Final Report
Volume 1: Main Report

Analytical Comparative Transport Cost Study Along the Northern Corridor Region

prepared for:

Northern Corridor Transit Transport Coordination Authority (NCTTCA)

prepared by:

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October 2010
CPCS REF: 07154

Acknowledgements

CPCS would like to acknowledge the kind assistance granted to them by the staff of the Northern Corridor Transit Transport Coordination Authority while undertaking this study. In addition, we wish to thank all of the public and private sector stakeholders consulted during this study that provided invaluable insights and information to inform the study analysis, and were very generous with their time. Any errors of fact or interpretation are ours.

Glossary

ALM	Equipment Hiring Agency
APRP	Annual Public Roads Programme
B/L	Bill of Lading
BIF	Bond in Force
BRB	Bank of the Republic of Burundi
C&F	Clearing and Forwarding
CEO	Chief Executive Officer
CEP	Capacity Enhancement Programme
CEPGL	Economic Community of Great Lakes Countries
CFS	Container Freight Station
CIF	Cost, Insurance & Freight
CoC	Certificate of Conformity
COMESA	Common Market for Eastern and Southern Africa
DO	Delivery Order
DPC	Document Processing Centre
DR	Directorate of Roads
DRC	Democratic Republic of Congo
DWT	Dead Weight Tonnes
EAC	East African Community
EDI	Electronic Data Interchange
EDPRS	Economic Development and Poverty Reduction Strategy
EIR	Electronic Interchange Receipt
EU	European Union
FOB	Free on Board
FRN	National Road Fund
GDP	Gross Domestic Product
HGV	Heavy Goods Vehicle
HIPC	Heavily Indebted Poor Countries
IC	Infrastructure Cell
ICDS	Inland Container Depots
IDF	Import Declaration Form
ISPS	International Ship & Port Security
JET	Aviation Turbine Fuel
KEBS	Kenya Bureau of Standards
KeNHA	Kenya National Highways Authority
KEPHIS	Kenya Plant Health Inspectorate Services
KeRRA	Kenya Rural Roads Authority
KMA	Kenya Maritime Authority
KPA	Kenya Ports Authority
KPC	Kenya Pipeline Co. Ltd.
KRA	Kenya Revenue Authority
KRB	Kenya Roads Board

KRBF	Kenya Roads Board Fund
KSC	Kenya Shippers Council
KTA	Kenya Transport Association
KURA	Kenya Urban Roads Authority
LNBTP	The National Laboratory of Building and Public Works (Laboratoire National du Bâtiment et des Travaux Publics), Burundi
LR	Local Roads
MDG	Millennium Development Goals
MDR	Ministry of Rural Development
MFPED	Ministry of Finance, Planning and Economic Development
MIDR	Multilateral Initiative for Debt Relief
MITPR	Ministry of Infrastructure Works Public and Reconstruction
MoLG	Ministry of Local Government
MoWT	Ministry of Works and Transport
MSC	Magadi Soda Company
MTVC	Ministry of Transport and Communication Channels
NCTA	Northern Corridor Transit Agreement
NCTIP	Northern Corridor Transport Improvement Project
NCTTCA	Northern Corridor Transit Transport Coordination Authority
NRSC	National Road Safety Council
NTE	Non-Traditional Exports
ODR	Office of Roads (Burundi)
OGA	Other Government Agencies
OR	Office of Roads (DRC)
OVD	Office of Roads and Drainage (DRC)
PPPs	Public Private Partnerships
PVoC	Pre-Verification of Conformity
RMLF	Road Maintenance Levy Fund
RN	National Roads (Routes Nationales)
RP	Provincial Roads (Routes Provinciales)
RSDP	Second Road Sector Development Programme
RTGS	Real Time Gross Settlement
RVR	Rift Valley Railway
SOCABU	Insurance Company of Burundi (Société d'Assurances du Burundi)
TE	Traditional Exports
TEU	Twenty-foot Equivalent Units
TKm	Tonne-Km
TLB	Transport Licensing Board
TOR	Terms of Reference
UBOA	Uganda Bus Operators Association
UBOS	Uganda Bureau of Statistics
UCFA	Uganda Clearing Industry and Forwarding Agencies Association
UCTOA	Uganda Commercial Truck Owners Association
UFFA	Uganda Freight Forwarders Association
UNRA	Uganda National Roads Authority

URA	Uganda Revenue Authority
UTODA	Uganda Taxi Owners and Drivers Association
VAT	Value Added Tax
VOC	Vehicle Operating Cost

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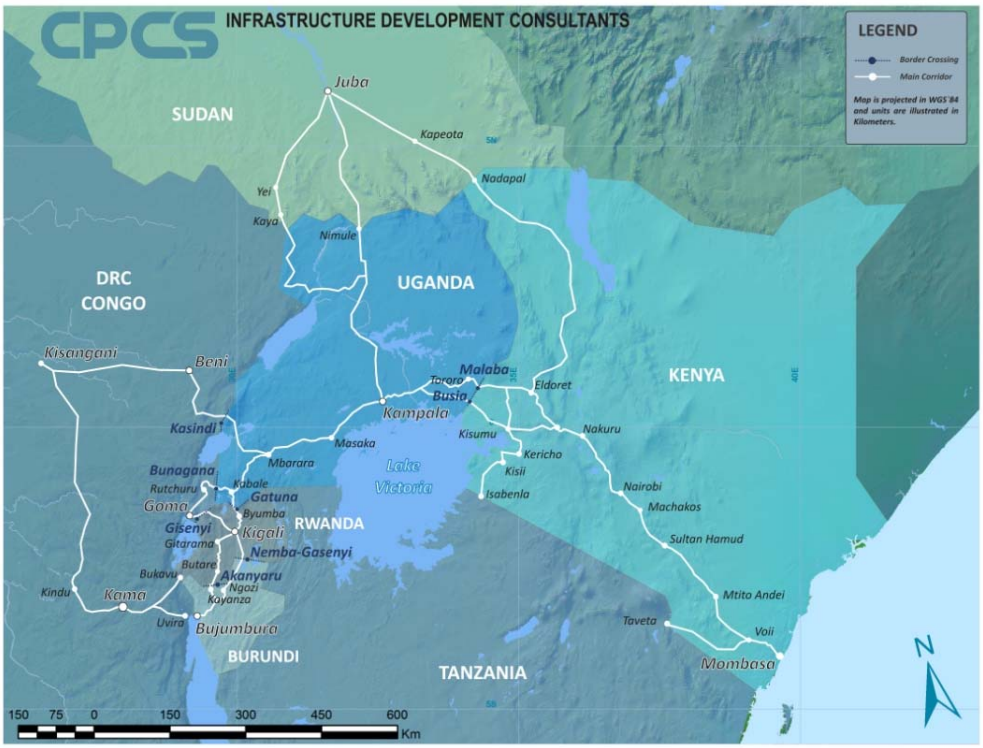
Executive Summary

Efficient and well-integrated transport infrastructure is critical for unlocking economies of scale and sharpening competitiveness, especially for the landlocked countries. Competitiveness is important for the survival of all business enterprises.

Transport corridors have over the past two decades gained particular attention with growing efforts for regional integration in Africa and elsewhere. African Union programs such as NEPAD and the programs of the Regional Economic Communities all place priority on enhancing interconnectivity and facilitating trade by focusing on transport corridors as microcosms of integration and spatial development on the continent.

In the East Africa region, transit traffic to and from landlocked countries entails passing through the Port of Mombasa in Kenya or the Port of Dar-es-Salaam in Tanzania. From these two ports has evolved what are known as the Northern and Central Corridors, respectively.

The Northern Corridor links the port of Mombasa with the landlocked eastern and central African countries of Uganda, Rwanda, Burundi and the Democratic Republic of Congo (DRC). It also provides links to Southern Sudan, Ethiopia and Northern Tanzania. The Corridor consists of the road network from Mombasa through to Kampala, Kigali, Bujumbura Goma, Beni and Kisangani in eastern DRC. It also includes the rail network from Mombasa to Kampala, the oil pipeline from Mombasa to Nairobi, Eldoret and Kisumu, and the inland waterway system on Lake Victoria. The Corridor carries significant quantities of inter regional and domestically traded commodities to the main urban centres in the region.



Average transport costs along the corridors in East Africa are considerably higher than those in West Africa and Southern Africa, and domestic transport costs are even higher. These high transport costs are brought about through a combination of poor infrastructure, high fuel costs, older, inefficient trucks and considerable delays at weighbridges, border points and various check points along the main routes.

The Northern Corridor Transit Agreement (NCTA) is a 1985 treaty between the Member States of the corridor countries (Kenya, Uganda, Rwanda, Burundi and DRC) which provides a framework for cooperation on issues related to trade and transit between the member states. South Sudan currently has observer status to the NCTA, and is expected to become a full member of the NCTA in 2011.

The main objective of the NCTA is that the member states should guarantee each other free passage of transit traffic through their respective territories. The vision of the NTCA is to make the Northern Corridor the most cost-effective corridor in East and Central Africa to enhance the sub-region's competitiveness in the global market. The organs of the NCTA include a Council of Ministers responsible for transportation referred to as the Northern Corridor Transit Transport Coordination Authority (NCTTCA), assisted by an Executive Board of senior officials and the NCTTCA Secretariat headquartered in Mombasa, Kenya.

Analytical Comparative Transport Cost Study Along the Northern Corridor Region

CPCS was engaged by the NCTTCA to undertake this study whose overall objective is to assist the NCTTCA and Member States in fully understanding and quantifying the high logistics costs of the Northern Corridor countries, and to propose appropriate policy and other measures to reduce these costs in order to increase trade and the region's competitive position.

To achieve the objectives of the study, we developed a methodology to quantify total logistics costs with a special emphasis on quantifying the costs of delays and hidden costs. Building on analysis from existing studies, we conducted additional research and data gathering in the field, including extensive interviews with stakeholders in Kenya, Uganda, Rwanda, Burundi and eastern DRC. The interviews consisted of face-to-face meetings with public authorities (revenue authorities, customs, transport and infrastructure ministries, national railway companies, etc) as well as with private sector stakeholders (transporters, shippers, freight forwarders, clearing agents, shipping lines, stakeholder associations, etc).

Our resulting analysis considered logistics costs in six countries of the region which use the Northern Corridor as a key trade link: Kenya, Uganda, Rwanda, Burundi, eastern DRC and Southern Sudan. For each country we looked at the macroeconomic framework, the institutional organisation of the transport sector, traffic patterns for dominant commodities, transporter vehicles operating cots, transit delays and costs associated with transit procedures, and the total logistics costs structure. The operating costs and performance of the railways, pipeline and inland waterways were also analysed. We developed a set of prioritized policy measures and actions to improve the flow of goods across the region, with the ultimate objective of decreasing logistics costs and increasing competitiveness of the Northern Corridor.

Overview of the Port of Mombasa

The Port of Mombasa on the Kenyan coast plays a strategic role in the facilitation of trade both for Kenya and other hinterland countries along the Northern Corridor. A key premise of this report is therefore that Mombasa port performance, transit costs and procedures lie at the heart of the logistics supply chain.

The port has an annual throughput capacity of 22 million tonnes and registered total cargo throughput of 18.9 million tons in 2009, reaching 85.9% of its full capacity. This utilisation capacity ratio illustrates the congestion and delays observed at the port which are one of the key issues contributing to the relatively high logistics costs along the Northern Corridor.

Trade along the Northern Corridor is characterised by major disequilibrium, with imports through Mombasa accounting for 91% of total port traffic, and exports out of Mombasa accounting for only 9% of movements. This disequilibrium has a significant impact on transport costs as there is far more demand for transportation of goods in the Mombasa-inland direction, than in the return direction (regional countries out of Mombasa). A lack of backload traffic for transporters means that most of them need to charge higher tariffs for inward goods movements than would be the case if import and export trade was more balanced.

In 2009, approximately 74% (13.9 million tonnes) of traffic passing through the Port of Mombasa was domestic traffic destined for, or originated from, Kenya. The remaining 26% (4.9 million tonnes) was transit traffic going to, or coming from, landlocked and neighbouring countries. The trade imbalance for this transit traffic reflects the overall imbalance for the region; imports destined to inland countries made up almost 93% of transit goods traffic, while exports represented less than 8% of total transit traffic. In total, 80% of transit traffic passing through Mombasa Port is destined to or originated from Uganda, followed by Tanzania, DRC and Rwanda (about 5% each) and Sudan (3.4%).

Although there have been improvements in the past couple of years, the Port of Mombasa has been beleaguered by inefficient cargo clearance processes causing delays and rendering the port expensive and uncompetitive. This scenario which is caused by cumbersome documentation, cargo clearance and customs procedures has contributed to the high costs of maritime transport logistics along the Northern Corridor and increased the cost of doing business in Kenya and the region as a whole.

Although Kenya Revenue Authority (KRA) and Kenya Ports Authority (KPA) have introduced computerized systems in their operations, delays are still prevalent due to lack of complete integration between the two systems and frequent system failures. Port operations are also hampered by lengthy customs procedures which otherwise are not conducive for attracting business at the Port of Mombasa. The clearing processes at Mombasa Port, Container Freight Stations (CFS) and customs procedures remain the main sources of delay and high logistics costs for the Northern Corridor. As described in the report, there are more than twenty-nine (29) clearance steps to import containers through Mombasa Port which are destined for the Kenyan market, and twenty-seven (27) steps for clearance for transit containers. Overall, the multiple and duplicated steps which are required to clear both local

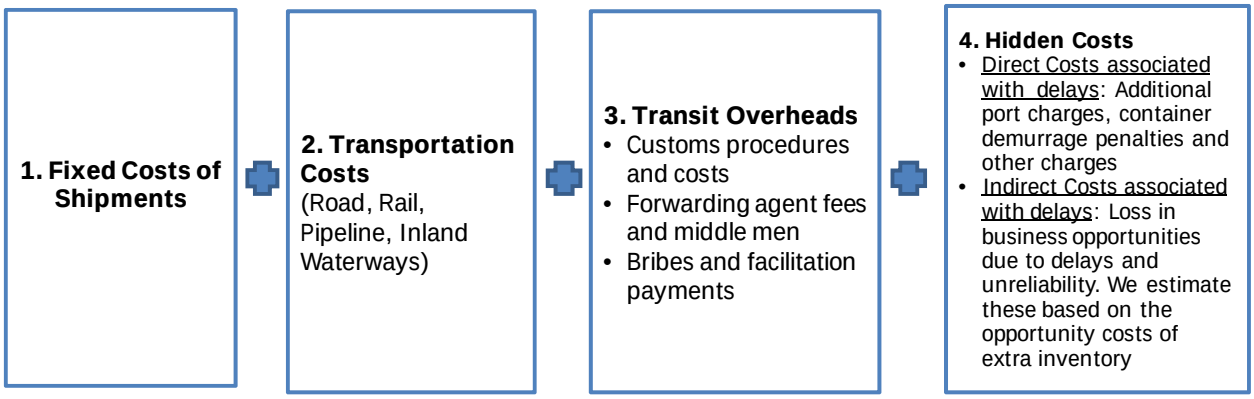
and transit containers illustrate the reasons for delays along the logistics chain, and the reason why port / customs clearance through Mombasa was sited by most stakeholders as the leading barrier to smoother transit flow in the region.

While KPA charges are not strongly contested by the shipping community and were recently established by KPA at competitive levels, there are a number of additional charges which customers are being subjected to by the shipping community and which are perceived as being harmful to the economies of Kenya and other EAC countries which are served by the Northern Corridor. A wide range of additional charges from shipping lines (on top of sea freight costs) are seen as exorbitant and unjustified. Furthermore, in spite of KPA setting the tariffs for use by the CFS operators to match those applied in the port, there is evidence to suggest these tariffs are not always being adhered to. In addition, CFS locations are increasingly congested, leading to greater delays in clearance, which in turn is causing importers to pay higher demurrage and storage charges. To address the perceived unfairness and duplication of functions in port processes, the new Kenya Maritime Authority (KMA) has developed regulations to introduce some oversight on commercial fairness in the industry. These are expected to be implemented in 2011.

Logistics Costs Analysis

Our methodology to estimate total logistics costs across the five Northern Corridor countries and Southern Sudan is based on a sum of components illustrated in the figure below.

Figure ES-1: Components of Logistics Costs



Based on this structure, we developed a full and comparative logistics costs analysis for import movements by road for a twenty foot (20') container along six of the main routes of the Northern Corridor:

- Mombasa – Nairobi
- Mombasa – Kampala
- Mombasa – Kigali
- Mombasa – Bujumbura
- Mombasa – Goma
- Mombasa – Juba

We also prepared a logistics cost analysis for the recently opened road route from Mombasa to Kisangani, via Beni, in eastern DRC (until recently most goods transported to Kisangani were airlifted from Goma, Beni or Busia).

For each route we assumed a common sea freight shipping charge of US$1,700 per 20' container, based on movement a container of consumer goods from Singapore to Mombasa. Although sea freight charges vary depending on the origin of goods (e.g. Singapore, Europe, Durban, etc) and other factors, this shipping charge was considered close to the average and representative of a movement of typical household goods.

For each route we also analysed the direct and indirect costs of moving goods through the Port of Mombasa, including the formal costs associated with shipping line charges, KPA, KRA, CFS, clearing agent charges, and other costs (such as transit bonds).

For the land transport component of each route, we reviewed in detail the vehicle operating costs (VOCs) faced by transporters, and the tariffs which they charge for movement of goods, for small/informal, medium and large sized companies. On average, fixed costs make up 36% of VOCs for regional operators and variable costs make up 64% of total VOCs. The fact that fixed costs are only one-third of VOCs supports conclusions from previous literature and is not surprising given the relatively low cost of salaries, overheads, and the advanced age of vehicles (and therefore depreciation) along much of the Northern Corridor. The VOCs ranged from US$0.09 / Tkm to US$0.149 / Tkm. There were of course differences in costs for different types of transport companies (small/informal, medium and large), and our analysis takes this into consideration.

The figure below summarises the average VOCs and transport tariffs for movement of a 20' container from Mombasa to the main destinations along the Northern Corridor. Overall, road transport costs accounted for between 13% and 37% of total logistics costs for importing goods.

Figure ES-2: Summary of Road Transport Indicators, 20' Container

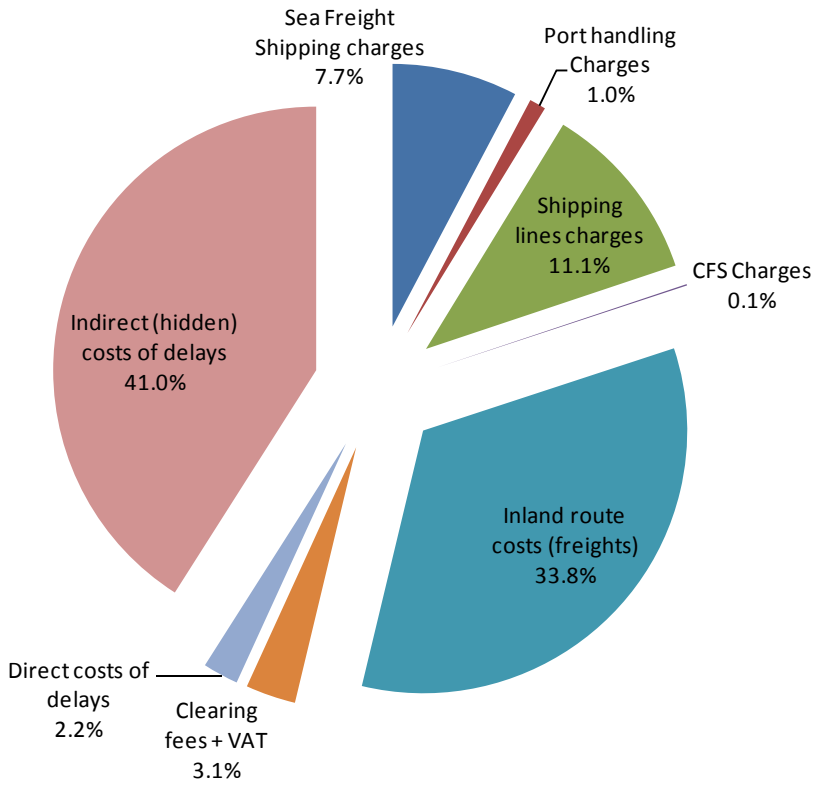
Route	Distance (km)	Average VOC / Tonne-Km (US$)	Average Road Transport Tariff (US$)	Road Transport as % of Total Logistics Costs
Mombasa – Nairobi	430	0.129	$1,300	13%
Mombasa – Kampala	1,170	0.145	$3,400	22%
Mombasa – Kigali	1,700	0.094	$6,500	33%
Mombasa - Bujumbura	2,000	0.090	$8,000	36%
Mombasa – Goma	1,880	0.094	$9,500	35%
Mombasa – Juba	1,750	0.149	$9,800	37%

We also considered the costs of direct and indirect delays, which accounted for the largest component of the total logistic costs. Costs associated with direct and indirect delay costs accounted for an average of 43% of total logistics costs, of which hidden costs account for 41%. Hidden costs include the costs related to additional cargo dwell time and the opportunity costs of extra inventory held due to unreliability of the transport chain. Our conclusions in this area are in line with recent literature and other studies in this area for the Northern Corridor and other corridors.

Globally, the total logistics costs for movement of a 20' container inland from Mombasa range from a minimum of US$ 9,844 for a domestic transport from Mombasa to Nairobi to a maximum of US$ 26,829 for movement from Mombasa to Juba. Those amounts are very high and represent 5 to 15 times the sea freight charges. As mentioned above, costs associated with direct and indirect delays (including hidden costs) account for 2% and 41% of the total logistics costs, respectively. The second highest component of total logistics costs is from road freight transport, averaging 34% of total logistics costs. This is due to the high vehicle operating costs and the high cost of fuel in particular. Shipping line charges at Mombasa Port account for 11% of total logistics costs, many of which are considered high and unjustified. The sea freight shipping charges represent only 8% of total logistics costs, reflecting the common idea that inland costs on the Northern Corridor are much higher than sea freight costs. Finally, port handling charges, clearing agent fees and VAT account for 4% in total.

The following graph illustrates the breakdown of the Northern Corridor logistics costs.

Figure ES-3: Northern Corridor Logistics Costs Structure



Railway Transport

Railway transport is the second most important mode of freight transport along the Northern Corridor, after road transport. Rail is particularly suitable for transporting bulky and heavy commodities over long distances. The metre-gauge railway extends from the Port of Mombasa in Kenya to Kampala, Uganda, with a series of shorter branch lines.

On November 1, 2006 the Kenyan Government /KRC and the Ugandan Government / URC signed two separate concession agreements for management and operations of the railway services with Rift Valley Railways (RVR). RVR manages the mainline freight and passenger services between Mombasa, Kampala and a selection of branch lines. They also have responsibility under their concession agreement for operating rail ferries on Lake Victoria, none of which are currently active. RVR took over the operations of the network with various ailments ranging from missing or worn-out components and obsolete parts that to date have only been partially corrected. The performance of the railway since the concession agreement was awarded (and indeed prior to the signing of the concession agreement) has been declining steadily. Traffic levels which averaged 3.5 million tonnes per year in the early 1990s, declined to 2.3 million tonnes by the year 2000, and fell to 1.65 million tonnes in 2008.

