cost to the Uganda economy. Unfortunately TRC does not have the capacity to move the traffic efficiently and, consequently, imports have been delayed in Dar es Salaam for long periods waiting for onward transport. These delays resulted in high storage charges, at least \$46,000/month, and possibly high storage losses, reportedly as much as 10%.

8.10 In an effort to increase the flow of goods, URC leased locomotives to TRC. The Ugandan Government has also allowed road transport between DSM and the ferry terminal at Mwanza. As shown below, movement costs rise very significantly with the use of road transport and the premium paid for route diversification becomes substantial.

Movement cost via Mombasa:	road	\$90 per ton	
	:	rail	\$49 per ton

Movement cost via DSM	:	rail	\$66 per ton
	:	road/rail	\$111 per ton + additional handling and storage cost/losses at Mwanza

8.11 On the basis of movement costs, the DSM route is feasible only if reliable rail operations can be maintained. The rail/road option may be necessary to clear the backlog of cargo but cannot realistically be considered

a solution, except under the most extreme circumstances. When account is taken of the transport costs, storage charges and cargo losses, the use of the Central Corridor in 1987 probably cost Uganda \$3 million more than the Mombasa rail route.

### **Transocean**

8.12 This company was originally a private transporter/clearing agency and was taken over during the Amin period. By 1980, the company was virtually defunct and has continued only through large-scale government financial assistance and restructuring. Most of the previous management was replaced by the NRM government. Transocean has now been given the monopoly for clearing all government and parastatal import cargo. The company expected to clear 150,000 tons in 1988, about 50% imported under barter agreements. The company has even wider ambitions and would like to take over coffee forwarding from the Coffee Marketing Board (CMB) and act as a central freight bureau for all trade. Transocean would assume overall control for all international transport movement but would delegate much of the actual C/F functions to others.

8.13 Even though Transocean had a monopoly in 1988, other C/F agents were responsible for clearing and forwarding most government cargo from Mombasa. This appears anomalous but much of the cargo was imported CIF Kampala and the private companies could clear cargo from the port, but Transocean had to clear the cargo at the Ugandan border. This duplication was, at best, redundant and was probably both inefficient and costly.

8.14 In May 1989, Transocean circulated guidelines to all Ministries and parastatals establishing procedures for public sector importing: "Government has decided on a two Letters of Credit strategy for imports effected by Government and Parastatal Bodies." The guidelines established different procedures for three types of imports:

- (a) Imports locally-financed -- Proforma invoice to contain details of FOB cost, insurance premium and freight cost to final destination. One L/C to be opened for FOB purchase and another in favor of Transocean for freight and Insurance.
- (b) Imports donor-financed -- One L/C to be opened for CIF Kampala but with mandatory instructions that Shipping and Forwarding be effected by Transocean and that a full set of Blue Anchor Line Bills of Lading prepaid to free arrival be issued.
- (c) Imports barter-financed -- L/C to CIF Mombasa or Dar es Salaam with Transocean nominated and another L/C in favor of Transocean for clearing and forwarding to final destination.

If fully implemented, these guidelines would give Transocean and its overseas associate, Kuhne and Nagel, the effective monopoly of public imports into Uganda. The private sector C/F agents in Uganda are very disturbed about the potential loss of business, especially the effective monopoly given to an overseas competitor who they consider obtains most of the benefits without providing Transocean with much tangible return in the form of technical or managerial support. It is not, however, clear to what extent this policy has been adopted in practice. Certainly the guideline for donor-financed imports

would appear to violate Bank Procurement Guidelines. It should also be noted that URC has entered into C/F activities especially on the DSM route. According to URC, this was at the request of its clients, and it has cleared cargo for Government Ministries, such as the Ministry of Defense.

8.15 Importers dealing directly with Transocean suggest that the efficiency of the company has not improved and that it is a major bottleneck in the transit system. The other C/F agents report that former clients, now forced to use Transocean, complain that Transocean rates are much higher than those of the private sector. Transocean responds that the lower costs of private C/F agents are based on fraud rather than efficiency because the private sector uses the parallel currency market very extensively. Whatever the reason, transit costs to the importer would be reduced if there was freedom of choice.

8.16 There are a number of factors contributing to the poor performance of Transocean, and in some respects the inefficiency of its operations is simply the manifestation of more general public sector problems, outside the company's control:

- inadequate management capacity and experience: clearly these are problems and are readily admitted. Training, technical support and management equipment are requested. Transocean management has previously suggested close association with another C/F company, but their association with Kuhne and Nagel does not seem to provide much local support and training;
- high proportion of barter trade: it appears that many more problems are raised in clearing barter goods than normal commercial cargo. Transocean complains that goods cannot be cleared because they have not received the necessary documents; certainly on the two invoices examined, late documentation accounted for about 70% of total port costs;
- use of DSM and the Central Corridor: much of Transocean's cargo is imported via DSM, and the company has been faced with long delays, doublehandling and storage costs. Importers are clearly unhappy but Transocean is constrained by available TRC capacity and Uganda Government policy;
- foreign exchange constraints: much of the cargo is imported CIF (or C&F) port and, in order to clear and transport the cargo, Transocean must have the necessary foreign exchange. Transocean management at Kampala, Mombasa and DSM all complain that, even if the Government departments and the parastatals pay, the Central Bank does not transfer the required F/E. During July 1988, Transocean was said to owe THA, TRC and private warehouses in DSM almost \$3 million.

8.17 Since the early 1980s, the C/F market in Uganda has become highly competitive, leading to a substantial fall in the rates charged for clearing services and transit bonds. There has been a recent reduction in the number of small C/F agents as the result of increased C/F registration fees. Moreover, there is also a worldwide trend toward consolidation in the industry. Competition is still vigorous, however, and under these circumstances it is

difficult to see any economic benefits that Uganda will obtain from the role envisaged for Transocean, especially given its weak and inexperienced management. Transocean would have a monopoly of state traffic, and the reduction in the size of the total market could force some private companies to withdraw, thus limiting the choice available to the private sector.

8.18 In its policy dialogue with the Ugandan Government, the Bank should make clear its opposition to the present policies and the monopolization of the C/F sector by Transocean. The Bank should consider supporting the complete or partial privatization of the company as recommended by the financial advisers to the Government.

8.19 Transocean, or some similar organization, may have a useful role in the system of barter trade. When the barter deals are politically sensitive, there might be a role for a state C/F agent. More particularly, Transocean has come to appreciate the chaos that exists within the barter sector of Uganda's foreign trade. The company's attempts to impose some type of order in the sector may not be effective, but it is clear that some mechanism needs to be put in place to regulate the deals and ensure some order. Transocean could play a role in such a mechanism but clearly the wider aspects of the barter sector, such as ensuring that there is no overcommitment of available coffee supplies, is outside its sphere of competence. If there is a role to be played, the policy objective should be to minimize additional costs by providing management support and technical assistance to the company. The Bank could provide this support on the condition that Transocean's monopoly over government imports and its desire for a supervisory role over the C/F industry be abandoned. Transocean could then play a limited role more effectively. Active participation in the company may be the only way to limit the potential waste of resources.

### C. Future Role for Uganda Railways

#### Development of Kenya Route

#### Uganda International Traffic

8.20 URC is moving away from conventional railway operations to lake transport. When the new wagon ferry terminal at Port Bell is completed, the two main centers for international traffic, Jinja and Kampala, will be directly served by lake transport, and rail movement will have a negligible role in international traffic. Traffic along the main Kampala-Jinja-Tororo corridor will be confined to domestic freight and passenger traffic. Once the road improvements underway are completed, even domestic demand for URC services along this corridor may be very limited.

8.21 It has been suggested that loaded fuel wagons be transported by ferry and returned by rail through Malaba. The severe grades on the Kampala-Jinja section of track would not impose any limitation on this operation. The logic of the operating pattern is not clear, however, as it would entail empty space on the ferries to Kisumu and unutilized loco movements from Malaba.

8.22 There are strong economic arguments in favor of fully utilizing the wagon ferries and employing mainline locomotives elsewhere. For example:

- the introduction of the new German locomotives will relax motive power constraints within Uganda but regional locomotive capacity, including TRC, is still limited;
- the wagon ferries are available and have little alternative use; and
- the Jinja-Kampala rail section has severe gradient restrictions and is therefore a high-cost rail operation.

8.23 If standard international ferry operating practices were possible, full ferry utilization on the Kisumu route should be about 200 round trips per ferry/year. Unfortunately rotation is restricted by customs procedures, customs' working hours, and the problems of working at night. Unless relations between Uganda and Kenya improve and special procedures for ferry clearance are agreed, 150 round trips per ferry/year may be the maximum possible, requiring a very efficiently managed maintenance schedule.

8.24 Modal operating cost calculations, Annex 10, suggest that the total cost of operating the ferries, excluding the non-escapable capital charges, is about \$0.021 per ton-km, assuming 150 trips/annum. Rail variable costs (including capital charges) are estimated at about \$0.019 ton-km for the Malaba-Jinja section, and \$0.034 per ton-km for the Jinja-Kampala section. Overall economic costs to Uganda of the rail only and rail/ferry options are shown in Table 8.2. The rate charged by KRC for transit services is taken as the economic cost to Uganda.

Table 8.2 Wagon Ferry - Rail Cost Comparison  
(\$ per ton)

	Jinja		Port Bell	
	Rail <sup>(1)</sup>	Ferry <sup>(2)</sup>	Rail <sup>(1)</sup>	Ferry <sup>(3)</sup>
KRC (35 tons/wagon)	\$ 33.3	\$ 28.6	\$ 33.3	\$ 28.6
KRC Ferry 1:3		2.3		2.3
URC Rail	3.0		5.7	
<u>URC Ferry 2:3</u>	<u>          </u>	<u>3.2</u>	<u>          </u>	<u>3.2</u>
<b>Total</b>	<b>\$ 36.3</b>	<b>\$ 34.1</b>	<b>\$ 39.0</b>	<b>\$ 34.1</b>

(1) Direct rail via Malaba  
(2) Rail to Kisumu, wagon ferry to Jinja, rail to Kampala  
(3) Rail to Kisumu, wagon ferry to Port Bell

8.25 The cost comparisons are clearly incomplete as variable movement costs are only about 50% of total rail costs. The other costs may not, however, be avoidable even in the long term. The ferry operation requires more wagon marshalling, but wagon interchange between URC and KRC at Malaba is very time-consuming and thus expensive. It appears that the change of mode at Kisumu and greater separation between the actual rail systems facilitates wagon interchange. In terms of variable cost, there is relatively little difference between the ferry and rail option. More substantial savings could be achieved if URC were to escape from overhead costs associated with continued operations on the main line. Closure/mothballing of the line is not acceptable until domestic traffic potential is fully identified and developed.

8.26 The three URC ferries have a finite movement capacity -- possibly 270,000 tons each way on the Kisumu route (360,000 tons if the KRC ferry is included) -- and provide Uganda with flexibility. The wagon ferries can provide the necessary movement capacity for international traffic (assuming that balanced flows are desired to maximize revenues) for the foreseeable future. Indeed it would seem that, at present, there is substantial underutilized ferry capacity which could be economically employed in the movement of bulk fuels from Kenya to Uganda.

8.27 The analysis suggests that investment and maintenance on the main line should be limited to retaining basic operational capability. Major investment is not justified on the basis of international traffic for at least the medium term. The situation would need to be reassessed once the capacity of the existing ferries is reached (if ferry operations are costed to include capital charges, the costs double and the ferry option becomes much less attractive). Until ferry capacity is reached, URC rail services can be effectively considered as a domestic operation.

8.28 The situation may change, however, if the pipeline is extended to Eldoret/Malaba, or if KPA establishes an ICD for containers at Malaba and requires all transit containers to use the facility. Under these circumstances, the strategy for both the main line and the wagon ferries may have to be reconsidered with the mainline providing the main movement capacity on the Northern Corridor, and the wagon ferries concentrating upon the DSM route. Overall strategy for URC is discussed later in this section.

#### ZBR Transit Traffic

8.29 At present URC carries no transit traffic, and neither Rwanda nor Zaire are currently contemplating a return to a road/rail system through Uganda. In principle, however, such a system would seem logical and cost-effective for the Northern Corridor, given the distances and the low movement costs of rail. Once URC receives the new locomotives and wagons and invests in the rehabilitation of the Kasese Line, there will be pressure to make use of these investments.

8.30 If Uganda's own traffic is insufficient to make full use of the available capacity, one possible scenario is for the Uganda Government to direct transit traffic to rail. For Uganda, the traffic diversion would increase the use of its rail facilities and reduce the damage to its road infrastructure. If introduced, the policy may, however, generate little additional traffic as recent experience has shown that transit demand for any individual route can be very responsive to transit costs and conditions. Rwanda could switch traffic either to DSM or through Mwanza. Kivu traffic may be less flexible but could be diverted through Mwanza and Rwanda.

8.31 A road/rail transit route via Kampala or Kasese may, in the long term, be desirable for Rwanda and Zaire traffic, but a substantial improvement in service levels is required before the route would be acceptable to shippers. Operational efficiency on URC would need to be improved as would cooperation and coordination between URC and KRC. Kasese has, conventionally, been considered the appropriate transit terminal, but the costs of rehabilitating the track to the standard necessary for a competitive transit service would be very

substantial. In the short and medium term, URC should concentrate on developing services to Kampala. Container interchange facilities exist, and a private C/F agent who moved 200 containers through the system in 1989 found that the operation proceeded very efficiently. In terms of transit traffic, URC could obtain many of the benefits by establishing Kampala as the transit center. Rehabilitation of the Kasese line should be based on domestic needs rather than transit traffic.

#### **Development of the DSM Route**

8.32 The NRM Government in Uganda gives strong priority to developing alternative routes for its international trade. DSM offers the only practical alternative to Mombasa, and the available wagon ferry capacity makes rail the most attractive mode. Roads to the West of Lake Victoria are in very poor condition and would need extensive improvement to handle major road transit flows.

8.33 The DSM route is restricted by the limited capacity of TRC and, consequently, Uganda is still heavily dependent upon Kenya. In terms of overall transport-transit strategy, development of the DSM route capacity must receive high priority. It is also possible that transit conditions in Kenya will only improve when the Kenya transport industry faces the loss of its main transit traffic. Competition may be a much more effective stimulus for improvement than regional cooperation agreements between governments.

8.34 Movement capacity on TRC is the critical constraint, and while four locomotives have been hired from URC for use on the Mwanza-Tabora section, the impact has not been substantial. The Emergency Program for TRC is expected to increase capacity, however, as this will be required for domestic Tanzanian cargo, little additional capacity is expected for transit traffic. If it is serious in wishing to develop the DSM route, Uganda must be prepared to seek more fundamental changes in the way in which the present system operates (see Chapter V, section: B. Movement and Handling Capacity).

8.35 The provision of URC block trains to operate DSM-Mwanza-Jinja-Port Bell would clearly be one alternative. While the concept is potentially attractive it could fail if the train marshalling problems at DSM are not resolved. Additional shunting locomotives may be part of the required solution, but marshalling requires efficient organization and management and this is where TRC is very weak.

8.36 The development of a substantial movement capacity may require the development of a complete system which would include not only the concept of URC block trains, possibly using trackage rights, but also a specific Ugandan entrepot and marshalling yard at DSM. CMB has already been allocated land for storage, and the Government may choose to seriously consider whether this should be extended to provide the base for all Uganda transit cargo. URC trains could then operate from the depot, thus avoiding the problems of port marshalling. The clearance of Ugandan traffic out of the port would also follow the pattern of operations being developed for Zambian and Malawian cargo and may be the only means by which the port can provide for traffic needs after 1992.

## Overall Development Strategy

8.37 Uganda Railways must play a pivotal role if the objectives of reducing transit-transport costs and increasing transit security are to be met. The Government now gives great weight to the latter objective and wishes to create the capacity to move 60% of imports through other routes -- the minimum level required for the functioning of the economy. Lake Victoria and the use of ferries may provide Uganda with its only realistic means of transit flexibility. The Government of Uganda has apparently taken the decision to increase its lake movement capability through the addition of two ferries to its existing fleet. If these ferries are similar to those already operated, the movement capacity could reach 450,000 tons in each direction, largely meeting the Government's objectives.

8.38 The costs of increasing lake and rail transit capacity to this level, in both initial capital and recurrent costs, would be very high. Internal and external transport needs for Uganda might, in these circumstances, justify limited road improvements west of Lake Victoria to enhance road transport potential. Truck transport can generally respond more rapidly than rail to changing conditions, and the road improvements would assist in the development of the areas directly served.

8.39 Unfortunately the provision of additional wagon ferry capacity is only a necessary rather than sufficient condition for route diversification and greater transit security. The capability to move rail wagons across Lake Victoria may not achieve transit security if TRC does not have the capacity to move the wagons up and down the line to DSM. Certainly there is little prospect that TRC could accommodate, in the foreseeable future, the level of tonnage envisaged in a 60% diversion of Ugandan international traffic. If Uganda is to seriously tackle the issue of transit security, there needs to be a reappraisal of lake transport capacity. The ferries presently have the capability to carry only rail wagons and thus, to a considerable extent, the operation is dependent on TRC. Much greater transit security would be achieved if multi-purpose ferries were utilized, having the ability to carry both rail wagons and road vehicles.

8.40 Trial runs of the MV UHURU with road vehicles have been successful. The Ugandan ferries should have a similar capacity, 17 semi-trailers with a load potential of 500-600 tons. This load is somewhat lighter than if the ferry were carrying rail wagons. The limited capacity of TRC would suggest, a priori, that movement of cargo to DSM by road may be the only solution to route diversification in an emergency. Under these circumstances the slightly higher costs of carrying road vehicles may be much more economic than either no additional movement, if totally dependant on TRC, or moving goods by rail wagon across Lake Victoria and transshipping at Mwanza. In terms of transit security, the strengthening of the decking on the present ferries, approximately \$200,000/ferry, would seem very cost-effective.

8.41 For similar reasons, close attention should be given to the design of additional lake movement capacity. There are economies to be gained if the ferries are similar in equipment, power units, navigational aides, etc. to the existing fleet, but some redesign might be desirable if the most effective multipurpose ships are to be purchased. Ideally the new ferries, if to carry dry cargo, should have the capability to load not only rail wagons but also

unaccompanied road trailers. Unaccompanied trailers would increase significantly the carrying capacity of the ferries, when operating in a road mode, and improve the utilization of the tractor units.

8.42 An alternative scenario for increasing capacity on the Lake would involve the purchase of bulk oil barges rather than additional ferries. These barges could make economic sense if Kenya extends its pipeline to Kisumu and would enable POL to be shipped from the bulk storage tanks in Mwanza which could be supplied by either road or rail.

8.43 Clearly lake transport is the key to Uganda's transit security, and URC is becoming increasingly a ferry operator rather than a conventional railway. This orientation will become even more marked with the construction of the new wagon ferry terminal at Port Bell and if two more ferries/barges are purchased. Under these circumstances, an overall study of the design, operation, maintenance and organization of lake transport seems justified. At present, URC has an organizational structure, based on conventional rail activities, in which ferry operations are a peripheral activity. In many ways the reality of URC is becoming the converse. A more autonomous management for the ferries is desirable especially if a more multi-mode operation is the general objective.

#### D. International Trucking Capacity

8.44 Uganda relies very heavily upon Kenya truckers for international road transport. The capacity of the domestic trucking industry has been seriously reduced by past security problems, and it is thought that an acute transport shortage exists. The fleet suitable for long distance, international operations is limited to possibly 200-300 vehicles, and these are generally old.

8.45 The development of a strong international trucking sector has been given high priority by both Rwanda and Burundi as a means to reduce F/E outflows and to provide greater transit security. Uganda has given higher priority to re-establishing rail as the main international transport mode and has accorded little priority to long distance trucking operations. In the longer term, Uganda may wish to develop its own capacity, and it is important that rational guidelines for its development are established. There is the danger that parastatals such as Transocean may attempt to re-enter the trucking market (the company has apparently already received semi-trailers and is now looking for the financing of tractor units). Transocean's past performance as a transporter and general experience with parastatal trucking companies dictates that this should be strongly resisted.

8.46 Ugandan truck owners believe that they operate at a considerable cost disadvantage within an unfairly structured competitive market:

- (a) Kenya truckers are paid 100% in F/E while Ugandans receive 50% in local currency. The overvalued exchange rate makes the Kenya truckers appear cheaper in local currency quotations;
- (b) Kenya truckers purchase fuel, tires and spare parts in Uganda, using money converted unofficially at the border;

- (c) Kenya fuel tankers were given exemption from Ugandan transit charges, but Ugandan truckers still face Kenyan transit charges.

Under these circumstances, the available Ugandan truckers find it more profitable to operate to third countries and get paid in F/E. If the Ugandan Government wishes to re-establish a strong local participation in international trucking, it must attempt to establish the framework that provides encouragement without the costs generated by the type of protection given by Rwanda to its trucking sector.

8.47 Agreement with Kenya upon appropriate transit tolls and taxes would be one necessary aspect of the framework but this, in itself, would not be sufficient. One of the basic problems is the overvalued exchange rate and, until this is rectified, distortions in the economy will continue. Until the gap between official and parallel exchange rates is closed, second or third-best policies in the transport sector may have to be adopted. The present ban on foreign truckers purchasing fuel in Uganda seems inappropriate and very difficult to enforce. It would perhaps be more useful to lift the ban on the purchase of fuel but require that truckers change a specified amount of F/E at the border to cover the expected cost of local purchases (fuel, food, lodging, etc.) This would have the effect of bringing together the payment systems for local and Kenyan truckers and ensure competition on a reasonably equitable basis. This measure could be applied to both Kenya truckers operating to Uganda and transit trucks from ZBR.

8.48 If Uganda wishes to develop an efficient, locally-based international truck fleet, the Central Bank must be prepared to issue import licenses to the private sector. Any external donor considering financial assistance to the international trucking sector should make preference to private operators a condition for such assistance.

#### E. Transit Taxes

8.49 Uganda is centrally placed on the traditional Northern Corridor to the ZBR countries. Relatively modest transit tolls were levied on foreign registered vehicles for many years with no major complaints. Suddenly the rates were raised to about \$760 for a round trip, approximately \$25 per ton carried. These charges were much higher than the tolls charged by neighboring countries. The Ugandan Government justified the high tolls as compensation for the loss of F/E that arose from truckers using the unofficial currency market to finance purchases in Uganda. The tolls could also be interpreted as exploitation of Uganda's geographical position.

8.50 Many truckers responded to the high tolls by diverting to routes south of Lake Victoria. When the tolls were reduced to \$100, there was a substantial switch of traffic back through Uganda. In view of the investment made in the rehabilitation of the transit route and the need for its continued maintenance, the use of transit tolls would seem legitimate. The major issue is the level at which they should be set. This is, however, not a problem unique to Uganda but also affects Kenya, Tanzania and Rwanda and is discussed further in Chapter IX, section: C. Transit Cost to Rwanda.

8.51 In undertaking negotiations on harmonized transit tolls and international trucking regulations, Uganda is in a much more ambivalent position

than other countries in the region. Any benefits that Uganda gains from reduced transit tolls in Kenya could be offset, under the harmonized system, by lost transit revenues from vehicles passing through Uganda. The Government must, therefore, give careful consideration to the structure of any harmonized system to ensure that net benefits are maximized. Its negotiating position should be framed in light of these considerations.

**IX. COSTS AND REVENUES IN THE TRANSIT SYSTEM**

**A. Transit Costs to the LLC: Introduction**

9.01 Estimates of transit costs have been developed for the existing main routes and those being actively developed. Some potential routes have not been costed as they appear unlikely, highly speculative, or outside the time-frame of this analysis: Rwanda's use of the Kigoma-DSM route, truck ferry services across Lake Victoria to Bukoba, and a road-rail service via Kasese.

9.02 The costs have been calculated from a number of sources: C/F agents, official tariffs, transporters, and government sources. Total costs charged by C/F agents are often differently structured. Therefore elements within these estimates may not be in accordance with individual invoices from C/F agents. The overall cost levels are, however, a reasonable representation. The estimates use 1988 costs and some changes have occurred, most notably in Mombasa port. These changes do not, however, alter the broad conclusions of the analysis.

**B. Transit Costs to Burundi**

9.03 At the present time Burundi uses three main transit alternatives: all road from Mombasa; rail/lake from Dar es Salaam; and all road from Dar es Salaam. In the future the use of a rail/road alternative via Isaka may be another alternative for Burundi.

**Direct Transit Charges**

Table 9.1 Transit Charges: Burundi  
(US\$ per ton)

	Road Mombasa	Road DSM	Rail/Lake Kigoma	Rail/Road Isaka
Port				
Wharfage	1.0%CIF	-	-	-
Handling	1.95	20.00(AMI)	20.00(AMI)	20.00(AMI)
Local Transport/ Storage	7.00	-	-	-
C/F Commission	1.0%CIF	1.0%CIF	1.0%CIF	1.0%CIF
Bond	1.5%CIF	-	-	-
Road Transport	190.00	145.00	-	48.00
Rail Transport	-	-	45.00	37.00
Lake Transport	-	-	10.75	-
Kigoma Port	-	-	16.00	-
Bujumbura Port	-	-	5.35	-
Isaka	-	-	-	18.00

\$1 = Ksh 18; \$1 = Fbu 140; Costs in Tanzania paid in dollars.

Costs via Kigoma and Isaka could be increased by \$6.00 if a rail terminal outside Belbase were established for unit train operations.

#### Total Direct Transit Costs

All road from Mombasa	\$ 198.95 + 3.5%CIF
All road from DSM	\$ 165.00 + 1.0%CIF
Rail/Lake via Kigoma	\$ 97.10 + 1.0%CIF
Rail/Road via Isaka	\$ 123.00 + 1.0%CIF

9.04 In terms of direct costs, the Mombasa route is clearly the most expensive and the traditional route via Kigoma the cheapest. All road via Dar es Salaam and rail/road via Isaka fall between the two extremes. The Isaka alternative might, however, have broadly the same costs as the Kigoma route for destinations in the North of Burundi, assuming that customs clearance could be performed in the North rather than at Bujumbura.

#### Indirect Transit Costs

9.05 Direct transport charges are important, but other costs faced by the importer/exporter can also be very significant and must be assessed, e.g.: total transit time; reliability of transit service; and loss and damage to goods in transit. Unfortunately data on these service-related issues are very limited and the estimates must be treated as indicative. More detailed information could be obtained but considerable additional fieldwork would be required.

#### Transit Time

9.06 Road via Mombasa: the average transit time from Mombasa, for a sample of Rwandese cargo, was 29 days. There is little reason to expect Burundi cargo would be greatly different. Road transport time is about 12-14 days but can vary greatly depending on whether the truck is required to move in convoy through Kenya. The total transit time from arrival at port to delivery in Bujumbura is about six weeks.

9.07 Road via DSM: transit through DSM, for goods moving by road, appears to be somewhat faster, about 20 days. Truck time to Bujumbura can take between seven days in the dry season to 30 days in the wet. The trunk road rehabilitation program should significantly reduce the wet season truck time and seven to eight days may become average. Overall, four weeks may be a reasonable reflection of total transit time.

9.08 Rail/Lake via Kigoma: when the system is working very well it can take six weeks but, during other times, it can take four months or even longer. At present, AMI suggests that two to three months could be taken as the average time from arrival DSM to delivery Bujumbura.

9.09 Rail/Road via Isaka: the route has not started and thus it is impossible to provide more than a broad indication. In some respects, the route is comparable with the Kigoma route, i.e, TRC, an interchange and then onward transport to Burundi. If an efficient rail movement operation is mounted to Isaka, a transit time of five weeks could be achieved. If efficient TRC

operations are assumed for the Isaka route, there is no particular reason why similar times should not be achieved on the Kigoma route.

### Loss and Damage

9.10 Previous studies and mission discussions would tend to support the hypothesis that there is little loss, possibly 1%, by road transport. The condition of the roads in Tanzania are likely to increase damage costs, however, and may limit the use of road transport for fragile commodities. To reflect the increased risk of damage, the total loss/damage on the all road DSM alternative is increased to 2%. Loss and damage by rail are probably in the range 2-5% of the CIF value. These estimates were provided by sources in Uganda but are reasonably close to the estimates of more detailed studies undertaken in Burundi during 1979/80.

### Reliability

9.11 It is quite clear that, under present circumstances, the all-road alternatives provide a much higher level of reliability and predictability than systems based around TRC. During the dry season, the DSM route, with fewer border crossings, is probably a marginally more reliable service than the Mombasa route; but the opposite is true during the wet season.

### Valuation of Indirect Costs

9.12 To value indirect costs, an annual interest rate of 12% has been applied for transit time. The costs of reliability are very difficult to estimate, but studies have shown that shippers are willing to pay significant premiums for faster/more reliable services. As an indication of the possible impact of reliability, it has been assumed that reliability is correlated with average transit time and an additional cost penalty, equivalent to 50% of the average time cost, has been included.

#### Total Indirect Transit Costs:

All road from Mombasa	: 3.0%CIF
All road from DSM	: 3.3%CIF
Rail/lake via Kigoma	: 6.8%CIF (5.2%)
Rail/road via Isaka	: 6.8%CIF (5.2%)

(X) assumes major improvement to TRC and transit times reduced to 5 weeks.

#### Total Transit Costs

All road from Mombasa	\$ 198.95 + 6.5%CIF
All road from DSM	\$ 165.00 + 4.3%CIF
Rail/lake via Kigoma	\$ 97.10 + 7.8%CIF (6.2%CIF)
Rail/road via Isaka	\$ 123.00 + 7.8%CIF (6.2%CIF)

9.13 Quite clearly the costs via DSM are well below those on the Northern Corridor, and the present routing of traffic reflects this cost structure. As the road network is improved in Tanzania the relative advantage of this road route will increase. On the other hand, the introduction of additional documentation and the channelling of all payments through the official channels could raise both direct charges and indirect costs.

C. Transit Cost to Rwanda

9.14 Rwanda currently uses two main transit routes: all road to Mombasa, and all road to Dar es Salaam. The Isaka route is, however, being developed and should be operational by 1992/3. This study has assumed the terminal operating costs estimated in the feasibility study. The costs are in the right order of magnitude, though possibly somewhat high when compared to the costs through the other terminals.

Direct Transit Costs

Table 9.2 Transit Charges: Rwanda  
(US\$ per ton)

	Road Mombasa	Road DSM	Rail/Road Isaka
Port			
Wharfage	1.0%CIF	-	-
Handling	1.95	20.00(AMI)	20.00(AMI)
Local Transport/ Storage	7.00	-	-
C/F Commission	1.0%CIF	1.0%CIF	1.0%CIF
Bond	1.25%CIF	-	-
Road Transport	225.00	130.00	50.00
Rail Transport	-	-	37.00
Isaka Terminal	-	-	18.00

(81 = FRw 75)

9.15 Costs via Isaka would be increased by \$6.00 if a terminal outside the port were established to handle the movement of unit trains. This cost might be offset, however, by increased efficiency within the system. The rail cost included in the analysis is the TRC tariff. Rather different costs could apply if Rwanda operated its own block trains, but the prospect of this seems unlikely. Mombasa local transport/storage costs assumed the continuation of the present operating practices. Rather different costs would be generated if Rwanda constructs a terminal at Mombasa and uses KRC to shuttle goods to/from the port.

Total Direct Transit Costs:

All road from Mombasa	\$ 233.95 + 3.25%CIF
All road from DSM	\$ 150.00 + 1.00%CIF
Rail/road via Isaka	\$ 125.00 + 1.00%CIF

### Indirect Transit Costs

9.16 Indirect costs for Rwanda should be little different from those for Burundi, although there should be slightly shorter journey times. This distance advantage is, however, probably nullified by the bureaucratic procedures adopted by the Rwandese. The same indirect costs have thus been applied:

All road from Mombasa	:	3.0%CIF
All road from DSM	:	3.3%CIF
Rail/road via Isaka	:	6.8%CIF (5.2%)

(X) Assumes major improvement on TRC and transit time reduced to five weeks.

### Total Transit Costs

All road from Mombasa	:	\$ 233.95	+	6.25%CIF
All road from DSM	:	\$ 150.00	+	4.30%CIF
Rail/road via Isaka	:	\$ 125.00	+	7.80%CIF (6.2%)

9.17 It is perhaps surprising that any cargo is routed via Mombasa, given the costs of the present road routes. The all-road route via DSM appears to have a clear competitive advantage in terms of both direct and indirect costs and, as discussed previously, DSM is developing the reputation as the preferred port. In fact, there has been a major shift in Rwandese direct overseas imports to DSM. In 1987, DSM handled over 40% of the recorded Rwandese dry cargo imports through the two ports, and in 1988 the volume of imports through DSM doubled. (In 1984 DSM handled less than 5% of Rwandese imports.)

### D. Transit Cost to Uganda

9.18 Uganda operates three main transit routes and is beginning to develop a fourth in response to the capacity limitations on TRC: all road from Mombasa, rail/ferry from Mombasa, rail/ferry from Dar es Salaam, and road/ferry from Dar es Salaam. The rail/ferry alternative from DSM has major capacity limitations, and substantial volumes of cargo have been delayed at DSM for long periods. These capacity limitations could be alleviated once the new URC rolling stock is delivered and the Emergency Rehabilitation Program for TRC is completed. Further capacity could become available if the EEC funds block trains for Uganda, as well as Rwanda and Burundi. Consequently, an attempt has also been made to estimate costs on an adequately functioning rail/ferry system. Such a system would also eliminate the late documentation charges which are now prevalent at DSM.

**Direct Transit Costs**

**Table 9.3 Transit Charges: Uganda  
(US\$ per ton)**

	Road Mombasa	Rail/Ferry Mombasa	Rail/Ferry DSM(1)	Rail/Ferry DSM(2)	Road/Ferry DSM
<b>Port</b>					
Wharfage	1.0%CIF	1.0%CIF	1.25%CIF	1.25%CIF	1.25%CIF
Handling	1.94	1.94	2.22	2.22	2.22
Storage	-	-	7.50	-	-
Local Transport	3.00	3.00	9.00	5.50	5.50
Handling/storage	4.95	1.80	9.40	1.80	1.80
C/F Commission	0.25%CIF	1.0%CIF	1.0%CIF	1.0%CIF	1.0%CIF
Bond	0.8%CIF	0.4%CIF	-	-	-
Road Transport	90.00	-	-	-	90.00
Rail Transport	-	46.00	66.25	66.25	22.65
Mwanza Handling	-	-	-	-	5.00

**Total Direct Transit Costs**

All Road from Mombasa	\$ 99.89 + 2.05%CIF
Rail/Ferry from Mombasa	\$ 52.74 + 2.40%CIF
Rail/Ferry from DSM	
(1) Present conditions	\$ 94.37 + 2.25%CIF
(2) Potential conditions	\$ 75.77 + 2.25%CIF
Road/Ferry from DSM	\$ 127.17 + 2.25%CIF

9.19 The costs for road transport from Mombasa assume the use of private sector C/F agents. They maintain their specific C/F charges at low levels but make profits of \$7-\$15 per ton from the transport charges and generate additional profits from the rapid turnover of their transit bonds. Rail transport from Mombasa and all the DSM options are assumed to be managed by Transocean.

**Indirect Transit Costs**

**Loss and Damage**

9.20 One percent losses are assumed for transport by road and 3.5% for rail. Under present operating conditions at DSM, there is probably considerable loss/damage/deterioration during the extended storage periods; to account for this, an additional average 5% loss has been assumed.

Transit Time

9.21 Overall transit times reported by the C/F agents and others would suggest the following:

All road from Mombasa	one month
Rail/ferry from Mombasa	two months
Rail/ferry from DSM	
(1) Present conditions	six/seven months
(2) Potential conditions	two months
Road/ferry from DSM	two months

(iii) Total Indirect Costs

All road from Mombasa	2.40%CIF
Rail/ferry from Mombasa	6.35%CIF
Rail/Ferry from DSM	
(1) Present conditions	17.90%CIF
(2) Potential conditions	6.35%CIF
Road/Ferry from DSM	6.35%CIF

Total Transit Costs

All Road from Mombasa	\$ 99.89 + 4.45%CIF
Rail/Ferry from Mombasa	\$ 52.74 + 8.75%CIF
Rail/Ferry from DSM	
(1) Present Conditions	\$ 94.37 + 20.15%CIF
(2) Potential conditions	\$ 75.77 + 8.55%CIF
Road/Ferry from DSM	\$ 127.17 + 8.55%CIF

9.22 Under present circumstances, movement through DSM is more expensive than either the road or rail routes through Mombasa. If the major operating problems on the DSM route are resolved and the long storage periods and losses are eliminated, then the DSM route will become cheaper than the Mombasa road route for lower-value cargo. Rail to DSM is, however, likely to remain more costly than rail to Mombasa unless Uganda can achieve substantial savings by using its own rolling stock on the TRC network.

E. Revenues to the Transit Countries: Introduction

9.23 The revenues that transit countries receive from the LLC, as a consequence of transit, come from a variety of sources: port charges, transit fees and taxes, sales of transport inputs -- such as fuel, participation in the movement of transit cargo, income from forwarding and clearing, and income from bond guarantees.

9.24 The data required to make detailed estimates, with any degree of confidence, are not easily available and would need extensive research. The estimates presented below are, at best, orders of magnitude and hopefully the errors in specific elements balance.

9.25 It is also possible that the coastal countries benefit quite considerably from the trade generated with the LLC as a consequence of the geographic situation. Coastal countries, for example, benefit from exporting products from traditionally port-located industries, such as oil refining.

**F. Transit Revenues to Kenya**

9.26 It is clear that Kenya receives higher gross revenues from international traffic than other transit countries in the region. Kenyan infrastructure carries 75% of the imports and over 60% of the exports of the LLC, and its transport industry still has a very significant, though diminishing share of the international transport market.

**Table 9.4 Gross Transit Revenue: Kenya**

<u>Source</u>		<u>Gross Revenue</u> <u>US\$ million</u>
Kenya Railways	(221 million ton-km Uganda traffic)	7.34
Mombasa Port		
Export Wharfage	(Mombasa Port Tariff study)	0.11
Import Wharfage	(257,000 tons x \$750 x 1% dry cargo)	1.93
Cargo Handling	(18.9% of total general cargo)	5.87
Transport/Storage	(average \$6 per ton)	2.87
Pipeline	(448,000 m/3 x \$16.9)	7.57
Road Transport		
Rwanda	(rate: average free market and official)	11.35
Uganda	(market share 80%, \$90/mt dry cargo)	20.05
Burundi	(market share imports 40%, exports 0%)	5.25
Zaire	(market share 50%)	11.34
Transit Fees/Tolls: LLC Trucks		1.29
Licenses: LLC Trucks		0.12
Fuel Tax: LLC Trucks (75% fuel purchased in Kenya)		1.50
Informal Payments (1500/- per trip)		0.92
Bond Payment (0.5% cargo value)		4.85
<u>C/F Commission (1.0% imports, 0.35% exports)</u>		<u>4.65</u>

**Total Revenue** **\$ 87.01 m**

9.27 Overall the estimates suggest that Kenya generates around \$87 million in gross transit revenues; real earnings are possibly between \$80-\$95 million, equivalent to about 45% of Kenya's earnings from tea exports. Clearly the \$87 million do not represent a net financial profit to Kenya, nor does the domestic value added as some of the elements, such as road transport costs, have a high import content.

9.28 The net benefit to Kenya of the transit traffic could be crudely estimated by considering the import content of the variable cost of providing the services rendered. Variable costs on KRC, for example, are about 50% of its total costs, and variable costs have an import content of approximately 60%. Similarly the import content of trucking costs are usually about 50% of total costs. Using this approach for each of the transport elements and assuming that

bond charges and C/F commissions have relatively little direct import content, a net value-added to Kenya of about \$53 million is obtained.

9.29 This estimate of benefits needs to be adjusted, however, for the direct costs borne by the Kenyan Government for maintaining the transport infrastructure used by transit traffic. The costs of road maintenance and the associated issue of appropriate transit charges are considered in this chapter, section: K. Transit Costs to the Transit Countries.

G. Transit Revenues to Tanzania

9.30 The same calculations were performed for Tanzania as for Kenya. Estimates for port revenue are complicated by the Belbase arrangements by which ZBR cargo using the facility does not pay wharfage to the port, but does pay a handling charge to AMI. The port revenue estimates include both revenue elements.

Table 9.5 Gross Transit Revenue: Tanzania

<u>Revenue Source</u>		<u>Gross Revenue</u> <u>US\$ million</u>
<u>TRC</u>		
ZBR	(139,000 tons)	6.31
Uganda	( 96,000 tons)	4.22
<u>DSM Port</u>		
Stevedoring	(290,000 tons)	1.33
Other Uganda		1.57
Other ZBR		4.12
<u>Road Transport</u>		
Rwanda	(30,000 tons : 100%share)	3.90
Burundi	(20,400 tons : 50% share)	1.48
Zaire	(16,000 tons : 50% share)	1.20
Kigoma Port	(144,000 tons)	2.30
Transport/Storage	(Ugandan imports)	0.46
C/F commission	(1% imports : 0.35% exports)	2.19
<u>Transit Fees : LLC Trucks</u>		<u>0.26</u>
<b>Total Revenue</b>		<b>\$ 29.38 m</b>

9.31 Total gross revenue to Tanzania from transit traffic to ZBR and Uganda is about \$29 million, approximately one third of the revenue obtained by Kenya from operations on the Northern Corridor. If the gross revenue is adjusted in the same fashion as the Kenyan revenues, the transit benefits to Tanzania are about \$18.5 million.

#### H. Transit Revenues to Burundi

9.32 Relatively little transit traffic passes through Burundi. Rwanda has, however, imported sugar from southern Africa using lake transport to Bujumbura, and 1987 imports via Burundi totalled 6,500 tons. These imports were mostly moved to Rwanda by Burundese trucks for \$48/ton, a total revenue of \$0.31 million. Port charges at Bujumbura increases the total revenue from this revenue to \$0.34 million.

9.33 Burundi also levies taxes on foreign trucks entering its territory. In 1987 the Government collected a total revenue of FBu 17.8 million, equivalent to \$0.13 million from this source. This is not strictly transit revenue, as most of the vehicles carry Burundi cargo, but it does offset payments to foreign truckers and reduces the net cost of transit to Burundi. Gross revenue, therefore, totals \$0.47 million, and net revenue approximately \$0.30 million.

#### I. Transit Revenues to Rwanda

9.34 During 1987, 4,199 trucks passed through Rwanda generating the following revenues:

Transit taxes	\$ 0.52 million
<u>Magerwa charges</u>	<u>0.20<sup>(1)</sup></u>
Total revenue	\$ 0.72 million

(1) Weighing, parking and Magerwa fees

The fees for transit are also levied on foreign trucks carrying Rwandese cargo, 3983 such movements in 1987. Fees on these trucks will have generated an additional \$0.68 million, resulting in total revenue of \$1.40 million. As far as can be ascertained, Rwandese-owned vehicles do not carry third country traffic. Rwanda's full acceptance of the RCTD has ended the requirement for transit trucks to use Magerwa and thus this revenue source has been removed.

#### J. Transit Revenues to Uganda

9.35 It is difficult to estimate with any precision Uganda's revenue from transit traffic and foreign vehicles carrying Ugandan cargo. Data are available for transit trucks passing through the border points of Malaba and Busia and for trucks carrying Ugandan cargo (Table 9.6).

Table 9.6 Truck Traffic: Busia and Malaba

<u>Destination</u>	<u>No. trucks</u>
Uganda : POL	6,094
: Other	15,963
Rwanda	5,059
Burundi	2,437
Zaire	2,574

9.36 Unfortunately the number of trucks does not match estimates derived from other sources. It is possible that other types of vehicles may be included in the category of non-petroleum trucks. Estimates from Rwanda suggest that the flow of Rwandese transit trucks via Uganda was about 3,950 + 200. Ugandan trade estimates would suggest a general cargo flow of about 11,500 trucks. Even if the figures in Table 9.6 are accepted, there is no indication of the nationality of trucks carrying Ugandan cargo. Foreign tankers carrying POL for Uganda were exempted, however, from transit taxes.

9.37 Transit taxes in Uganda were reduced in the 1988 Budget from \$600 per trip to \$100 for a temporary license, valid for 30 days which should be generally sufficient for a round trip. This reduction in fees has reportedly led to the return of foreign trucks to the Ugandan route.