The tariff for transporting goods by rail depends on the distant transported, type of product and on the size/weight of the container being transported[1]. RVR has an internal costing program to estimate the cost of specific moves and determine its tariff rates, which they did not share with our consulting team. We therefore estimated their operating costs per Tkm on the basis of their financial ratios to be between US$0.06 – US$0.073 / Tkm (4.5 to 5.0 Kenya Shillings per TKm).

Transport of Petroleum Products

A major concern for the region and especially for landlocked countries has been security of supply of petroleum products, fuel prices and capacity of product transportation/distribution infrastructure. East and Central African countries are net importers of petroleum products, and especially the refined petroleum products and crude oil processed at the Kenya Petroleum Refinery Ltd in Mombasa. The transportation and distribution of petroleum products in the region is through a network of the oil pipeline managed by Kenya Pipeline Company (KPC), transport by railway, by roads and (previously) through lake transport systems.

The existing pipeline system transports over 90% of the products consumed in Kenya and about 80% of the petroleum products consumed by the neighbouring countries of Uganda, Rwanda, Burundi, Northern Tanzania, eastern DRC and Southern Sudan. The current pipeline system has experienced capacity constraints, which has led to oil marketers uplifting their products at Mombasa/Nairobi using the more costly road and rail options. Based on an all inclusive pipeline tariff of 4.5 KSh (US$0.06) per cubic meter-kilometer, a maximum

[1] From Mombasa to Kampala the approximate tariff by rail is US$ 1408 (20' container) and US$ 2552 (40' container).

product loss ratio of 0.25% (as reported by KPC and confirmed by shippers), and a KPC operating profit margin averaging 44% over 2007/8 and 2008/9, our estimate of its operating cost is 3 KSh (US$ 0.04) per tonne-Km.

Inland Waterways

Inland waterway transport is an important mode of intermodal transport which can provide a means of coping with congestion in road infrastructure, as well as addressing air pollution concerns. Although Lake Victoria is strategically located at the convergence of two major transport corridors in the East African region, namely, the Northern Corridor and the Central Corridor, the potential of its marine transport has not been fully exploited. The competitiveness of inland waterway shipping, as one link in a transport chain, is dependent on the functioning of the entire corridor transport system, and especially rail transport.

Inland waterway transport operations are presently limited due to low investment in vessels. Most of the vessels which used to ply Lake Victoria have either broken down or been surveyed and disposed of and there is currently only two operational ferry services on Lake Victoria. One ferry service is offered by Tanzania and focused on Mwanza port and movements of goods in the Central Corridor; the other operational ferry MV Uhuru is operated by RVR through a concession with KRC. However, it only recently started operating again (September 2010) after over 5 years out of service. The Ugandan government also owns three rail ferries which would operate from Port Bell outside Kampala. None are currently operational.

Another constraint to inland water transport is the low capacity of the Nakuru-Kisumu railway track which makes the port of Kisumu route less attractive for transit to Uganda and other land-locked countries. The track branching from Nakuru to Kisumu, though an important route connecting Kenya to both Tanzania and Uganda via water transport on Lake Victoria, can only support low axle loads. Since there were no Kenyan or Ugandan rail ferries operating on Lake Victoria during our study, and the MV Uhuru managed by RVR only re-started operations in September 2010 (previously inactive since 2006), there were no recent operating costs available for this service and we based our estimation on the most recent costs study available[2].

Summary Comparison of Operating Costs by Mode

The following table synthesizes the operation costs per tonne-km for each major inland transport mode in US$ and Kenya Shilling (KSh).

[2] CENTRAL DEVELOPMENT CORRIDOR (CDC) REGIONAL SPATIAL DEVELOPMENT INITATIVE PROGRAM (RSDIP) - INTEGRATED TRANSPORT STRATEGY – LAKES TANGANYIKA AND VICTORIA - Marine Logistics Limited - February 2009

Figure ES-4: Operating Costs per Tonne-Km by Mode

	Road	Rail	Pipeline
Operating Cost per Tonne-km (US$)	0.112	0.068	0.043
Operating Cost per Tonne-km (KSh)	7.83	4.75	3
Difference in % compared to pipeline	260%	158%	n/a
Difference in % compared to rail	165%	n/a	63%

The conclusions which can be drawn from our analysis are as follows:

- The pipeline mode is the cheapest mode of transport (US$.043 per T-km), followed by the rail mode (US$.068 per T-km) and then the road (US$.112 per T-km);
- The operating costs of the road are 260% higher than the pipeline and 165% higher than the rail; and
- The rail operating costs are 158% higher than for pipeline.

These conclusions are in line with many other studies on the Northern Corridor, although not in the same proportions.

Comparison with Other Corridors

When evaluating and assessing the performance of any system, it is always useful to compare performance with other similar systems elsewhere in the world. A comparative analysis across transportation logistics systems can help identify performance differences and the underlying factors behind them, helping policy makers place their particular situation in context. As part of this study we undertook a review of the following five corridors, considering the infrastructure available, institutional framework and freight cost structures for each corridor:

- East Africa: Central Corridor (Dar es Salaam to Rwanda, Burundi, DRC)
- Southern Africa: Southern Corridor (Mozambique to South Africa)
- West Africa: Tema (Ghana) to Ouagadougou (Burkina Faso)
- Asia: East West Corridor (Vietnam, Laos, Thailand, Myanmar)
- Latin America: Bolivian Corridor

For each of these corridors, we undertook desk-based research on institutional and operational structures of the transport industry and transport and logistics costs. Where available we presented data on the time and cost of each stage of the logistics chain, from port entry to final destination. The benchmarking results according to several performance criteria are presented in a final table. The Northern corridor is performing less well than most of the other corridors on almost all the criteria.

Prioritized Policy Measures

We conclude the report by presenting a series of prioritised policy measures to enhance transit movement across the Northern Corridor, lower logistics costs, and enhance the competitiveness in the region. A set of policy measures is presented for each sector in matrix format, indicating whether the priorities are low, medium or high priority. The policy measures are based on our extensive consultations in the region as well as existing literature and research on the barriers to trade in the Northern Corridor. In the figure below, we present a summary of the priority actions we have recommended across each sector.

Figure ES-5: Matrix of Priority Actions

Issue	Action Required	Priority
Maritime / Port Clearance		
Enhance goods clearance and tracking system	• Enhance SIMBA to reduce downtime and failures which lead to major delays • Develop single window system to link entire port community • Integrate KRA/SIMBA 2005 and KPA/KWATOS with other systems under the Manifest Management System • Enable electronic changes to ship manifest online to encourage preparation of customs clearing information well before ship arrives • Ensure Port, CFS, appointed banks and other stakeholders involved in cargo clearance operate 24 / 7.	High
Enhance CFS performance system	• Monitor CFS charges to ensure they reflect KPA charges • Monitor CFS performance to ensure delays are not created unduly to generate additional revenues from storage • Develop container allocation / nomination system from Port to CFS which is transparent and based on supply and demand, not preferential treatment • Consider whether KPA could / should be the facilitator for CFS transactions, rather than requiring shippers to deal with CFS's directly	High
Reducing shipping lines and port charges	• Eliminate or reduce unjustifiable port and shipping lines charges. • Support implementation of regulations developed by KMA to create more efficiency and equity in maritime environment and charges	High
Restructuring / improvement of port operations	• Reduction and simplification of cargo clearance and documentation procedures • Transformation of the port into a landlord port status • Promote private sector participation in stevedoring, storage and shore handling operations at the port • Introduce gate complex which involves prior registration of trucks and drivers entering the port and quicker movement of vehicle in/out of the port through bio-data identification, installation of transponders and cameras.	Medium
License Additional Grain Handling conveyors at Mombasa Port	• Consider licensing additional private companies to provide grain handling through modern conveyor system • Address any challenges around delays at GBHL and monopolistic pricing	Medium

Issue	Action Required	Priority
Automation of Cargo Releases	• Consider automation of customs cargo releases at Port of Mombasa for transit goods • Station Northern Corridor country revenue agency personnel in Mombasa to collect taxes (as an interim step prior to full implementation of Customs Union) • Eliminate need for Transit Bonds or ensure regional COMESA Regional Bond Guarantee Scheme is enforced by national governments	Low
Road Sector		
Axle-Load Regulations	• Harmonize implementation of Axle load regulations and policies across the TTCA countries, so that axle load controls are uniform in all countries of the Northern Corridor. The Axle-loading regime should fall within a regional programme, based on recommendations already passed by the COMESA-SADC-EAC tripartite. • Encourage financial institutions to offer favourable credit to businesses to invest in new vehicles compatible with Axle road regulations (when regulations change, as has been the case in Kenya in the past 3 years, transporters are forced to invest in new equipment) • Strictly enforce axle load regulations and eliminate corruption at weighbridges • Penalise shippers, not just transporters, for overloading practices.	High
Elimination of delays due to weighbridge processes, police checks	• Immediately implement Presidential Directive (Kenya) limiting unnecessary stops at weigh bridges for transit vehicles • Reduce number of weighbridge stops required in each country • Computerize weighbridges, with close monitoring by a central agency in each country • Use weigh in motion scales and weigh group of axles (not single axle) • Reduce frequency of police checks which cause delays (and therefore costs)	High
Improving professionalism in the road transport industry	• Regulating the transit transport and freight forwarding licensing system • Increasing the role and activities of the Transport associations and Freight forwarding associations • Increasing credit access to informal and small transporters • Organizing training sessions for drivers and freight forwarders to improve professionalism (e.g. fuel siphoning; “briefcase” clearing agents)	High
Change “Transit Goods” licensing regulations	• Change EAC licensing regime, which only allows “Transit Goods” vehicles to transport transit goods, in order to enhance productivity, avoid waste and decrease costs.	Medium

Issue	Action Required	Priority
Implement regional "Transit Bond" and other customs policies across Northern Corridor	• Support implementation of COMESA Regional Customs Bond Guarantee Scheme to enable one customs bond accepted by all countries in the region. • Support harmonized implementation and respect of regional customs agreements across Northern Corridor countries.	Medium
Safety and Security	• Increase number of secure off-road parking areas (to reduce number of accidents at night from trucks parked on the road) • Offer better / safer overnight services for truck drivers to keep them from unsafe practices (e.g. alcohol consumption, risks of HIV/AIDS, theft) • Ensure minimum vehicle quality and maintenance standards are upheld for vehicles/trucks licensed to carry transit traffic on Northern Corridor roads.	Medium
Rehabilitation of the road infrastructure	• Ensure Mombasa-Nairobi road is maintained, so that users continue to benefit from recent investments • Complete Nairobi by-passes • Improve road to South Sudan to enhance safety and lower logistics costs • Coordinate road sub-sector development and maintenance • Ensure sustainable and adequate funds for road infrastructure construction, rehabilitation and maintenance, particularly in DRC.	Low
Rail transport		
Establishment of an appropriate regulation framework	• Provide for a legal framework that encourages fair competition among the modes.	High
Promoting multi modal transport through integration of railway systems with other transport modes	• Initiate a long-term railway development programme that will provide efficient and reliable rail capacity	Medium

Issue	Action Required	Priority
Introducing intermodal full infrastructure pricing policy	• Exonerate the railway users from paying the Road Maintenance Fuel Levy which is used for highway maintenance. Alternatively, consider either placing the fuel levies into a multi-sector "Infrastructure Fund" which could be used for rehabilitation in all infrastructure sectors, not just road, or rebating fuel taxes to the rail operator.	Medium
Development of ICT use in railways operations	• Expand the Rail tracker train operation information system • Implement comprehensive integrated information and communication technology systems	Low
Inland waterways		
Promotion and development of inland water transport on Lake Victoria in order to divert cargo from road to rail and marine transport.	• Developing an integrated multi-modal transport system in the Northern Corridor to facilitate regional trade between EAC partner states and with the land-locked countries in the Great Lakes region • Promote private sector participation in the provision of inland water transport services	High
Development of infrastructure and water transport services	• Upgrade the Mau Summit-Kisumu rail section to enable high capacity locomotives to ply the Nakuru-Kisumu branch line • Encourage investment in the provision of water transport services • Support procurement of new ferries (already started in Uganda)	High
Safety and Security	• Ensure safety of passengers and goods on Lake Victoria • Harmonize safety and security regulations in the region • Promote environmental safety in the management of inland water transport	Medium

Issue	Action Required	Priority
Pipeline		
Institutional and regulatory framework	• Enact appropriate legislation that will govern the development and operation of the pipeline transport system. • Ensure that the KPC tariffs are competitive. • Ensure the integration of pipeline transport mode with other modes, particularly railway and road transport.	High
Provision and maintenance of adequate infrastructure for an efficient and sustainable pipeline transport network that is competitive within the Northern Corridor	• Encourage private sector participation in the provision of pipeline infrastructure and in the operation of services • Ensure development of common user facilities that are convenient and compatible to all modes of transport.	Medium
Pipeline management	• Encourage the utilization of ICTs in product monitoring and management • Develop and enforce energy saving measures that will focus on energy conservation and efficiency • Streamline the operations of KPC with a view to ensuring that it operates in the most efficient manner. • Enhance capacity building within the pipeline industry.	Medium
Safety and security	• Ensure security for pipeline infrastructure to enhance reliability.	Low

Implementation and Monitoring

In the final chapter of the report we address policy implementation and monitoring indicators, highlighting the required conditions for successful implementation of the policy recommendations and matrix of actions and for efficient management of the Northern Corridor. These include:

- Promoting peace and security;
- Increased investment to improve transport infrastructure and related facilities;
- Improved intermodal coordination;
- Establishment and improvement of information technologies;
- Effective implementation of regulatory frameworks; and
- Strengthening institutional support systems.

We also suggested a number of corridor performance indicators to monitor the Northern Corridor performance on three levels:

- Quality and competitiveness of transport and logistics services;
- Capacity and condition of public infrastructure used by these services; and
- Domestic, bilateral, and sometimes, multilateral regulation of these services and the trades that they serve.

1 Introduction

1.1 Background

In a world where outsourcing is increasing rapidly, high trade costs represent a formidable handicap, isolating countries and preventing them from reaping the benefits of globalization, as their exports become less competitive and their imports more expensive. The worldwide reduction in barriers to trade has facilitated exports for many countries; however for developing countries in the East Africa region, international transport costs often prove to be far greater impediments to trade than the tariffs they face. These freight costs contribute significantly to overall high trade costs for the region and constrain growth in trade volumes.

Efficient and well-integrated transport infrastructure is crucial for unlocking economies of scale and sharpening competitiveness, especially for the landlocked countries. Competitiveness is important for the survival of all business enterprises. It is a factor of many parameters, most notably production costs and transportation costs.

Transport corridors have over the past two decades gained particular attention with growing efforts for regional integration in Africa and elsewhere. African Union programs such as NEPAD and the programs of the Regional Economic Communities all place priority on enhancing interconnectivity and facilitating trade by focusing on transport corridors as microcosms of integration and spatial development on the continent. These corridors are characterized by the role they play as critical economic links between countries and communities, and particularly so for the development of landlocked nations along the corridors.

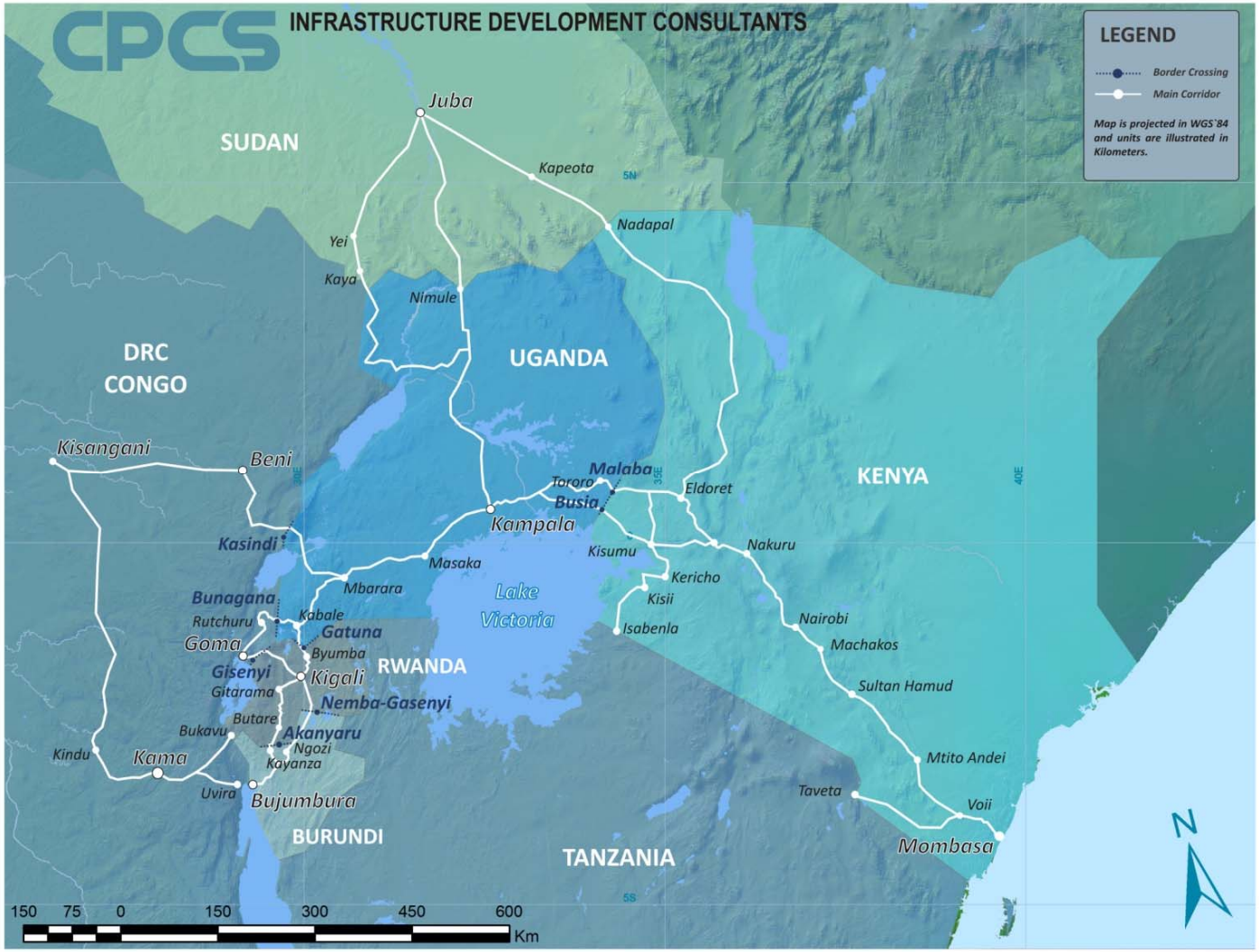
Estimates for a standard 20-ft container show that the median landlocked country's transport costs are 46 percent higher than the equivalent costs for a median coastal economy. Moreover, distance explains only 10 percent of the change in the transport costs between coastal and landlocked countries. Poor road infrastructure represents 40 percent of the transport costs for coastal countries and 60 percent for landlocked countries.
Source: Supee Teravaninthorn and Gaël Raballand "Transport prices and costs in Africa: a review of the main international corridors" -World Bank report-2009

In the East Africa region, transit traffic to and from landlocked countries entails passing through the Port of Mombasa in Kenya or the port of Dar-es-Salaam in Tanzania (the coastal countries). From these two ports has evolved what has been called the Northern and Central Corridors, respectively. The two corridors comprise the rail, road, inland waterway and pipeline infrastructures linking Mombasa and Dar-es-Salaam to the landlocked countries.

The Northern Corridor links the port of Mombasa with the landlocked eastern and central African countries of Uganda, Rwanda, Burundi and the Democratic Republic of Congo (DRC). It also links to Southern Sudan, Ethiopia and Northern Tanzania. The Corridor primarily consists of the rail network from Mombasa to Kampala and the road routes from Mombasa via Malaba and Busia to Kampala, Kigali (Rwanda), Bujumbura (Burundi) and Goma and Kisangani in eastern DRC. It also includes road links to Juba in South Sudan, via Nadapal, Nimule and Kaya. The transport network can also be considered to include the oil pipeline

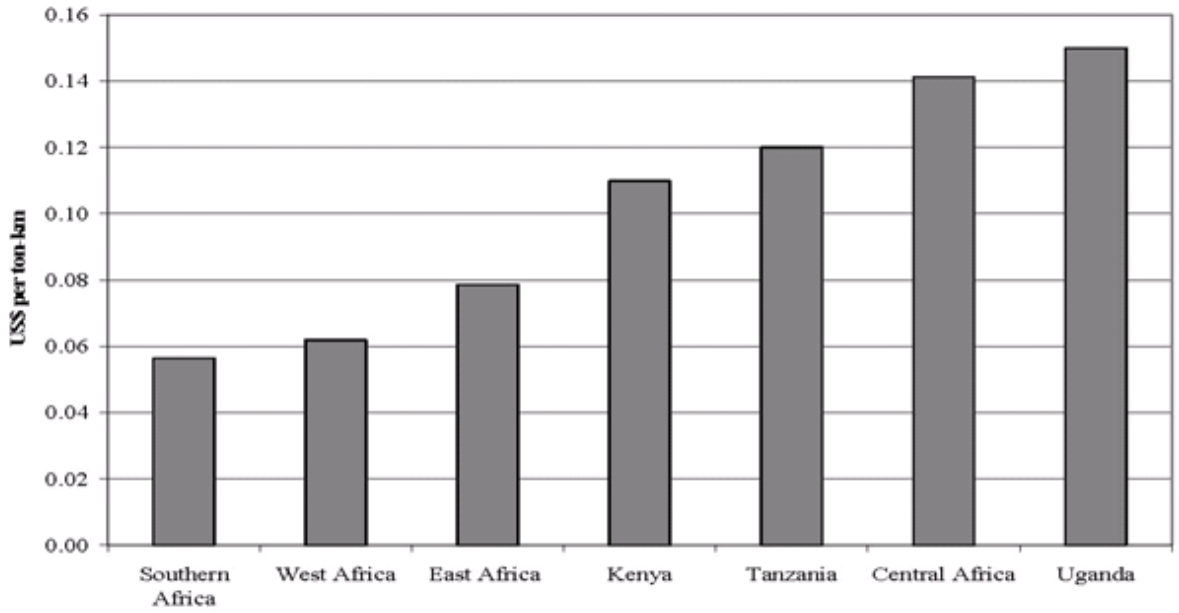
from Mombasa to Nairobi, Eldoret and Kisumu, and the inland waterway system on Lake Victoria. The road network is illustrated overleaf.