9.38 The following estimates are based upon traffic returning to the Ugandan route and the new fees of \$100/round trip. It is assumed that all foreign vehicles carrying Ugandan traffic will be subject to the transit fee and that, in line with assumptions made elsewhere in this report, 80% of Ugandan cargo is carried by Kenyan truckers. The \$80 driver entry permit is assumed to still apply, as is the annual Transit Goods License Fee of \$200.

Table 9.7	Gross Transit Revenue: Uganda (US\$ million)		
<b>Temporary Road License</b>			
	Uganda	0.92	
	Rwanda	0.67	
	Burundi	0.23	
	<u>Zaire</u>	.28	
	<b>Total</b>		2.10
<b>Transit Goods License</b>			
	Uganda	0.10	
	Rwanda	0.13	
	Burundi	0.05	
	<u>Zaire</u>	.05	
	<b>Total</b>		0.33
<b>Drivers Permit<sup>(1)</sup></b>			
	Uganda	0.74	
	Rwanda	1.07	
	Burundi	0.36	
	<u>Zaire</u>	0.45	
	<b>Total</b>		2.62
<b>Total Revenue</b>			<b>\$ 5.05 million</b>

(1) This fee is uncertain and the revenue may be overestimated.

## **K. Transit Costs to the Transit Countries**

### **Background**

9.39 While transit traffic can generate substantial revenue for transit countries, particularly coastal countries, there are also costs. Some costs are incurred by the transporter and are reflected in the prices charged for transport. These costs have already been considered when determining the net revenue benefits. Other costs, such as constructing and maintaining the infrastructure, are borne by government and are not directly reflected in transport charges.

9.40 Governments usually meet road costs from general revenue, without earmarking specific revenues for road expenditure, although the use of earmarked road funds and road tolls is becoming more common in East Africa. Revenue from road users is mainly raised through licenses, registration fees, and taxes on vehicles, fuel, spare parts and tires. Non-national trucks must also pay specific transit fees and/or obtain transit licenses.

9.41 Governments may accept the need to fund an adequate regional road network and prevent rapid road deterioration, but there is little agreement regarding detailed policies. This is hardly surprising as the LLC and transit countries have rather different objectives; the LLC wish to minimize their transit costs, while the transit countries want to maximize their net earnings and/or minimize their infrastructure costs. From Rwanda's perspective, for example, transit costs may be minimized if there are no restrictions upon axleloads or vehicle weights. The recent purchase of 60,000 ltr tankers, with a GVW of 75-80 tons, may reduce direct fuel transport costs, but they are well outside the agreed NCTA vehicle limit of 46 tons. For Kenya, however, a low axleload limit applied to transit traffic would increase the demand for truck movement, raise transit revenues, and reduce road costs.

9.42 A minimum total transport cost, including both movement and infrastructure costs, may be theoretically possible within an individual country without international transit traffic. From this minimum cost, optimal axleload and vehicle weight limits could be derived. Unfortunately the accuracy of road deterioration research, the difficulties of estimating the relevant costs, and enforcing the weight limits may make the optimum unattainable. Where international traffic is an important element in total road deterioration, it is not clear whether an unique solution is even theoretically possible unless a regional approach is adopted.

9.43 Unfortunately the costs of rehabilitating the Northern Corridor are very high. The present system of transit fees associated with non-enforcement of any axleload restriction may be uneconomic and a source of considerable friction between the transit countries and LLC. Transit vehicles are often perceived as the cause of bad road conditions but domestic traffic, inadequate or even non-existent road maintenance, inappropriate road design, and poor construction standards may also have been major contributory factors to the deterioration of the regional road network.

## Road Costs in East Africa

9.44 A number of attempts have been made to relate road damage costs and transit charges along the Northern Corridor. A study by the Interim Secretariat for the NCTA estimated both road costs and present transit charges (Table 9.8).

Table 9.8 Costs and Transit Charges: Northern Corridor  
(six-axle vehicle, 30-ton payload)

	Road Cost/vehicle	Transit Fees/vehicle
Kenya	\$ 93	\$ 68
Uganda	67	343 <sup>(1)</sup>
Rwanda	27	124
Burundi	10	64

(1) Following the 1988 Budget this would be reduced by \$200

The implication of this study is that, except for Kenya, transit fees are well above road costs, by a factor of five to six. Such a comparison does not, however, indicate the full level of road tax revenue generated in Kenya. Diesel is generally purchased in Kenya and thus a truck trip to Rwanda would also contribute about K 3290/- in fuel tax, equivalent to an additional \$183, which would raise the transit revenue well above the road cost.

9.45 A more recent study undertaken by the PTA Secretariat estimated road damage costs in Kenya at \$25/100 vehicle-kms for the most common transit trucks. This would imply the need for transit revenue of \$240/loaded truck for the Mombasa-Malaba route. A study in Uganda during the 1980s obtained a broadly similar result of \$20/100 vehicle-kms, giving a total cost for Malaba-Gatuna of \$133/vehicle.

9.46 An earlier study by UNCTAD, in 1980, used the costs of the rehabilitation and then subsequent maintenance of the Mombasa-Malaba road to calculate attributable and non-attributable road costs. The study estimated the following cost equation, covering both directly attributable costs and allocated costs:

$$\text{Total cost/heavy truck km} = \$0.015 + \$(0.0105 \times \text{ESA})$$

(where ESA = equivalent standard axle)

9.47 For the Mombasa-Malaba route (958 km), the total cost would be \$165 for a loaded truck (average truck damage factor: 15 ESAs) and \$24 for an empty return trip. Assuming that about 15% of return trips for general cargo trips are loaded, the total transit cost to Kenya for the round trip would be \$210, well above the cost estimated by the Interim Secretariat but probably still below the level of total road charges derived from foreign trucks carrying transit traffic.

9.48 The results of the different studies show a wide range in the estimates of the road damage costs attributable to heavy vehicles. There are even very wide differences in the cost estimates for different countries within

the same study. The PTA study thus estimated road damage costs of \$25/100 vehicle-kms for Kenya but \$120 for Tanzania and \$306 for Rwanda. Some intercountry variation could be expected, but the magnitude of the differences seems implausible.

9.49 The main conclusion of these comparisons is that a definitive study of road costs has yet to be produced for the region. Transit taxes are under discussion in the region at the present time, and it seems a matter of considerable priority that an authoritative study of road damage costs should be available to help guide such discussions and perhaps limit the areas for disagreement. Determining costs is essential but a purely technical study cannot determine the relevance of particular costs. Charging for rehabilitation and reconstruction is reasonable, however, it could be considered inequitable if Kenya or Uganda were to gain revenue for improvements financed from grants specifically intended to benefit the region.

#### PTA Harmonization Initiative

9.50 The PTA Secretariat has recognized that the multitude of different transit taxes/fees/licenses, protection of national trucking fleets and the variety of axleload and vehicle weight restrictions form a serious impediment to both external and intra-regional trade. To assist in the removal of non-tariff barriers to trade, the PTA proposes regional harmonization and simplification of the regulations and taxes related to international transport, as well as harmonization of axleload, vehicle size, and vehicle weight legislation.

9.51 The aims of harmonization and simplification are very desirable and should be supported. Unfortunately such aims must be underpinned by a sound knowledge of the relevant costs and realistic expectations regarding the likelihood of legislation being effectively enforced. The PTA study of road damage costs was thus predicated on the assumption that a ten-ton axleload would be introduced and enforced. Rather different conclusions regarding road costs and thus desirable road taxes would be reached if actual axleloads were used as the basis of the study.

9.52 Simplification is desirable if the variety of taxes is reduced and replaced by a single uniform system. The PTA has proposed that a single tax be charged, \$x.x per 100/vehicle-kms, on all transit vehicles in all transit countries. It is quite clear, however, that the damage caused to the road system is not related to vehicle-kms but to ESA x vehicle-kms. The PTA proposal would not penalize heavily overloaded trucks nor encourage the purchase of less damaging vehicles.

9.53 Ideally each truck should be charged according to the damage it causes. For national traffic such a system is not feasible and may not be as necessary because both the costs and benefits are internal to the national economy. For international traffic which must cross, by definition, national boundaries, a truck-based system does seem plausible if a transit form such as the RCTD is used for the customs' control of transit traffic. An outline of such a system is presented and discussed in Annex 14.

## Recommendations

9.54 This study cannot pretend to have the solution to the problem of road costs, transit fees, axleloads, vehicle weights, and overloading. It recognizes that the transit countries and the LLC have legitimate interests which may not always coincide. It is not a zero-sum situation, however, and if a flexible approach is taken with transit taxes being used to transfer resources from one country to another, reasonable solutions should be possible. Up to certain limits, the LLC should be able to compensate the Transit country for any additional costs involved in allowing heavier vehicles.

9.55 It is apparent that Kenya has little confidence in any relationship between road damage and axleloads above 13 tons. The Ministry of Public Works seems to be preparing to enforce strictly a 13-ton limit though perhaps not the lower, legal limit of ten tons. It is possible that instead of a legal limit of ten tons, a graduated transit fee -- based upon ESA's -- could be introduced at the border subject to either a prohibition of vehicles with axleloads of over 13 tons or prohibitive transit fees. Whatever policy is introduced it will be necessary to ensure official flexibility in its application to cover exceptional loads and changes in technology. The present GVW limit of 46 tons would, if rigorously applied, make it impossible for the LLC to move fully loaded 40 ft containers. Similarly the rigid enforcement of the ten-ton axleload limit would result in severe disruption to the transit sector, especially petroleum movements.

9.56 A more flexible, cost-based transit tax system would appear to have many advantages, for both the LLC and transit countries, over rigid limits. It is also clear that actions taken by Kenya will have a major impact upon the rest of the Northern Corridor, and strict limits and high transit fees could simply transfer the problems to Tanzania. The experience of the transit industry's response to high transit fees in Uganda has indicated that traffic routing can be flexible.

9.57 There is an urgent need for a detailed regional study of the entire issue of road costs, vehicle regulations, and transit charges which takes into account both transit and landlocked country interests. Work has been undertaken in this field by the PTA and while the principle of harmonization has been agreed, there has not been full agreement on the level of transit taxes. Close liaison must be maintained with the PTA as it is possible that their activities would benefit from technical and financial assistance to achieve efficient proposals which will be acceptable to all governments.

## X. FUTURE DISTRIBUTION OF TRANSIT TRAFFIC

### A. Routing Decisions

10.01 International traffic demand in 1995 could be around 2.1 million tons. Approximately 50% of the demand is expected to come from Uganda and traffic estimates must, therefore, be treated with considerable caution. If there is some uncertainty over the total flow of traffic, its routing must be considered as near speculation.

10.02 If route decisions were based solely upon direct transport cost, a determinate allocation could be developed using future costs and capacity levels for each route. On this basis, Ugandan traffic would use Mombasa and the overseas trade of Burundi and Rwanda would use DSM. Unfortunately, many factors enter into the choice of route and transport mode and direct transport costs may be relatively unimportant.

### **Generalized Transit Costs**

10.03 For the individual shipper there are many cost factors associated with transit-transport, in addition to direct movement costs. The generalized cost of transit-transport would include such factors as:

- direct transport cost to the shipper;
- likely storage costs;
- pilferage and damage;
- transit time and trade financing costs;
- transit reliability;
- management control over cargo;
- management time and convenience;
- documentation costs.

Unfortunately, it is almost impossible to specify and fully cost all of these factors. Some elements can be estimated accurately while others may be more constrained than costs. For many cargoes, much of the responsibility for route and mode choice is taken by the C/F agent whose considerations may not always correspond with those of the shipper. They may, for example, have financial interests in the use of particular modes, routes and/or operators. It is also probable that individual shippers will place different priorities upon the attributes associated with transit-transport. The parastatal importer may thus place emphasis upon direct transport costs which can be easily accounted to auditors, while an aid donor may be more concerned with reliability. A private importer may differentiate between different goods and consignments.

### **Trade and Marketing Channels**

10.04 For some cargoes, such as coffee exports from Rwanda or tea exports, there may be marketing considerations that make the routing relatively insensitive to changes in generalized transport costs. The cost structure of Rwanda's transit routes makes it surprising that any traffic uses Mombasa. In fact, there has been a shift in direct overseas imports to DSM which now handles a very substantial proportion of dry cargo imports, compared with less than 5% in 1984. Exports still use Mombasa where established marketing channels and commercial interests have developed.

10.05 Establishing new marketing channels for such traffic is likely to be a major decision and would be prompted only by very major changes in transport considerations. A considerable volume of traffic is also consigned through Mombasa but not as Rwandese imports. Such cargo must pass through intermediary channels which may not be available in DSM.

## **Private and Public Interests**

10.06 It is possible that differences could exist between the interests of the shipper, customer and C/F agent. It is also possible that there may be differences between the private interest of the shipper and the public interest of the government. The private shipper may wish to use the more expensive mode/route if that enables a greater transfer of resources outside of the country. Government fears of F/E losses through the manipulation of transport charges have led to increasingly restrictive controls over the allocation of foreign exchange for international transport and direct intervention in the routing of cargo.

10.07 Unfortunately when emphasis is given to direct transport costs the potential for additional unnecessary, generalized costs is considerable. The use of state C/F agents to ensure objective decisions upon traffic routing may, in principle, be attractive but Transocean's performance suggests that the results are rarely satisfactory. Concentration of decision could also result in further corruption within the system.

## **Transit Security**

10.08 In addition to their interest in restricting the unnecessary outflow of foreign exchange, governments in the LLC have the legitimate concern to ensure transit security. Developing the infrastructure is obviously important but, to maintain their operational effectiveness, it is essential that routes are used. The government may need to ensure that traffic uses the "route d'assurance" as well as the lowest cost route. Subsidies for the alternative route may be desirable, but direct intervention and direction of traffic may appear more attractive to the governments facing budgetary constraints.

## **B. Traffic Distribution 1995: Least Cost Assignment**

10.09 The transport rates and transit costs faced by the LLC on each of their main alternative routes were discussed in Chapter IX, section: A. Transit Costs to the LLC: Introduction. In the analysis of national transport projects, the difference between the financial price and economic cost is often significant. In transit-transport analysis, the differences between economic and financial costs are usually much smaller as the financial prices charged by the transit country are the real economic costs faced by the LLC. The national distortions between financial and economic costs become relevant only if a completely non-national, regional approach is adopted.

10.10 On the basis of the transport costs outlined in Chapter IX, section: A. Transit Costs to the LLC: Introduction, the LLC in East Africa should route their international traffic as follows:

Uganda : all traffic uses the Northern Corridor  
- low value goods by rail/ferry  
- high value goods by road

Rwanda : all overseas trade transits via DSM  
- low value goods by road/rail via Isaka  
- higher value goods by road

Burundi : all overseas trade transits via DSM  
- low value goods to/from Bujumbura by lake/rail(Kigoma)  
- low value goods to/from NE Burundi by rail/road(Isaka)  
- higher value goods by road

Zaire : traffic from north via road to Mombasa  
traffic from south via Kigoma to DSM

10.11 The analysis was based upon the financial costs faced by the LLC. It is theoretically possible that if the traffic distribution was made by regional economic costs, a somewhat different traffic distribution would result. Annex 10 considers the relationship between transport rates and economic costs for the main modes. The analysis suggests that rail rates are close to total allocated costs and that trucking rates may be below total financial cost. The use of regional economic costs might not, therefore, fundamentally alter the traffic pattern.

#### C. Traffic Distribution 1995: Study Scenario

10.12 Traffic distributions, based on all or nothing assignments, are highly unlikely. Costs play an important role, but the following factors and constraints must also be taken into account when assessing the likely distribution of international traffic flows in the region:

- (i) the determination of the Ugandan Government to diversify its transit routes and reduce its dependence upon Kenya;
- (ii) the established marketing channels which influence the routing of Rwandese coffee as well as the region's tea exports; such channels may also limit the routing of imports, petroleum products for example;
- (iii) the regional imports from Kenya are unlikely to be available from Tanzania;
- (iv) the overall capacity and uncertain operational efficiency of TRC;
- (v) the total wagon ferry capacity available to Uganda;
- (vi) the increase in the efficiency and flexibility of THA and the growing preference of shipping lines and shippers for DSM; and
- (vii) the decline in the efficiency of Mombasa and the increasingly restrictive Kenyan transit/security procedures.

10.13 The following traffic scenario was developed to illustrate the possible flows for each corridor and to explore their implications. It is based

on the assumption that Tanzania will not introduce major changes to its transit-transport procedures. The scenario has built up from studies already undertaken in Rwanda and Burundi, and the following broad assumptions regarding the distribution of Ugandan traffic:

- Uganda will wish to maintain transit routes through both Kenya and Tanzania;
- Uganda will diversify its POL supply routes by utilizing the DSM route. The distribution of POL supplies is uncertain and a range of flows has been used in the scenario;
- No new additions to the Ugandan ferry fleet will be in service by 1995;
- Two Ugandan wagon ferries will operate to Mwanza and the remaining ferry will operate in conjunction with the Kenya ferry to Kisumu;
- Uganda will make maximum use of the ferries, 150 rotations per ferry. The average effective cargo load of the wagon ferry is assumed as 600 tons; and
- The capacity of the Tanzanian transport infrastructure can be sufficiently expanded to handle the traffic.

Traffic to/from Zaire has varied quite considerably in the past and no field research was possible. Flows have been extrapolated from the trends of previous flows.

### Import Traffic

Table 10.1      1995 Import Scenario: Central Corridor  
(000 tons)

#### Traffic: DSM Port

	Dry Cargo	POL	Total
Burundi	143	13	156
Rwanda	90	70	160
Uganda	140 - 70	40 - 110	180
Zaire	14	-	14
Total	387 - 317	123 - 193	510

#### Traffic: Corridor

	Dry Cargo	POL	Total
Kigoma	111	13	124
Isaka	145	70	215
Mwanza	140 - 70	40 - 110	180
Total	396 - 326	123 - 193	529

#### Notes

1. Traffic via Isaka includes 55,000 tons of Burundi cargo. If the terminal is not open to Burundi traffic some of this cargo would go via Kigoma and come by road.
2. The Isaka traffic also assumes that Rwanda will decide to route 50% of its POL traffic through DSM. POL transport cost, via Isaka, could be \$90/ton cheaper than the existing Northern Corridor route and still \$40/ton cheaper if the pipeline is extended.
3. Traffic flows through DSM are lower than TRC flows as there are some regional exports from Tanzania.
4. With efficient operations TRC should carry all traffic.

Table 10.2 1995 Import Scenario: Northern Corridor

Traffic: Mombasa Port

	Dry Cargo	POL	Total
Burundi	25	39	64
Rwanda	85	70	155
Uganda	227 - 297	267 - 197	494
Zaire	12	53	65
Total	349 - 419	429 - 359	778

Traffic: Corridor

	Dry Cargo	POL	Total
Burundi	32	39	71
Rwanda	185	70	255
Uganda	352 - 422	267 - 197	619
Zaire	37	53	90
Total	606 - 676	429 - 359	1035

Notes

1. It can be fairly safely assumed that except for Ugandan traffic all traffic will move by road.
2. Two wagon ferries would provide movement capacity for about 180,000 tons.
3. The annual total road flow would be around 825,000 tons, approximately equal to 78 loaded trucks per day.

Export Traffic

10.14 Under normal conditions, it is difficult to envisage major changes in the routing of export traffic from Burundi, Rwanda and Zaire. The NRM Government in Uganda has, however, the objective of establishing a more equal distribution of export traffic between Mombasa and DSM. If total exports increased to around 280,000, tons this objective would mean 140,000 tons via each route. Whether this is feasible would depend upon the traffic capacity available and the routing of POL traffic. The import scenario gives an export capacity of between 70,000-140,000 tons for the DSM route.

10.15 Two wagon ferries operating at maximum utilization would give an annual capacity movement capacity of 180,000 tons. This would allow the even distribution of export traffic but would only provide capacity for approximately 13% of Uganda's POL demand. In an emergency, Uganda's present wagon ferry capacity would be sufficient to move all exports to Mwanza, but there would be very little capacity available for POL imports using tanker wagons. Additional wagon ferries may be the best means available to provide the transit flexibility required but, as discussed in Chapter VIII, section: C. Future Role for Uganda Railways, there may be other alternatives.

10.16 The even distribution of export traffic is assumed in this scenario. Two wagon ferries operate to Mwanza, the remaining Uganda wagon ferry, operating with the Kenyan ferry, would have sufficient capacity to move the remaining exports from either Port Bell or Jinja to Kisumu (Table 10.3).

**Table 10.3**                      **1995 Export Traffic Scenario**  
(000 tons)

	Central Corridor	Northern Corridor
Barundi	38	8
Rwanda	2	54
Uganda	143	143
<u>Zaire</u>	<u>73</u>	<u>69</u>
<b>Total(1)</b>	<b>256</b>	<b>274</b>

(1) excludes local regional trade

10.17            Dry cargo imports are expected to be very much greater than exports for the foreseeable future. Backhaul truck capacity should thus be available to carry all export cargo although some triangular running to accommodate Zaire exports to Mombasa will be required.

**D. Implications of Transit Routing Scenario**

**Central Corridor Routes**

10.18            The main implication of the transit routing scenario is a significant shift in traffic from Mombasa to the Central Corridor (Table 10.4). In terms of total traffic, however, the Northern Corridor is likely to remain the more important.

**Table 10.4**                      **Present and Scenario Traffic Distribution**  
(000 tons)

	Central Corridor		Northern Corridor	
	1987	1995	1987	1995
Imports	186	519	862	1035
<u>Exports</u>	<u>132</u>	<u>256</u>	<u>216</u>	<u>274</u>
<b>Total</b>	<b>318</b>	<b>775</b>	<b>1078</b>	<b>1309</b>

10.19            Traffic through the Central Corridor routes could increase by 140%, while along Northern Corridor routes the increase would be only 20%. In the light of past and present problems on the Central Corridor, this relative shift in traffic may appear overly optimistic, and it should be remembered that the scenario is based upon potential demand rather than actual capacity. Traffic will shift only if the efficiency of DSM is maintained and the capacity/service level on TRC is substantially improved. These issues are discussed below.

**Dar es Salaam Port**

10.20 Dry cargo for the East African LLC totalled 290,000 tons in 1987; this could rise to around 640,000 tons by 1995. The recent Mid-Term Review of the DSM Port Project prepared estimates of future transit traffic (Table 10.5).

**Table 10.5 Port Project Estimates: Transit Traffic 1992  
(000 tons)**

	<u>Import</u>	<u>Export</u>	<u>Total</u>
Burundi	100	80	180
Rwanda	75	20	95
Uganda	140	110	250
<u>Zaire</u>	<u>70</u>	<u>135</u>	<u>205</u>
<b>Total</b>	<b>385</b>	<b>345</b>	<b>730</b>

The Port Project estimates for Zaire traffic include traffic transiting through Zambia. Excluding Zaire traffic from both estimates gives the comparison for total transit traffic shown in Table 10.6.

**Table 10.6 Central Corridor Demand: DSM Port  
(000 tons)**

	<u>Port Project Study : 1992</u>	<u>Great Lakes Study : 1995</u>
Burundi	180	181
Rwanda	95	92
<u>Uganda</u>	<u>250</u>	<u>280</u>
<b>Total</b>	<b>525</b>	<b>553</b>

10.21 While there are differences in the distribution between imports and exports, the overall levels of traffic are broadly in agreement. Assuming, therefore, that port capacity is increased to handle Tanzania domestic cargo and the transit needs of Southern African routes the transit demands from the Central Corridor should not overwhelm the port. These estimates are based, however, on normal conditions in the region. Uganda wishes to have the capacity to move 60% of its trade through DSM which would result in an additional 300,000 tons of dry cargo Ugandan traffic, adding an additional 50% to Central Corridor traffic. If the provision of capacity for this additional traffic were to substantially add to the cost of future capacity expansion, Uganda and Tanzania should discuss equitable financing arrangements.

10.22 Whether Belbase will have the capacity to handle the level of traffic for the ZBR countries is more problematic and will depend upon the efficiency of TRC and the extent to which Belbase is integrated into the new route via Isaka. It is probable that increased outside storage will be required

for efficient operations in the port. This is perhaps most important for the substantial increase in Uganda's flow of traffic. Uganda has already been allocated land for the construction of warehousing for coffee exports.

### **Tanzanian Railways Corporation**

10.23 Capacity and efficiency on TRC could be a much more binding constraint on the system. The Emergency Program of Assistance to TRC is designed to provide sufficient capacity for 1990 demand of 1.22 million tons, of which transit traffic to ZBR and Uganda is expected to be around 210,000 tons, approximately 17% of the total. By 1995 transit demand on TRC could rise to around 750,000 tons (about 500,000 tons of imports and 250,000 tons of exports). This level of transit traffic would be equivalent to 85% of total TRC freight traffic hauled in 1986 and an increase of over 40% on the 1990 level. If it is assumed that Tanzanian domestic traffic increases by 5% per annum TRC would be required to haul about two million tons by 1995, well beyond TRC's peak performance of 1.6 million tons. The flow estimated in this study is approximately equivalent to the high forecast flows used in the Interim Report of the TRC Development Study and implies traffic substantially above the expected motive power availability of the existing locomotive fleet. The transit flow can only be accommodated with additional locomotives.

10.24 Even more major problems would result if Uganda attempted to route 60% of its imports through DSM. Ugandan traffic would rise from 340,000 tons to 750,000 tons, 20% above the Development Study's high forecast total freight demand. Under these circumstances, transit demand on TRC would be significantly higher than TRC's present total freight traffic. If Uganda seriously wishes to have this level of rail movement capability, it will need to discuss with TRC what additional investments need to be made to raise track capacity, who should finance them, and what operating arrangements could be devised to handle such traffic. It is implausible to expect TRC or Tanzania to invest heavily in providing substantially increased capacity for Ugandan emergency needs.

10.25 The "normal" transit flow detailed in the scenario would be equivalent to 1,000 pairs of trains per annum, about three pairs of trains per day, one pair on the Kigoma line and two pairs on the Mwanza line. This level of traffic should not exceed line capacity but could well exceed TRC movement capacity and possibly managerial capacity. The EEC is prepared to consider funding additional movement capacity for the LLC and, consequently, it will be the managerial constraint that could be the main limitation on the development of the system.

### **Northern Corridor Routes**

#### **Mombasa Port**

10.26 The diversion of traffic toward Dar es Salaam would result in a very limited increase in traffic on the Northern Corridor Routes. Dry cargo transit traffic at Mombasa would increase by about 25% but, given that it is a very small proportion of total dry cargo movements (less than 15%) and that Kenya domestic traffic is expected to increase at about 4% per annum, the impact of this growth will be of almost negligible importance.

## Kenya Railways

10.27 The scenario assumes that Uganda will move approximately 50-70% of its exports through Kenya, about 140,000-200,000 tons. Assuming that the two available wagon ferries are used fully, each ferry undertaking three trips per week, there should be about 180,000 tons of capacity available in each direction. Assuming an even distribution of exports through the two corridors and that dry cargo imports are carried to balance the export traffic, an additional 40,000 tons of ferry capacity is available to carry POL tankers or additional dry cargo imports.

10.28 A balanced flow of 140,000 tons of dry cargo in each direction would be close to the present service agreement between KRC and URC, total traffic of 300,000 tons. The implications of any additional traffic on KRC would depend upon the type of traffic and the extension of the Nairobi pipeline. If the pipeline is extended to Kisumu, the benefits to KRC of POL traffic would consist simply of additional revenue from their wagon ferry and some wagon hire charges, given the likely imbalance in wagon time within Kenya and Uganda. Moreover, it is not clear whether the use of wagons and the wagon ferry would be the most cost-effective means of transporting bulk petroleum products from Kisumu to Kampala: an oil barge and bulk storage at Port Bell, or a short pipeline to Kampala might be more preferable.

10.29 More substantial benefits could be derived from the movement of additional dry cargo imports into Uganda. Import traffic above the flow of exports would, however, result in an increase in empty wagon running. Changes in the level of charges would have to be expected with perhaps direction specific rates, especially if the railways compete for private sector exports.

## XI. ISSUES AND POLICY CONSIDERATIONS: AGENDA FOR DISCUSSION

### A. Summary of Findings

11.01 The main limitations of the present transit-transport network in the Great Lakes Region of East Africa identified during the course of the study are briefly summarized below:

#### Infrastructure:

11.02 Road : By 1992 most of the critically deteriorated road sections will have been improved, and the average condition of the main transit routes will be good. Maintenance and some strengthening of the road network will be the main priorities.

Rail : Some additional investment in track improvements may be necessary, but operations and management rather than infrastructure are the main constraints.

Port : No capacity expansion at Mombasa is necessary and increased productivity is the priority. Capacity at Dar es Salaam could become a constraint if containerization is delayed. Additional capacity will be necessary after 1995.

Overall, infrastructure is no longer the major short-term issue in the transit network, priority attention must be turned to the capacity, efficiency and costs of the transport organizations that use the infrastructure.

**Rail Transport:**

11.03 Northern Corridor : A significant proportion of Uganda's international trade is now using rail. There will soon be sufficient physical capacity to move additional traffic and commercial management within the railways, and effective coordination between the railways will become the main issues.

Central Corridor : TRC is the primary constraint to developing the potential of the Corridor. Additional locomotives and wagons are necessary but must be accompanied by the introduction of efficient operating systems, extensive management improvements, and increased staff motivation.

**Road Transport:**

11.04 Trucks form the primary transport mode for international freight movement in the region. Total truck capacity is not a constraint, but on the Northern Corridor unnecessary costs are created by cumbersome transit and security procedures which delay trucks and reduce vehicle utilization. Rwanda, and to a lesser extent Burundi, increase road transport costs by the protection of inefficient national truck fleets.

**Ports:**

11.05 Mombasa : The efficiency of the port has declined significantly and many users now consider that the service offered is inferior to Dar es Salaam. Management, government interventions and labor problems, rather than physical assets, appear to be the main factors in this decline.

- Dar es Salaam** : Users' perceptions of the port have improved dramatically. A flexible management approach has played a major role in this improvement. Further improvement can be expected when the present investment in container facilities and general rehabilitation of the port is completed. Streamlined clearance procedures must be introduced to prevent congestion in the container stacking yards.
- Lake Ports** : The ports on Lake Tanganyika have either been improved or are being improved. They have excess capacity and impose no major constraints. Improved container handling facilities at Kigoma still have to be provided.
- Ferry Terminals** : No major problems are reported at either Mwanza, Kigoma or Jinja. The wagon ferry system on Lake Victoria will be significantly improved when the proposed new terminal at Port Bell is constructed. This will allow direct service to Kampala, avoiding the rail operating restrictions between Jinja and Kampala.

**Transit Procedures:**

- 11.06 **Northern Corridor** : The costs, delays and general management problems caused by the present transit and security procedures are perceived as major disadvantages of the corridor. The Northern Corridor Transit Agreement was designed to eliminate many of the difficulties and is being increasingly implemented. Unfortunately, the NCTA does not eliminate the need for transit bonds nor prevent the introduction of additional security restrictions.
- Central Corridor** : The transit pass system creates no major difficulties for either Tanzania or transit traffic. The system should, perhaps, be taken as the model for the region. It is legitimate for Tanzania to wish to increase its income from transit traffic, but this should be achieved without the introduction of cumbersome procedures. These would reduce the benefit of the route to the LLC without necessarily increasing the benefit to Tanzania.

## **B. Priority Issues**

11.07 The study identified several broad issues as well as specific bottlenecks and operating constraints. Two major issues must be considered by both the countries within the region and the donors providing assistance:

- (a) How to balance the LLC's objectives of low cost transit-transport, transit security, a measure of national control, and some participation in international transport; and
- (b) How to ensure that the legitimate interests of both the LLC and the transit countries are safeguarded and their economic benefits increased by improvements in transit infrastructure and operations.

11.08 At the present time, the LLC are paying a heavy price, in terms of increased transport costs, for the security of route diversification and national control and participation. The pattern of operations within the transit systems must be examined critically to determine whether transport costs can be reduced while still maintaining route and mode diversification. The LLC themselves must also assess the trade-offs between cost and security and determine the extent to which their economies can really afford additional transit costs.

11.09 The LLC and the transit countries are also paying a heavy price for inappropriate transit and transport regulations. The LLC suffer from additional costs generated by cumbersome documentation, multiple security checks, and unnecessary border delays. The road networks of the transit countries suffer from the damage caused by vehicle overloading while the benefits of lower transport costs are enjoyed by the LLC. It is possible that improvements in operations within the transit countries may be delayed because of financial or management constraints. These constraints could be removed with the joint participation of both the LLC and transit countries.

## **C. Strategies and Priorities**

11.10 Investment needs for the transit infrastructure should be at very modest levels after 1992, and maintenance and preservation of the existing network must become the main priority. Additional infrastructure, beyond that already planned, will not make major improvements to the transit system. Reduced transport costs and increased transit efficiency must be achieved by concentrating government objectives and donor assistance on improving the way in which the infrastructure, the transport industries, and transit systems are operated. To achieve the objective of low-cost, efficient transit/transport system, two broad strategies must be encouraged: **Competition in the Transport Sector and Regional Transit Cooperation.**

### **Transport Competition**

11.11 To reduce the costs of transport for the LLC, increased competition in the regional transit-transport systems should be encouraged as much as possible. The strategy should include: competition between transit corridors, competition between transport modes, and competition within transport modes.

11.12 In many respects increased movement capacity and improved operating efficiency on TRC are key to the strategy and to meeting many of the objectives of the LLC. The transit security of Rwanda and Uganda would be increased, while the transport costs of Burundi and Rwanda would be substantially reduced. For Rwanda, the objectives of both low-cost transport and increased transit security would be achieved by efficient operations through the rail/road Isaka route. Significant diversion of traffic to routes through Tanzania could also give the Kenyan Government the incentive to streamline their present transit and security regulations, encourage more efficient services at Mombasa, and help improve coordination between KRC and URC.

11.13 Additional motive power and rolling stock will be required by TRC if substantially increased rail transit traffic is to be handled efficiently. Investment alone will, however, not provide the movement capacity and efficient management and operating systems must accompany investment. Critical decisions must be made regarding how the investment for transit traffic should be financed and how transit services should be organized, operated and controlled. The full integration of transit services into TRC operations might potentially be most efficient but, in view of TRC's present limitations, a quasi or fully parallel operation based on trackage rights and rent might be more realistic alternative.

11.14 Improved rail services through Tanzania would also place competitive pressure upon road transport in the region and encourage increased efficiency and cost reductions. The further priority should be to increase cooperation and coordination between KRC and URC to raise the capacity and quality of rail services to Mombasa. Increased rail movement capacity and efficiency on this route could divert a substantial volume of traffic to rail. This would reduce transport costs for Uganda, improve the financial position of the railways, and reduce the road damage caused by transit traffic to the roads of both countries.

11.15 Unfortunately recommendation of increased rail cooperation has been made in almost every study since the late 1970s and, though the modus operandi has improved, much still remains to be achieved. The outlook may, however, be now more encouraging with the Ugandan Government's commitment to rail for long distance transport, the increased rolling stock soon to be available on URC, the priority for KRC to improve its financial position, and its adoption of more commercially oriented management objectives. Additional investment will not necessarily provide more capacity unless parallel improvements in managing and costing through-transit rail services are also made. It may be desirable to provide technical and managerial assistance specifically directed toward meeting this objective.

11.16 Increased competition and efficiency in the road transport industry must be the third broad priority. In the short term, some LLCs may continue to regard national trucking fleets as essential to national transit security. Every effort must be made, within the limits set by such broad security objectives, to encourage increased efficiency by competition within national fleets, and between these fleets and international competition.

11.17 The types of policy change required vary according to the LLC, but it is clear that improvements in the operational efficiency of its national fleet should be given a very high priority by Rwanda. Improvements in the capacity and quality of regional rail systems would reduce the importance of truck transport to both Burundi and Uganda. Rwanda, however, will remain

dependent on international trucking even if rail services to Isaka are efficiently operated.

#### **Regional Transit Cooperation**

11.18 The Northern Corridor Transit Agreement has not been fully successful in reducing road transport documentation and truck delays. Since the Agreement, transit restrictions, within Kenya at least, have increased. This does not, however, change the fundamental need for agreed and equitable transit frameworks within which transit competition between routes and modes can take place, and for transit regulations which protect the legitimate interests of the transit country. Transit bonds, documentation and security restrictions generate significant costs for the LLC, and it is not clear whether they meet the legitimate interests of the transit country.

11.19 Preservation and maintenance will be the critical road infrastructure priority after 1992. Appropriate vehicle regulations must be defined and enforced to prevent uneconomic road damage, and road maintenance must be adequately funded and transit traffic must bear its share of cost. Unilateral action by national governments could well result in inefficient regional solutions and more benefit could be generated by regional agreement. Unfortunately, difficulties have been experienced in implementing such regional agreements, especially where individuals/countries see benefit from ignoring either the letter or spirit of the agreements.

11.20 Competition between corridors may be a powerful incentive for transit countries to reach and implement agreements, while actual enforcement of the regulations may persuade the LLC to stay within agreed vehicle and load limits. Loss of transit traffic and revenue could encourage Kenya to modify its very restrictive transit and security regulations. Enforcement of vehicle regulations could prevent Rwanda from licensing vehicles well outside agreed limits.

#### **D. Regional Framework for Bank Activities**

##### **Bank Structure**

11.21 The Bank has not consciously played an active regional role but provides considerable financial and technical assistance to the transport sectors of the countries in the Great Lakes Region. While many of these activities have direct or indirect impacts upon transit traffic, the needs and potential of this traffic are rarely assessed explicitly. This cannot be considered surprising given the national character of the Bank's activities and the lack of a regional framework.

11.22 The Great Lakes Region consists of five countries and the Kivu region of Zaire. There are significant differences between the countries, but they form a distinct transport and, to a lesser extent, economic unit. The countries are allocated among three divisions of the Bank (AF2, AF3 and AF6), and the problems of cooperation and coordination within the region seem mirrored in Washington.

11.23 Many decisions within the transport sector of each country can be taken without reference to the regional perspective. Transit traffic is, however, sufficiently important in the region to justify a more coordinated approach in Bank policy and in the flow of information. A few examples indicate the range of issues in which regional as well as local traffic has to be considered:

- The Bank has projects ongoing or about to start in all three railways, but the traffic on each railway will depend upon the capacity, objectives and policies of the others.
- Preservation of the road infrastructure is largely a national concern but transit trucks are often the largest and heaviest vehicles of the roads, and national actions could have serious implications for other countries in the region.
- The Kenya pipeline will affect the LLC, but demand will depend upon pricing policy within Kenya and the capacity of the Tanzanian transport system.
- Transit traffic and administrative arrangements at DSM could play an important role in determining capacity problems in the 1990s.

11.24 There is the need to recognize the fact that the Bank's present country divisions do not reflect the reality of transport in the region and that an information and liaison system should be established within the Bank to coordinate its own policies and those of the other major regional agencies, in particular EEC and UNCTAD. It is also clear that transit-transport needs and problems are not static but are subject to frequent change. Unfortunately there is only limited monitoring of the transit-transport systems and little feedback of information from the region to Washington. Resident Missions are concerned with country issues and have little need for additional responsibilities. A clearing house for transit-transport information would, however, be very useful, and the Bank should support any cost-effective initiatives in this direction.

#### **Bank Perspective**

11.25 The Bank has a country-based approach to transport investment, regulation and policy. Investments are assessed and policy advice given from the perspective of the economic development of the individual country. This approach is clearly appropriate for most situations, especially when the individual country must service its Bank loans. The country-orientated approach may not always be economically efficient, however, for decisions involving transit-transport when the perspective of the regional economy rather than the individual country is considered. Under present circumstances, it may be efficient for Kenya to reduce transit vehicle payloads, reduce road maintenance costs, and preserve its road infrastructure. Regionally, it may be more economic to retain or even increase vehicle weights and accept the consequent higher road maintenance costs.

11.26 Theoretically, transfers between the LLC and the transit country should allow the regionally efficient solution to be obtained even when decisions are country-based. In practice this may be extremely difficult to achieve and choices may have to be made on the continuum between the best interests of the country and the region. The potential for transfer payments between countries through pricing or taxation must, however, be examined in conjunction with both transit policy and investment in regional transport facilities.

11.27 Attention must also be given to the most appropriate mechanisms for Bank financing of transport projects benefitting more than one country. Bank loans for regional transport improvements were made to the East African Community. When the Community collapsed, there were major problems in allocating the assets and the liabilities. Regional investment may still be required, but a new approach to funding will be necessary if the Bank wishes to be involved and avoid the problems that were encountered previously. Alternatively, the Bank may wish to avoid such investment, concentrating on country investment and allowing donors, such as the EDF, to undertake investment using regional grants. However, there will still be the need for a regional perspective to ensure that compatible investments are being made and compatible policies being advocated.

#### **Regional Policies**

11.28 There are many issues to be resolved at the regional level but given the structure and its technical expertise, the Bank cannot be actively involved in every issue. The EEC and UNCTAD may be better equipped in terms of regional investment funds or technical capability to take the leading role in helping to resolve some of these issues. It is extremely important, however, that a dialogue is actively pursued with these other agencies to ensure that consistent approaches to the problems in the region are being taken.

11.29 In terms of future actions the Bank must determine where it can make the greatest contribution to improving the regional transit-transport system. The Bank should perhaps give highest priority to resolving the policy anomalies within LLC national transit policies. This action would be in line with its traditional role, and this is where the Bank has, perhaps, the greatest leverage. A second important priority should be continuing technical, managerial and, where necessary, financial assistance to the railways as these offer a key to lower transit costs.

11.30 There are specific regional issues which need expert study and where the Bank's past experience within the region and its technical expertise could be of importance, for example:

- operational systems and capacity for transit traffic using TRC;
- operational and management systems for the Isaka road/rail route;
- road transit vehicle regulation and taxation; and
- coordination of rail traffic and efficiency within the region.

11.31 At the very least the Bank should have internally agreed policies in these areas to ensure consistent dialogue with the countries in the region

and with other donors wishing to provide assistance. There is the danger that, while the transit problems are perceived, many donors still consider that solutions can be achieved by the provision of additional transport hardware when the real priority must be to improve the operational and management systems.

11.32 In terms of Bank investment policy, little action is required as most of the major regional investments have been already committed. The extension of the Kenya pipeline is clearly an exception where large funds could be devoted for essentially a regional project. If the Bank were to consider assistance for this project the regional implications and potential alternative Tanzanian supply routes must be assessed before a realistic view on the project could be made. Rehabilitation and expansion of DSM and rehabilitation of the Tanzanian road network are important regionally but action is already underway.

11.33 The countries along the Northern Corridor have made a regional agreement which has yet to be fully implemented. The Bank took little part in the negotiations although Bank studies indicated the very large benefits that could be potentially derived from streamlined customs and border procedures. It is perhaps doubtful whether the Bank should attempt to play an independent active role in this area and attempt to initiate change. It should discuss with the other agencies whether additional technical assistance, data collection or specific studies would assist in achieving the level of regional cooperation and benefits that were initially expected.

11.34 The Bank does need, however, to consider its policies to regional transport agreement in general and whether the PTA approach, based upon the entire region, should be supported or whether more limited approaches such as bilateral or corridor agreements offer the potential for greater benefits. It might be hoped that limited agreements would be easier to arrange and implement, but this is not fully supported by the experience of the NCTA. On the other hand, the regional approach may mean that only agreements on generalities can be reached, as the specific problems and needs of particular countries and sub-regions cannot be fully encompassed. The NCTA exists and the regional problems remain to be solved; in the short term, there is little alternative but support for the Agreement and the Permanent Secretariat even though, in the longer term, the Bank may consider the PTA regional approach more productive.