Figure 1-1: Northern Corridor



The Northern Corridor carries significant quantities of inter regional and domestically traded commodities to the main urban centres in the region. Average transport costs along the corridors in East Africa are considerably higher than those in West Africa and Southern Africa, and domestic transport costs even higher (see Figure 1-2). These high transport costs are brought about through a combination of poor infrastructure, high fuel costs, older, inefficient trucks and considerable delays at border points and various check points along the main routes. However the transport industry in East Africa is also considered highly competitive and any improvements in the costs and time of doing business will be reflected in lower transport costs.

Figure 1-2: Comparison of transport costs around Africa, US$ per ton-km



Source: African Development Report 2010: Ports, Logistics and Trade in Africa

1.2 Northern Corridor Institutional Arrangements

The Northern Corridor Transit Agreement (NCTA) is a 1985 treaty between the Member States of the corridor providing a legal framework for cooperation on issues related to trade and transit between the member states. The signatories to the NCTA are Burundi, DRC, Kenya, Rwanda and Uganda (DRC became a signatory in 1987). South Sudan currently has observer status, and is expected to become a full member in 2011. The organs of the NCTA are the Authority (a Council of Ministers responsible for Transportation) referred to as the Northern Corridor Transit Transport Coordination Authority (NCTTCA), assisted by an Executive Board of senior officials and the Secretariat headquartered in Mombasa, Kenya.

The main objective of the NCTA is that the member states should guarantee each other free passage of transit traffic through their respective territories. The vision of the NTCA is to make the Northern Corridor the most cost-effective corridor in East and Central Africa to enhance the sub-region's competitiveness in the global market.

Substantial progress has been made since the NCTA was signed, resulting in a significant reduction of transport costs along the corridor. There are, however, still numerous impediments on transit traffic requiring additional policy development and implementation initiatives to further reduce costs.

1.3 Objectives of this Study

CPCS Transcom (CPCS) was engaged in July 2009 by the NCTTCA to undertake this study, entitled "Analytical Comparative Transport Cost Study along the Northern Corridor Region". Work on the study began in September 2009.

The overall objective of the study is **to enable the NCTTCA to reformulate policy that will result in the reduction of high transport costs along the Northern Corridor and to guide investment in transport infrastructure**. In our understanding, the aim is thus to assist the NCTTCA and Member States in fully understanding and quantifying the high logistics costs of the Northern Corridor countries, and to propose appropriate policy and other measures to reduce these costs in order to increase trade and the region's competitive position.

To achieve the project's overall objective as stated above, the Terms of Reference (TOR) set out a number of Specific Objectives (see TOR in Appendix A):

i. Quantify costs throughout the logistics chain along the Northern Corridor.
ii. Provide comparison of the costs and freight rates in relation to the Central Corridor and other Corridors in Southern Africa, Asia, and Latin America.
iii. Conduct an analytical study of total logistics costs along the Northern Corridor, including internal costs to carriers and external costs (mainly public facilities costs) but also with consideration to congestion, delays, storage, inventory, and accidents.
iv. Propose, based on the assessment, a prioritized set of policy, institutional, financial, and investment measures to reduce transport costs and improve mobility along the corridor[3].
v. Quantify vehicle operating costs, as well as other factors contributing to transit costs, along the Northern Corridor, in comparison with the Central Corridor.
vi. Define benchmark (baseline) costs, for the purposes of monitoring changes as a result of policy reforms and the implementation of the Northern Corridor Programs and activities.
vii. Compile and analyse data on intra-regional trade freight volumes and logistics costs.
viii. Carry out an analysis in terms of relative reliability and safety of the road/rail and pipeline modes of transport.

[3] Note that the TOR requirement to "establish long term cost of provision and maintenance of infrastructure over the appropriate life span relating to road, rail and pipeline modes of transport" was transferred the Transport Master Plan Study started in September 2009 which is being prepared by Louis Berger Group. This was discussed during contract negotiations held at the NCTTCA headquarters in Mombasa on 6 & 7 July, 2009.

ix. Use the findings of the study to propose necessary policy changes with the view to cutting down costs.

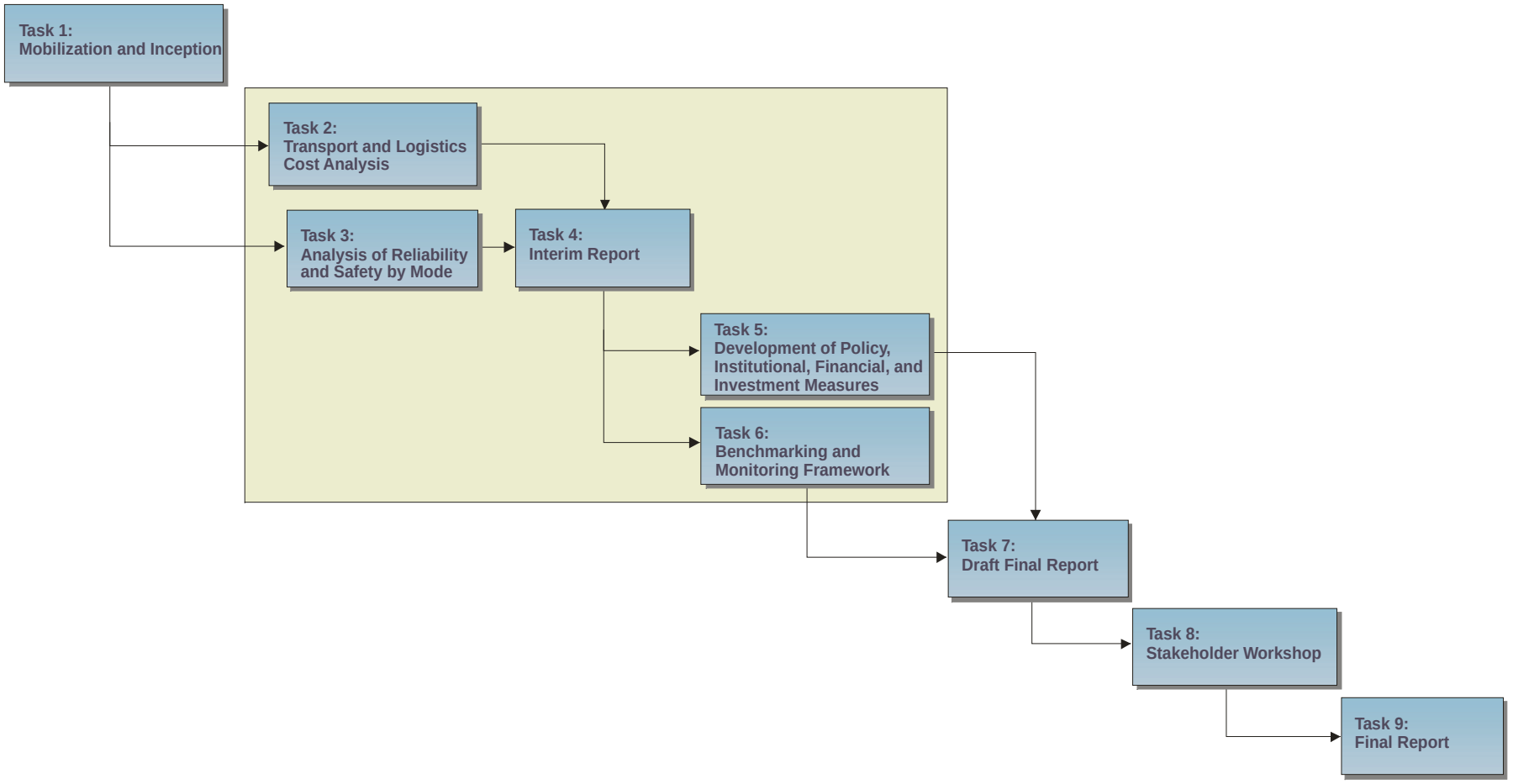
1.4 Study Work Plan

To achieve the objectives of the study, CPCS developed a work plan comprising the following nine high level tasks, as presented in our technical proposal:

- Task 1: Mobilization and Inception
- Task 2: Transport and Logistics Cost Analysis
- Task 3: Analysis of Reliability and Safety by Mode
- Task 4: Interim Report
- Task 5: Development of Policy and Institutional measures
- Task 6: Benchmarking and Monitoring Framework
- Task 7: Draft Final Report
- Task 8: Stakeholder Workshop
- Task 9: Final Report

The Figure overleaf illustrates the framework of the study and the relationship between the tasks. The methodology we used to complete the study is set out in Chapter 2 of this report.

Figure 1-3: Workplan Framework



1.5 Structure of the Report

This Report includes all of our analysis, research and recommendations undertaken as part of the study, and is the core deliverable for the assignment.

According to our TOR and the outputs of our discussion with NCTTCA during the inception mission, we focused on emphasis on the diagnostics and analysis of the logistic costs structure of each country of the Northern Corridor region: Kenya, Uganda, Rwanda, Burundi and East DRC. We also included analysis of Southern Sudan. For each country, we looked at the macroeconomic performance, the institutional organisation of the transport sector, the main traffic per dominant commodities and origin-destination, the vehicle operating costs, the direct and indirect (hidden) costs of delays and the structure of the total logistics costs.

The remainder of this report is structured as follows:

- **Chapter 2:** Review of approach and methodology
- **Chapter 3:** Mombasa port performance, transit costs and customs procedures
- **Chapter 4:** Northern corridor logistics costs for Kenya
- **Chapter 5:** Northern corridor logistics costs for Uganda
- **Chapter 6:** Northern corridor logistics costs for Rwanda
- **Chapter 7:** Northern corridor logistics costs for Burundi
- **Chapter 8:** Northern corridor logistics costs for Eastern DRC
- **Chapter 9:** Northern corridor logistics costs for Southern Sudan
- **Chapter 10:** Railways Transport costs and performance
- **Chapter 11:** Pipeline Transport costs and performance
- **Chapter 12:** Inland waterways Transport costs and performance
- **Chapter 13:** Comparison of Operating Costs by Mode
- **Chapter 14:** Benchmarking with International Corridors (summary analysis)
- **Chapter 15**: Prioritized Policy Actions
- **Chapter 16:** Policy implementation and monitoring framework

Volume 2 of this Final Report (bound separately), includes the following Appendices:

- Appendix A : Terms of Reference
- Appendix B: Summary of Kick-Off Meeting
- Appendix C: Stakeholders Interviewed
- Appendix D: Benchmarking Comparison with International Corridors (full analysis)

2 Key Methodological Issues

In this Chapter we set out the key issues and methodology we used for each step in our comparative analysis of logistics costs in the Northern Corridor region. Our approach to analysis of the supply chain follows the approach developed by Baumol[4] and recently applied to the circumstances of Land Locked Developing Countries (LLDCs) by experts from the World Bank[5].

Our methodology and approach was based on the following three pillars:

- Preliminary data gathering from existing information / reports;
- Building on the data with extensive interviews across the region; and
- Analysing data and developing comparative transport logistics costs using a robust and consistent economic approach.

Each of these pillars is discussed below.

2.1 Approach to Data Gathering and Inception Meeting

Our approach to data collection and literature review for this study was based on starting from a review and analysis of what exists already in current / previous studies, and obtaining additional data from public sources and contacts, through interviews and field research. Our first task was to gather as much public data and information as possible prior to travelling to the field. This was to ensure that we understood a number of the key issues and developed our methodology for discussion with the Client prior the Kick-Off meeting.

There have been numerous studies conducted on transport infrastructure and the severe burdens that landlocked countries in East Africa have to bear. These studies include those conducted/ commissioned by the NCTTCA, the East African Community (EAC), the United Nations Conference on Trade and Development (UNCTAD), the New Partnership for Africa's Development (NEPAD), the Common Market for Eastern and Southern Africa (COMESA), the United Nations Economic Commission for Africa (UNECA), the United States Agency for International Development (USAID), the World Bank and Sub-Saharan Africa Transport Policy Program, and government statistics.

We reviewed the available collected data and looked primarily for information directly relevant to the study. Based on our initial analysis, we identified and communicated to NCTTCA a list of additional data and statistics which we sought support in collecting.

[4] Baumol, W.J. and Vinod, H.D. (1970), 'An Inventory Theoretic Model of Freight Transport Demand", *Management Science*, Vol. 16, No. 7, p. 413-442.
[5] Arvis, J.-F., Raballand, G. and Marteau, J.-F. (2007), "The Cost of Being Landlocked: Logistics Costs and Supply Chain Reliability", *World Bank Policy Research Working Paper 4258.*

With the preliminary data gathering and review undertaken in September and October 2009, we mobilized our team and undertook an Inception Mission to field from the 10th of November to December 1st, 2009.

The purpose of the Inception Mission was to:

- Participate in a Kick-Off Meeting with NCTTCA to discuss and receive any concerns and comments that the NCTTCA may have regarding the project as well as identify any issues that may need a quick resolution or clarification to avoid any obstacles to the progress of the assignment;
- Review the progress of the data collection exercise and identify the gaps;
- Refine our interview methodology and survey questionnaires;
- Establish communications procedures with the primary contacts of the NCTTCA and other key stakeholders including the Northern Corridor member country focal points; and
- Undertake a number of interviews in Kenya and Uganda.

During the Kick-Off Meeting we discussed a range of issues related to the implementation and coordination of the study. The most salient points discussed at the Kick-Off meeting and integrated into our methodology are summarised in **Appendix B**. The results of our discussion with the NCTTCA were reflected in our final approach and work plan.

2.2 Approach to Interviews and Field Research

Immediately after the Kick-Off meeting, we began our field research, starting in November 2009. Between November 2009 and April 2010, field visits were held in Kenya, Uganda, Burundi, Rwanda, and Eastern DRC by members of our team. **Over the course of this six month period, we held interviews with over 200 stakeholders across the NCTTCA Region**, including: public agencies (e.g. NCTTCA, Kenya Transport Association, Kenya Port Authority, Kenya Railways Corporation, Uganda Railways Corporation, customs agencies), Rift Valley Railways, Kenya Pipeline Company, transporters, truckers associations, freight forwarders, and shipping associations in the Northern Corridor region. A list of stakeholders consulted is included at **Appendix C**.

To supplement information from interviews, we also arranged a trial run from Mombasa to Kigali on board a transporter's truck to measure all the physical barriers and delays along the journey, whether related to infrastructure conditions, road blocks, weighbridges, border crossings, etc.

2.2.1 Sampling Methodology

The NCTTCA emphasized the importance of CPCS interviewing an adequate and statistically valid sample size across all of the stakeholders along the Northern Corridor transit route. In addition to public agencies, this included a representative sample of: transporters, shippers, terminal operators, freight forwarders, and other private sector stakeholders. The CPCS approach was to undertake all of our interviews **in person through face-to-face meetings**. This approach ensured we obtained the specific technical and cost data we required, but also that we understood, through qualitative discussions, the key operational and institutional challenges to transport and transit along the Northern Corridor.

In terms of what constitutes an adequate sample size for the pipeline, port, inland waterway and railway sectors, it was noted by CPCS and agreed by the NCTTCA that the sample size selection was relatively easy to define. Essentially all of the key stakeholders were contacted for interviews, given the limited number of operators in these sectors (e.g. there is only one pipeline company). It should be noted however that some public operators raised issues around confidentiality of information, namely as it regards effective revenues, operating costs, performance statistics, etc.

Our approach to interviews regarding highway transportation involved numerous companies and operators. In terms of sampling methodology for the road sector and for complimentary stakeholders (e.g. forwarders, shippers) it was agreed that the population of interest is not so much based on the number of vehicles or journeys on the corridor, but rather on the structure of the industry. Our methodology needed to ensure that our interviews adequately captured the breadth and role of numerous different types of operators/stakeholders along the Northern Corridor, whether they are public (Ministries, Revenue Authorities, customs), private sector associations or private operators (shippers, consignees, transporters, freight forwarders, insurance, etc.). For each country of the Northern Corridor, we interviewed a sample of transporters/shippers that use the Northern Corridor for most of their domestic, regional or international traffic.

Our estimation from different interviews during the inception mission was that there are about 2,500 different public and private operators/stakeholders acting along the Northern Corridor: transporters, freight-forwarders, custom agents, professional associations, public authorities, etc. Our target was to interview a sample size of 10%, i.e: 250 operators/stakeholders, stratified by country (all the countries of the Northern Corridor region), type of operators (public/private), size of operators (small/medium/large) and role in the logistics chain (shippers, consignees, transporters, freight forwarders, etc).

The matrix below shows the types and number of operators/stakeholders we targeted for interviews. For different reasons related to the availability and willingness of stakeholders to cooperate, and despite presenting official introduction letters with support of the NCTTCA, about 40% of the contacted stakeholders did not receive us or were not able to provide the information to properly fill in our questionnaires. Nevertheless, we were still able to interview over 200 stakeholders, all of whom are listed in Appendix C.

Figure 2-1: Sampling Survey Targets

Interview Group	Kenya	Uganda	Rwanda	Burundi	East RDC (Goma)	Total Number	% of Sample
Public Sector (Ministries of Transport, Revenue Authorities, Customs Authorities, Kenya Port Authority, etc)	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	--	--
Private Sector Associations (Freight Forwarder Associations, Shipper Associations, Transporter Associations, etc)	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	--	--
Port, Railway, Pipeline and Inland Waterways Modes	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	100% of relevant stakeholders	--	--
Total Public operators, private associations, non-road related modes	**15**	**12**	**8**	**8**	**5**	**48**	**19%**
Shippers: importers, exporters, traders, manufacturers, specialised petroleum firms etc.	**15**	**16**	**10**	**15**	**8**	**73**	**26%**
Forwarding Agents / Customs	**10**	**10**	**10**	**10**	**6**	**46**	**18%**
Small (under 10 employees)	3	3	3	3	2	14	*6%*
Medium (10 – 25 employees)	3	3	3	3	2	14	*6%*
Large (over 25 employees)	4	4	4	4	2	18	*7%*
Transporters	**25**	**20**	**20**	**15**	**12**	**92**	**37%**
Informal (unregistered)	3	3	3	3	3	15	6%
Small (under 10 vehicles)	5	5	5	4	3	22	9%
Medium (between 10 – 50 vehicles)	7	6	6	4	3	26	10%
Large (over 50 vehicles)	10	6	6	4	3	29	12%
Total interviews	**65**	**58**	**48**	**48**	**31**	**250**	**100%**

2.2.2 Interview Questionnaires

We used formal questionnaires in our interviews with shippers and transporters, given the large number of interviews and the need to ensure consistency across interviews and countries.

In summary, the **shipper's questionnaire** focused on obtaining the following types of data and information:

a. Main type of economic activity (importer, manufacturer, producer, trader, etc).
b. Transport needs in terms of local, inter regional or international transport.
c. Importance of overseas transport in terms of annual turnover.
d. Logistics costs for three main routes and type of commodity in terms of:
    - o Shipping lines costs (maritime)
    - o Transhipment costs
    - o Port Terminal costs (handling, documentation, etc)
    - o Inland route costs (freights)
    - o Transport costs along the corridor
    - o Terminal costs to final destination (warehouse)
    - o Inventory costs due to unreliable delivery systems
    - o Other costs affecting the transport
e. Subjective estimation of hidden costs and delays according to the "revealed preference" methodology by asking questions regarding willingness to pay to avoid total delays, transport unreliability and road accident and insecurity.
f. Subjective prioritization of a set of transport policy measures proposed in the questionnaire.
g. For the shippers who use their own transport fleet, they were asked to fill a vehicle operating costs table for the main route they use and on the basis of a real round trip transport operation.

In summary, the **transporter's questionnaire** focused on obtaining the following type of data and information:

a) Fleet composition (vehicle type, number of axles, nominal loading capacity, age etc.) for new vehicles and the second hand vehicles.
b) Distribution of the transport activity, in terms of percent of annual turnover activity between Domestic Transport (within borders of one country), Inter-regional transport (between countries of the Northern Corridor, not transiting through Port of Mombasa) and International transport (transited through Port of Mombasa).
c) Local, inter regional or international transport activities and characteristics (route, product, travel time, price etc.).
d) Importance of overseas transport in terms of annual turnover.
e) Identification of physical and non-physical barriers on the three main cross-border routes:

- Average time loading transport from entering facility to exit (hours) when Loading at Mombasa Port or Container Freight Station / Inland Container Depots (where applicable)
- Number of weigh bridges from origin to destination
- Average delays at weigh bridges (hours)
- Average formal fines amount for overloading per round trip (in USD)
- Average informal bribe amount for overloading per round trip (in USD)
- Average number of police checkpoints from origin to destination
- Average delays at each checkpoint (hours)
- Average informal payment / bribe amount paid at each checkpoint (in USD)
- Name of crossing Border Post
- Average delay at Border Post (hours)
- Average informal payment / bribe amount paid at border post (in USD)

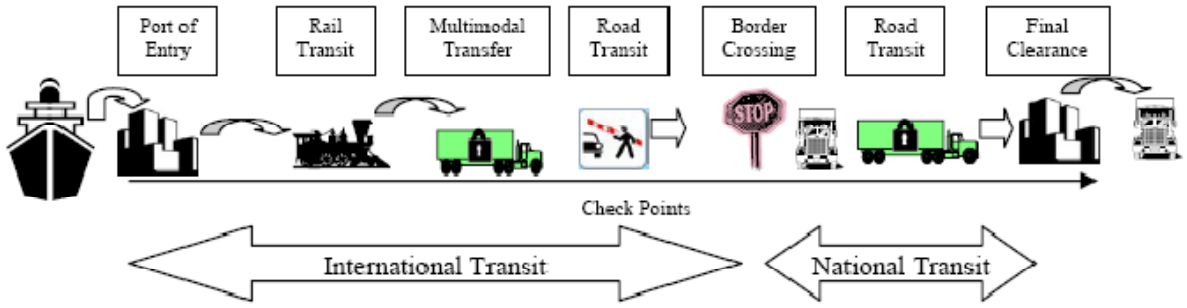
f) Subjective estimation of hidden costs and delays according to the "**revealed preference**" methodology by asking the following question: For the last calendar year and based on **estimated losses,** what is your "**willingness to pay**" to avoid: Total delays, transport unreliability and road accident and insecurity
g) Subjective prioritization of a set of transport policy measures proposed in the questionnaire.
h) Finally, the transporters are asked to fill a vehicle operating costs table for the main route they use and on the basis of a real round trip transport operation.

The questionnaires were a useful guide to obtain additional data and information required for our detailed logistics cost analysis. For public sector and sector specific organisations (e.g. Kenya Port Authority, Uganda Railway Corporation, Kenya Pipeline, Revenue Authorities, etc) we developed questions for interviews prior to any meetings, tailored to the organisation being interviewed. As mentioned previously, not all interviewees were able to provide us with the information required, but we are confident that by having such a large sample size, given the project scope, we have adequately captured the realities on the ground.