**GREAT LAKES CORRIDOR STUDY****NORTHERN CORRIDOR****TRANSIT ROUTES**

(Kenya, Uganda, Rwanda, Burundi, Tanzania, Zaire)

Routes	Sections	Length (km)	Condition	Projects	Observations
I.	Road Kenya				
	Kenya				
	Mombasa-Muranga	125	Good	Resealing/overland completed	ODA
	Muranga-Mtito Andei	123	Good	Resealing completed	IBRD
	Mtito Andei-Sultan Hamud	92	Average	Resealing completed	ODA
	Sultan Hamud-Ulu	24	Bad	(Resealing/some reconstruction necessary)	
	Ulu-Machokos	40	N/A	Major rehabilitation and overlay	Completion 1991
	Machokos-Nairobi	47	Average		
	Nairobi Crossing	28	Average	Construction of Bypass	Japan
	Nairobi-Kabete	30	Bad	Reconstruction and widening to dual carriageway	EC, completion 1992
	Kabete-Nakuru	140	Average	(Serious design/construction deficiency closed to heavy traffic/reconstruction probably necessary)	
	Nakuru-Timboroa	45	Good		
	Timboroa-Eldoret	60	Average	Pavement rehabilitation	KfW
	Eldoret-Turbo	28	Average	Rehabilitation	EC, completion 1992
	Turbo-Webuye	38	Good	Rehabilitation completed	EC
	Webuye-Malaba	61 881	Average	Rehabilitation	EC, completion 1992

Routes	Sections	Length (km)	State	Condition	Projects	Observations
<u>Uganda</u>						
Malaba-Kampala-Masaka-Gabuna (border)	Malaba-Jinja	142	Paved	Average	Rehabilitation (1990)	FRG; Malaba-Jinganga (103 km) completed.
	Jinja-Kampala	80	Paved	Average	Rehabilitation (1990)	IDA, IDB, ADB
	Kampala-Masaka	137	Paved	Bad	Rehabilitation (1990)	EC; but 55 km still to be completed.
	Masaka-Mbarara	145	Paved	Bad	Rehabilitation (1990)	EC, contract award stage (tendered in 4 lots)
	Mbarara-Kabele	140	Paved	Bad	Rehabilitation (1990)	EC
	Kabele-Gabuna (border)	22	Gravel	Bad	Rehabilitation (end 88)	EC; upgrading to paved standard.
<u>Rwanda</u>						
Gabuna (border)-Kigali-Butare-Alenyaru (border)	Gabuna-Kigali	80	Paved	Bad	Rehabilitation (1990)	IDA, EC
	Kigali-Butare	186	Paved	Good		EC financed rehabilitation completed in 1984. Some sections need reinforcement.
	Butare-Alenyaru (border)	40	Paved	Good		
		298				
e. The road has steep grades and is seriously deteriorated. It has been closed to heavy trucks since October 1986. Loaded trucks use the following alternative:						
	Mukungu T. O. - Kagitumba (frontier Uganda)	29	Earth	Average	No improvement planned	52km longer than Kabele route
	Kagitumba - Kayonza	190	Paved	Good	Completed 1988	FAO, Saudi Fund OPEP, BAD
	Kayonza - Kigali	70	Paved	Good		Resurfaced 1989
		259				

Routes	Sections	Length (km)	State	Condition	Projects	Observations
<b>Zaire</b>						
<b>From Uganda</b>						
1. Mberara-Kasese	Mberara-Ishaka	64	Paved	Bad	Rehabilitation	Part of Bank's 4th Hwy Project
	Ishaka-Kasese	69	Paved	Average/Bad	Rehabilitation	ADB
Kasese (15 km south)-Kasindi (border)		25-30	Paved	Good		
Kasindi-Beni		78	Earth	Bad		
2. Mberara-Goma	Mberara-Kabele	140	Paved	Bad	Rehabilitation	EC
	Kabele-Ruhengeri	108	Earth (except for Ruhengeri Ugandan border: paved)	Average		
	Ruhengeri-Goma	69	Paved	Good		
3. Kabele-Rutshuru	Kabele-Kisoro (border)-Rutshuru	124	Earth	Average		
4. Rail-Road		332				
rail: Kampala-Kasese						The line and its installations are seriously deteriorated. Bank is considering emergency rehabilitation.
road: see 1 above						
<b>From Rwanda</b>						
Kigali-Goma	Kigali-Ruhengeri	117	Paved	Good		
	Ruhengeri-Goma	69	Paved	Good		
Butare-Cyangugu		142	Paved	Good		Some steep grades.

Routes	Sections	Length (km)	State	Condition	Projects	Observations
From Burundi Bujumbura-Bukavu (Zaire)	Bujumbura- Bugarama	91	Paved	Good		
	Bugarama- Cyangugu	40	Paved	Poor	Rehabilitation	Part of Bank's 6th Hwy Rehab. project.
Burundi Akanyaru (border)- Bujumbura	<u>Burundi</u> Akanyaru- Bujumbura	<u>114</u>	Paved	Average	Rehabilitation	EC (on appraisal)
	<b>GRAND TOTAL</b>	<b>1,994</b>				
<b>Alternative 1</b>						
<b>I. Road</b>						
	<u>Kenya</u>					
Mombasa-Nairobi- Nakuru (as in main road option)		694				
Nakuru-Isabania (border)	Nakuru-Kericho	107	Paved	Good		
	Kericho-Kisii	104	Paved	Good		
	Kisii-Isabania	<u>89</u>	Paved	Average		EC assistance for rehabilitation of 50 km requested.
		994				
	<u>Tanzania</u>					
Isabania (Sirari)- Mwanza-Rucumu	Sirari-Musoma	100	Earth	Average		EC financed design study. Invitation to tender launched.
	Musoma-Mwanza	220	Paved	Good		
	Mwanza-Uugara	22	Paved	Good		

Routes	Sections	Length (km)	State	Condition	Projects	Observations
	Usagara-Biharamulo-Lushunga	287	Earth	Average		Ferry crossing (new ferry) between Kikonga (near Mwanza/Usagara) and Busisi. Capacity 4-5 trucks per crossing. Note: From Rusumu traffic can move via Central Corridor routes into Uganda, Rwanda and Burundi
	Lushunga-Rusumu	95	Paved	Good		
		<u>704</u>			via Central	
<b>Alternative 2</b>						
<b><u>Road-Lake-Road</u></b>						
	Mombasa-Nairobi-Nakuru	694				
	Nakuru-Kisumu	187	Paved	Good		
	Kisumu (Kenya)-Bukoba (Tanzania) Lake	880				
	Bukoba-Biharamulo	174	Earth	Bad		Partly very difficult road with steep grades. Experiment to use this road yielded mixed results.
	Biharamulo-Lushunga	40	Earth	Average		

Routes	Sections	Length (km)	State	Condition	Projects	Observations
<b>II. Rail</b>						
<u>Kenya</u>						
Mombasa-Nairobi- Malaba (Kenya)		1,066				Railway Rehabilitation ongoing (IBRD, Second Railway Project). Third IBRD Railway Project being considered.
<u>Uganda</u>						
Malaba-Jinja- Kampala		<u>253</u>				EC, bilateral donors. Procure- ment of rolling stock (locos, wagons). Small line rehabili- tation project (Kampala-Kasese) under consideration (IBRD). The route Malaba-Kampala at present carries only insignificant transit traffic.
	Total	1,389				
<u>Alternative 1</u>						
<u>Rail-Lake-Rail</u>						
Mombasa-Nairobi- Nakuru-Kisumu		982				Train weight limitations on section Nakuru-Kisumu (about 6 wagons/ train).
Lake transport to Jinja (or Port Beli, Kampala)		223				
Rail Jinja-Kampala		80				
<u>Alternative 2</u>						
<u>Rail-Road</u>						
Mombasa-Nairobi- Malaba-Kampala Kasese (rail)		1,672				Rail line Kampala-Kasese in urgent need of rehabilitation. Small IDA credit being considered before decision on full fledged rehabili- tation.
Kasese-Mbarara- Gatuna (road)		<u>282</u>				
		1,954				
<b>III. Transport of Oil Products (White Products)</b>						
<u>Pipeline</u>						
Mombasa-Nairobi		482				Extension of pipeline to Uganda border under study.

Roads	Sections	Length (km)	Status	Condition	Projects	Observations
<u>Road</u> Nairobi-Kisumu Kampala	Nairobi-Kisumu	340	Paved	Good		
	Kisumu-Busia	122	Paved	Average		
	Busia-Jinja	117				
	Jinja-Kampala	80				
		<u>659</u>				
<u>Nodes</u>						
	Mombasa Port					
	Embakasi Container Terminal					
	Kisumu Port					
	Jinja Port					
	Port Bell					
	Bitote (Kamondo Bay)					

GREAT LAKES CORRIDOR STUDY  
CENTRAL CORRIDOR  
Transit Routes  
(Tanzania, Ruanda, Burundi, Zaire)

Routes	Sections	Length (km)	State	Condition	Projects	Observations
<b>I. Road</b>	<b>Tanzania</b>					
Dar-es-Salaam-Rusumu (border)	Dar-Chalinze	110	Paved	Good		
	Chalinze-Morogoro	90	Paved	Average	Rehabilitation 1987-1990 (IDA)	Sixth IDA road rehabilitation project.
	Morogoro-Dodoma	260	Paved	Average		
	Dodoma-Singida	270	Earth	Average	Rehabilitation of section Manyoni-Issuna (43 km)	The section Manyoni-Issuna caused major problems in 1987. Included in 1988 Budget. Part of IDA 6th road rehabilitation project Gravel Roads Rehabilitation Program). 1987-1989: 192.6 km; 1990-1996: 167.8 km
	Singida-Nzega	228	Gravel/Earth	Average		
	Nzega-Isaka	71	Gravel	Average		
	Isaka-Bukamba	112	Gravel	Average	Road will be upgraded to paved standard for 10t (single) axle loads.	EC financed, part of the EC effort to provide ZBR countries with railroad link via future Isaka railroad terminal. Work will be tendered Oct. 1988; construction time ± 30 months.
	Bukamba-Lushunga	127	Gravel	Average	Road will be upgraded to paved standard for 10t (single) axle loads.	EC financed. Work almost completed.
	Lushunga-Rusumu (border)	<u>95</u>	Paved	Good		
		1,383				

Routes	Sections	Length	State	Condition	Projects	Observations
	<u>Rwanda</u>					
Rusumu-Kigali-Akanyaru (border)	Rusumu-Kayanza	94	Paved	Average	Rehabilitation (1988)	FRG
	Kayanza-Kigali	72	Paved	Good		EC financed rehabilitation completed in 1984. Some sections need reinforcement.
	Kigali-Butare	186	Paved	Good		
	Butare-Akanyaru	<u>40</u>	Paved	Good		
		<u>342</u>				
	<u>Burundi</u>					
Akanyaru (border)-Bujumbura	Akanyaru-Bujumbura	114	Paved	Average	Rehabilitation	EC (on appraisal)
		<u>114</u>				
	<u>Alternative for road traffic to and from Burundi</u>					
	Bujumbura-Kayanza	98	Paved	Average	Rehabilitation	see Akanyaru-Bujumbura
	Kayanza-Muyinga	188	Paved	Good		
	Muyinga-Kobere (border)-Ngara (Tanzania)-Nyaka Senza (Joining road to Rusumu)	<u>80</u>	Earth	Bad	EC financed feasibility study completed (SEDES, 1987)	Not possible at present for semi-trailers.
		<u>222</u>				

Routes	Sections	Length	State	Condition	Projects	Observations
<b>II. Rail-road</b> <b>Rail: Dar-Isaka</b>	Rail: Dar-Tabora-Isaka rail/road terminal;	982	Isaka	station at present	See V "Nodes".	
<b>Road: Isaka-Kige :- Bujumbura</b>	Road: Isaka-Rusumu-Kigali Kigali-Bujumbura	580 342 <u>1,854</u>		inadequate see I, above see I, above		
	or					
<b>Isaka-Kobero-Muyinga-Bujumbura</b>	Road alternative from Nyaka Sanza, (on Isaka-Rusumu road) via Kobero-Muyinga to Bujumbura	322		see I, above		
<b>III. Rail-Lake-Rail</b> <b>Dar-Kampala (Uganda)</b>	Rail: Dar-Tabora-Mwanza Lake: Mwanza-Jinja (Uganda) Rail: Jinja-Kampala	1,280 359 60 <u>1,669</u>			Emergency assistance for TRC consisting of rehabilitation of rolling stock, relaying of Central line, improvement of telecommunications, strengthening of maintenance capacity improvement of operations and managerial performance. Program completion (first phase) 1990. Increase in carrying capacity by 25% to 1.4 - 1.5 million tons p.a.	New terminal to be constructed at Port Bell (near Kampala) with Danida funds and new rail link to Kampala.
<b>IV. Rail-Lake</b> <b>Dar-Bujumbura-(Burundi)</b>	Rail: Dar-Kigoma Lake: Kigoma-Bujumbura	1,255 175 <u>1,480</u>				
<b>V. Nodes</b> <b>Dar Es Salaam Port</b>					Major port rehabilitation project being implemented, comprising i.e. construction of a container terminal (berths 10 and 11), rehabilitation of berths 1 - 8, procurement of container and cargo handling equipment.	Container terminal expected to be fully operational first quarter 1989; completion of berths 1 - 8 expected 1991.

Routes	Sections	Length	State	Condition	Projects	Observations
Isaka Trans-shipment Terminal					EC finances construction of rail-road terminal with facilities for oil products, dry freight, general and containerized, and agricultural produce.	Contract award stage. Construction period between 18-18 months. The Isaka terminal will be laid out for a capacity of 43,000 t containerized cargo (imports) and 46,000 tons general cargo imports and exports). Storage facilities for oil products (1,000 m <sup>3</sup> kerosene, 2,000 m <sup>3</sup> diesel 2,000 m <sup>3</sup> gasoline, service station with 700 m <sup>3</sup> tank).
Mwanza Port						
Kigoma Port					Bridge container crane to be provided under Belgian aid. Delivery expected 1988/89	Port recently rehabilitated. Satisfactory condition. TRC has some problems with handling of containers expected to be solved by bridge container crane.
Bujumbura Port					Port being rehabilitated.	Financed by Caisse Centrale (France).

GREAT LAKES CORRIDOR STUDY

BURUNDI AND RWANDA : DISTRIBUTION OF IMPORTS

CORRIDOR ANALYSIS  
1982 - 1987

**Burundi**

	1982	1983	1984	1985	1986	1987
Total Imports (000mt)	201	192	225	217	231	228
Central Corridor						
Rail(X)	29	27	26	36	39	31
Road(X)	2	1	1	3	4	9
Northern Corridor(X)	41	45	40	29	21	30
Other Routes/Air(X)	27	27	33	32	36	30

**Rwanda**

Total Imports (000mt)	339	350	308	299	299	255
Mombasa Road(X)	34	33	48	43	36	33
DSM Road(X)	*	*	1	7	17	15
Other Direct Road(X) (mainly Kenya)	62	63	47	46	44	49

**Air**

Mombasa(X)	2	2	2	2	1	1
Europe(X)	2	2	2	2	2	2

GREAT LAKES CORRIDOR STUDYNORTHERN CORRIDORKENYA RAILWAYS: MAIN COMMODITIES TO AND FROM UGANDA: 1987  
BY TONS AND TON-KM

<u>COMMODITY</u>	<u>TO UGANDA</u>		<u>COMMODITY</u>	<u>FROM UGANDA</u>	
	<u>TONS</u>	<u>TON-KM</u>		<u>TONS</u>	<u>TON-KM</u>
Cement	27,821	25,710,899	Fruits, Fresh or Dried	55	20,742
Barley	942	874,700	Coffee	108,795	97,888,288
Chemicals	480	445,920	Cotton	1,001	1,078,261
Hardware	448	411,478	Hides and Skins	2,370	2,269,930
Wheat	6,161	4,786,258	Cocoa Beans	-	-
Wheat Flour	4,468	4,687,002	Maize	1,659	1,445,105
Iron and Steel	104	64,581	Textiles	53	56,482
Lime and Limestone	3,212	447,038	Tea	32	34,314
Machinery, Agriculture	681	681,337	Timber	521	308,189
Oils: Kerosene in tanks	54	58,319			
Oils: Petrol in tanks	18,136	8,712,556			
Oils: Gas in tanks	2,026	951,468			
Paper	532	391,558			
Salt and compounds	18,289	18,656,738			
Sugar	35,200	33,009,409			
Provisions	984	895,494			
Soap	1,625	1,197,487			
Dairy Produce	181	168,288			
Fibres	383	389,907			
Gunny	252	240,038			
Rice and rice flour	59	40,728			
Tallow	276	258,430			
<b>SUB-TOTAL</b>	<b>118,287</b>	<b>101,047,833</b>		<b>109,498</b>	<b>103,092,291</b>
<b>OTHER COMMODITIES</b>	<b>19,621</b>	<b>15,060,897</b>		<b>2,605</b>	<b>2,177,790</b>
<b>GRAND TOTAL</b>	<b>137,908</b>	<b>116,108,730</b>		<b>112,101</b>	<b>105,270,081</b>

GREAT LAKES CORRIDOR STUDY

NORTHERN CORRIDOR

UGANDA

IMPORT AND EXPORT TRAFFIC CARRIED BY UGANDA RAILWAYS

<b>YEAR</b>	<b>IMPORTS (TONS)</b>	<b>EXPORTS (TONS)</b>	<b>TOTAL (TONS)</b>
1980	59,256	43,786	102,042
1981	115,760	78,820	194,586
1982	126,511	102,913	229,424
1983	121,751	115,211	236,962
1984	157,399	93,370	250,769
1985	158,299	100,620	258,960
1986*	139,549	112,428	251,987
1987*	167,468	121,251	288,719

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Source : PTA - 7th Meeting of Transport and Communications Committee

\* Uganda Railways Corporation

GREAT LAKES CORRIDOR STUDY

NORTHERN CORRIDOR

MOMBASA PORT: TRANSIT TRAFFIC 1984 - 1987

<u>PARTICULARS</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
UGANDA: Imports	97,200	60,149	92,874	170,550
Exports	158,903	164,193	147,832	124,575
Total	256,103	224,342	240,706	295,125
BURUNDI: Imports	27,811	20,157	12,673	17,308
Exports	1,132	1,628	1,407	272
Total	28,943	21,785	14,080	17,580
RWANDA: Imports	119,100	56,166	63,035	51,214
Exports	37,464	38,132	41,329	53,658
Total	156,564	94,298	104,364	104,872
ZAIRE: Imports	7,994	6,575	3,981	17,926
Exports	20,148	27,198	42,740	43,780
Total	28,142	33,773	46,721	61,706
<b>G R A N D T O T A L:</b>				
Imports	252,105	143,047	172,563	256,998
Exports	217,647	231,151	233,308	222,285
Total	469,752	374,198	405,871	479,283

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Source: KPA Monthly Review of Port Working

GREAT LAKES CORRIDOR STUDYCENTRAL CORRIDOR: MODAL SPLIT ROAD/RAIL 1986, 1987

Country Year/Mode	<u>Z a i r e</u>			<u>B u r u n d i</u>			<u>R w a n d a</u>			<u>U g a n d a</u>			<u>T o t a l (tons)</u>		
	Import	Export	Total	Import	Export	Total	Import	Export	Total	Import	Export	Total	Import	Export	Total
1986: Road	24,242	10,990	35,232	4,827	-	4,827	11,746	1,680	13,426	-	-	-	40,815	12,670	52,985
Rail	10,702	34,238	44,940	36,367	36,932	73,299	22,690	251	22,931	6,949	17,374	24,323	96,696	58,795	155,493
All modes	34,944	45,228	80,172	41,194	36,932	78,126	34,436	1,931	36,367	6,949	17,374	24,323	137,511	101,465	238,476
1987: Road	5,470	11,208	16,678	20,411	7,665	28,076	20,570	821	20,391	7,546	-	7,546	62,997	19,686	82,683
Rail	8,592	34,638	43,230	32,629	29,622	62,251	5,368	-	5,368	35,674	48,068	83,942	102,463	112,558	215,021
All modes	14,062	45,846	59,908	53,040	37,287	90,327	25,938	821	25,759	43,220	48,068	91,488	165,460	132,244	297,704

\* = mission estimate.

Source: TRC, TNA

GREAT LAKES CORRIDOR STUDY

## CENTRAL CORRIDOR: TRANSIT TRAFFIC THROUGH D'SALAAM PORT 1986, 1987 (TONS)

	1 9 8 6			1 9 8 7		
COUNTRIES	IMPORTS	EXPORTS	TOTAL	IMPORTS	EXPORTS	TOTAL
Zambia	356,623	394,665	751,288	303,924	466,928	770,852
Zaire	84,944	45,228	80,172	14,062	46,038	60,100
Burundi	60,694	29,601	90,195	73,040	37,317	110,357
Rwanda	34,426	1,931	36,357	74,938	821	35,759
Malawi	4,608	8,473	13,141	8,641	11,747	20,388
Uganda	694	10,942	11,636	43,420	42,795	86,215
Zimbabwe	-	-	-	258	-	258
<b>SUB-TOTAL</b> (ZBR countries, Uganda)	130,758	87,602	218,360	165,480	126,971	292,431
<b>Total</b> <b>Transit</b>	492,049	490,740	982,789	478,283	605,646	1,083,929
<b>Local</b>	570,964	178,533	749,497	724,057	273,877	997,934
<b>GRAND</b> <b>TOTAL</b>	1,063,013	669,273	1,732,286	1,202,340	879,523	2,081,863

<u>Proportion of transit traffic:</u>	<u>1986</u>	<u>1987</u>
Transit	57%	52%
Local	43%	48%

Source: THA

GREAT LAKES CORRIDOR STUDYCENTRAL CORRIDORDELIVERIES OF ZER AND UGANDA IMPORT CARGO FROM DSM PORT  
ROAD AND RAIL DELIVERIES (JULY, 1987 - JUNE, 1988)

<u>1987</u>	<u>Zaire</u>		<u>Burundi</u>		<u>Rwanda</u>		<u>Uganda</u>		<u>Total</u>	
	Road	Rail	Road	Rail	Road	Rail	Road	Rail	Road	Rail
July	1,861	366	3,797	1,156	4,399	80	11,592	3,173	21,148	4,775
August	966	1,268	2,858	1,787	1,410	885	1,146	1,431	6,380	5,371
September	1,664	2,149	2,743	221	2,618	-	9,629	3,223	16,654	5,593
October	719	1,717	3,157	941	3,523	145	2,108	205	9,507	2,823
November	945	18	2,179	2,057	2,392	36	2,535	1,262	8,051	3,393
December	2,837	1,002	4,563	1,289	3,066	262	127	793	10,593	3,346
<u>1988</u>										
January	1,387	676	3,132	1,360	2,886	1,333	1,443	1,003	8,848	4,372
February	3,729	121	2,494	971	4,172	37	701	1,108	11,096	2,237
March	1,444	320	2,592	3,837	5,400	399	538	87	9,974	4,643
April	1,095	215	1,806	2,215	5,788	1,613	163	656	8,852	4,701
May	5,047	542	3,193	925	4,363	334	140	378	12,734	2,179
June	1,174	592	4,326	1,336	7,183	1,154	539	520	13,222	3,662
<b>TOTALS</b>	<b>22,368</b>	<b>8,986</b>	<b>36,840</b>	<b>18,095</b>	<b>47,199</b>	<b>6,278</b>	<b>30,661</b>	<b>13,841</b>	<b>137,068</b>	<b>34,740</b>

Source: THA

GREAT LAKES CORRIDOR STUDY

TRANSPORT COSTS : RWANDA

US \$ per tonne

(i) Steel (FOB \$277/tonne)

	Mombasa Road	DSM Isaka	DSM Road	DSM Kigoma
Sea transport	63.5	63.5	63.5	63.5
Port charges	19.7	8.8	8.8	8.8
<u>Land transport</u>	<u>224.0</u>	<u>87.9</u>	<u>140.0</u>	<u>102.5</u>
Total transport	307.2	160.2	212.3	174.8

(ii) Container : Secondhand Clothing (FOB \$790/tonne)

	Mombasa Road	DSM Isaka	DSM Road	DSM Kigoma
Sea transport	205.8	205.8	205.8	205.8
Port charges	44.2	15.5	15.5	15.5
<u>Land transport</u>	<u>338.7</u>	<u>91.2</u>	<u>140.0</u>	<u>102.5</u>
Total transport	588.7	312.5	361.3	323.8

Source : RWA/86/005

The analysis shows some differences to Section 9 of the Report but the overall conclusions are similar. The routes via DSM, whether by road or rail/road, offer significantly lower costs than the Mombasa route. The cost differences would be substantially reduced if Rwanda's protection policies were to be introduced to the DSM route as the road transport cost would rise to \$ 200/tonne

GREAT LAKES CORRIDOR STUDY

MODE COST ANALYSIS

**WAGON FERRY COSTS**

Similar ferries are operated by all three railways in the region and they have become a key element in Uganda's international transport strategy. Unfortunately there is little information available on the operating costs of Uganda's ferries. An attempt has been, therefore, to collate information from all ferries and produce cost estimates for those operated by Uganda Railways.

Direct Costs

(i) Fuel : TRC operating statistics show fuel consumption of 16.7lt/km, similar consumption is reflected in KR accounts. The Danida estimates of 25lt/km appear high and the TRC figure has been taken.

(ii) Oil : all estimates give oil consumption at 1.1% of fuel consumption

(iii) Maintenance : Danida estimates \$28,500 per annum, KR accounts are about \$50,000 and a 1980 study estimated \$34,000. The KR figure has been used although it is well below conventional rule of thumb which range between 1.0% - 1.5% of capital costs. 50% of maintenance is assumed to be use related.

(iv) Crew Costs : basic crew salaries can be assumed as a fixed cost but a substantial proportion of total crew costs are related to food and other trip allowances. 50% of total crew costs are, therefore, assumed to be variable.

(v) Utilisation : Danida assumes 100 round trips per annum, Jinja-Kisumu. The ferries should be capable of 200 round trips as the one-way sailing time is 12 hours and turnaround could be reduced to less than 2 hours.

Variable Costs :	\$	Annual Costs :	\$
Fuel (750,000lt)	250000	Maintenance	25000
Oil (8200lt)	18000	Crew	31000
Maintenance	25000	Insurance	124000
<u>Crew</u>	<u>31000</u>	<u>Total</u>	<u>180000</u>
<u>Total</u>	<u>324000</u>		

Variable costs \$ 7.26/km

Total Direct Costs : Jinja - Kisumu

	100 trips/annum	200 trips/annum
Variable	\$ 324000	\$ 648000
Fixed	180000	180000
Total	504000	828000
\$/trip	5040	4070
\$/km	11.3	9.1
\$/ton-km	0.0188	0.0152

Total Costs : Jinja - Kisumu

Danida estimated that indirect costs would add 15% to direct costs, previous cost studies of the TRC ferry estimated 47%. In this study indirect costs of 25% have been assumed.

Total costs :	Ton-km	Ton
(100 round trips)	\$ 0.0235	\$ 5.24 ton
(200 round trips)	\$ 0.0190	\$ 4.24 ton

These total costs have not included any element of capital charges, on the assumption that the ferries have little opportunity cost. Expansion of the fleet would, however, require consideration of both operating and capital costs. The replacement cost for the type of ferry used on Lake Victoria is in the order of \$ 10 million. If full capital charges, with a 10% interest rate and a 30 year life, are included the ferry costs rise appreciably :

Total costs :	Ton-km	Ton
(including capital charges)		
(100 round trips)	\$ 0.0631	\$ 14.08
(200 round trips)	\$ 0.0388	\$ 8.65

Even with high ferry utilisation the inclusion of full capital charges doubles costs.

It appears that KR charge Uganda the same rate for ferry and rail services, K19.2/- per bogie-km. Revenue per tonne, assuming an average 32tonnes per bogie, would be \$ 7.43, giving a mark-up over direct costs (low rate of ferry utilisation) of just over 40%.

## **RAIL COSTS**

### **Rail Costs : East Africa**

While no attempt has been made to prepare detailed rail costs there is the need to consider what contribution international traffic makes to the finances of the railways of Uganda, Kenya and Tanzania.

A number of rail cost estimates were found during the course of the study :

**TRC** : Long-run variable costs (1987) T 1.33/- per ton-km, equivalent to \$0.0196 per ton-km. This estimate is based upon an average haul of 800km and would thus tend to overestimate the costs for transit traffic with average hauls of > 1200kms

**KR** : Full costs of K 0.85/- per ton-km were quoted, equivalent to \$0.047 per ton-km. This total cost would probably mean a variable cost of \$0.0241-\$0.0253 per ton-km. As with TRC this estimate is probably an overestimate for transit traffic given the average haul on KR is 570kms and that of transit traffic 885kms.

**UR** : A number of estimates of railway costs for Uganda have been prepared, unfortunately they range widely from \$0.14 to \$0.0163 per ton-km.

Masterplan	Year 0	\$0.14 ton-km
	5	\$0.10
	20	\$0.055
Danida		\$0.0223 (no capital charges)
CIE		\$0.021 (no interest charge)
		\$0.0163 (variable cost)

### **Synthetic Rail Variable Costs**

To check the plausibility of these estimates a synthetic estimate of variable rail costs was constructed, using assumptions that are standardly made.

(i) Locomotive capital costs : \$ 1.4 million, 25 year life, 10% interest rate, annual utilisation 75000km

(ii) Fuel consumption : 6lt/km at US 21c per liter

(iii) Locomotive maintenance : 5% of capital costs per annum

(iv) Crew costs : \$4000/crew, 40000km per annum

(v) Wagon capital costs : \$0.055 million, 30 year life

(vi) Wagon maintenance : 2% of capital costs per annum, annual utilisation 30000km

(vii) Loco terminal costs : \$1020, wagon terminal costs assumed within annual utilisation

**Rail Long-Run Variable Costs**

	US \$/km
Loco costs :	
Capital	2.06
Maintenance	0.93
Fuel	1.26
<u>Crew</u>	<u>0.10</u>
Total	4.35
Wagon costs :	
Capital	0.194
<u>Maintenance</u>	<u>0.037</u>
Total	0.231/wagon
20 wagons	4.62
8 wagons	1.85
Train costs :	
20 wagons	8.97
8 wagons	6.20

**Costs Major Transit Routes**

(i) DSM - Kigoma

Total costs per train 20 wagons :	US \$ 12145
Cost per tonne (500 mt payload) :	\$ 24.3
(600 mt payload) :	\$ 20.2
Cost per ton-km (500mt) :	\$ 0.0193
(600mt) :	\$ 0.0161
TRC Tariff per tonne :	\$ 41 - 45

The costs estimated by this approach are very similar to those prepared by the Bank from TRC accounts for 1987. Transit traffic covers not its long-run variable costs and contributes approximately an equal amount to fixed costs.

(ii) DSM - Mwanza

Similar results should hold true for the DSM - Mwanza route as the distance, costs and revenues are little different.

(iii) Mombasa - Kisumu

Costs for the Mombasa - Kisumu haul must take into account the train load restrictions upon the Nakuru - Kisumu section. Based on the costs outline above the total movement cost for 20 wagons to Kisumu is \$9814. Terminal costs will be increased above the \$1020 because of the need to remarshal at Nakuru, assume \$1500. Total costs are, therefore, estimated at \$11314, equivalent to \$0.607/wagon-km. This compares with the contract rate KR-UR of \$1.067/wagon-km.

The tariff charged would seem to be sufficient to cover KR's total costs as the variable costs are somewhat exaggerated as they assume heavy mainline locos working Nakuru-Kisumu when, in fact lighter branchline locos would be operating.

## ROAD TRANSPORT COSTS

The following estimates of vehicle operating costs have been derived from a variety of sources :

- the TRRL cost model
- transporters in Uganda and Kenya
- UNDP/Bank expert's estimates for Rwanda
- mission experience

Two sets of costs have been estimated to illustrate the range of costs that can be produced using 'reasonable' assumptions :

(i) Conventional estimates based mainly upon TRRL model and information from major transporters in the region

(ii) Minimum cost estimates assuming that transporters make use of the distorted exchange rates to reduce their costs and have lower overhead costs.

### Running Costs

	Conventional	Ksh/km	Minimum
Fuel	2.86		0.75
Oil	.29		.07
Tyres	4.47		4.47
<u>Maintenance</u>	<u>14.77</u>		<u>7.39</u>
<b>Total</b>	<b>22.39</b>		<b>12.68</b>
Depreciation	5.00		5.00

### Annual Costs

	Conventional	Ksh/annum	Minimum
Crew	96000		96000
Overheads	180000		90000
Licence Kenya	21000		21000
Uganda	3600		3600
<u>Insurance</u>	<u>14000</u>		<u>14000</u>
<b>Total</b>	<b>314600</b>		<b>224600</b>
Interest	180000		180000

### Trip Costs

	Conventional	Ksh/trip	Minimum
Crew	3000		3000
Kenya tolls	600		600
Uganda licence	1800		1800
<u>Other</u>	<u>1500</u>		<u>1500</u>
<b>Total</b>	<b>6900</b>		<b>6900</b>

**Total Round Trip Costs**

<b>Running Costs</b>					
2360km	52840	\$2935	29925	\$1662	
Depreciation	11800	655	11800	655	
<b>Fixed costs</b>					
24 trips/year	13108	728	9358	520	
Interest	7500	417	7500	417	
<u>Trip costs</u>	<u>6900</u>	<u>383</u>	<u>6900</u>	<u>383</u>	
<b>Total</b>	<b>92148</b>	<b>\$5119</b>	<b>65483</b>	<b>\$3638</b>	
<b>No capital</b>	<b>72848</b>	<b>\$4047</b>	<b>46183</b>	<b>\$2566</b>	

**Total Revenue per trip**

Transport rate : Mombasa - Kampala \$90  
 Backload 45

<b>(30tonne payload)</b>	
<b>Backhaul %</b>	<b>Truck Revenue</b>
0	\$ 2700
25	3037
50	3375

**Implications**

On the basis of conventional voc estimates it seems clear that present transport rates between Kenya and Uganda are well below total costs. Even with the minimum cost estimates only a very small contribution to capital charges is being made. With a 35 tonne payload, however, full minimum costs are almost covered.

GREAT LAKES CORRIDOR STUDY

CONTAINERISATION

**Introduction**

Issues related to containerised traffic and containerisation were raised several times in the study. The trends in international transport logistics suggest that, irrespective of their wishes, the Landlocked countries must be prepared for an increasing proportion of their general cargo overseas trade to be containerised. In many respects containers are well very suited to the requirements of transit-transport but significant obstacles must be overcome before their full potential for the landlocked countries in the region can be realised. Unless improvements can be made many containers may have to be stuffed/stripped at port.

**Existing Container Traffic**

Data on the present flow of containers to the LLC are incomplete but it is clear that, despite the problems encountered, container traffic is increasing quite rapidly. The following summarises the information available to the study.

(1) Mombasa Port :

Total container traffic has increased rapidly at Mombasa during the 1980's, container penetration of the general cargo trade is expected to continue but at a rather slower rate :

Containerisation of General Cargo

	Imports	Exports	Total
1982	18%	40%	28%
1984	20%	55%	33%
1986/7	33%	62%	45%
Forecast			
1991/2	45%	70%	59%

No details of containers in transit to the LLC are available though one C/F agent handled 200 per month and suggested that the total flow would be about 1000 per month. This would imply an annual flow of about 140,000 tonnes of cargo by container, this appears very high.

(2) Dar es Salaam

Container traffic for the LLC has increased by almost 350% since 1982.

	ZBR		Uganda		In	Total		Total
	In	Out	In	Out		In	Out	
1982	373	1345			373	1345		1718
1984	1208	2649	21	600	1229	3249		4478
1986	1142	2037	61	632	1203	2669		3872
1987	2295	1864	265	1558	2560	3422		5982

For the ZBR about 27% of imports and 34% of exports are shipped in containers. Many of the containers are, however, stripped/stuffed at the port. This is particularly the case for exports which are often containerised at the ship's convenience. All Uganda coffee exports, for example, are transported to DSM as conventional cargo but almost all are shipped in container.

(3) Burundi

According to the port management about 1250 containers were unloaded for Burundi at Dar es Salaam in 1987. Unfortunately it is not clear how many were transported to Burundi and how many stripped at the port and the goods transported as conventional cargo.

If the containers were moved to Burundi, they were transported by road. In 1987 only 240 containers were moved via the rail/lake route through Kigoma.

(4) Rwanda

Work by the UNDP/Bank transport expert suggests that about 10% of containerisable cargo is actually containerised. Container penetration is expected to increase to 20% by 1990.

Rwanda Dry Cargo Imports  
( 000 tonnes)

	Containerisable		Other Traffic	Total Traffic
	Actual	Potential		
1986	14.2	121.3	73.3	208.8
1990	30.5	122.1	152.6	235.1

These estimates suggest a flow in 1986 of about 100 TEU per month.

**(5) Uganda**

The study found no quantitative information regarding current container movements.

**Major Problems**

Present transit-transport conditions in the region create major problems for container movements. Unless the constraints can be removed the increased use of containers for inland transport will be difficult to achieve.

**Northern Corridor**

The basic problem is that the transit governments on the Corridor do not appreciate the underlying concept of container transport. Consequently the potential advantages generated by using sealed boxes are lost. Instead of containers moving under customs seal from port to destination they are opened at the port and then again at each customs crossing point. This procedure increases the transit time and the potential for pilferage. The more specific problems on the corridor are as follows :

- inefficiencies within Mombasa port, poor availability of handling equipment;
- 100% verification of containers at the port, requiring police, customs and KPA officials;
- police convoys for some containerised cargo through Kenya which add 2/3 days to transit times;
- delays for container clearance at Mombasa as Kenya customs do not normally work weekends;
- potential demurrage payments on the containers. It is impossible to achieve a container turnaround to Rwanda or Burundi within the 28 days allowed by the shipping lines. Demurrage of \$5-\$8 per day can then be charged;
- inadequate rail service for containers. At present rail transit times are far too long for containers and, as charges are also made for empty movement, rail rates are higher than trucking rates;
- inadequate container handling facilities in Uganda. There is no ICD in Kampala and only two C/F agents have their own handling equipment, the others have to hire the Post Office mobile crane. Container handling for rail movement should be improved with the purchase of container cranes by Uganda Railways;
- gross vehicle weight limitations, if enforced, would make it impossible to move fully loaded 40ft containers to the LLC;
- The National Bank of Rwanda has directed that some commodities are air-freighted from Mombasa. If the goods arrive in containers they may have to be stripped at Mombasa.

There is also a major imbalance of traffic in the region which would result in substantial flows of empty containers. This reflects the structure of export marketing in the region as most of the coffee and tea exported from Mombasa is shipped in containers. Tea and coffee is, however, generally sold at Mombasa or, in the case of Ugandan coffee, shipped ex-stock. To increase the inland use of containers for exports might require the modification of these arrangements. A further constraint on the use of containers for export traffic from the LLC is that the lines bringing import containers are often not those taking the export containers.

At present it appears that the great majority of containers move by road. KPA has, however, plans to establish a rail served Inland Container Depot at Malaba although it has not yet obtained the finance for construction. It is not clear whether this would be of significant benefit to the LLC, unless present transit regulations could be modified substantially. The ICD could make some reduction in transport costs but it would introduce a mode interchange into the system and would probably further increase transit delays.

#### Central Corridor

The basic problems on the Northern Corridor are the security and transit regulations, these are not a constraint on the Central Corridor. Transit containers are not opened at Dar es Salaam if the seals are unbroken, no escort is required and the transit pass system avoids the need for transit bonds. Container handling productivity at DSM is reasonable, despite the fact that the container terminal is not yet operational and containers are handled over general cargo berths. It would also appear that, during the dry season at least, turnaround time for containers to Rwanda and Burundi could be kept within 28 days if road transport is used and the containers can be rapidly cleared in the LLC. The return of containers is a problem and a deposit of Tsh 100,000 is required by the shipping lines for containers sent to ZBR. The Central Corridor also faces the same export traffic problems as the Northern Corridor.

Container movement on the traditional Kigoma rail/lake route faces, however, raised serious difficulties :

- TRC has only 30 specialised wagons so containers have to be lashed in standard wagons;
- slow transit times, well outside the 28 days allowed;
- limited container handling equipment at Kigoma;

The physical problems of rail-based container movement in Tanzania are slowly being resolved.

- a container crane is being provided at Kigoma;
- 125 container wagons are being purchased and a further 100 wagons are being converted to carry containers;
- TRC movement capability is being raised by the Emergency Program;

- the EEC is considering the provision of block trains for the Kigoma and Isaka routes;
- additional container handling equipment is being provided for the port of Bujumbura;
- the Isaka rail/road terminal has been designed mainly as a container transfer facility.

By 1990 the equipment should be available for rail container movement, it will then be problem of organising these equipment and facilities into an efficient operating system.

### Choice of Container Route

Uganda has little effective choice between Mombasa and DSM for the routing of container traffic. The DSM-Mwanza route has not, at the present time, the operational capability to be a realistic alternative to Mombasa for container movement. Previous studies of containerisation for Uganda planned on the basis of unit container trains operating direct between Kampala and Mombasa. In the longer term this would still seem the appropriate system for low cost efficient services. The pattern of operations would probably require trains to use the Malaba route as the wagon ferry system through Kisumu could create the potential for delay. Until such direct services can be organised Uganda has little alternative to road-based operations.

The situation is very different for Rwanda and Burundi and, in almost all respects, the Central Corridor is more attractive :

(i) Port handling efficiency is similar but productivity at DSM should increase once the present major improvements to container facilities are fully operational;

(ii) Port charges are lower at DSM :

	Mombasa	Dar es Salaam
	( \$ per TEU )	
Ship charges	17	12
Container handling	167	93
<u>Wharfage</u>	<u>78</u>	<u>98*</u>
Total	262	203

\* for ZBR cargo using Belbase the cost would be lower

- (iii) Road transport costs are lower via the Central Corridor, this could change if Rwanda imposed its Northern Corridor controls to the DSM route;
- (iv) Transit times are faster by road on the Central Corridor, 7 days compared to 14 days via Kampala;

- (v) Transit regulations are less cumbersome and no transit bond is required;
- (vi) Container verification for transit traffic is not normally necessary at DSM, 100% verification of containers is applied at Mombasa;
- (vii) Mombasa has better facilities but those at DSM are being improved. Container stacking space at DSM is limited and is currently congested with local and empty containers.
- (viii) There is no significant shipping cost differential between the two ports.

Overall DSM has the potential to capture a very significant share of the container traffic market to Rwanda and Burundi. The route has many advantages over the Northern Corridor and relatively few problems. The infrastructure on the Mombasa route is being improved but efficient operating systems through Kigoma and Isaka would still give substantial advantages to the DSM routes.

## GREAT LAKES CORRIDOR STUDY

### Review of the Status of Implementation of Bilateral and Multilateral Transit Agreements in the Central and Northern Corridor 1/

#### Central Corridor

The transit routes, procedures and requirements on the Central Corridor are informally based on the Belbase Convention that was agreed by the colonial governments of Britain and Belgium. Under the arrangement AMI was given the franchise of ownership and management of berth Number 1 at Dar-Es-Salaam port and Kigoma port on Lake Tanganyka. The latter is owned by the Tanzania Railway Corporation. Commercially this gave AMI the monopoly of all ZBR traffic using the port of Dar-es-Salaam. With the attainment of independence the Government of Tanganyka (Tanzania) re-negotiated the Belbase Agreement with a view of acquiring ownership and management of berth Number 1 at the port of Dar-es-Salaam. The inability to resolve the issue of compensation between the Government of Tanzania on one hand and the AMI on the other has led to the continuation of the Belbase Agreement.

In principle the Belbase Agreement exempts the ZBR countries that use the port of Dar-es-Salaam from the customs requirement of posting transit bonds and commercial vehicle guarantees. An additional incentive to the ZBR countries is that traffic that is handled by AMI at berth Number 1 is exempt from port storage charges. In lieu of bond security guarantees, C/F agents and transport operators using the road/rail facilities on the Central Corridor are authorized by the Commissioner of Customs to use the Transit Pass. The pass system waives the conventional customs requirement of transit bond security guarantees for both cargo and means of transport that C/F agents and transport operators establish with commercial banks and insurance companies.

In addition to the ZBR countries using the Central Corridor, the Transit Pass system has been extended to the Zambian and Ugandan traffic that uses the port of Dar-es-Salaam. However, in the case of Zambian transit traffic to either Kenya or Uganda, the Transit Pass is not accepted by Tanzanian customs. In such a case the C/F agent or transporter is expected to fully comply with conventional customs requirements of transit bond guarantees for both the cargo and the means of traffic.

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1/ Report prepared by Mr. S. Ngwenya, Senior Transport Expert. PTA Secretariat.

The policy of the government of Tanzania is that preferential treatment to transit traffic through the Transit Pass should only be given to traffic that uses the port of Dar-es-Salaam. The Government of Tanzania has two transit policies which entail different rules and procedures. It is conceivable that the corridor approach to transit facilitation within Tanzania would give rise to an array of different transit policies.