2.3 Methodology for Assessment of Logistics Costs

Logistics is the management of the flow of goods, information and other resources between a point of origin and a point of consumption, in order to meet the requirements of a final consumer. The movement of goods, particularly across international borders, requires a highly integrated set of activities involving a wide range of stakeholders, facilities and equipment types. Although each international logistics chain will vary considerably depending on the type of good, means of transport and buyer preferences, the example below presents a typical logistics chain involving both sea freight and land transport.

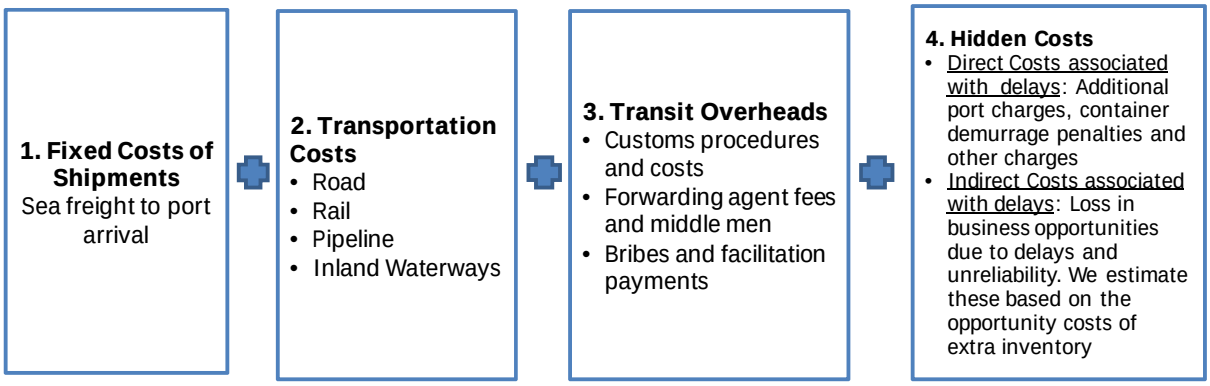
Figure 2-2: Typical logistics chain



Supply chain literature provides the conceptual framework to disentangle logistics costs deriving from the sequence of transit operations, and subsequently assess the impact of facilitation, regulatory or investment measures. A consignee or shipper in an East African landlocked country of destination/origin supports costs directly or through fees paid to agents providing services such as freight forwarders or transport operators.

The figure below illustrates the four core components of total logistics costs.

Figure 2-3: Total Logistics Cost



Below we examine the methodology behind evaluating these four types of logistics costs along the Northern Corridor.

2.3.1 Fixed cost of shipments

Fixed costs consist primarily of sea freight charges from origin to the Port of Mombasa. The sea freight costs vary considerably depending on the port of origin and the type of product. The figure below presents some practical examples in current prices.

Figure 2-4: Sea Freight Shipping Charges, US$

Import/Export from Mom	Export	Export	Export	Import	Import	Import
Origin	Mombasa	Mombasa	Mombasa	Durban	Singapore	Europe/UK
Destination	Rotterdam	Dubai	Europe	Mombasa	Mombasa	Mombasa
Product	Fresh Agri (refirg)	Fresh Agri (refrig)	Tinned Fruit/Veg	Paper	Batteries	Vehicles
Unit (20, 40 container)	40	40	20	40	20	Prime mover truck
Weight of unit (tons)	20	20	24	25,3	21	50 cbm
Tariff (USD) per Unit	$4,750	$3,250	$1,500	$1,771	$1,700	$800

It is clear that the structure of total logistics costs will change considerably if we base our calculation on the sea freight shipping charges of the most expensive route in this table ($4750 per container of fresh refrigerated agriculture products exported from Mombasa to Rotterdam) or the cheapest one ($800 for a container of vehicles imported from the UK to Mombasa). The conclusions will differ considerably for one route to another and for one product to another.

For reasons of homogeneity across the study, we chose to base our analysis on the sea freight shipping tariff of a frequent route (Singapore-Mombasa) and a "normal" common industrial product (batteries). We have therefore used an average sea freight shipping charge of US$1,700/container for a 20' container in our comparative analysis.

2.3.2 Transportation Costs

The second component of logistics costs is transportation costs. In East Africa, a great discrepancy in the operating costs, both variable and fixed, exists on different corridors. A similar discrepancy exists within the same corridors between different trucking companies, mainly between those established in Uganda and Kenya. Kenyan companies face proportionally higher fixed costs than Ugandan companies. This is explained by Kenya's recent acquisition of a new fleet (incurring high depreciation and financial costs), and relatively low variable costs due to a more modern and efficient fleet, and good road conditions on the main corridors.

Using CIF/ FOB margin as a proxy for transport cost, Radelet and Sachs (1998) find logistics costs to be about 50% higher for landlocked countries. Stone (2001) using the ratio of 'freight payments as percent of total imports' shows that landlocked developing countries, especially in Africa, bear exorbitant transport costs: out of 15 landlocked African countries, 13 had a ratio higher than 10% and for 7 the ratio was even higher at 20% as compared with 4.7% for industrial countries and 2.2% for the US. *(Source: The Cost of Being Landlocked: Logistics Costs and Supply Chain Reliability - Jean-François Arvis, Gael Raballand, Jean-François Marteau - The World Bank)*

Average transport prices are difficult to disaggregate because transport prices or freight rates/tariffs are dependent on several factors including the following:

(i) **Return cargo** — if backload is ensured, freight rates are lowered (price per tonne-km)
(ii) **Cargo types** — tankers, oil products, machinery, and containers are more expensive to transport than general cargo in bags
(iii) **Commercial practices/discounts** — there are often large discrepancies between published tariff schedules and what customers actually pay, and
(iv) **Seasonal demand** — prices are seasonal and are highly sensitive to supply/demand, especially for certain export commodities and some imported finished goods.

Transport companies generally analyze their cost structure in two categories:

- **Fixed Costs:** which includes, independently of vehicle usage, financing charges, depreciation of investment, wages, facilities, insurance, security, administrative overheads, taxes (including vehicle taxes), and profit margins.
- **Variable Costs**: which are proportional to vehicle usage (distance or trips), including: Fuel, subsistence, road user charges, occasional maintenance, tires, taxes, and informal payments (bribes).

In East Africa, fuel and lubricants represent the main variable costs in the road transport sector. The formula in the Figure below helps define the Operating Cost per Km travelled. The usual benchmark for operating cost (widely used in international comparisons) is the cost of traction per km for a 20' or 40' container or a semi-trailer.

Figure 2-5: Formula for Operating Cost per Km

$$\text{Operating Cost per km} = \frac{\text{Fixed Monthly Costs}}{\text{Distance per Month}} + \text{Variable Costs}$$

Trade Imbalances impact on Transport Cost

Trade imbalances often affect the cost of transport. Where imports far exceed exports, which is the case in the Northern Corridor countries, exporters can often get discounts creating the situation where the rates charged by an operator for in-bound and out-bound movements are rarely the same.

Although freight rates are influenced by many factors, operating constraints, market structure, and regulations are critical elements. One of the most important parameters is the load factor, as illustrated in the Figure below.

Figure 2-6: Formula for Freight Rates Calculation

$$\text{Rate (ton/km)} = \frac{1}{\text{Nominal Load (tons)}} \times \frac{\text{Operating Cost of the Truck (cents per km)}}{\text{Load Factor (average \% of nominal load on a trip}}$$

A large trade imbalance brings the import freight rate up to a factor of two compared to the rate implied by a balanced trade. Conversely truck overloading increases the load factor and reduces rates, however, it increases the negative externalities of transport (e.g. road damage).

2.3.3 Transit Overheads and Logistics Costs

The third component of total costs includes a range of logistics costs and overheads. Several overheads are associated with transit processes, such as customs procedures and requirements for transit bonds. However, other overheads are not transit overheads since they apply to both transit and domestic trade such as port charges. Finally, some costs do exist in both cases, but are substantially higher in the case of transit trade and hence contribute to overheads such as agents' fees.

The three main categories of logistics overheads related to transit operations include: i) Corruption and "facilitation" payments; ii) mandatory transit-related procedures; and iii) Agency costs. Each is discussed below, and has been considered and quantified as part of our total logistics cost analysis for this study.

Corruption and "Facilitation" Payments en Route or at Origin and Destination

A well-known phenomenon in East Africa is the multiplication of facilitation payments at scheduled/unscheduled roadblocks and "police checks". These are usually small and predictable payments made to local police, military, or customs agents. Transit initiation, or border crossing, carry the potential of much bigger payments between transit operators, customs and/or transport staff.

Corruption may be severe at border crossings, but weighbridges are also a source of delays and illegal costs when they are not properly managed. Along the Northern Corridor, trucks can wait a day at the first weighbridge after Mombasa and truckers often bribe the weighbridge operators to go through it. As described later in this report, truck overloading is still extremely common along the Northern Corridor.

> In all cases, an explicit bribe is never asked for – rather, a small story is brought up to elicit the bribe, but for weighbridge you either pay it or get arrested and prosecuted. Total petty bribery equals US$ 194 on the Ugandan side and US$ 704 on the Kenya side, totaling to US$ 898 on the export route alone or about 21% of the total shipping cost. All these are weighbridges only. On the import side, the cost is even higher approximately US$1,200.
> *Source: Analysis of the State of Non-Tariff Barriers along the Northern & Central Corridors - Rwanda Private Sector Federation- 2008*

Mandatory Transit-Related Procedures

These include bonds or guarantees, compulsory transport of customs documents, escorts, transit fees and compulsory insurances. Many transit related mandatory fees are overpriced and, in some cases unjustified and akin to rents (for instance, the various documents issued by freight organizations and compulsory insurance schemes). Some additional services in the public administration in landlocked countries may also add to costs.

Agency Costs (freight forwarders and middle men)

Transit logistics for many landlocked countries also tend to increase the rate charged by freight forwarders. The procedural complexity and multi-step processes imply that each shipment requires attention, staff, and costly intervention otherwise unnecessary in a seamless transit environment. Virtually all movements of cargo through the Northern Corridor involve the use of customs and clearing agents, most of whom are based in Mombasa.

2.3.4 Hidden Costs

The final component of logistics costs is hidden or delay hedging costs. This includes moving inventory costs during transit and induced costs to hedge unreliability of inventory and warehousing costs, or shift to faster more expensive mode of transportation.

In relatively small developing country markets like in Northern Corridor region, supply chain management faces:

- Unpredictable supply chain due to uncertainty in shipment delivery time; and
- Low level of demand, whether predictable or stochastic. For the same industry the volumes are typically lower in a landlocked country vis-à-vis a gateway country, leading to larger inventory costs as compared to its turnover.

A fragmented transit chain and variance in processing time not only causes delays but also causes uncertainty and unpredictability. This increases the logistics cost for operators who are willing to pay a premium for reliable logistics solutions or need to maintain high inventories. The increasing transit time and variance in transit time causes higher inventories and ultimately higher logistics costs. Due to uncertainty, companies need to maintain high safety stocks in order to avoid any shortage of raw materials or intermediate products. Although difficult to quantify, the incidence of delayed deliveries has a strong positive effect on inventory holdings.

There are several factors causing delays in the Northern Corridor. For example, initiating transit in ports, final clearance at destination, border delays, mandatory freight procedures, controls en route such as delays at weighbridges, condition of infrastructure, trans-shipment at multimodal facilities, customs convoy requirements, etc.

Our methodology to evaluate the different delays and informal payments was based on four areas:

1. Information obtained through our primary interviews;
2. Building on the results of three recent studies detailing the delays and analyzing their causes along the Northern Corridor[6];
3. Organizing a trial run by a Field Assistant from Mombasa to Kigali on board a transporter's truck[7]; and
4. Visiting border posts: MALABA border post between Kenya and Uganda, KANYARU border post between Burundi and Rwanda, GATUMA border posts between Rwanda and Uganda and GISENYI/GOMA border posts between Rwanda and DRC, in order to identify all non-physical causes of delay on the road, as well as all the informal payment at police checkpoints, weigh bridges and border posts.

Value of time

The estimates provided in Arnold (2006) are:

- The value of containerized manufactured goods in low and middle income countries range between 2,000-5,000 USD per tonne (20,000-50,000 per TEU).
- The value of time is put conservatively at 20-30 USD per TEU (40-60 USD per trailer or 40') or 0.1 % of value per day.

Hummels (2001) found that on average one more day in transit is valued at 0.8% of the value of goods.

Sources: Supee Teravaninthorn and Gaël Raballand "Transport prices and costs in Africa: a review of the main international corridors" - World Bank report-2009

Recent theoretical and empirical research on the subject indicates that a key factor in estimating transport and logistics costs is not only the average expected transport time but also the degree of variability. Shippers seem to be willing to pay a premium for enhanced reliability, e.g. for truck versus rail transport, that is greater than the implied value of time associated with the average reduction in transit time.

Methodology for assessment of delay hedging costs

The cost of hedging unreliability depends on several factors such as the time value attached to the cargo, the lead-time in transit, its variability, and the cost for the operator of a break in the supply chain (cost of a stock out or of setting up alternative logistics). Typically, this cost can be expressed as equivalent days of inventory.

In the context of a supply chain model, the **value of time** is an operational concept: the cost of ownership of the goods in inventory. There are essentially two types of inventories: (1) inventory in motion for goods in transit and (2) inventory in the owner's warehouse before processing, distribution, or expedition. In both cases, the costs include financial charges, obsolescence, and loss of damaged or stolen goods. Inventory costs also include the fixed costs of warehousing at destination. Moving inventory costs also include the cost of vessels (container rental, deposit costs or demurrage charges, terminal and storage

[6] "Transport and Logistics Costs: Cause and Effect on Competitiveness of Kenyan Shippers" Kenya Shippers Council, November 2008; "Analysis of the State of NTBs along the Northern & Central Corridors" , Rwanda Private Sector Federation,2008; "Baseline Survey of Key Non-Physical Barriers along the Northern Corridor and the establishment of a Database at the TTCA Secretariat", PROME Consultants Ltd, 2006.

[7] Transport company Musthafa Entreprises Ltd, a transporter from Rwanda based in Mombasa.

facilities). These charges do not evolve exactly *pro rata temporis*, but may increase with time, especially for demurrage fees.

The cost of delays can be therefore categorized as direct costs, and indirect costs.

a) Direct costs of delays: include port and Container Freight Station (CFS) storage charges and container demurrage charges.

b) Indirect (hidden) costs of delays, include two factors:

i. **Dwell time during transit at weigh bridges, police checks and border crossings.** These indirect costs of delays are evaluated by the cost of dwell time lost by a loaded truck according to the following formula:

$$Z = \{V*(C/365)\} + T$$

Where:

Z = Value of one dwell day per truck

V = Average value of loaded goods per truck

T = Fixed vehicle operating costs per day (total amount of vehicle operating fixed costs per trip divided by the average number of days of the trip)

C = Annual capital opportunity cost[8]

ii. **Opportunity costs of extra inventory:** these opportunity costs are associated with loss in business contracts due to delays. The economic methodology to estimate the indirect cost of delays is based on **the opportunity costs of the extra inventory** held to account for the delays. Interviews showed that cargo owners, to avoid out of stock situations normally keep inventories which could last 2 months; in order to meet the procurement process timeliness, they keep an **extra inventory of one month** per year. The economic approach to estimate the cost of one month extra inventory is based on the concept of capital opportunity cost, i.e. the theoretical profitability of the best investment opportunity available. This approach may underestimate the cost of delays because it does not take into account the storage costs of one month of extra inventory.

[8] The economic concept of capital opportunity cost is different from the financial concept of rate of interest. The capital opportunity cost reflects the rarity of the capital in developing countries and therefore higher investment opportunities. It is always higher than the rate of interest.

3 Mombasa Port Performance, Transit Costs and Customs Procedures

3.1 Introduction

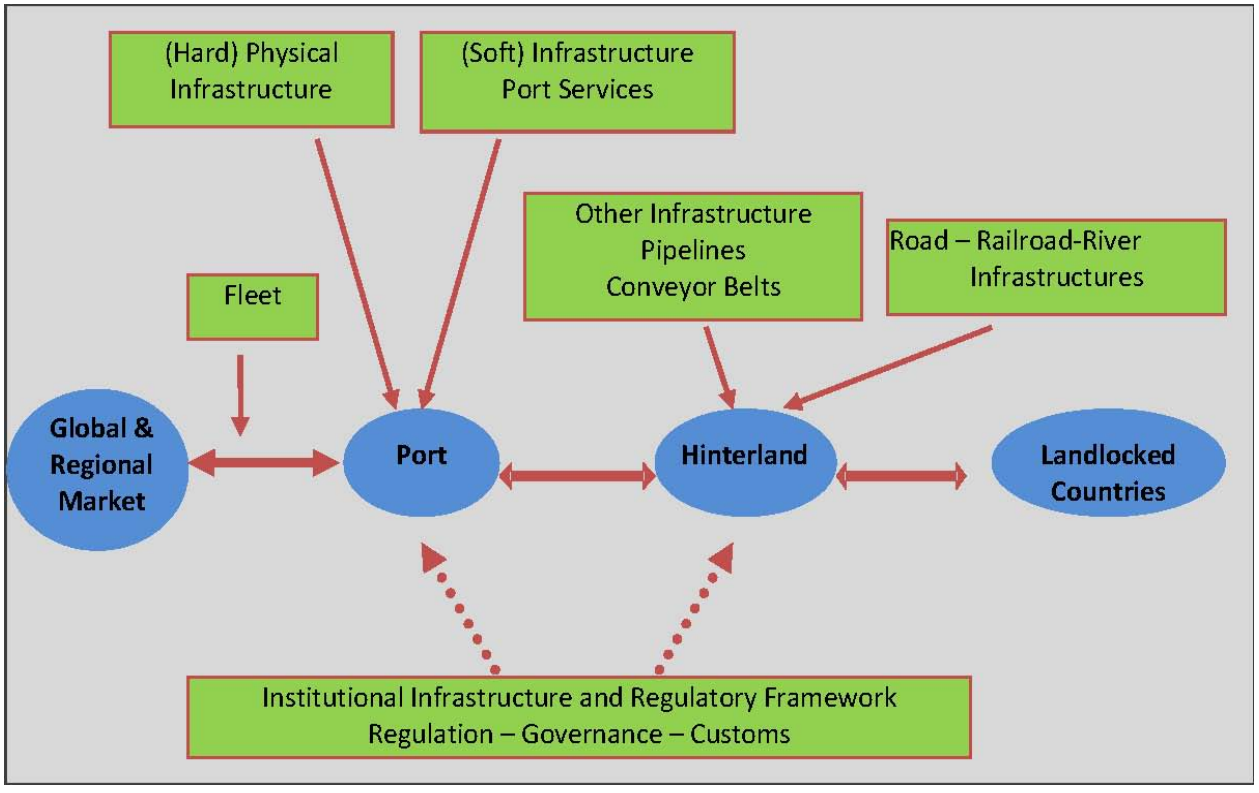
The Port of Mombasa (Kilindini Harbour) plays a crucial and strategic role in the facilitation of seaborne trade both for Kenya and other hinterland countries along the Northern Corridor including Uganda, Rwanda, DRC, Southern Sudan, Burundi and Northern Tanzania. A key premise of this report is therefore that Mombasa port performance, transit costs and clearance procedures lie at the heart of the logistics supply chain.

The port infrastructure includes:

- Physical or "hard" infrastructure, and
- Regulatory or "soft" infrastructure.

Taken together, these elements largely determine a country's (or corridor's) competitiveness. Because of the importance of connectivity in the trade logistics supply chain, overall trade costs are largely determined by the weakest link in the chain. Good connectivity to the hinterland is recognized as a major factor in port development; it contributes to reducing freight costs, and boosts trade and economic growth. The linkages between the port and other components of the logistics chain are illustrated in Figure 3-1 below.

Figure 3-1: Connectivity in the trade logistics supply chain



3.2 Mombasa Port Infrastructure

Kenya's maritime transport system currently comprises one major seaport (Mombasa), a number of smaller ports along the 650-km coastline between Somalia and Tanzania, ferry services in Mombasa and inland water transport on Lake Victoria. Kenya also has a shipping line, the Kenya National Shipping Line (KNSL) which is currently non-operational. Mombasa and all other minor ports on the Indian Ocean seafront and their infrastructure are managed by the Kenya Ports Authority (KPA). The other ports under the jurisdiction of KPA are Funzi, Vanga, Shimoni, Kilifi, Malindi, Lamu, Kiunga and Mtwapa. Except for Lamu, most of these ports have no developed infrastructure and are used for handling fishing boats and as such have no significant commercial value.

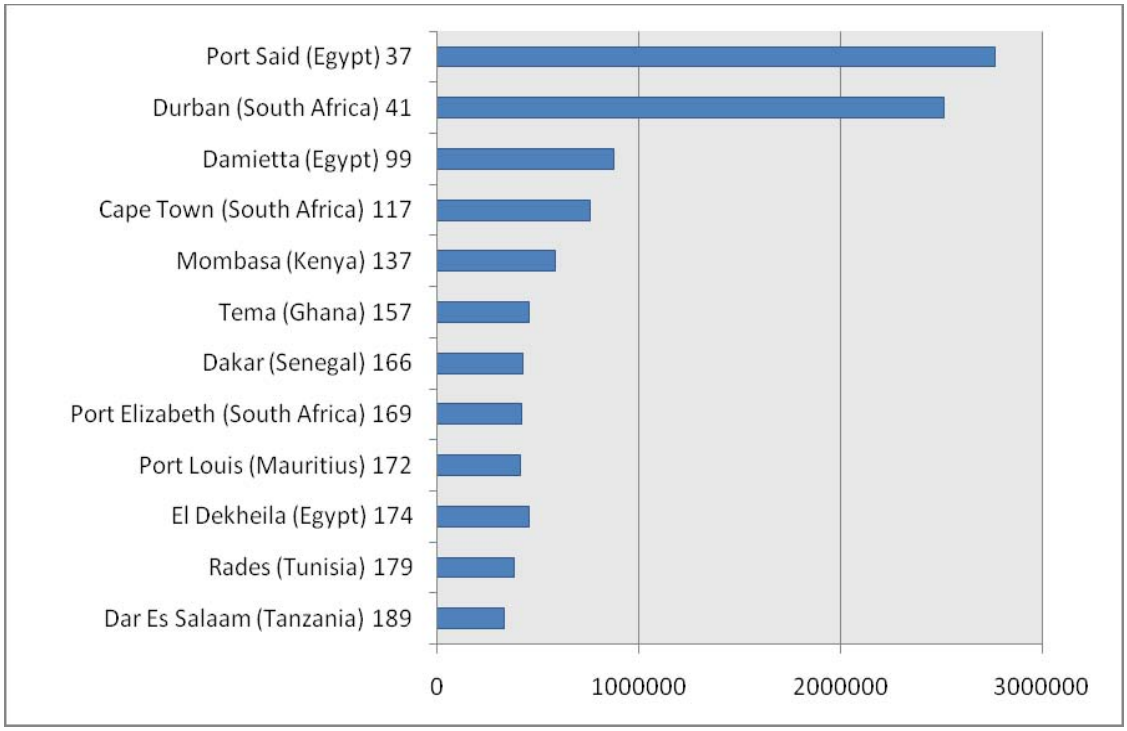
With respect to maritime transport costs, estimates derived from databases on standard-sized 20-ft Equivalent Unit (TEU) containers reveal two major factors contributing to increased freight costs: long distances and long delays in ports (one day less in shipping time to the US is equivalent to a 0.8 percent reduction in tariffs). After controlling for related factors, the elimination of market power (prevalent in African ports where competition among shipping companies is low), could increase trade volumes substantially. Controlling for a host of factors that contribute to maritime freight costs, recent large sample estimates suggest that a 10 percent increase in port efficiency would increase country-pair trade by 3 percent.
Source: African Development Report 2010: Ports, Logistics and Trade in Africa

Mombasa port has 16 deep-water berths with a maximum dredged depth of 11 metres and with total quay length of 3,004 meters. Three of these berths handle containers and 13 handle conventional cargo. The port also has quays, berths, jetties, container stacking yards, goods sheds, warehouses, lighthouses, buoys and administrative buildings. There are two oil jetties for refined and crude oil with a capacity of handling tankers of up to 80,000 dead weight tonnes (DWT). The port has an annual capacity to handle 22 million tonnes while actual cargo handled averages 16 million tonnes annually.