At the bilateral level, the Governments of Tanzania, Burundi and Rwanda have attempted to establish common heavy goods vehicle axle load limits and technical specifications on length, width and height. Given the regional differences that exist, corridor standards would result in restrictions to free circulation of heavy commercial goods vehicles. It is against this background that the PTA has undertaken studies aimed at establishing regional standards on axle load limits and vehicle technical specifications.

#### Northern Corridor Transit Agreement (NCTA)

The Northern Corridor Transit Agreement (NCTA) was signed on February 19, 1985 by Burundi, Kenya, Uganda and Rwanda. On November 15, 1986, the Agreement legally came in force. The object of the Agreement is twofold: firstly, to provide a mechanism to the signatory countries for the identification and mobilization of financial resources required for the implementation of regional corridor projects. And secondly, to streamline and harmonize transit regulatory procedures as a means of facilitating transit traffic. The Agreement envisages that the latter objective would be realized through the implementation by contracting countries common programs that are provided for in the Protocols of the NCTA.

Important aspects to the Agreement, inter alia, focus on: harmonization of customs control and documentary requirements; road user taxes on transit vehicles; heavy goods vehicle axle load limits and other technical dimensions and coordination of inter-state railway operations.

During the past two years of the existence of the Agreement, priority has been accorded to transit traffic facilitation. Taking into account that about 30% of delays to transit traffic are due to cumbersome customs controls and documentation requirements, a unified Road Customs Transit Declaration Document (RCTD) was introduced in November 1986. It was envisaged that this document would replace existing national transit documents, thus expediting the movement of transit traffic and reducing transit costs. Unfortunately the wrong application of the RCTD along the Corridor has frustrated the full realization of expected benefits. The absence of a regional bond guarantee arrangement has been the primary factor that has hindered the full implementation of the document. It is therefore essential that a study on the institutional organization and management of a regional guarantee system should be undertaken. Further delays in addressing this issue will seriously undermine the faith that the Northern Corridor countries have in the Agreement.

Common axle load limits and vehicle technical specifications and road transit user taxes are issues that have a regional and not a corridor dimension. Attempts in both the Central and Northern Corridors to establish corridor standards have been misplaced because transit vehicles circulate in economic regions rather than in "linear" corridors.

### The PTA Transit Regime

The provisions of Article 19 of the Protocol on Transit Trade and Transit Facilities are primarily aimed at facilitating regional trade and transit traffic. Consequently PTA programs are focussed on the implementation of a uniform regional transit policy for all modes of transport. This is in contrast to the Northern and Central Corridor transit facilitation approaches which are mode specific.

Among others the PTA transit facilitation programs address issues such as rates and tariffs, licensing of carriers and transit traffic operators, approval of the means of transport, common bonds and sureties arrangements, standardized documentation and harmonized customs transit rules and procedures. Furthermore, PTA programs are either being developed or have been implemented concerning third-party insurance, harmonized road user taxes, highway design standards for inter-state trunk roads, etc.

Table 1 shows existing road user charges in PTA countries. The charges that affect transit include road service license/permits, entry fees, foreign commercial licenses, transit goods licenses and road tolls. A significant feature of existing road user charges in the PTA is that they are largely administered by the Ministries of Finance. Further, the levels are determined more by considerations of revenue generation by Governments than by economic considerations of meeting the costs of road provisions and use. It is against the background of existing different road user charges that the PTA has carried out studies aimed at harmonizing both direct and indirect road user transit charges, axle loads and vehicle dimensions.

With regard to road user charges the PTA approach is based on the following principles and concepts:

- (i) transit traffic must pay for the use of PTA highway infrastructure;
- (ii) payment must be related to the cost of providing and maintaining the highways used;
- (iii) revenue realized from payments made by transit traffic must be utilized in maintaining and improving the highway links in question so as to minimize vehicle operating costs;
- (iv) there should be no other charges whatsoever imposed on vehicles engaged in PTA transit traffic operations.

It is envisaged that as from July 1, 1989, a PTA harmonized road user tax that takes into account the relationship between pavement damage caused by heavy goods vehicles, construction and maintenance costs would come into force.

Regarding heavy goods axle load limits, Schedule 1 shows existing regional standards and the proposed PTA standards which are expected to come into force on July 1, 1989. In the interim, PTA member states would enact the necessary legislation. The proposed PTA axle road limits vehicle limitations and road taxes are based on technical and economic studies that have been carried out by the PTA Secretariat.

With regard to the licensing of transit vehicles, the PTA region has a multiplicity of national licenses and capacity regulating regimes which result in higher freight rates than would be the case if there was market competition. Taking into account the economic cost of these national controls which are sometimes justified on the basis of security, etc., the PTA has proposed that member states should comply by July 1, 1989 with the provisions of Article 4, paragraph (1) on Annex V to the Treaty. According to this provision, each member state is responsible for the licensing of all transit traffic operators that are registered and resident in their respective countries. Consequently, transit countries are obliged to accept vehicles that are licensed by other member states for transit operations. The implications of this policy is that road service permits, transport authorizations, etc. should not be used as instruments for capacity and freight allocations.

The managerial and operational expenses incurred by C/F agents and transporters in the administration of the existing system are extremely different to quantify yet they are substantial. The proposed methods of charging and the licensing system will be relatively cheaper and simpler to administer. The windfall benefits from freeing regional transport capacity from cumbersome and costly administrative national regulations will usher a competitive environment which will reduce regional road transportation freight costs.

Other programs that the PTA has implemented at the regional level among others include:

- PTA Third Party motor vehicle insurance card (known as the Yellow Card);
- standardized customs seals;
- "simplified" and standardized railway transport documents which replace seven different documents previously used;

### The Need for a Regional Transit Policy

The corridor approach to regional operations is counter productive because it gives rise to a multiplicity of rules, procedures, documentation requirements and standards. In a region with a plethora of rules, regulations and procedures, the promotion of bilateral and multilateral corridor policies makes heavy demands on the administrative infrastructure. For example, a country that is a member of both the Central and Northern Corridors has to participate in meetings for both corridors. To compound matters, the implementation of corridor programs entails costs which could be avoided if there was a common regional transit policy.

It is advisable that both donors and countries that are involved in developing transit policies for corridors should be dissuaded from experimenting with strategies and policies that weaken efforts towards regional integration in Africa that are being promoted by intergovernmental organizations such as the PTA and SADCC. In the case of the PTA a regional program of transit traffic facilitation is now in place.

**TABLE 1**  
**Existing Road User Charges in PTA Countries**

COUNTRIES/TYPE OF CHARGES	Angola	Botswana	Burundi	Ethiopia	Kenya	Lesotho	Malawi	Mozambique	Rwanda	Swaziland	Tanzania	Uganda	Zambia	Zimbabwe
<b>(a) Charges linked to acquisition of vehicles:</b>														
(i) Import Duties on vehicles	x	x	x	x	x	x	x	x	x	x	x	x	x	x
(ii) Vehicles Registration Fees	NIL	x	x	x	x	x	x	NIL	x	x	x	x	x	.
<b>(b) Charges for the ownership and use of vehicles</b>														
(i) Road Licences	NIL	x	x	x	x	x	x	NIL	x	x	x	x	x	.
(ii) Road Service Licences	NIL	x	x	x	x	x	x	NIL	NIL	x	x	x	x	.
(iii) Duty and/or sales tax on spare parts, fuel and tyres and tubes	x	x	x	x	x	x	x	x	x	x	x	x	x	.
<b>(c) Charges on Foreign Vehicles:</b>														
(i) Road Service Licences/Permits	NIL	x	NIL	x	NIL	x	x	NIL	NIL	x	NIL	NIL	x	.
(ii) Entry fees	NIL	NIL	x	NIL	NIL	NIL	NIL	NIL	x	NIL	NIL	NIL	x	fe.
(iii) Foreign Commercial Licences	NIL	NIL	NIL	NIL	x	NIL	NIL	NIL	NIL	NIL	x	x	NIL	N.
(iv) Transit Goods Licences	NIL	NIL	NIL	NIL	x	NIL	NIL	NIL	NIL	NIL	x	x	NIL	NIL
<b>(d) Direct Charges for use of road space:</b>														
<b>NIL</b>														
(i) Road Tolls	NIL	NIL	NIL	NIL	x	NIL	NIL	NIL	NIL	NIL	x	NIL	NIL	NIL

**SCHEDULE 1**

**HARMONIZATION OF AXLE LOAD LIMITS**

**A. Overview of the Current Situation**

The PTA countries which have connected road transport links conform to a variety of limits. These are set out below and may be summarized as follows:

Steering axle	4 different limits
Single drive/load axle	2 different limits
Tandem drive axles	5 different limits
Triple axle group	4 different limits

Limit                      Countries

**Steering Axle**

7.0 tons	Tanzania
7.5 tons	Angola Mozambique
7.7 tons	Botswana Lesotho Malawi Swaziland Zimbabwe
8.0 tons	Burundi Kenya Rwanda Uganda Zambia

**Single Drive/Load Axle**

8.2 tons	Botswana Lesotho Malawi Swaziland Zimbabwe
10.0 tons	Angola Burundi Kenya Mozambique Rwanda Tanzania Uganda Zambia

<u>Limit</u>	<u>Country</u>
<b>Tandem Drive/Load</b>	
16.0 tons	Angola Burundi Kenya Mozambique Rwanda Uganda
16.3 tons	Zambia
16.4 tons	Malawi Zimbabwe
18.0 tons	Tanzania
19.6 tons	Botswana Lesotho Swaziland
<b>Triple Axle Group</b>	
23.0 tons	Zambia
23.2 tons	Botswana Lesotho Swaziland

**B. Recommended Axle Load Limits**

8.0 tons	Steering Axle
10.0 tons	Single Drive/Load Axle
16.0 tons	Tandem Drive/Load Axle
24.0 tons	Triple Axle Group

GREAT LAKES CORRIDOR STUDY

THE COST OF BURUNDI TRUCK PROTECTION

Introduction

The National Bank of Burundi (BNB) gives a significant element of effective protection to local trucking companies operating in the international transport sector. In normal circumstances BNB will only pay trucking charges in FBU, but will provide an allocation of foreign exchange to local companies to pay for external costs such as crew expenses, fuel and border fees. There is no ban on foreign truckers competing in the market for Burundi cargo, but their earnings will be in local currency which can only be exchanged on the parallel market. The parallel market is illegal, and though tolerated for most of the time, there is always some uncertainty. While this may be satisfactory for truck drivers, it may not be adequate for larger scale transactions. The FBU is traded at a significant discount, approximately 25%, thus reducing the real value of trucking revenue to foreign operations.

Implications of the Protection System

Local payment gives protection to local truckers and their participation in international trucking increased dramatically during the 1980's. In general, it is presumed that protection will encourage inefficiency and that open competition is to be preferred. The elimination of all protection of local truckers may not, however, be in the interests of the national economy, and careful consideration must be given to the extent of the net price distortion generated by local currency revenue payment. A number of factors must be taken into account when assessing protection in international trucking:

- (i) **Burundi Indirect Taxation:** the transport rates charged by Burundi truckers reflect their financial costs and not the economic costs to Burundi. Import duties and purchase taxes on vehicles and other vehicle operating inputs normally raise financial operating costs above economic costs. Within the rate charged by the Burundi trucker, there is thus a transfer element to the Government. The transport rate paid to a foreign trucker is, however, the real economic cost to the Burundi economy. Rates charged by Burundi truckers can thus be higher than those charged by foreign truckers and still have the same cost to the economy.
- (ii) **Overvalued FBU:** the Burundi currency is overvalued and in these circumstances local currency charges have a lower economic cost than equivalent charges paid to foreign truckers at the official exchange rate. This does not imply that the transport rates can differ by the full extent of the foreign exchange premium as the overall import content of Burundi trucking costs, especially on the transit routes, will be very high.

- (iii) **National Security:** Burundi is a landlocked country which has suffered from considerable disruption to its external trade routes. A locally based international trucking capability is one means of providing transit flexibility and security, and Burundi may thus be prepared to pay the equivalent of an insurance premium for its own truckers. In these circumstances, a transport rate paid in FBu to a Burundi trucker will be preferable to an equivalent F/E payment to a foreign trucker.

The problem is to determine the level of protection which is justified from the point of view of the Burundi economy. The level of a security premium is a policy issue, but the other elements of the calculation can, in principle, be derived from the analysis of Burundi trucking costs.

Burundi International Trucking Rates and Costs

The analysis of Burundi international trucking costs has been made on the basis of unit costs obtained in Burundi, and operating cost formulae derived from East African experience. The total level of costs generated by this procedure is significantly higher than the actual level of costs implied by present transport rates. This is not unusual in this type of analysis, and costs have been reduced to those implied by the rates actually charged.

- (i) **Transport Rate Assumptions:** Mombasa - Bujumbura

Imports: 35 tonne payload FBu 30,000/tonne  
Exports: 26 tonne payload FBu 20,000/tonne,  
only 30% of trucks obtain an export backhaul

Total expected revenue: FBu 1.206 million

- (ii) **Transport Cost Structure:**

	<u>F/E cost</u>	<u>Taxes</u>	<u>Local Cost</u>
Fuel/oil	100%	===	===
Crew trip expenses	100%	===	===
Border fees	100%	===	===
Vehicle/spare parts	60%	25%	15%
Tires	56%	24%	20%
Maintenance Labor charge	20%	5%	75%
Crew Wages	===	===	100%
Burundi licenses	===	100%	===

(iii) **Round trip Variable Costs:**

Direct foreign exchange payment = \$2680

Other Costs (FBu '000)

	<u>F/E</u>	<u>TAXES</u>	<u>LOCAL</u>	<u>TOTAL</u>
Spare parts	240	100	60	400
Maintenance labor	8	2	30	40
Tires	116	50	41	207
Depreciation	91	38	23	152
Total	455	190	154	800

(iv) **Fixed Costs**

Annual Costs (FBu '000)

	<u>F/E</u>	<u>TAXES</u>	<u>LOCAL</u>	<u>TOTAL</u>
Crew wages	==	==	720	720
Interest on capital (1237)		516	309	2062
Annual licence	==	130	==	==
Overhead	531	265	1859	2655
Insurance /a	==	==	50	50
Total annual	1768	911	2938	5617

Annual No. of Trips: 15

Average Cost/Trip (FBu '000)

118	61	196	374
-----	----	-----	-----

/a Third party insurance: trucks bought with bank loans must be insured for all risks and this comprehensive insurance is extremely costly in Burundi. This insurance cost only applies to newer vehicles and is offset by lower vehicle maintenance costs.

(v) **Average Total Trip Costs**

Estimated Costs (FBu '000)

	<u>F/E</u>	<u>TAXES</u>	<u>LOCAL</u>	<u>TOTAL</u>
F/E allocation	421	==	==	421
Other trip costs	455	190	154	800
Fixed costs	118	61	196	374
Total	994	251	350	1595

These costs are significantly higher than estimated revenue of FBu 1.206 million and consequently they have been adjusted to equate with revenue. The F/E allocation has been taken as datum and the adjustment has been made pro-rata to other costs.

Adjusted Costs (FBu '000)

	<u>F/E</u>	<u>TAXES</u>	<u>LOCAL</u>	<u>TOTAL</u>
F/E allocation	421	==	==	421
Other trip costs	<u>383</u>	<u>168</u>	<u>234</u>	<u>785</u>
Total	804	168	239	1206
	67%	14%	19%	100%

Protection of Burundi Trucks

If foreign truckers were able to convert freely FBU earnings their total revenue would be the appropriate cost to the Burundi economy for their trucking services. This is not the case for Burundi trucks as approximately 14% of their financial costs are not costs to the economy, but transfers within the economy. In this situation if Burundi truckers are charging FBU 30,000/tonne, the foreign truckers would have to be paid only FBU 25,800/tonne to have the same cost to the Burundi economy.

The FBU is overvalued and consequently local costs have a lower value than F/E payments. There is currently a 25% premium on F/E or conversely local costs have only 80% the value of F/E costs. In this situation, when account is taken of both indirect taxation and the F/E premium, the real cost to the Burundi economy of local trucks carrying transit cargo is around FBU 24,650/tonne, rather than the financial charge of FBU 30,000/tonne.

Transit earnings by foreign truckers are not, however, freely convertible but must be changed on the parallel market. FBU earnings of FBU 30,000/tonne have, therefore, a real cost to the economy of FBU 24,000/tonne. This cost is very close to the economic cost of local trucks, lower by less than 3%. The costs of the present protection policy are probably not high and could be justified by the assurance given to the economy from having a locally-based international trucking capability.

GREAT LAKES CORRIDOR STUDY

**TRANSIT TOLLS AND VEHICLE REGULATIONS IN EAST AFRICA**

**A COST RELATED APPROACH**

1. Introduction

Truck transport has replaced rail as the primary means of international freight transport mode in East Africa. The unexpected increase in international trucking movements was a significant factor in the deterioration of the main road network during the 1970's and the consequent substantial road investment costs. In 1971 rail carried almost 100% of Ugandan international traffic, by 1979 Ugandan was dependent on international trucking. Efforts are underway to increase rail capacity but a major shift in traffic distribution may take several years.

Transit trucks form a large and very visible proportion of the flow of multi-axle vehicles (truck+trailer combinations and semi-trailers) along the Northern Corridor. Domestic truck traffic, except for bulk liquid transport, in both Kenya and Uganda is normally confined to two or three axle trucks. Transit trucks are perceived as very heavily overloaded and provide a more convenient explanation for the destruction of the road network than inadequate road maintenance and/or excessive axle-loads on all trucks, both domestic and transit.

Transit countries have, for many years, charged tolls and required that foreign trucks have special licenses but there is little evidence that the tolls have been related directly to road costs. The revenue generated has not been earmarked for the maintenance of the transit routes and has been simply another source of general government revenue. Most countries do not attempt to enforce vehicle and axleload regulations and control has proved ineffective where it has been tried.

There are now efforts within the PTA to harmonise vehicle and axleload regulations and simplify transit requirements and tolls. The PTA objective of simplification and harmonisation are welcome but some of the specific proposals could create additional problems for transit traffic in the region. An alternative approach which relates tolls to the specific costs imposed by transit vehicles would be preferable and, as this annex attempts to show, feasible in the region.

2. Recent Developments

A number of agreements have been negotiated to regulate as well as facilitate transit traffic in the region. The Northern Corridor Transit Agreement (NCTA) attempts to simplify transit procedures for truck traffic and has proved increasingly successful in most countries. The Protocol to the Agreement does, however establish vehicle regulations for the Northern Corridor, including an axleload limit of 10 tonnes and a gross vehicle weight of 46 tonnes.

A more general agreement is in the process of being established among the member states of the PTA. The intention is to reduce barriers to trade within the PTA region by simplifying transit and harmonising regulations and transit tolls. The system of transit documentation developed for the NCTA, the Road Customs Transit Declaration (RCTD), is being applied elsewhere and the 10 tonne axleload has been adopted as the regional norm. While the objective of a harmonised toll has apparently been agreed there is still discussion over the precise level. At a meeting in Nairobi, late 1989, a uniform transit toll for the PTA region of \$4 per 100 truck-kms was discussed. Other proposals of \$20 - \$25 per 100 truck-kms have also been made. It is not clear, however, whether the underlying basis for the toll is established : maintenance or maintenance plus attributable capital costs.

Transit facilitation and toll harmonisation may, however, be accompanied by the increased enforcement of vehicle regulations. Aid donors, such as the World Bank, have stressed the need to control the widespread overloading of axles and have often provided enforcement equipment in the form of fixed weighbridges and mobile weighing scales. Generally, however, the impact of axleload restrictions has been minimal :

- informal payments to enforcers
- splitting of loads between vehicles before weighing points
- use of minor roads to avoid weighbridges
- political pressure by the trucking lobby

The situation may be changing and a commitment to controlling overloads may have developed in some countries such as Kenya. On the otherhand truck owners show little concern, confident that they can suitably 'arrange' any control initiative.

Uniform transit tolls and enforcement of axle-load restrictions might seem attractive but there is little evidence that they will be to the advantage of the landlocked countries nor to the maximum advantage of the transit country, especially if regulations are not effectively enforced. The appropriate uniform toll could be very different depending on whether axleload regulations were or were not enforced.

### 3. Truck Loading Characteristics in East Africa

A recent survey, in Kenya, gives a realistic indication of the present distribution of transit truck weights and axleloads on the Northern Corridor. Discussions with operators suggest that load characteristics on routes to Dar es Salaam are similar. The average and maximum gross vehicle weight (GVW) and number of equivalent standard axles (ESA) of vehicles carrying imports are shown in Table 1. The overall distributions of axleloads for loaded trucks, by movement direction and cargo type, are given in Table 2.

Table 1 Gross Vehicle Weight and Axleloads  
(Westbound Vehicles)

Axle Configuration	Average		Maximum	
	GVW (m.t)	No. ESA	GVW (m.t)	No. ESA
<b>Truck Trailer</b>				
1.1 - 1.1	28.4	7.9	44.3	22.9
1.1 - 1.2	40.6	11.4	66.9	70.2
1.2 - 1.1	39.5	10.7	53.2	20.8
1.2 - 1.2	46.6	11.5	73.8	46.9
<b>Semi - Trailer</b>				
1.1 - 2	22.9	4.0	44.6	26.2
1.1 - 3	39.2	10.1	54.3	50.9
1.2 - 2	40.8	13.7	61.8	60.2
1.2 - 3	48.3	12.8	76.5	70.3

Note : the axle configuration shows the total number of axles and their distribution between truck (tractor) and trailer (semi-trailer). For example 1.2 - 1.1 indicates a three axle truck pulling a two axle drawbar trailer, while 1.2 - 3 is a three axle tractor pulling a three axle semi-trailer.