The port handles all types of ships and cargo, and serves Kenya and other countries: Uganda, Rwanda, Burundi, Democratic DRC, Ethiopia, Southern Sudan, north-eastern Tanzania and Somalia. Altogether, these countries other account for 27 % of the annual total cargo throughput at the port.

The figure below gives an overview of the capacity of Mombasa port in comparison with other ports in the region.

Figure 3-2: Container traffic capacity in Africa, world ranking and TEU (million)



Source: Africa Infrastructure Country Diagnostic – World Bank 2009

The Mombasa port approach channel is relatively shallow, thus restricting entry of large ships such as post-Panamax vessels. The existing container terminal was designed to handle a throughput of 250,000 TEUs per annum through three berths i.e. 16, 17 and 18. The terminal has since surpassed this capacity as evidenced by the fact that in 2008 a total of 605,000 TEUs were handled through the terminal. This growth in container traffic has put a strain on the existing facilities and compounded the congestion. A second container terminal is being developed by KPA at the port of Mombasa which will have an additional throughput capacity of 1.2 million TEUs.

Development of the port of Lamu as a second commercial port in Kenya, however, is intended to enhance the country's capability to service the region's seaborne trade. Lamu is endowed with deep natural waters and adequate space which would facilitate the handling of larger vessels and more traffic. The project is aimed at creating a second transport corridor emanating from Lamu to serve Southern Sudan, Ethiopia and Somalia and the plan includes the construction of a standard gauge railway line and a modern highway from the port to the hinterland. This would alleviate the growing pressure on space and capacity available at the port of Mombasa.

KPA also owns and operates three inland container depots (ICDs) at Nairobi, Kisumu and Eldoret which are connected to the port by a rail service run by the private railway operator, Rift Valley Railways (RVR). The ICDs were set up to ease congestion at the port; bring services closer to the hinterland and to customers in the neighbouring countries and to divert bulky cargo from road to railway, taking advantage of inter-modal transportation.

These ICDs have not performed well and hence have not been able to live up to their objective of diverting cargo from road to rail. Currently only Nairobi and Kisumu ICDs are operational while Eldoret which was established in 1995 is yet to open for business. This has been due to poor railway service by Kenya Railways, and more recently, RVR.

The more recent establishment of Container Freight Stations (CFS) in and near to the port has eased congestion of the port storage and clearing facilities. These CFS stations act like extensions of the port for storage and clearance, but are operated by private companies that are bound (by regulation) to charge the same prices to users as KPA. These CFS facilities are discussed in further detail later in the report.

Overall, the port of Mombasa has not fully exploited its position as a logistics centre which can be used to support the development of industry and the export trade, although it has adequate room for the development of export processing and assembly facilities to support free port services, all of which would add value to the operations of KPA. Although land has over the years been set aside at Dongo Kundu in the south-western part of the port for the development of a Free Trade Zone, the Government of Kenya (GoK) has been slow in implementing this project.

3.3 Legal, Regulatory and Institutional Framework

KPA is a state corporation with the responsibility to maintain, operate, improve and regulate all scheduled seaports on the Indian Ocean coastline of Kenya. KPA was established by an Act of Parliament on 20th January 1978, after the collapse of East African Community. Kenya Ports Authority operates under KPA (Amendment Act) and the State Corporation Act.

The Kenya Maritime Authority (KMA) was established by the GoK in 2004 for the purpose of strengthening maritime administration in Kenya. The KMA Act 2006, Merchant Shipping Act 2009, and Environment Management and Coordination Act (EMCA) provide the necessary legal framework within which KMA operates. The setting up of KMA transferred the responsibility of maritime regulatory concerns from KPA to KMA.

The mandate of KMA as provided for in KMA Act 2006 is to regulate, co-ordinate and oversee maritime affairs in the country. This entails ensuring safety of life at sea, security of ships and port facilities and the protection of marine environment for the socio-economic benefit of stakeholders. KMA operations are currently largely funded by the GoK as it seeks to widen its revenue base. KMA is currently in the process of developing regulations in consultation with other stakeholders which will govern the performance standards and relationships between a range of service providers operating in and from Mombasa, to increase the transparency and equity of the transit process through Mombasa Port. The regulations will have regulatory implications for both users and suppliers of maritime transport services[9].

[9] Information update provided by KMA in September 2010. As of September 2010, Draft Regulations were being reviewed by the Ministry of Transport.

The Kenya National Shipping Line Ltd. (KNSL) is owned by the Government of Kenya (GoK) and some private international shareholders. The Line was established in 1989 under the Companies Act in order to take advantage of the business opportunities offered by the growing Kenya international sea-borne trade under the provisions of the United Nations Conference on Trade and Development (UNCTAD) Code of Conduct for Line Conferences. KNSL is currently non-operational.

Ferry services are mainly provided by two agencies, the Kenya Ferry Services (KFS) Ltd. and the Kenya Railways Corporation (KRC). The KFS, an autonomous company owned by the GoK, provides these services across the Likoni Channel at Likoni and Mtongwe (in Mombasa). Ferry services on Lake Victoria were previously provided by Kenya Railways Corporation (KRC). Since the signing of the RVR concession in November 1st 2006, RVR has had responsibility for providing ferry services. However, the MV Uhuru vessel was not operational when the concession was signed, and only recently began offering services again (in September 2010).

3.4 Mombasa Port Traffic Performance

The port has an annual throughput capacity of 22 million tonnes and registered a total cargo throughput of 18.916 million tonnes in 2009, reaching 85.9% of its full capacity. This utilisation capacity ratio illustrates the congestion and delays observed at the port and is one of the key issues causing high logistics costs in the Northern corridor.

Container traffic has increased considerably over the past seven years, from 380,353 TEUs in 2003 to 618,816 in 2009. The following table details the container traffic handlings by type and full and empty TEUs for the years 2003 to 2009.

Figure 3-3: Container traffic Port of Mombasa, TEUs

		2003	2004	2005	2006	2007	2008	2009
Imports	Full	159,379	189,911	193,223	217,869	277,792	292,308	301,460
	Empty	14,160	14,007	14,573	11,596	4,244	5,080	6,387
	Total	173,539	203,918	207,796	229,465	282036	297388	307,847
Exports	Full	78,460	90,539	94,120	86,317	101,314	102,914	95,842
	Empty	78,749	109,895	107,467	132,237	165,546	180,976	205,611
	Total	157,209	200,434	201,587	218,554	266,860	283,890	301,453
Transhipment	Full	43,778	29,336	22,318	21,825	30,478	30,262	7,407
	Empty	5,827	4,909	4,970	9,511	5,993	4,193	2,109
	Total	49,605	34,245	27,288	31,336	36,471	34,455	9,516
Total	Full	281,617	309,786	309,661	326,011	409,584	425,484	404,709
	Empty	98,736	128,811	127,010	153,344	175,783	190,249	214,107
	Total	380,353	438,597	436,671	479,355	585,367	615,733	618,816

Source: KPA

The commodities handled at the Port of Mombasa are detailed in the following figures, for both Import and Export traffic.

Figure 3-4: Import Commodities Port of Mombasa, 2004-9, 000s DWT

COMMODITIES	2004	2005	2006	2007	2008	2009
Iron & Steel	515	435	593	621	595	780
Rice	297	311	311	328	275	387
Sugar	207	246	289	372	320	281
Chemicals & Insecticide	169	199	267	299	237	218
Plastic	218	199	266	308	313	402
M/Vehicles & Lorries	86	164	202	287	334	296
Paper & Paper Products	168	143	209	244	208	296
Cereal Flour	90	92	101	149	143	177
Fertilizer	140	89	160	103	71	71
Clothing	74	80	105	115	105	35
Ceramic	32	52	90	162	143	145
Edible Vegetables	6	62	70	88	42	45
Vehicle Tyres & Spares	31	25	37	48	48	30
Tallow & Oil in Cases & Drums	32	37	35	29	27	33
Malt	-	32	26	26	30	33
Maize in Bags	67	22	25	9	16	42
Wheat in Bags	35	3	13	-	1	6
Agric. & Other Machinery	36	16	2	3	4	18
Other Cereals in Bags	17	6	-	-	6	4
Others	1,571	1,584	1,561	1,883	2,507	2,873
TOTAL GENERAL CARGO	**3,791**	**3,797**	**4,362**	**5,074**	**5,425**	**6,172**
Wheat in Bulk	543	911	948	858	737	1,074
Clinker	164	430	520	1,080	1,013	1,135
Fertiliser in bulk	363	385	337	280	236	388
Coal	177	137	167	176	174	162
Other Cereals in Bulk	13	107	204	135	256	103
Maize in Bulk	206	73	83	-	171	1561
Others	122	84	85	193	304	218
TOTAL DRY BULK	**1,588**	**2,127**	**2,344**	**2,722**	**2,891**	**4,641**
P.O.L	4,045	4,320	4,734	4,798	4,889	5,671
Other Bulk Liquids	551	598	669	676	552	760
TOTAL BULK LIQUIDS	**4,596**	**4,918**	**5,403**	**5,474**	**5,441**	**6,431**
GRAND TOTAL	**9,975**	**10,842**	**12,109**	**13,270**	**13,757**	**17,244**

Source: KPA

Figure 3-5: Export Commodities Port of Mombasa, 2004-9, 000s DWT

COMMODITIES	2004	2005	2006	2007	2008	2009
Tea	406	405	402	464	421	371
Soda Ash	185	217	200	309	549	121
Coffee	180	170	195	235	272	234
Maize	-	9	17	35	18	17
Fish & Crustacean	46	35	42	38	28	21
Tobacco & Cigarettes	32	30	43	42	34	33
Beans, Peas, Pulses	3	4	12	33	15	17
Iron & Steel	53	47	42	32	24	15
Cloths	22	25	22	24	23	18
Oil Seeds	8	16	27	22	32	59
Cotton	35	63	22	19	7	14
Hides & Skins	26	23	32	18	20	18
Sisal	17	20	22	14	5	5
Cement in Bags	-	-	-	5	2	5
Cashew Nuts	8	4	6	4	8	4
Rice	2	15	6	4	2	2
Tinned Fruits, Vegetables & Juices	18	19	18	-	58	43
Others	166	234	261	278	426	446
TOTAL GENERAL CARGO	**1,207**	**1,336**	**1,369**	**1,576**	**1,944**	**1,443**
Soda Ash in Bulk	92	116	112	77	74	56
Cement in Bulk	165	92	113	54	10	-
Flourspar	125	77	87	71	101	6
Other Dry Bulk	-	-	2	3	15	-
TOTAL DRY BULK	**382**	**285**	**314**	**205**	**200**	**62**
Bulk Oils	160	104	64	85	122	99
Bunkers	86	70	68	82	68	68
TOTAL BULK LIQUIDS	**246**	**174**	**132**	**167**	**190**	**167**
GRAND TOTAL	**1,835**	**1,795**	**1,815**	**1,948**	**2,334**	**1,672**

Source: KPA

According to Mombasa port 2009 annual report, the total transit traffic was tonnes 4.9 million tonnes in 2009 against 3.5 million tonnes in 2005, thus progressing at an average annual rate of 8.9%. By transit traffic, we mean goods arriving at / departing from the Port of Mombasa for direct movement to / from other countries in the region, which are not destined to or originated from Kenya. The disequilibrium of trade to Northern Corridor is evident: imports make up the largest component of total transit traffic (90.5% in 2005 and 92.6% in 2009), while exports represent less than 10% of the total transit traffic.

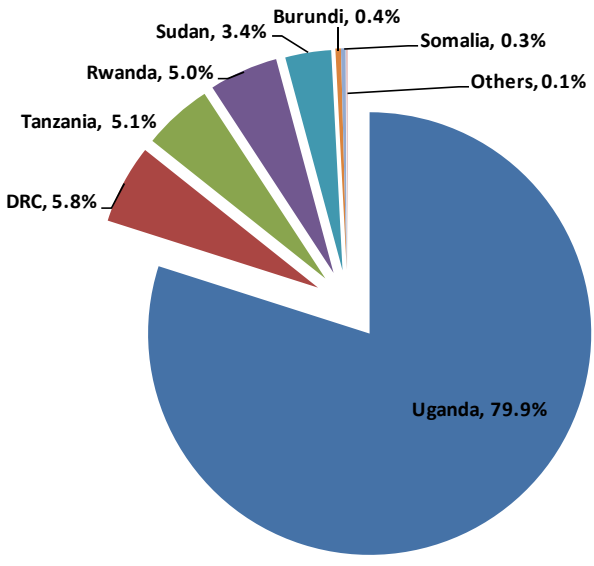
The following Figures give an overview and illustration of the traffic transiting by the Northern Corridor. In total, 79.9% of transit traffic passing through Mombasa Port is destined to or originated from Uganda, followed by Tanzania, DRC and Rwanda (about 5% each) and Sudan (3.4%).

Figure 3-6: Mombasa Port Transit Traffic, 2005 – 2009, DWT

Country		2005	2006	2007	2008	2009
Uganda	Imports	2,433,166	2,572,335	3,099,854	3,374,169	3,686,862
	Exports	247,064	249,796	298,721	327,086	293,532
	Total	2,680,230	2,822,131	3,398,575	3,701,255	3,980,394
Tanzania	Imports	245,975	245,975	226,661	236,166	231,188
	Exports	35,452	24,169	22,318	14,639	21,689
	Total	281,427	270,144	248,979	250,805	252,877
Burundi	Imports	28,462	66,182	49,798	55,488	19,093
	Exports	313	1,277	2,409	1,267	1,022
	Total	28,775	67,459	52,207	56,755	20,115
Rwanda	Imports	194,440	225,412	262,502	276,617	236,087
	Exports	24,150	27,701	24,153	16,884	14,472
	Total	218,590	253,113	286,655	293,501	250,559
Sudan	Imports	141,394	130,022	144,781	220,105	155,691
	Exports	5,420	7,822	700	3,176	11,662
	Total	146,814	137,844	145,481	223,281	167,352
DRC	Imports	113,509	202,832	225,014	264,248	263,110
	Exports	20,685	23,634	32,096	40,153	25,586
	Total	134,194	226,466	257,110	304,401	288,696
Somalia	Imports	43,072	29,960	32,862	43,157	16,446
	Exports	-	-	-	19	342
	Total	43,072	29,960	32,862	43,176	16,788
Others	Imports	1,947	482	480	605	3,970
	Exports	665	232	753	499	29
	Total	2,612	714	1,233	1,104	3,999
Total	Imports	3,201,965	3,473,200	4,041,952	4,470,554	4,612,446
	Exports	333,749	334,631	381,150	403,704	368,334
	Total	**3,535,714**	**3,807,831**	**4,423,102**	**4,874,258**	**4,980,780**

Source: KPA

Figure 3-7: Mombasa Port Transit Traffic Breakdown, 2009



The dominant commodities carried along the Northern Corridor are identified in the following figure. The outward commodities are mainly exports from the region moving southwards in the Mombasa-Malaba direction, while the inward commodities are imports moving northwards in the Malaba/Busia-Mombasa direction. Some of the commodities consist of inter-regional trade, especially from Kenya industrial production to Uganda, Rwanda, Burundi, DRC and Sudan.

Figure 3-8: Dominant commodities transiting through the Northern Corridor

Inwards	Outwards
Sugar	Tea
Vehicle Spares	Coffee
Grains (Maize,Rice,Wheat,etc)	Hides and skins
Tyres & Tubes	Tobacco
Electronics	Fish
Cigarettes	Sesame
Cooking Oil	Beans and other Legumes
Cosmetics Machinery	Cocoa
Footwear	Pepper
Building Materials	Vanilla
Motor Vehicles	Live Animals
Flour Pulp & Paper	Fruits
Books & other Printed Materials	Timber
Iron& Steel	Minerals
Dry cells	Ground/Cashew Nuts
Food stuffs & Beverages	Cotton
Medical& Pharmaceutical Products	
Petroleum Products & related Materials	
Utensil Fabrics	
Personal & Household Items	
Safety Matches	

3.5 Mombasa port clearing and transit procedures

Although there have been improvements in the past couple of years, the port of Mombasa has been beleaguered by inefficient cargo clearance processes causing delays and rendering the port expensive and uncompetitive. This scenario caused by cumbersome documentation and cargo clearance procedures has contributed to the high costs of maritime transport logistics along the Northern Corridor and increased the cost of doing business in Kenya and the region as a whole.

Although Kenya Revenue Authority (KRA) and KPA have introduced computerized systems in their operations the

Mombasa Port users from Rwanda, Uganda, Burundi, Eastern Democratic Republic of Congo and Northern Tanzania had expressed frustration at the slow pace of goods clearance at the port and the culture of corruption that was embedded at every stage of the clearance process, driving up prices of the goods hence leading to higher costs of living. The accusation that Kenya is contributing to higher costs of goods in the region was also supported by a World Bank study that claimed that Kenya was partly to blame for rising food prices in land-locked countries in the Great Lakes region.
Source: Analysis of the State of Non-Tariff Barriers along the Northern and Central Corridors, 2008, Rwanda Private Sector Foundation.

delays are still prevalent due to lack of complete integration between the two systems and the fact that the other clearance agencies are not integrated.

Port operations are also hampered by lengthy customs procedures which otherwise are not conducive for attracting business at the port of Mombasa. Existing customs procedures have impeded the growth of the traffic over the years. Cumbersome and expensive customs procedures have also increased the cost of transit traffic passing through the port and hence hampered the growth in this traffic.

The Port of Mombasa is the gateway for surface transport along the Northern Corridor region, with an estimated 900 transport vehicles (trucks) exiting the port each day, on average. The importance of road transport as a means of moving freight has increased steadily over time relative to the rail and pipeline modes, with the vast majority of goods now transported by road, in comparison to much more competitive environment where rail had a larger segment of the market just 10 years ago.

All interviewed operators/stakeholders and past studies pointed out that, despite some progress in the last two years, **the clearing process at Mombasa port, the Container Freight Stations (CFS) and customs procedures remain the main sources of delay and high logistics costs in East Africa region**, whether it is for local containers or for transit containers (for which the procedures are more complex and the delays worse).

The following sections describe in detail all the steps and documents needed for clearing procedures for local and transit containers in Mombasa port. Local containers are those which arrive in Mombasa port which are destined for consumption in the Kenyan market. Transit goods are those arriving at Mombasa port destined for consumption in other countries. Transit goods are exempt from paying Kenyan customs taxes and duties.

3.5.1 Clearing Process for Local Containers

The following 29 steps are followed for the clearance of typical containers whose cargo is intended for utilisation within the local Kenyan market[10].

1) The importer (Consignee) receives shipping documents direct from his Supplier/Shipper or through his bank. The consignee identifies a preferred clearing and forwarding (C&F) agent and engages the same to assist in the customs procedures. He/she then submits the following documents to the appointed C&F agent:

1. Original Suppliers Invoice.
2. Negotiable Bill of Lading duly signed by the Shipper and Importer on the reverse.
3. Original Packing List (Optional).
4. Original Fumigation Certificate for shipments which consists of second hand clothing or food.

[10] Drawn from the draft document “Business Process for Import Local Cargo”, prepared by KPA in association with local stakeholders, 2009.

5. Original Phytosanitary Certificate for shipments consisting of Grains.
6. Consignee's Passport for shipment consisting of Personal Effects or Personal Motor Vehicle.
7. Original Log Book or Certificate of Export for shipment of a secondhand or reconditioned vehicle.
8. Motor Vehicle Inspection Report for shipment of secondhand or reconditioned motor vehicle.
9. Certificate of Conformity issued by Kenya Bureau of Standards (KEBS).
10. Certificate of Donation for aid cargo.
11. Customs Form C.52 (Declaration of Customs Value) duly completed and signed by Importer.
12. Certificate of Origin for shipments originating from a COMESA country.
13. Letter of Authority from Ministry of Health for importation of Drugs.
14. License from Pest Control Products Board for importation of Pest Control Products
15. Insurance Debit Note.
16. Treasury Remission on Customs Form C56 for raw materials imported for manufacturing under Bond and subsequent re-export.
17. Letter from Treasury exempting payment of taxes on capital goods or aid cargo (as applicable).

2) After receiving the relevant documents from the consignee, the C&F agent opens a consignment file for the cargo. The file caption will also indicate the pertinent vessel name, expected date of arrival and voyage number.

3) The C&F agent then obtains a manifest number from the pertinent shipping agent. The shipping agent will, in the background, submit a copy of the pertinent manifest to KRA's Document Processing Centre.

4) The C&F agent then does an online registration of Import Entry through the Simba system. This is done using Customs Form C17B with regime code C400. The online registration is done with the KRA's Customs Document Processing Centre (DPC) located at Times Tower (KRA headquarters) in Nairobi.

5) After successful registration of the Import Entry, the C&F agent ask the consignee to: write a Bankers Cheque in favour of KRA if the tax payable does not exceed Kshs.1,000,000.00; or arrange for a Real Time Gross Settlement (RTGS) to KRA through his bank if the tax payable exceeds Kshs.1,000,000.00.

6) In cases where a Bankers Cheque is used, the C&F agent receives the Bankers Cheque from the consignee and deposits it with one of the two banks nominated by KRA.

7) The receiving bank makes an electronic confirmation of the receipt of tax payment to KRA through the Simba System.

8) At DPC: Upon receipt of the C&F declaration, DPC checks the correctness of the declared

particulars against the respective ship's manifest earlier received from ship agent. Additionally, after receipt of tax payment confirmation from bank, DPC passes the Import Entry and electronically informs C&F agent of the approval and the decision of the targeting regime i.e. green for normal verification, red for 100% verification, or yellow for Scan.

9) The C&F agent then: 1) attaches the negotiable Bill of Lading together with a letter from the consignee confirming his/her appointment as C&F agent and surrenders them to the shipping agent; 2) receives a Debit Note/Invoice of applicable shipping charges from the shipping agent; and 3) Pays the shipping agent's charges and obtains a Delivery Order (DO) in exchange of the payment. The most common charges payable to the ship agent by C&F agent for local containers are:

- Terminal Handling Charge on containers;
- A Delivery Order Fee;
- A Handling or Lift On/Lift Off or Drop Off charge on containers;
- A Container Cleaning Charge; and
- International Ship & Port Security (ISPS) charge.

10) Once the ship agent has issued the original Delivery Order to C&F agent, the ship agent sends an electronic copy of the DO to Kenya Ports Authority (KPA) using Electronic Data Interchange (EDI) platform.

11) After receipt of the message from DPC that the Import Entry has been passed, the C&F agent prepares a White Folder containing the following documents and then lodges it with Customs Long Room:

- Original, Duplicate, Triplicate, two Quadruplicate & Quintuplicate copies of passed Entry
- Suppliers Invoice
- Non-Negotiable Copy of Bill of Lading
- Packing List (optional)
- Log Book or Certificate of Export, for shipment consisting of second-hand or reconditioned Motor Vehicle
- Original Fumigation Certificate for shipment consisting of second-hand clothing or Grains
- Original Phytosanitary Certificate for shipment consisting of Grains
- Consignee's Passport for shipment consisting of Personal Motor Vehicle or Personal Effects
- Certificate of Conformity issued by Kenya Bureau of Standards (KEBS)
- Motor Vehicle Inspection Certificate for shipment consisting of second-hand or reconditioned Motor vehicle
- Customs Form C.52
- Insurance Debit Note
- Certificate of Origin for goods are originating from a COMESA country

- Approved Import Declaration Form together with original Deposit Receipt of Kshs.5000.00
- Permit from Ministry of Health for importation of Pharmaceutical products
- License from Pest Control Products Board for importation of Pest Control products
- Approved Customs Form C.56 for raw materials imported for manufacturing under bond and subsequent re-export
- Letter from Treasury exempting payment of taxes on capital goods or aid cargoes.

12) After receiving the White Folder, Customs Long Room will put a Received Stamp on one of the two Quadruplicate copies of the Import Entry and then return the stamped copies back to the C&F agent. Customs Long room will then dispatch the White folder to either: their office located at Shed No.7 for containers discharged and stacked at RO/RO yard, or their office located at One Stop Centre for containers discharged and stacked in the Main Container Terminal.

13) Customs officers will scrutinize documents filed in the White Folder and decide whether they will uphold the targeting regime decided by DPC or change it. Changing the earlier decided regime will be largely influenced by the nature of cargo or necessitating intelligence report which may have been received. If Customs decide to give a 'Direct Release" to container, they issue an electronic release in Simba system. If Customs decides to stop the container for verification either by Scanning or normal verification or 100% verification, they communicate to KPA by way of indicating the type of inspection required electronically using the KWATOS system.

14) Once a decision has been made on the targeting regime, Customs at the One Stop Centre forwards the respective White Folder to other Government Agencies (OGA) such as KEBS, KEPHIS, etc who are also stationed at the One Stop Centre, to peruse the White Folder and decide on their targeting regime i.e. to require verification or to give direct release. Relevant OGAs will make an appropriate endorsement on the reverse of the Import Entry and return the White Folder to Customs and place a hold in KWATOS system if verification is required.

15) After receiving transfer to verification request, KPA transfers targeted containers to appropriate scanning areas. For example containers targeted for scanning are transferred to the Scanning Unit or those stopped for 100% verification transferred to the designated Verification area. Containers targeted for normal verification are placed on the ground within the storage area.

16) Cargo Verification. For normal or 100% verification, all the interested parties have to be present so as to carry out joint verification. For containers stopped for scanning, other Government Agencies will carry out their verification process after the container is scanned and returned to the stacking area by KPA.

17) After the other Government Agencies have satisfied their interest and parameters in a local container they give their release of the same to: (i) KPA in the Kwatos system; (ii)

Customs by endorsing on the reverse of the Import Entry in the White Folder.

18) If no discrepancies are found after scanning or verification, Customs forwards the White Folder together with their examination report to their office at One Stop Centre. An electronic release will be issued through the Simba system as long as other Government Agencies have issued a release by endorsing on the reverse of the original Import Entry.

19) Additional to issuing release in Simba system, Customs will then indicate the release in KWATOS system. Other Government Agencies will also issue an electronic release in KWATOS.

20) Once all releases have been issued by all concerned authorities, the C&F agent creates a Pick-Up Order using the Kwatos system. A transaction reference number is generated by the system. After submitting Pick-up Order, the C&F agent is able to monitor the work progress of his/her documents online in KWATOS.

21) The created Pick-up order is interfaced in KPA. This action enables the billing and invoicing.

22) After interface is done in KPA, the C&F agent generates a Ticket for Cash Payment in his/her office and takes it to Port Accounts Office for payment of applicable port charges. The C&F then pays the port charges.

23) The C&F agent then goes to the KPA Booking Office at Gate No.18 to book for truck entry into the port. He/she will produce copies of Import Entry, Ticket for Cash Payment and Invoice to the gate officer and also give pertinent truck registration numbers of the trucks that will be coming to collect the import containers. A Position Slip is issued which guides the transporter as to the position/location of the container in the port by indicating the relevant yard address.

24) The C&F agent then asks the contracted transporter to bring to port the booked trucks. Upon truck arrival, KPA Security scrutinizes the position slip against the truck number and allows truck entry.

25) Truck enters and proceeds to the location as indicated on the position slip.

26) Upon arrival at the specific yard address, the respective container is loaded onto the truck, and then KPA Clerk endorses the loaded container number on the reverse of the Position Slip. The C&F agent then takes the endorsed Position Slip to the Customs Office located at the exit gate for validation in the Simba system.

27) The loaded truck proceeds to the exit gate for final checking and data capturing by Customs Officers.

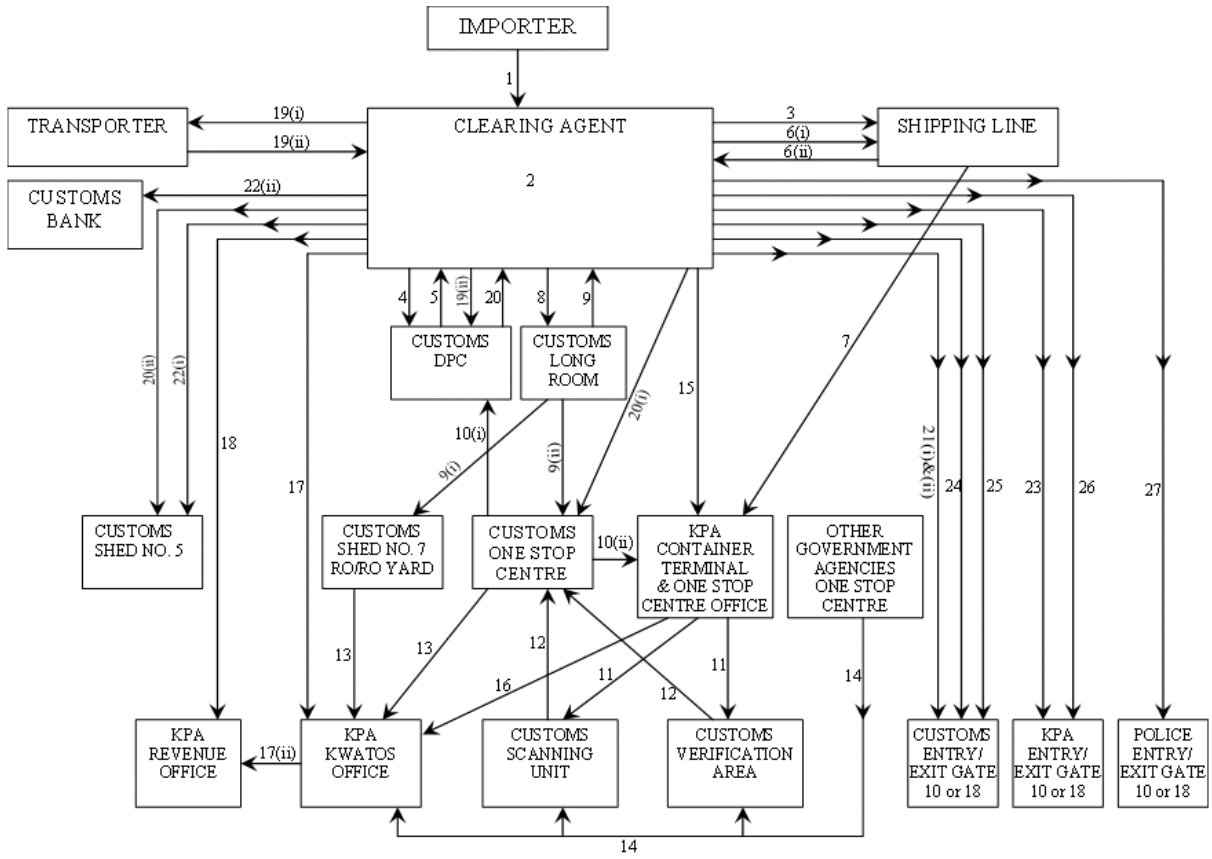
28) The C&F agent then takes the endorsed Position Slip from Customs to KPA Security Office at the exit gate for generation of an electronic Gate Pass called Electronic Interchange Receipt (EIR).

29) The C&F agent takes the EIR and all the other relevant clearance documents for the loaded truck to the Police Officers stationed at the exit gate for final checking, manual recording of the necessary details in their ramp register and exiting of the truck from the Port.

3.5.2 Clearing Process for Transit Containers

The process for clearing transit containers through Mombasa port is equally, if not more, complex and involves 27 distinct steps. These are illustrated in the figure below, and described subsequently[11].

Figure 3-9: Flow Chart of Clearance Process for Imported Transit Containers



The steps involved in clearing transit containers through Mombasa Port are listed below.

1) Importer receives shipping documents direct from his Supplier/Shipper or through his bank. He then forwards the following documents to his Clearing Agent:

[11] Diagram and details provided courtesy of Maritime Freight Company Ltd, clearing and forwarding agents, Mombasa.

- One copy of the Suppliers Invoice
- Negotiable Bill of Lading duly signed by the Shipper and him on the reverse
- One copy of the Packing List, if any
- Original Fumigation Certificate if the shipment consists of second hand Clothing or Foodstuffs
- Original Phytosanitary Certificate if the shipments consist of Grains
- Copy of Passport if shipment consists of Personal Effects or Personal Motor Vehicle
- Copy of the Log Book if the shipment consists of a secondhand or reconditioned vehicle.

2) On receipt of the necessary shipping documents, a Clearing Agent opens a Consignment file for the shipment.

3) A Clearing Agent first obtains the Manifest number from the Shipping Line.

4) A Clearing Agent then registers a Transit Entry on line on Customs Form C17B using regime code T810 with the Customs Document Processing Centre (DPC) in Nairobi through the Simba System.

5) After checking the correctness of the declared particulars of a transit shipment against the Ships Manifest registered with them by the Shipping Line the DPC passes the Transit Entry and informs the Clearing Agent on line through the Simba System.

6) i) Simultaneously the Clearing Agent surrenders the negotiable Bill of Lading to the Shipping Line together with a letter from the Importer confirming his appointment as Clearing Agent.

ii) The Clearing Agent obtains a Delivery Order from the Shipping Line after paying their charges.

The Shipping Line charges most commonly paid by a Clearing Agent are:

- Terminal Handling Charge on containers;
- A Delivery Order Fee;
- A Handling or Lift On/Lift Off charge on containers;
- A Container Cleaning Charge;
- An In-Transit Service Charge or Container Service Charge on containers.
- Container Equipment Management Fee
- International Ship & Port Security (ISPS) charge.

7) After the Shipping Line has issued an original Delivery Order to a Clearing Agent, it sends either a soft copy or duplicate copy of the Delivery Order to KPA Office at One Stop Centre.

8) After a Transit Entry is passed by DPC, a Clearing Agent prepares a Pink Folder containing the following documents and lodges it with Customs Long Room:

- Original, Duplicate, Triplicate, 2 Quadruplicate & Quintuplicate copies of passed Transit Entry;
- Suppliers Invoice;
- Copy of Bill of Lading;
- Copy of Packing List, if any;
- Copy of Log Book, if the shipment consists of a Motor Vehicle;
- Original Fumigation Certificate if a shipments consists of S/H Clothing or Grains;
- Original Phytosanitary Certificate if a shipment consists of Grains;
- Copy of Passport if a shipment consists of Personal Motor Vehicle or Personal Effects.

9) On receipt of the Pink Folder, Customs Long Room put a Received Stamp on one of the two Quadruplicate copies of the Transit Entry and returns it to the Clearing Agent and then dispatches the Pink folder of clearance documents to:

- their office at Shed No.7 for containers discharged and stacked at RO/RO yard; and
- their office at One Stop Centre for containers discharged and stacked in the Terminal,for further processing.

10) Customs at two offices referred to in (9) above peruse the shipping documents in the Pink Folder and decide if they want to give a Direct Release to the transit goods or stop them for Scanning or physical verification depending on the nature of cargo or any intelligence report they might have received in advance. If Customs decide:
(i) to give a 'Direct Release" to the transit containers, they release it on line in the Simba system;
(ii) to stop a transit container for Scanning or Verification they convey their decision to KPA at One Stop Centre through a Memo system.

11) KPA transfers containers stopped by Customs for scanning or verification to the Scanning Unit or designated Verification area, as the case may be.

12) If no discrepancies are found in a container after scanning or verification, Customs forward the relevant Pink Folder with their examination account to their office at One Stop Centre for release of the container on line in the Simba system.

13) In both the scenarios stated in 10 (i) and (ii) above Customs do not give a copy of their Release Order to the Clearing Agent but give an on line release of the shipments to KPA in the Kwatos system.

14) If other Government Agencies have an interest in the transit goods, they verify the same and give their release to KPA in the Kwatos system before Customs give their release.

15) The Clearing Agent hands the stamped Quadruplicate copy of T.E. together with the original Delivery Order from the Shipping Line to KPA Office at One Stop Centre for

marrying with either soft copy of Delivery Order sent on line or the duplicate copy of the Delivery Order sent to KPA direct by the shipping line.

16) The KPA office at One Stop Centre after marrying the two copies of Delivery Orders issues an on line release of the shipment in their Kwatos system.

17) i) The Clearing Agent now registers a Pick-Up Order with KPA through the Kwatos system.
ii) At this stage the KPA office at One Stop Centre interfaces the Kwatos system with SAP at Port Accounts Office on line.

18) Once KPA Kwatos Office gives a go ahead on line, the Clearing Agent generates a Ticket for Cash Payment which is taken by him to Port Accounts Office for payment of Port charges.

19) i) The Clearing Agent in consultation with his transporter determines how many vehicles will be required to transport a given shipment to its final destination.
ii) The Clearing Agent then obtains vehicle numbers from his transporter and registers Road Customs Transit Declaration on line through the Simba system on Customs Form C17B using regime code T812 for each vehicle.

20) After a T812 is passed by Customs DPC the Clearing Agent submits it to:

i) Customs at One Stop Centre for on line release of a container lying at Container Terminal through the Simba system;
ii) Customs at Shed No. 5 for on line release of a container lying at RO/RO yard through the Simba system.

21) After a T812 is released by Customs at Shed No. 5 or One Stop Centre, as the case may be, the Clearing Agent takes copies of T812, relevant T810, Transit Goods License and Road Toll, if it is a foreign registered vehicle, to:

i) Customs at Exit Gate No.18 for up loading of the necessary information from these documents into their Simba system for containers lying in the Container Terminal;
ii) Customs at Exit Gates 1 or 10 for up loading of the necessary information from these documents into their Simba system for containers lying at RO/RO yard.

22) After determining the number of trucks required to complete transportation of a shipment the Clearing Agent goes to:

(i) Customs at Shed No.5 to generate an F147 for payment of the cost of required number of Customs Container Seals for a shipment;
(ii) Either the National Bank of Kenya or Co-operative Bank of Kenya to pay for the cost of the Seals.

23) After having paid the applicable charges to KPA as per their Tariff, a Clearing Agent submits the original KPA Invoice of charges together with copies of their Cash Payment Ticket, Customs Transit Entry (T810), Road Customs Transit Declaration (T812), Transit Goods License and Road Toll, if it is a foreign vehicle, to the KPA Booking Office at Gate 18 and obtains a Position Slip for the transporter to bring in his vehicle to load the transit containers from the Port.

24) After a transit container is loaded on to a booked truck from the RO/RO yard or Container Terminal, the Clearing Agent takes the Position Slip to the Customs Office at the applicable Gate for validation in the Simba system.

25) Thereafter the loaded truck proceeds to the nominated Exit Gate for final checking, recording and sealing by Customs Officers stationed there.

26) The Clearing Agent then takes the relevant documents to KPA Security Office at the nominated Exit Gate for generation of an electronic Gate Pass and issuance of Container Interchange Receipt.

27) The Clearing Agent takes the KPA Gate Pass, Certificate of Incorporation of the Importer and all the other relevant documents for a loaded truck to the Police Officers stationed at the nominated Exit Gate for final checking and exiting of the truck from the Port.

Overall, the multiple steps which are required to clear both local and transit containers illustrate the reasons for delays along the logistics chain, and the reason why port / customs clearance through Mombasa was sited by most stakeholders as the leading barrier to smoother transit flow in the region. In the next section, we consider the specific delays associated with customs procedures in particular.

3.6 Customs Procedures

Customs administrations are a critical component in the efficiency of international trade as they process every consignment to ensure compliance with national and regulatory requirements as well as international trading rules. Customs agents have the responsibility of revenue collection, protection of society and safeguarding the supply chain, as well as enhancing trade facilitation to promote investment and reduce poverty.

An open economy like Kenya, and one which is a gateway for so many landlocked countries, faces significant demand for trade facilitation on the part of customs administration and other government agencies with border responsibilities.

A number of specific problems have been identified that delay the release of goods from customs, including the following. Note that some of these problems are the result of actions by customs (KRA) in Kenya, but others are due to actions (or lack of actions) by other stakeholders such as shipping lines, C&F agents and other regional agencies:

- Frequent breakdowns of the online KRA Simba customs entry system;
- Delayed payment of duties and taxes and other charges such as storage fees;
- Delayed lodgement of declarations in the online Asycuda++ system and submission of supporting documents;
- Documentation checks based on transaction rather than risk management;
- Over control of transactions resulting in checking and rechecking of the same information by several different sections of customs;
- The process of verifying documents and other related information (particularly requesting detailed information from suppliers abroad) is time consuming and prolongs the time taken to accomplish a declaration;
- Poor quality of declarations made by importers resulting in rejections and queries;
- Lack of interface between Kenya customs administration and key players such as MAGERWA (Dry Port, Rwanda) and other intervening agencies;
- Some customs operations are not online (e.g. amendment to the ship manifest); and
- Inadequate equipment at the port of Mombasa required for movement of goods to the examination and offloading areas.

3.6.1 Findings of KRA Time Release Study

In July 2005, KRA implemented a new electronic customs system (Simba 2005 System)[12] to replace the Bishops Office Freight Forwarders Integrated Network (BOFFIN) system that was implemented in 1989. The implementation of Simba 2005 system has yielded considerable gains in the Customs clearance process, and coupled with centralization of the Document Processing Centre (DPC) has led to gains in the declaration process as well. However, the gains have been somewhat eroded by the onerous verification process at release points, and there is certainly scope for improvement for what is (or should be) largely an automated system.

In June 2007, KRA undertook a large study on the post-Simba release performance[13]. The scope of the study included measuring the time from arrival of goods at a port, airport or land border station until they are released and physically removed from Customs control. Participation of Customs agents/brokers and other institutions that in one way or another intervene in the Customs clearance process through authorizations, inspections or checking of goods and documents was taken into account.

The study covered all commercial goods declared in the single entry document (C63) during the period specified. The type of goods surveyed included all import and transit goods entering the country during the period of study. The survey results are based on randomly selected 3,447 import and transit entries in the most important customs stations: Nairobi, Jomo Kenyatta International Airport, Mombasa, Eldoret, Kisumu, Pepe, Isebania, Busia, and Malaba. The main findings of the study are summarised below for key points along the Northern Corridor logistics chain.

[12] Simba 2005 system is similar to the GAINDE System of Senegal.
[13] Post-Simba Time Release Study, Kenya Revenue Authority, June, 2007

Figure 3-10: Time for customs clearance at key Customs Point along Northern Corridor in Kenya

Customs Point	Description	Time / Delays
Mombasa	Busiest and most strategic customs station in Kenya, because all goods (Kenyan and transit) must pass through the port.	Folders containing declaration documents are presented to the Customs release points after clearing agents make payments of the self-assessed taxes in the bank. • The mean time taken by Customs to release goods is **7 days, 7 hours and 57 minute**s. • The mean time from arrival to removal of goods from Customs control is **9 days, 18 hours and 14 minutes.** • The mean time taken to lodge documents is **2 days, 8 hours and 11 minutes** after arrival of goods. • The mean time taken to remove goods after release is **6 hours, 33 minutes**.
Nairobi Station (Embakasi ICD)	Nairobi station is housed at the Embakasi ICD. The station handles all importations that are discharged in Mombasa and transported by railway to the ICD at Embakasi.	The documents are lodged at the centralized DPC in Times Tower (KRA Headquarters, 15km from Embakasi) for processing and collection of the relevant taxes before folders are dispatched to ICD Embakasi for verification and release. • The mean time taken by Customs to release goods is **16 days, 21 hours and 4 minutes**. • The mean time from arrival to removal of goods from Customs control is **16 days, 12 hours and 20 minutes.** • The mean time taken to lodge documents is **2 days, 2 hours and 22 minutes** after arrival of goods. The mean time taken to remove the goods after release is **6 hours, 34 minutes.**
Kisumu Station (Kisumu ICD)	Kisumu station has an ICD and a lake port on the shores of Lake Victoria that handles importations of goods within the East Africa Region. This station is located in Kisumu City approximately 350 Kilometres west of Nairobi.	The station handles importations that are discharged in Mombasa and transported by railway to the ICD at Kisumu. • The mean time taken by Customs to release the goods is **3 days, 4 hours and 32 minutes.** • The mean time from arrival to removal of goods from Customs control is **7 days and 21 minutes.** • The mean time taken to lodge documents is **3 days, 4 hours and 32 minutes** after arrival of goods. • The mean time taken to remove goods after release is **2 hours and 42 minutes**.
Malaba Station (Kenya/Uganda border)	Malaba border is approximately 600 Kilometres west of Nairobi. This station normally handles goods in transit to and/or from Uganda, DRC, Rwanda and Burundi.	The documents are lodged at the centralized DPC in Nairobi for processing and collection of the relevant taxes before the folders are presented to the station for verification and release. • The mean time taken by Customs to release the goods is **2 days, 13 hours and 24 minutes**. • The mean time from arrival to removal of goods from Customs control is **4 days and 38 minutes.** • The mean time taken to lodge documents is **2 days, 1 hour and 40 minutes** after arrival of goods. • The total mean time taken to remove the goods after release is **44 minutes**.