Table 2 Axleload Distribution: Loaded Multi-Axle Commercial Vehicles  
(% of axleloads)  
Axleload (tonnes)

	< 6	6 - 8	8 - 10	10 - 12	12 - 14	14 - 16	16 - 18	18+
To West	24.6	22.3	25.7	15.9	8.5	2.6	0.3	*
From West	44.6	22.6	18.2	9.1	4.2	1.2	*	
Dry cargo	31.7	22.1	22.6	15.2	6.2	2.0	0.2	*
Tanker	27.1	22.9	25.6	12.4	8.9	2.6	0.4	0.1

It is clear that among the vehicles using the Northern Corridor there are some vehicle with grossly overloaded axles (the maximum single axleload is >18 tonnes), resulting in very significant road damage. While there are marked differences between vehicle categories there are also very distinct loading patterns within vehicle categories. Differences exist between dry cargo and tanker trucks but the most significant feature is within the 3 axle truck category which can be divided into two distinct groups :

- trucks with tandem driving axles
- trucks with one driving axle and a trailing axle

The rear axleloads for vehicles with tandem driving axles are broadly balanced, typically + 1.0 tonne. The rear axleloads of trucks with a single driving axle are highly imbalanced, if 16 tonnes are distributed between the rear axles the driving axle will typically carry 12.5 tonnes and the trailing axle 3.5 tonnes. The difference in road damage effect is dramatic, Table 3.

Table 3 Equivalent Standard Axles : Three Axle Trucks

	GVW(tonnes)	No. ESA
Balanced rear axles	50.0	8.6
Imbalanced rear axles	50.0	19.8

Three axle trucks with trailing rear axles are mainly, but not exclusively, older Fiats, Table 4. It has been suggested that the trailing axles often with single rather than double wheels, were introduced in response to World Bank policy initiatives to reduce road damage by encouraging the use of multi-axle vehicles.

Table 4 Rear Axle Weight Distribution : Three Axle Trucks  
(% of trucks)

	Fiat	Other	Total
Imbalanced	94%	22%	60%
Balanced	6%	78%	40%

The impact of the three axle trucks with imbalanced axles is mitigated, to an extent, as their GVW is generally lower than trucks with balanced rear axles. A more detailed distribution of the weight characteristics of loaded trucks is given in Table 5.

Table 5 Gross Vehicle Weights : Westbound Loaded Trucks  
(tonnes)

Dry Cargo	Average GVW	% of Vehicles with GVW					
		<30	30 - 40	40 - 49	50 - 59	60 - 69	70+
1.1 - 1.1	33.0	27	55	18	-	-	-
1.1 - 2	31.2	39	41	20	-	-	-
1.1 - 3	40.2	7	38	46	9	-	-
1.1 - 1.2	40.8	4	25	71	-	-	-
1.2 - 1.2 Imbalanced	40.6	7	50	38	5	-	-
1.2 - 1.2 Balanced	53.7	-	7	11	70	11	-
1.2 - 3	52.5	6	11	17	51	13	3
<b>Tanker</b>							
1.1 - 2	34.8	20	53	27	-	-	-
1.1 - 3	42.9	-	25	69	6	-	-
1.1 - 1.2	43.2	-	21	72	6	1	-
1.2 - 1.2 Imbalanced	44.4	-	10	57	19	11	3
1.2 - 1.2 Balanced	54.6	4	-	18	39	32	7
1.2 - 3	54.9	-	4	18	45	31	2

4. Consequences of Uniform Toll and Axleload Control

(a) Tax Revenue to Coastal Countries

It is clear that a uniform transit toll, applied on a \$/km basis to recover road damage costs, will tend to benefit the coastal country. Fuel prices are usually lower than in the LLC and transit trucks purchase fuel at the cheapest source. In East Africa transit trucks are normally equipped with additional fuel tanks and sufficient fuel is purchased for the round trip.

If the transit toll is set to recover attributable road costs the coastal country will enjoy a net resource gain equivalent to the tax on the fuel purchased. Assuming that diesel tax is set to recover attributable road costs from domestic trucks a coastal country, such as Kenya, could obtain transit revenue up to three times the attributable road costs of transit trucks :

- the transit toll
- the diesel tax on consumption within Kenya, 1920 kms
- the diesel tax on consumption for the remaining kms of the transit trip, 2070 kms for Burundi.

Strictly enforcing the axleload limits will increase the volume of truck movements required and thus the net transfer to the coastal country. This situation may be inevitable and the price the LLC must pay for simplified transit. The provision of duty free fuel for transit vehicles might be equitable but is probably implausible in practice. It is also probable that for many LLC the pump price for fuel at the coast is lower than the economic cost of fuel purchased domestically.

(b) Enforcement of Axleload Regulations

Strict enforcement of the 10 tonne axleload limit could have a serious impact on the LLC, especially in the short-term. Transport rates will increase as payloads are restricted and this increase in the costs to the LLC may not be balanced by an equivalent fall in the road costs for the transit countries. There is little evidence to suggest that a 10 tonne axleload limit minimizes total road transport costs (movement costs + road costs) although the curve relating total costs to axleloads is probably fairly flat in the region of 10 - 13 tonnes.

More particularly, in the short term, there could be major disruption in fuel supplies to the LLC. From the evidence of the Kenyan survey it would appear that few transit tankers can meet the proposed axleload limits. For some countries, such as Burundi, there would still be problems if an axleload limit of 13 tonnes was enforced, Table 6.

Table 6 Axleloads: LLC Registered Tankers

	Vehicles with Heaviest Axleload		
	< 10 mt	10 - 13mt	>13mt
Burundi	5%	30%	65%
Rwanda	22%	44%	33%
Uganda	8%	52%	40%
All LLC	14%	43%	43%

Unlike general cargo trucks the tankers cannot run less than fully laden as they become unstable. If the 10 tonne axleload limit was enforced strictly considerable disruption would result as less than 15% of the fleet can meet the limit. Effective enforcement of a 13 tonne limit would still create difficulties, affecting probably 50% of fuel supplies. Enforcement would result in the need to replace the fuel tanks. In most cases this would mean the mounting of new tanks on existing chassis but for some of the newest and largest LLC vehicles the complete replacement of the tanker trailers would be necessary.

Unless the LLC can negotiate arrangements for an adjustment period, at least, the economic costs could be very considerable. While certain types of vehicle should probably be removed from the transit industry, especially those with imbalanced rear axles, a transition period with vehicles being charged for their actual road damage would be desirable. The problems of the axleload limit would be compounded if the present 46 tonne GVW limit was also enforced as this would have serious implications for the movement of containers, a rapidly expanding sector in the region.

(c) Non-Enforcement of Axleload Regulations

In the light of past experience, non-enforcement of the 10 tonne axleload restriction is more probable than enforcement. If only one transit country enforces the limits vehicles are likely to divert to routes through countries without effective limits. Without enforcement of the axleload limits the present proposals will :

- change the total level of transit vehicle revenue in the transit countries
- may result in some simplification of the toll structure
- reduce the sources for potential disagreement between countries

The proposals are, however, unlikely to improve resource allocation within the transit-transport sector.

(i) Without axleload enforcement it is not clear whether the revenue raised from transit trucks will cover attributable road damage.

(ii) If total road costs are covered it is certain that some trucks will be paying far more than their attributable costs while others will cause damage well in excess of the transit tax.

- (iii) The uniform tax will not reduce the incentive to maximize vehicle loads. The same tax will be paid irrespective of whether a truck is carrying 25 tonnes, 35 tonnes or 45 tonnes. A uniform tax will, however, give an incentive to use vehicles with greater load capacity.

The uniform toll on transit trucks, without axleload enforcement, is unlikely to change fundamentally the present situation and reduce road damage on the transit routes. In these circumstances an alternative approach to the problem of road damage and transit taxation should perhaps be considered.

#### 5. Transit Vehicles and Taxation : An Alternative Approach

The proposals for a 10 tonne axleload limit and a uniform transit tax are unlikely to improve significantly the transit situation. If the axleload limit is enforced there will be short term economic costs and there is no evidence that this limit minimizes total transport costs (vehicle plus road costs). If the axleload regulation is not enforced the level of transit revenue may change but the fundamental problems of overloading and road damage are not resolved.

Ideally the transit toll should vary according to the level of road damage attributed to individual trucks. The operator can then decide the level of payload which will minimize total costs. If the trucker decides on a heavy load then the road damage and the assessed road toll will be high. On the otherhand lightly loaded trucks will only pay low tolls.

For domestic trucking the assessment of individual truck movements is not practicable and the more conventional approach of road user taxation and efforts at axleload enforcement may be the only, although inefficient, solution. Control of domestic truck loadings may also be rather less important as both the benefits of overloading and the costs of road damage are felt by the domestic economy.

For transit traffic the benefits are received by the LLC while the costs are borne by the transit country. Individual assessment of transit trucks could be practical, however, as, by definition, they cross borders and the frontier crossing points make an ideal toll location.

##### (a) Road Damage Assessment : Use of frontier weighbridges

Most frontier posts are now installed with weighbridges and these give the opportunity for strict control and assessment. Each vehicle could be weighed as it crosses the border and transit tolls charged according to the axleloads. Unfortunately experience with control by fixed weighbridge has been extremely disappointing. Within a very short time, arrangements are made between truck operators and the weighbridge attendants. Mobile weighbridges may offer a better means of control but would not be suitable for assessing border fees related to individual trucks.

The assessment of road damage by weighing individual vehicles would be the ideal solution but in the context of transit-transport in East Africa is unworkable. Fortunately there is a second-best alternative which would provide a close approximation.

(b) Road Damage Assessment : Use of transit documentation

A second best solution to the problem of assessing the road damage attributable to individual transit trucks relies on the following propositions :

- Road damage is a function of axleloadings
- Axleloads are a function of the gross vehicle weight, the number of axles and the axle configuration
- Gross vehicle weight is the sum of the payload and the tare weight of the vehicle
- The tare weight of different vehicle types is known with a reasonable level of accuracy.

If a sufficiently robust relationship can be estimated between gross vehicle weight and axleloads, road damage can be estimated on vehicle type and vehicle payload.

The truck and its axle configuration can be easily observed at the border, the main problem is the estimate of the vehicle payload. The payload on transit trucks is, however, an essential element of the information already recorded on the transit documents used in the region, the RCTD. The special customs arrangements for transit traffic provides both the opportunity for a variable transit tax related to road damage and the ability to enforce such a system.

The payload is recorded accurately on the RCTD as the transitaire must demonstrate to Customs that the goods which have entered the transit country have been exported. The size of a transit consignment is thus recorded by Kenya Customs and Port officials when it is landed at Mombasa. A transit bond is raised on the consignment which can only be cancelled when the transitaire shows that the goods have left Kenya by producing the RCTD issued at Mombasa and endorsed at the border. Under-declaration of the payload on the RCTD, to reduce a variable transit toll, would mean that the transitaire could not demonstrate that all the goods had left Kenya. The transitaire would then be responsible for paying all Kenyan import duties and other taxes on the goods not proven to have left Kenya. The customs penalties for the transitaires would be very much higher than the cost savings on the transit tax.

Discussions with many transitaires in the region indicate that the loads recorded on the RCTD are accurate. It is theoretically possible that a system of evasion could be established but it would require participation by many elements in the chain and the profits, compared with other possible frauds would be small. The accuracy of the payloads could and perhaps should be verified by sample weighings before a change in the toll system was introduced and periodically as a monitoring control on its effectiveness.

If a reasonably accurate relationship can be established between GVW and equivalent standard axles, for specific axle configurations, the payload recorded on the existing transit documentation can be used as the basis for a variable transit tax system, linking the toll to the estimated road damage. The toll could be collected as part of existing customs procedures thus minimizing collection costs and providing a control mechanism for collection. An outline for such a tax, based on Kenyan data, is given in the final section of this annex.

6. A Variable Transit Tax for the Northern Corridor

The data provided by the recent axleload survey at Gilgil were used to estimate the relationship between GVW and Equivalent Standard Axles (ESA). The estimated relationships are not perfect but, in general, provide a reasonable approximation, Table 5.

Table 5 Goodness of Fit : Relationship GVW and ESA  
(R2)

Axle Configuration	Vehicle Type	
	General Cargo	Tanker
Truck + Trailer		
1.1 - 1.1	0.88	N.A
1.1 - 1.2	0.95	0.92
1.2 - 1.2 Balanced	0.92	0.94
1.2 - 1.2 Imbalanced	0.88	0.66
Semi - Trailer		
1.1 - 2	0.96	0.86
1.1 - 3	0.90	0.91
1.2 - 2	0.92	0.99
1.2 - 3	0.94	0.94

The only vehicle category with a poorly fitting relationship between GVW and ESA is the 3 axle truck with only one driving axle. Given the damage caused by this type of vehicle it might be appropriate to charge a transit toll toward the upper end of the confidence limits for the relationship. Fortunately these vehicles are now becoming very old and are being replaced by more acceptable vehicles. Higher transit tolls would accelerate the replacement process.

Based on the relationships between the GVW and ESA and the tare weight of vehicle types, estimates of relative road damage by vehicle type and payload for general cargo trucks were developed, Table 6. The tare weight of trucks were estimated on the basis of the weights of unladen vehicles in the Kenyan survey and thus take some allowance for the fuel carried.

Table 6 Road Damage and General Cargo Payloads  
(No. ESA per vehicle)

Vehicle Category	Vehicle Payload (tonnes)									
	15.0	21.0	27.0	30.0	33.0	36.0	39.0	42.0	45.0	48.0
1.1 - 2	3.3	8.1	16.8	23.4	31.8	42.4	*	*	*	*
1.1 - 1.1	3.4	8.7	18.8	26.6	36.8	49.8	*	*	*	*
1.1 - 3	2.9	6.0	11.0	14.5	18.8	23.9	30.0	37.3	45.8	*
1.2 - 2	2.6	5.9	11.9	16.3	21.9	29.0	37.7	48.4	61.3	*
1.1 - 1.2	2.5	5.4	10.4	13.9	18.2	23.6	30.0	37.6	46.7	*
1.2 - 1.2(I)	2.2	4.9	9.9	13.6	18.3	24.1	31.4	40.3	51.0	*
1.2 - 3	1.7	3.5	6.4	9.1	10.8	13.7	17.3	21.5	26.4	32.2
1.2 - 1.2(B)	1.6	3.2	5.5	7.1	9.0	11.2	13.9	17.0	20.5	24.6

(I) = imbalanced rear axles (B) = balanced rear axles

Table 6 shows that if a two axle truck with a two axle trailer has a payload of 33.0 tonnes its damage effect will be equivalent to almost 37 standard axles. A six axle semi-trailer with the same payload will only generate 9 standard axles. In terms of the damage - payload relationship the vehicle categories can be broadly considered in three groups :

- 4 axle vehicles and combinations
- 5 axle vehicles and combinations
- 6 axle vehicles and combinations

Unfortunately the 3 axle Fiat truck has the characteristics of the 5 axle rather than the 6 axle combination and thus any classification would have to include both total and driving axles.

The information contained in Table 6 can be converted to an appropriate toll by applying an ESA related road damage cost. The main Report indicated that a definitive study of road damage costs is still required in the region and should be undertaken as the basis for whatever system of toll is finally agreed. To illustrate the approach to transit tolls proposed in this annex the damage cost from a previous UNCTAD study, quoted in the main report, has been used :

$$\text{Damage per vehicle-km} = \$ (0.015 + 0.0105 * \text{ESA})$$

Using this damage cost relationship the appropriate transit toll for petrol tankers travelling between Nairobi and Busia has been calculated as an example of the size of transit tax which would be necessary, Table 7. Similar tables could be calculated for diesel and black oil tanker movements as well as for general cargo/container movements. In view of the relatively small differences between the categories of 4,5 and 6 axle vehicles a realistic transit tax might simply consist of four cargo categories and three vehicle types.

**Table 7 Transit Toll for Petrol Tankers : Nairobi - Busia  
(K sh per round trip - 924 kms)**

Vehicle Category	Fuel Carried (litres)						
	20 000	30 000	40 000	45 000	50 000	55 000	60 000
1.1 - 2	765	1 646	3 490	4 918			
1.1 - 1.2	563	1 030	1 972	2 696	3 669		
1.1 - 3	511	961	1 971	2 799	3 962	5 483	
1.2 - 2	575	1 055	2 028	2 781	3 804	5 095	
1.2 - 1.2(I)	559	932	1 609	2 095	2 724	3 483	
1.2 - 1.2(B)	511	746	1 127	1 384	1 701	2 069	2 515
1.2 - 3	445	679	1 137	1 482	1 944	2 519	3 262

Even if the variable transit toll is not considered a long term solution to transit taxes and vehicle overloading the above approach could be very useful an adjustment period for tanker traffic. Tanker traffic is ideally suited to the proposed approach : the size of the tank is known and transit tankers are driven fully loaded or empty. The toll can be applied without the RCTD.

In terms of the type of road toll suggested by the PTA, expressed in \$ per 100 kms, the proposed approach would give the tolls shown in Table 8. If the road damage cost used to illustrate the approach is in the right order of magnitude the proposed uniform toll of \$4 per 100 kms is clearly inadequate.

**Table 8 Road Damage Toll for General Cargo Payloads  
(\$ per 100 vehicle-kms)**

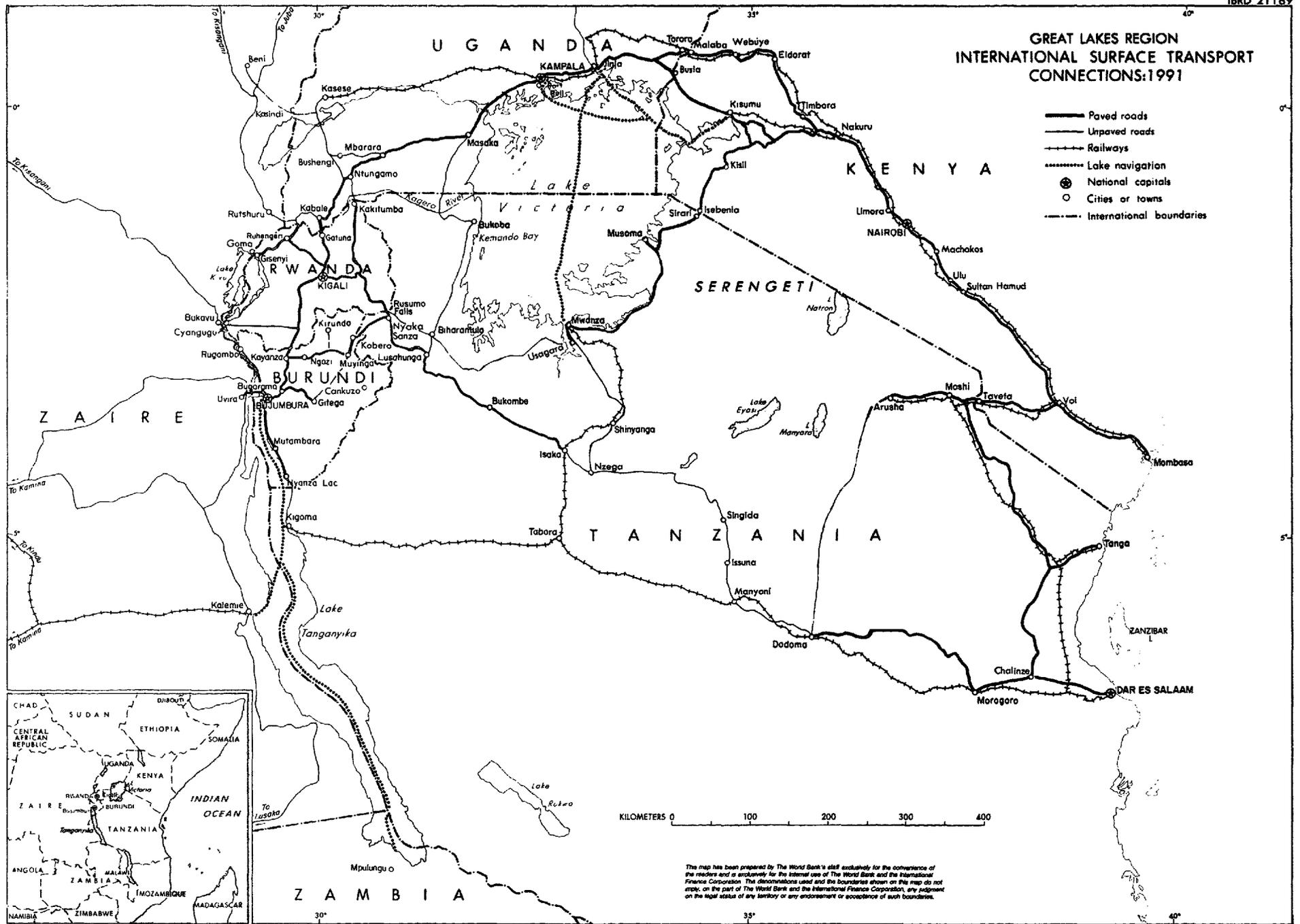
Vehicle Category	Vehicle Payload (tonnes)									
	15.0	21.0	27.0	30.0	33.0	36.0	39.0	42.0	45.0	48.0
1.1 - 2	5.0	10.1	19.2	26.1	34.9	46.0	*	*	*	*
1.1 - 1.1	5.1	10.6	21.3	29.5	40.1	53.8	*	*	*	*
1.1 - 3	4.6	7.8	13.1	16.7	21.2	26.6	33.0	40.7	49.6	*
1.2 - 2	4.2	7.7	14.0	18.6	24.5	31.9	41.1	52.3	65.9	*
1.1 - 1.2	4.2	7.2	12.4	16.1	20.6	26.2	32.9	41.0	50.6	*
1.2 - 1.2(I)	3.8	6.7	11.9	15.8	20.7	26.8	34.5	43.8	55.1	*
1.2 - 3	3.3	5.2	8.2	11.1	12.8	15.9	19.7	24.1	29.3	35.3
1.2 - 1.2(B)	3.2	4.8	7.3	9.0	10.9	13.3	16.1	19.3	23.0	27.3

If individual tolls were to be established on the basis of most likely vehicle payloads the following would apply :

	Typical Payload Range	Toll Range
Four axle vehicles	18 - 21 tonnes	\$ 7 - \$ 10 per 100kms
Five axle vehicles	24 - 27 "	\$ 10 - \$ 13 " "
Six axle truck-trailer	33 - 36 "	\$ 11 - \$ 13 " "
Six axle semi-trailer	33 - 36 "	\$ 13 - \$ 16 " "

The tolls for the typical payloads are in general 2 - 4 times the level proposed by the PTA. The introduction of such average tolls would not, however, help substantially to reduce the level of road damage, nor generate the funds necessary to make good the damage, given the experimental relationship between axle load and road damage, unless vehicles were reduced to typical payloads.

# GREAT LAKES REGION INTERNATIONAL SURFACE TRANSPORT CONNECTIONS: 1991



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