3.6.2 Other Causes of Delay in Customs Clearance

The following are some of the additional causes of delays in the Customs clearance process.

Delays on the part of Customs

1. Simba downtimes affect the processing of entries at DPC and at release points since release and removal are done online.
2. Cargo scanning causes delays, especially when scanned containers are subjected to 100% verification.
3. There are inadequate staffing levels especially at the release points.
4. Investigation and enforcement officers take too much time before verifying cargo they have stopped.
5. There is an unreliable valuation database.
6. Inadequate facilities, especially shortage of computers, which forces officers to share the same facilities.
7. Unreliable internet connectivity more so in places where officers have to rely on the operator's system.
8. Delay in acceptance of entries as a result of delays associated with submission of payment information by banks (payment of customs and other duties can only be made at two national banks).

Delays on the part of Port/Shed Operator

Significant time is consumed in the case of goods subjected to examination between the time Customs is ready for examination and the time the goods were actually made available for examination. This portion is usually attributable to Port/Shed Operators, and includes:

1. Long delays associated with transferring cargo from the Port to the CFSs.
2. Delays associated with the intervention of other Government bodies.
3. Delays associated with stripping of containers due to lack of gang labour and change in shifts. This is exacerbated by lack of equipment to strip containers.
4. Verification space for 100% verification is quite far off from the One-stop Centre.
5. The Mombasa Port Release Order (MPRO) takes a lot of time before it is brought back to allow for verification.

Delays on the part of Importers/Agents

Further delays are caused by importers, shipping lines and C & F Agents.

1. Delays related to submission of inbound manifest by shipping lines.
2. Delays in submission of original documents required by Customs.
3. Misdeclarations resulting in rejections.
4. Delays associated with Clearing Agents taking time to secure Port charges.
5. In some cases, the Agents await the payment from their clients (importers) before

making the duty payment.

6. At times, Agents do not make payment for each consignment but rather consolidate the total number of consignments for that day and make a single payment for all consignments at the end of the transaction for the day.
7. Importers/Agents take time before they secure exemption letters for goods that require duty exemption.

3.7 Kenya Port Authority Charges

All traffic imported or exported through the port of Mombasa is subject to the Kenya Ports Authority Tariff.

There are charges for marine services and ship dues, charges for stevedoring services applicable to conventional cargo and containerized cargo and charges for shorehandling, wharfage and storage again applicable to conventional cargo and containerized cargo.

Containers are subject to the following KPA charges for loaded containers expressed in US dollars.

Figure 3-11: KPA Tariffs, US $

	20'	40'
Stevedoring:	$90	$135
Shore-handling (Imports - Domestic):	$90	$135
Shore-handling (Exports - Domestic):	$45	$ 68
Shore-handling (Imports - Transit):	$72	$110
Shore-handling (Exports - Transit):	$35	$ 55
Wharfage:	$60	$ 90

Therefore, the total charges incurred at the port are as follows for the main types of loaded container traffic.

Figure 3-12: Total Tariffs, Domestic and Import Containers, US $

	20'	40'
Imports - Domestic	$240	$360
Imports – Transit	$222	$335
Exports - Domestic	$195	$293
Exports – Transit	$185	$280

There are also storage charges if the number of free days (5 days for domestic imports and 11 days for transit imports) are exceeded as well as a re-marshalling charge of US$ 100 and US$ 150 for 20' and 40' containers respectively.

The costs for **grain traffic (at KPA conventional handling facilities)** are summarised below.

- Storage in their 24 bulk silos: 10 US cents per tonne per day for first week; after 7 days increases to 25 cents per ton.
- Storage in warehouse: KSH 500 per Metric Tonne at first, and after 4 weeks increases to US$8 per metric ton
- They charge the following for the handling:
    - Stevedoring: US$6.50 / tonne
    - Terminal Handling US$4.50 / tonne
    - Delivered bagged: $4 / tonne
    - Delivered in bulk: $1.50 / tone
    - TOTAL: between $12.50 (bulk) and $15 (bagged) per tone

CFS / ICD system

The CFS and ICD systems were conceived by KPA. The Port of Mombasa has storage capacity for 14,000 TEU. At one stage they went up to 18,000 TEU with major delays for ships. Shipping lines were threatening to start charging KPA a surcharge. So KPA developed the CFS / ICD system of warehousing. Goods are held in a CFS while awaiting clearance from customs. The CFS are used exclusively for goods destined for the domestic Kenyan market, not for transit goods. The one exception is transit vehicles which are sometimes cleared through a CFS.

There are 3 ICDs fed by rail, and a total of 16 CFS.. All CFS are run by private companies and need special licences from KPA and KRA.

- **CFS list:**
    - African Line Terminal Logistics
    - Awanad
    - Bossfreight
    - BPII Mitchell Cotts(inside the port)
    - Compact
    - Consolbase Ltd
    - Grain Bulk Handling Ltd
    - Interpel
    - Kenkont
    - Kipevu
    - Makupa
    - Mitchell Cotts
    - Mombasa Container Terminal
    - Mombasa Container Terminal II
    - Portside
    - Regional (inside the port)

- **ICDs:**
    - Kisumu
    - Embakasi (Nairobi)
    - Eldoret

3.8 Shipping Line and CFS Charges

3.8.1 Shipping Line Charges

While the KPA port charges are not strongly contested by the shipping community and were recently established by KPA at competitive levels, there are numerous additional charges which customers are being subjected to by the shipping community and which are perceived as being harmful to the economies of Kenya and other EAC countries which are served by the Northern Corridor.

The following table lists these additional charges, some or all of which are charged by shipping lines for every journey.

Figure 3-13: Additional Shipping Line Charges

Fee	Amount per container	Reason
Delivery order fee	US$ 60 - 65	This fee is charged for issuance of a letter of release for shipped goods in exchange for the bill of lading and appears to be a practice unique to Mombasa.
Lift on / lift off charge	US$ 20 - 40	The level of this charge appears to be significantly higher than the costs of performing the activity.
Container cleaning charges	US$ 10 - 25	While this is a valid charge when actual cleaning services are required, it appears that it is being systematically assessed by all shipping lines operating in the port of Mombasa.
Container deposits	US$ 500 - $5,000	The higher deposits apply to Transit containers; while it is reasonable for shipping lines to take measures to ensure the return of the container, it serves as a form of guarantee against which all other fees are deducted before the remaining balance is refunded much later, providing the shipping lines for free cash flow at the expense of shippers and receivers.
Administration fee	US$ 40	Also referred to as Container Service Charge: A charge introduced for collecting demurrage charges in excess of deposits.
Container handling charge	US$ 25	Shipping lines and agents assess this charge.
Container demurrage charges	US$ 4 to $14/day	These levels appear to be much higher than the rental costs of containers. Frequent delays with CFS clearance and transit delays mean that in most instances, importers are paying demurrage charges.
Container repair charges	Vary by circumstance	Actual charges are much higher than the real cost of repairs
Transit service charge	US$ 60/TEU	The basis for this charge has not been properly documented.
Bill of lading fee	US$50 – US$ 60	When this is assessed in addition to the delivery order fee, it is clearly an unjustified charge.
Equipment management fee	US$ 50 - 100	No justification basis.
Amendment to bill of lading fee	US$ 30 - 50	Level of charge seems much higher than actual costs.
Manifest correction	US$ 30	Charged for any correction in the manifest.

Fee	Amount per container	Reason
Handing over fee	US$ 25	This charge, assessed per document, is sometimes made by shipping lines or agents to hand over documents to independent clearing agents in an attempt to have them use their own services for these activities.
Terminal Handling Charge	US$ 90 – 135	This charge seems to be a duplicate of that assessed by KPA.
ISPS Code Security Surcharge	US$ 6 -12	International Ships and Port Facility Security (ISPS) Code
Destination Documentation Fee	US$ 60	
Peak Season Surcharge	US$ 200 - $300	Surcharge implemented in busy seasons.
Drop off Charges	US$30 – 40	No justification.
Piracy Risk Surcharge	US$50 – 150	Reflecting increased costs and risks from piracy of the east cost of Africa.
Emergency Risk Surcharge	US$ 100 - $200	Some lines could charge higher up to US $ 600
Releasing Charges	US $ 100	No justification.
Miscellaneous fees	US $40	
War risk Surcharge	US$12	Appears similar to piracy risk and emergency risk surcharges.
Vessel Delay Surcharge	US$100 – 400	Not clear how this is justified.

Source: Consultations with stakeholders and information provided by Kenya Maritime Authority in September 2010.

There may be additional shipping line charges on top of these, which vary by journey and type of cargo, including:

- Dangerous cargo surcharge
- Emergency bunker surcharge
- Bunker Adjustment Factor (BAF) surcharge
- Currency Adjustment Factor (CAF) surcharge

Overall, the additional shipping line charges generally increase logistics costs by at least $1,000 per shipment. **For the purposes of our quantitative logistics cost analysis, we have assumed additional shipping line charges of US$ 1,500 per TEU for domestic containers, and US$2,500 per TEU for transit containers (excluding container demurrage charges which will vary according to land transport time).**

3.8.2 CFS Charges

Although the KPA tariff provides for a handling charge for Import and Export containers at the CFS of US$ 35 and US$ 52.50 for 20' and 40' containers respectively and that its policy is for the "Nominated" CFS to apply the KPA tariffs, we have seen evidence to the fact that some CFS

operators are charging substantially more or adding additional charges as compared to those contained in the KPA tariff; examples of these increased or additional charges are as follows[14]:

- Re-marshalling: US$ 150
- CFS Handling: US$ 110
- Transfer from KPA to the CFS: US$ 120

Overall, **these increased or additional CFS charges represent approximately US$ 380 per container for domestic shipments**. We also understand that the CFS stations are increasingly congested, leading to greater delays in clearance, which in turn is causing importers to pay higher demurrage charges.

The current situation is considered unacceptable to the customers and agencies involved in the clearing, handling and logistics supply chain. To address the perceived unfairness and duplication of functions in port processes, the KMA is developing regulations to operationalise the Merchant Shipping Act 2009. The regulations, once implemented, will amongst other things, streamline the industry and bring about commercial fairness in the maritime sector. The regulations are being developed by KMA in consultations with other maritime stakeholders and Government Agencies. One of the concepts which has been included in the regulations is that of "Service Level Agreements". These would be Agreements between the KMA and the various service providers such as port operators, CFS, shipping lines, shipping agents, cargo consolidators, clearing agents, and empty container depots, which would set the fees, processes and standards which the various parties need to respect. These standards will enable a clear transfer of responsibility for the additional costs incurred for a given shipment: e.g. if a major delay is occurring for a shipment which is caused by a maritime service provider not complying with the service level agreement, then they will be responsible for the additional charges. The regulations are expected to come into effect by the end of 2010[15].

3.9 Dwell and Transit Times at Mombasa Port

There are two main components to the dwell times at the port of Mombasa: the time the cargo or containers spend while the ships wait to dock and the time from cargo or containers unloading to departure from the port.

One of the most often sited problems with clearing has to do with delays in lodging the ship manifest information online. Mombasa is a feeder port and can only accommodate ships up to 4,000 TEU size. As such, larger containers ships generally call at Salala (Oman), Jebeleli (Dubai) or Durban (South Africa) and then tranship goods to Mombasa on smaller vessels. The sailing time from these ports is about 5-6 days. Local shipping agents generally prepare a complete ship manifest locally and transmit it electronically to the KRA Simba customs system. However, KRA does not allow electronic changes to the ship manifest once entered (any changes must be approved manually in Nairobi). The shipping lines (with only 5-6 days

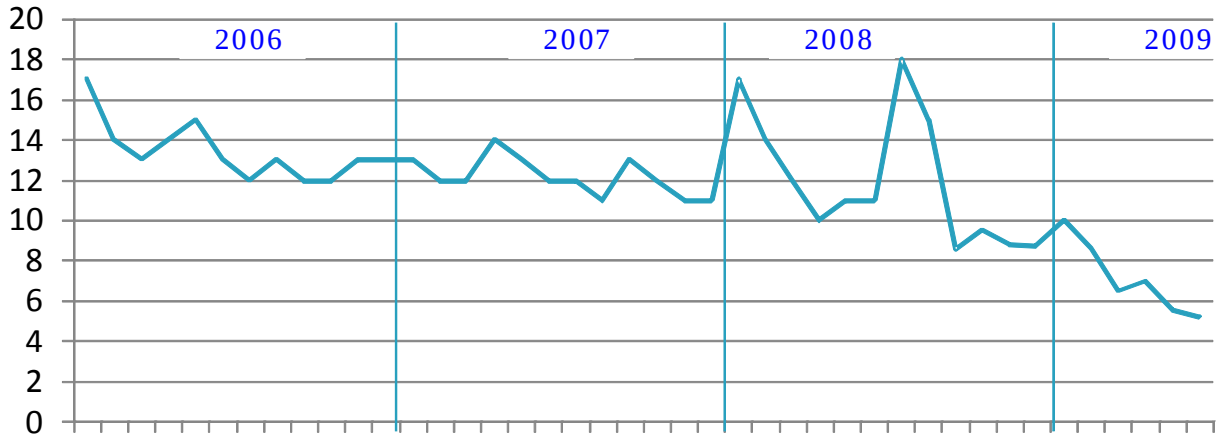
[14] In recent months, these charges have been adjusted and removed in some cases. Whether or not the charges are laid by the CFS will sometimes depend on how informed the shipper is.
[15] Information provided by KMA as part of Kigali Stakeholder Workshop, September 2010.

between destinations) sometimes leave it too late to provide the final ship manifest details to local clearing agents. The timing is often such that the local agents do not get the ship manifest information quickly enough to enable them to lodge a customs entry online prior to the ships arrival. Changes to the KRA system to allow ship manifest adjustments online would likely alleviate this situation and reduce delays (and stress) at the clearing stage.

The average waiting time for ships to dock at the port of Mombasa was approximately 2 days in 2008 and 2009. We will therefore assume that in addition to the dwell times measured at the port of Mombasa once the traffic has been unloaded, there is a two day waiting time while the ships are at anchor, waiting to dock. This applies equally to all modes of land transportation. We however understand that the ship waiting time at the Kipevu oil terminal fluctuates differently from that of other bulk or container ships and we have been told that at certain times of the year, it is much longer than the 2 day average for all the ships calling at the port of Mombasa.

The average dwell time (once the ship is docked) is measured at the port of Mombasa's container terminal on a monthly basis. The following graph was prepared by Mr. Kennedy Muema, Logistics Manager at KPA, and presented at the Regional Conference on Northern Corridor Transport & Trade Facilitation, 30th Sept-1st Oct 2009.

Figure 3-14: Monthly Average Container Dwell Time (days)



Before the introduction of the CFSs in October 2007, the monthly average dwell time for import containers **at the port's** container terminal ranged from 12 to 14 days. With the introduction of the CFSs, the average monthly dwell time has been ranging between 4 to 6 days for the 9 months period ending in October 2009 and represents the average dwell time for transit traffic which is normally kept at the container terminal for clearing and transfer to the delivery transport mode.

When considering these numbers, however, one must take into account the fact that with the CFS concept in 2009, 40% to 45% of the containers which were for domestic delivery were transferred to a CFS and that generally 95% of the physical movements of the containers being transferred to a CFS are completed within a 24 hour period from ship discharge; these

containers are therefore being assigned one day only in the calculation of the average monthly dwell time at the port's container terminal. As such, the improved average dwell times disguise the fact that there may be delays still taking place at the CFS stations. In other words, to some extent the delays have been transferred from the port to the CFS and importers may not necessarily be getting their goods any quicker.

The ICDs and CFSs were also canvassed by the KPA Container Terminal Manager for their average dwell times and reported a fairly consistent average of 8 days.

The consignee or his agent are responsible for the biggest portion of the total time required for clearance since it took on average between 6 and 20 days average per sample for an entry to be made in the SIMBA system from the date of the ship manifest.

Delays for domestic shipments are the major problem, causing up to 2 weeks of delay to the clearing process. This means the shipper must incur charges for storage of goods at the port or CFS. These charges start at about $25/day per container (after the grace period of no charge: 5 days for domestic goods, 11 days for transit goods), but then increase up to $100/day per container. Interviewees indicated that customs valuation officers at the port are often highly inexperienced and this causes delays for domestic goods shipment, as officers do not know how to value some goods and send back paperwork for no reason.
Many interviewees also noted that the situation and relationship between the CFS and KPA is not favourable for logistics costs. CFS are supposed to charge the same rates as KPA for storage, and have limited additional avenues for revenue generation other than demurrage charges. They therefore have an incentive to increase delays, to obtain additional demurrage charges. KPA makes the final decision regarding where containers will be sent (e.g. staying in the port or going to a CFS). We understand there is associated corruption between the KPA and the CFS in terms of the nomination / allocation of containers to individuals CFS sites, as CFS stand to benefit from each additional container they store, especially beyond the free period.

At the Stakeholder Workshop held in Kigali in September 2010 to discuss the Draft Final Report for this study, a number of participants noted that KPA should take greater responsibility for ensuring the CFS system is fair and genuinely an extension of the port. Stakeholders felt that if KPA has chosen to outsource cargo storage to third parties (CFS), KPA should still take responsibility for ensuring adequate service levels and should still have responsibility for preparing invoices to shippers, importers, etc. In summary, KPA should remain the lead contact for storage of goods in Mombasa, whether the goods are at the port or at the CFS.

Some shipping lines can also control where their containers are kept before clearing customs, and preferential rates for large shipments are negotiated by very large shippers with CFS locations. The costs are ultimately borne by the final importer.

Overall, the total delays for clearing a container through the port or CFS depend heavily on when the ship manifest is lodged. If the ship manifest is lodged at lease 2 – 3 days before docking, the delay for clearance will be about **5-6 working days** from ship docking to exiting the port, or **7-8 working days** if using a CFS. If the ship manifest is only lodged 24 hours or

less before docking, the clearance will take longer; an average of **7-8 working days** from ship docking exiting the port, or **9-10 working days** if a CFS is used.

3.10 Approach to Identifying Delays

In the analytical country chapters which follow, we summarise the clearing delays at the port for each country using the table format below, showing the lower, average and higher number of days required for clearance. This enables us to calculate the unreliability of customs clearance which in turn has a significant impact on logistics costs

Figure 3-15: CPCS Format used to Identify Delays at the port

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port								
Time needed for the consignee or his agent to present all needed documents								
KRA (customs) average time required to release the goods, once an entry was made in the SIMBA system.								
Total clearing delays								

3.11 Additional Issues for Goods Movement through Mombasa Port

3.11.1 Grain Traffic Handling and Cost Issues

A number of stakeholders interviewed raised concerns regarding the current grain handling and storage regime in Mombasa, and the impact it has on grain costs in the region.

Grain Bulk Handlers Ltd (GBHL) is the largest bulk grain handling and storage facility at the port, handling the vast majority of grains which are imported through the Port of Mombasa. From the facility, grain can be offloaded direct from a ship, bagged, stored and loaded onto train or truck from the facility. GBHL handles about 75% - 80% of grain at the port, with other grain handled at KPA's conventional berths. The facility is also designated as a CFS, and un-cleared customs cargo can be offloaded from ships and stored until customs is

cleared. GBHL is discharging an average of 11,000 tonnes per day while the conventional berths can only discharge about 2,500 tonnes per day.

Kenya produces 20% of its wheat consumption and is unable to increase acreage due to soil type and weather considerations. Therefore, it will continue to import wheat from Ukraine, Argentina, Russia, United States of America and Australia. Presently, imported wheat constitutes 80% of Kenya's wheat requirements. Kenya was self sufficient in maize until the year 2008, when post election violence and adverse weather affected maize production and the country had to import maize. For 2009, maize was expected to account for 50% of total grain imports. Current weather pattern predictions by the various food monitoring agencies predicted a shortfall in maize harvest for the year 2010. Yellow maize for animal feeds is also imported through the port of Mombasa. Uganda and Rwanda import 100% of their wheat requirements through the port of Mombasa as they do not grow wheat. Somali-bound relief grain cargoes (sorghum) also pass through the port of Mombasa, imported by the World Food Programme.

Given the strategic importance of GBHL in grain handling activities, it is important to note some of the challenges and risks with the current situation. As mentioned above, GBHL is able to handle more grain, more quickly than the conventional grain handling facilities. GBHL manages the only grain conveyor belt, and has the only license to operate the ship unloader (portalink) connected to the conveyor which conveys the grains to their silos which are located adjacent to the port. In effect, GBHL operates as a monopoly. Conventional grain handlers exist, but are not the preferred choice as they have to date not been licensed to put up a similar conveyor facility to GBHL. They use the old vacuvators and bagging type equipment at the quayside, which is slow and expensive.

The following factors contribute to increasing the costs of grain in the region.

- **Tariff differential:** the tariff rate differential charged by KPA for the vacuvator system is US$ 10 per tonne while KPA charges only $US 3.5 per tonne for those who use the conveyor system. This differential in rate makes the conventional grain handlers unable

to compete with the GBHL grain handler, but there is also no competition from another grain handler.

- **Discharge rate:** The discharge rate by the conventional handlers is 3,000 tonnes per 24 hours compared to more than 9,000 tonnes per 24 hours capacity by the monopoly conveyor. This has an impact on the freight rate computation as it takes three times the number of days to discharge using vacuvators compared to conveyor.
- **Long term storage:** GBHL has 135,000 tonnes of silo capacity plus flat storage warehouses. However, they do not encourage long term storage in bulk at their terminal and tend to bag grain imports (at a fee) which are then transported to flat storage warehouses. This results in double handling costs plus bagging costs pushing up the landed cost by US$ 15 per ton. The reason for their reluctance on long-term storage is that should they accede to long term storage in bulk in their silos, and the silos will be full leading to inability to discharge subsequent grain ships.
- **Queuing system:** When importers want to pick their cargoes from the GBHL silo terminal, it is on a system of allocation for the cargo collecting trucks. This results in trucks queuing for up to 3 days at the GBHL silo terminal. This forces transporters to factor in the truck waiting time to cargo receivers and also has an effect of pushing up the landed cost of grain. The reason for the truck delays being that the silo terminal can only make one type of delivery per time, while it handles maize, yellow maize and various types of wheat. The delays also impact on production schedules for milling plants that at times are forced to mill below their planned production schedules. This has an impact on the final product as reduced production quantities have an effect on final product per unit cost.
- **Parking congestion:** A recent article noted that transporters have complained over the past two years about lack of parking space at the GBHL facility, thereby further slowing movement of the grain from vessel to market. GBHL does not use an appointment system to engage trucks to delivery trains from the terminal, which causes traffic overflow and slower discharge from the terminal[16].

Stakeholders across the region have highlighted to need to revisit the effective monopoly structure of GBHL, and the other barriers which are in place to lowering the price of grain handling through the Port of Mombasa. We understand that a number of investors have expressed an interest to offer grain handling services at a lower charge fees if they were licensed appropriately to operate a grain conveyor system. The existence of additional handlers would lower ship demurrage charges, as some ships are required to wait for days at Mombasa port before they can unload as there is only one conveyor grain handler. The situation is further compounded by the fact that Dar es Salaam port is constrained to offer competing services as they do no have a modern bulk grain handler like the GBHL facility.

We recommend that given the critical importance of grain as a food source for the region (for people and livestock), further consideration be given to the licensing of additional grain handling conveyor facilities. This would serve to increase competition with GBHL and ultimately to lower the cost of final product to consumers across the region.

[16] "Mombasa, Dar to face off over grain handling", East African Magazine, January 25-31, 2010. Article by Githua Kihara and Gitonga Marete, with comments provided by Kenya Transport Association.

3.11.2 Bond Requirements for Transit Goods

Policies developed at the EAC level specify how transportation of transit goods should be undertaken in the region. National governments are then responsible for developing and implementing legislation and regulations which support the EAC policies. In practice, however, national governments do not always implement the provisions of the EAC customs policies.

In Kenya, transit goods are goods imported into Kenya (via Port of Mombasa or another border point) which are destined for consumption in a market outside Kenya. These goods are exempt from payment of any Kenyan (or EAC) import taxes or duties within Kenya; any such taxes or duties are paid only upon entry into the final country of consumption. When transporting transit goods through Kenya, the shipper/transporter is given a prescribed period of time for the goods to leave the country, after which point duty payments become due to KRA. Extensions to the length of time can be obtained from KRA, and we understand that the first extension is quite simple, but extensions beyond the initial time frame are more difficult to obtain.

Electronic seals are placed on transit containers with risky goods (high value, dangerous). Normal (non electronic) seals are applied for normal transit goods. The Kenyan authorities are trying to use the e-seal system to replace the need for police and customs convoys, but we understand there are not enough e-seals available right now. The KRA/customs pays for the cost of the e-seals. There are beacons/places along the road to Malaba border post where the e-seals are read electronically, at Mariakani, Athi River (outside Nairobi), Gil-Gil and at Malaba where the e-seal is removed.

Transit goods also require the use of Transit Bonds. These are usually arranged by the clearing agent, and are issued through a bank guarantee. The value of the bond is equal to the value of the VAT, duty and excise which would be paid if the goods were staying in Kenya. More specifically, according to one clearing agent interviewed, the bond value usually covers the following:

- Cost Insurance Freight (CIF) value of cargo
- Value Added Tax (VAT) of 16% in Kenya on most goods
- Duty (variable based on product being imported)
- Government of Kenya Fee (2.25% of CIF value)

In total, the value is known a “Bond in Force (BIF)” amount.

The Bond Fee (or price to have the bond) that the insurance companies charge is about 0.5% – 1.5% of value of BIF. Clearing agents will also add a fee if they arrange the bond. This is either a flat amount based on how much time and effort it will take them to arrange handle and cancel the bond, or sometimes a percentage of the BIF value. It depends on the client and the means of transport. For road transport, agents usually work on a flat fee (rather than a % of BIF) because they have already provided a tariff to a shipper before knowing exactly what the cargo consists of, and they just estimate a fee that would cover the bond fees and handling charges. The bond handling involves ensuring the bond documents are endorsed at the exit

points of Kenya and Uganda (or another border) and returned back to Mombasa for checking. Then from Mombasa, the agent has to return the bond documents to KRA customs in Nairobi. But, this process is likely to get quicker with automated KRA cancellation (see below).

Larger clearing agents will usually have a rolling bond arrangement whereby at any given time they have one large bond amount outstanding, with associations to the various shipments they are doing the clearing for.

Once passed the border, the bond can be cancelled and another one arranged for the particular country (this will be done by the same clearing agent for a through shipment, e.g. for Uganda when going from Mombasa – Rwanda). When the truck arrives at the border, a message is posted online by the KRA official at the border stating that the truck has been verified (the customs seal is intact) and has crossed over the border. This process only became automated (online) in November 2009, and is a very positive development as it should speed up the bond cancellation process; but it is a new system so whether it is fully efficient and functional remains to be tested.

The requirement for transit bonds is supported by the EAC and COMESA. However, as mentioned above, the requirements for transit bonds currently vary across countries. National customs authorities do not always respect the transit bonds issued by their neighbours, and so shippers are required to arrange transit bonds for each country the shipment passes through. It would be more efficient if the COMESA Regional Customs Bond Guarantee Scheme was implemented fully across the region, and respected by national authorities. The scheme promotes the use of one customs bond for all countries in the region.

Some stakeholders felt that the transit bond processes were simply adding unnecessary costs and delays. They felt there should be **automation of cargo releases** at Mombasa Port, with Ugandan, Rwandan and other countries having their customs officers at Mombasa Port. The process would enable full clearing (and paying of all national taxes) at the port of Mombasa. Then, at the border posts, the customs agents would just need to check that the shipment has passed the border and that the seal is not broken. This would remove a lot of headaches (and costs) for the freight forwarders associated with transit bonds. **One freight forwarder argued that the savings to the importer would be $300 - $400 per shipment in forwarding agents fees if the clearing at the port was possible.** *One way of avoiding this cost would be for each country in the EAC to post customs officials at the port of Mombasa or other major border posts. Taxes and duties could be collected from the initial entry border point, and then the only process at the exit border point would be to check that the seal is intact. The benefit of implementation of this major change will depend in part on the expected timing of implementation of an East African Customs Union.*

4 Northern Corridor Logistic Costs for Kenya

This chapter analyses the logistics costs in Kenya, the country which accounts for the majority of total transport activity along the Northern Corridor, as a result of the presence of Mombasa port, the highway, railway and pipeline. According to almost all the operators/stakeholders interviewed, Kenya is also the location for the majority of regional transport problems, including high logistics costs. We have therefore provided an in-depth analysis of the Kenyan transport sector environment, structure, constraints and performance.

4.1 Macroeconomic performance

The macroeconomic performance for Kenya is summarized below for the period 2004 to 2008.

Figure 4-1: Performance of Kenyan Economy, 2004 – 2008

	2004	2005	2006	2007	2008*
Population (million)	34.2	35.1	36.1	37.2	38.3
Growth of GDP (constant 2001 prices)	5.1	5.9	6.3	7.1	1.7
GDP at market prices (Ksh Million)	1,274,328	1,415,724	1,622,434	1,825,960	2,099,798
GDP per Capita (current, Ksh)	37,284	40,289	44,894	49,128	54,895
GDP per capita (constant, Ksh)	32,463	33,441	34,570	36,000	35,611
Total cost of petroleum products (Ksh Million)	88,785	95,669	113,720	121,776	197,676
Trade balance (Exports vs Imports) (Ksh Million)	-149,764	-184,670	-270,489	-330,454	-425,705
Current account balance (Ksh Million)	-10,433	-19,064	-36,823	-69,638	-136,851
Net lending / borrowing (KSh Million)	2,602	-24,320	-25,823	-48,520	-118,895
Recurrent Revenue and Grants (KSh million)	300,728	329,486	387,483	468,584	549,604
Total expenditure (KSh Million)	379,830	432,591	508,846	658,080	773,006
Agriculture & Forestry GDP Growth Rate (constant 2001 prices)	1.6	6.9	4.4	2	-5.1
Agriculture & Forestry GDP contribution (%)	24.4	23.8	23.4	21.6	23.4
Manufacturing GDP Growth rate (constant 2001 prices)	4.5	4.7	6.3	6.5	3.8
Manufacturing GDP contribution (%)	10	10.5	10.3	10.4	10.6
Construction GDP Growth Rate (constant 2001 prices)	4.4	7.5	6.3	6.9	8.3
Construction GDP contribution (%)	3.8	4	3.9	3.8	3.8
Transport and Storage GDP Growth Rate (constant 2001 prices)	6.3	5.2	9	7.2	0.1
Transport and Storage GDP Contribution (%)	7.5	7.7	7.9	7.6	7.4

Source: Kenya National Bureau of Statistics, Economic Survey 2009. Figures for 2008 are provisional.

Economic growth, which began gaining momentum in Kenya in 2003, became increasingly restrained over the past five years due to a number of internal and external factors. These factors included the 2008 post-election disruptions, the global financial crisis, and high fuel and food prices. The effect of these factors can be seen from the fact that GDP growth increased from 5.1% in 2004 to a peak of 7.1% in 2007, and then dropped to 1.7% in 2008. GDP per capita in constant 2001 prices grew 32,463 Kenyan shillings to 35,611 Kenyan shillings in 2008.

The financial crisis that began in the US in 2007spread to Kenya in 2008. The effects of the financial crisis included a deteriorating account balance, declining economic growth and depreciation of the domestic currency. These effects were attributed to dwindling exports, remittances and capital inflows. The trade balance and current account balance both worsened considerably over the 2004 – 2008 period; the negative trade balance increased almost three-fold from -149.7 KSh billion in 2004 to -425.7 KSh billion in 2008, and the negative current account balance increased by over ten times from -10.4 KSh billion to -136.8 KSh billion in 2008.

The negative economic effects of the post-election violence were exacerbated in the agricultural sector by high costs of fertilizers, weather pattern changes and drought in some regions of the country. Food price shocks in 2008 put upward pressure on inflation, with headline inflation increasing from 9.8% in 2007 to 26.2% in 2008. The rise in inflation was also due in part to increases in fuel prices and the depreciation of the Kenyan shilling over the same period.

While the post-election violence only lasted a few months in early 2008, the effects were felt over a longer period throughout the economy. Almost all sectors of the economy experienced negative GDP growth between 2007 and 2008. The GDP growth in the agriculture and forestry sector was 2% in 2007, but changed to -5.1% in 2008. The hotels and restaurant (e.g. tourism) sector grew by 16.3% in 2007, but experienced negative growth of 36.1% in 2008. The transport and storage sector which includes road, rail, air and water transport recorded insignificant growth of 0.1% in 2008, compared to growth rates ranging from 5.2% - 9% over the previous four years. The major decline in the transport sector has had the most significant impact on the logistics and traffic movements of cargo along the Northern Corridor, which is also supported by our research throughout the region. On a more positive note, the construction sector recorded growth of 6.9% in 2007 and 8.3% in 2008. This growth was supported by increased capital investments in roads, housing and expansion of the Jomo Kenyatta International Airport in Nairobi.

Overall, the impact of the global financial crisis continues to pose challenges to economies across the globe, and more so than previously anticipated. In Kenya, the tourism sector has already partially recovered following the post-election violence, but is certainly not up to the levels seen in 2007. Given the very significant growth in the transport sector leading up to 2007, followed by the significant fall in 2008 and slow recovery of the global economy, we believe it is unlikely this sector will recover very quickly, and is unlikely to see the growth levels experienced between 2004 and 2007 in the near future.

4.2 Kenyan Transport Sector Institutional Framework

The efficiency and effectiveness of a transport system and therefore the transport costs related to it is significantly dependant on the institutional structures in place and transport sector policy. A well defined and coordinated institutional framework for all stakeholders is crucial.

In Kenya, the transport sector consists of the following modes:

- Road transport;
- Rail transport;
- Maritime and inland water transport;
- Pipeline transport; and
- Air transport.

The Ministry of Transport states that the mission of an integrated national transport policy is "to develop, operate and maintain an efficient, cost effective, safe, secure and integrated transport system that links the transport policy with other sectoral policies, in order to achieve national and international development objectives in a socially, economically and environmentally sustainable manner"[17].

The Policy Paper whose theme is "Moving a Working Nation"[18] identifies a number of challenges inhibiting the transport sector from performing its facilitative role in respect of national and regional economies:

- Poor quality of transport services;
- Inappropriate modal split;
- Unexploited regional role of the transport system;
- Transport system not fully integrated;
- Urban environmental pollution;
- Lack of an urban/rural transport policy;
- Institutional deficiencies;
- Inadequate human resource capacity; and
- Lack of a vision for the transport sector.

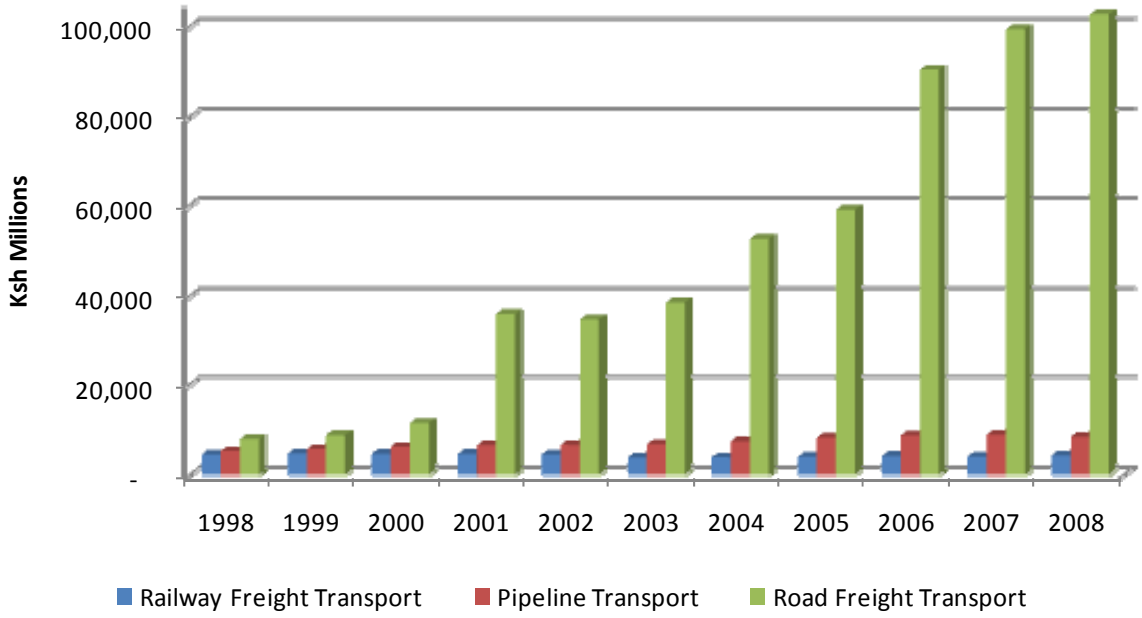
These challenges will be addressed through integration of transport infrastructure and operations as well as responding to market needs of transport. Other interventions will include the enhancement of transport services and quality, consumer protection, catering for consumers with special needs, ensuring fair competition, use and integration of information and communication technologies in transport development and operations.

Road transportation is the most commonly used method of transporting goods into and out of the Northern Corridor region, in terms of the volume of goods transported by road, compared to rail, pipeline and inland waterway. This can be illustrated by looking at the road freight transport sector in Kenya, which dominates road freight transport in the Northern Corridor

[17] "Integrated National Transport Policy: Moving a Working Nation", Draft, May 2009.
[18] "Integrated National Transport Policy: Moving a Working Nation", Draft, May 2009.

region. The Figure below shows the value of earnings (output) from the various modes of transport in Kenya over the past 10 years. In 1998, transport of freight by road accounted for only 45% of the value of output in the transport sector, while by 2007 it had increased to 89%, or Ksh 103 billion (about US $1.4 billion).

Figure 4-2: Value of Output by Transport Mode, Kenya, Ksh Millions, 1998 - 2007



Source: Government of Kenya, Statistical Abstract, 2008; and GOK Economic Survey 2009

The growth in the road freight transport business is also evident from the increase in the number of freight transport vehicles registered in Kenya. Between 1998 and 2007 the number of licensed freight transport vehicles (lorries, trucks and heavy vans) increased steadily year on year, resulting in an increase of almost 40% from 54,172 vehicles in 1998 to 75,247 vehicles in 2007[19].

The **Ministry of Transport** is responsible for coordinating policy in all areas of transportation (not just roads), while overall responsibility for roads infrastructure is vested in the **Ministry of Roads**. Further to the coming into force of the Kenya Roads Act 2007, the following three autonomous road authorities were established.

- The **Kenya National Highways Authority** (KeNHA) is an autonomous road agency responsible for the management, development, rehabilitation and maintenance of international trunk roads (Class A roads), national trunk roads (Class B roads) and primary roads linking provincially important centres (Class C roads).

[19] GOK Statistical Abstract, 2008

- The **Kenya Rural Roads Authority** (KeRRA) is responsible for Class D, E and other roads
- The **Kenya Urban Roads Authority** (KURA) is responsible for Urban Roads.

A number of other important institutions are involved in the road sector, insofar as the main Northern Corridor route is concerned. The **Kenya Roads Board** (KRB), established in 1999, has responsibility for funding the maintenance of roads and undertaking technical audits. The Kenya Roads Board also manages the Kenya Roads Board Fund (KRBF), which obtains funds through the Road Maintenance Levy Fund (RMLF), Transit Toll collections and an agricultural cess. The largest portion by far is the RMLF, a fund created from fuel levies on all petroleum products, which is currently Ksh 9 (US $.12) per litre of petrol or diesel. The Kenya Roads Act mandates that KRB must allocate 40% of the KRBF to KeNHA for maintenance of international, national and primary roads (Class A, B and C roads). As explained below, all of the main Northern Corridor roads are Class A roads.

The **Kenya Revenue Authority's Road Transport Department** is responsible for registration and licensing of drivers, motor vehicles and trailers in Kenya, as well as the collection of revenue for these services, and collection of the RMLF petroleum levy.

Finally, the latest draft Kenyan Transport Policy (May 2009, not yet approved) proposes a number of new institutions to effectively implement the policy: a new **Directorate of Transport** (established as the intermodal coordinating institution, located within the Ministry responsible for Transport), a National Transport Safety Board, a National Transport Research Institute, and a National Transport Information Support Service.

Kenya's strategic objectives for the road freight transport sector are outlined in the most recent (draft) Transport Policy, which recognizes that in addition to domestic requirements, Kenya is also an important transit country within the Northern Corridor for hinterland neighbouring countries, namely, Uganda, Rwanda, Burundi, eastern parts of the Democratic Republic of Congo (DRC), Southern Sudan, Southern Ethiopia, and Northern Tanzania. The stated (draft) strategic objectives in road freight transport are to[20]:

- Facilitate the provision of low-cost, high quality and internationally competitive freight services in the Northern Corridor and for all transit and domestic freight traffic;
- Promote the development of a competitive freight transport system providing efficient and reliable services that adequately satisfy the Kenyan domestic requirements and enhances the competitiveness of Kenyan goods on the domestic and external markets;
- Facilitate the provision of low-cost, high quality and internationally competitive freight services in the Northern Corridor and for all transit and domestic freight traffic;
- Minimize or eliminate non-tariff barriers in road freight transport movement and achieve the growth of a seamless flow of freight traffic throughout Kenya in collaboration with all neighbouring states under various regional and international arrangements;
- Promote private sector participation in the provision of road freight services at favourable economic rates of return;

[20] Republic of Kenya, Integrated National Transport Policy: Moving a Working Nation; Draft May 2009.

- Promote the adoption and application of freight transport system based on modern information technology in freight transport backed by strong linkages with other transport modes countrywide, regionally and internationally;
- Encourage human resource development in road freight transport;
- Minimize damage to road infrastructure by freight vehicles and damage of freight vehicles by poor road infrastructure and enforcement of laws relating to road freight transport; and
- Manage emerging challenges affecting road freight operators in respect of health, safety, security, gender and environment along transport corridors.

The Government of Kenya statistical abstract indicates there are approximately 75,000 trucks, lorries and heavy vans operating in Kenya, across the domestic and transit goods transport industry. Approximately 90% of vehicles are bought second hand, while about 10% are new and most new trucks are coming from China. Of these, approximately 16,000 (21%) are licensed as transit goods vehicles[21], and therefore only permitted to transport goods between countries within the EAC, but not to undertake domestic transport within Kenya.

Based on assumptions provided by KTA, KRA and our own understanding of the industry from primary and secondary research, we estimate that there are approximately seven thousand transport companies in Kenya, of which 60% are small (average of 7 trucks, often less), 25% are medium (average of 35 trucks), and 15% are large (average of 100 trucks). If we assume that small/informal companies transport exclusively within Kenya, and that medium and large companies use transit goods vehicles for 45% and 75% of their vehicles, respectively, it is possible to estimate the size and structure of the trucking industry in Kenya. This analysis – based on estimates – is presented in the Figure below.

Figure 4-3: Structure of Kenyan Trucking Industry

Company Size	Average # trucks (A)	% of industry (B)	Trucks per category (C)=(B x 75,000)	Number of companies (D) = C/A	% of which transit vehicles (E)	Transit Trucks (F) =E x D	Domestic Trucks (C – F)
Small	7	60%	45,000	6,429	-	-	45,000
Medium	35	25%	18,750	536	45%	8,438	10,313
Large	100	15%	11,250	113	75%	8,438	2,813
Total	**-**	**-**	**75,000**	**7,077**	**-**	**16,875**	**58,125**

Source: CPCS estimates, building on information from KTA, KRA and other interviews

[21] Information from Kenya Revenue Authority: in 2008 calendar year, approximately 13,000 transit goods vehicle licences were issued by KRA which was a slow year for transit transport given post-election difficulties. In the first six months of 2009, a much higher 9,500 licences were issued, indicating the annual amount could reach up to 19,000. Therefore, our conservative estimate is an average of 16,000.

The figure above suggests that in Kenya there are approximately 6,429 small or informal transport companies (most are owned by individuals, rather than companies per se), 536 medium-sized companies, and 113 larger companies. It is interesting to understand this structure, as each type of company faces different operating challenges, which in turn affect the cost of doing business in the region. Our observations on small, medium and larger sized companies are summarised below.

Small sized transport companies

- Sometimes informal, may have other businesses on the side (unrelated to transport).
- Limited overhead costs in comparison to larger operators, less professionalism in most cases.
- Face higher insecurity in accessing good, stable contracts, and have limited ability to bid on larger tenders placed by international agencies / companies (e.g. WFP), as they don't have the assets / equipment available to meet standards and high volume needs.
- Tend to focus on domestic transport, so less affected by transit goods license regulations.
- Lower vehicle operating costs, with lower overheads, and more proportionally spent on fuel. This lower overhead cost (and sometimes lower level of professionalism) gives them a bit more flexibility to cut their tariffs in order to gain business. However, they may also work with less wealthy clients and therefore be the first to have their contracts cut, and may have the hardest time getting business when the market is slow.
- Overloading happens, but small companies also tend to have fewer connections / relationships at the weighbridges / police checks and less ability to withstand the loss of one vehicle being detained by police. Overall, we believe the smallest companies are not the most overloaded.
- With slow market and limited cargo (as with the current market), smaller long-distance transporters are turning to brokers to help them get business, losing a proportion of the tariff in the process (e.g. for a Mombasa-Nairobi tariff of KSH 75,000 (US$1,000), for 40' container, KSH 5,000 (US$67) will go to a broker.

Medium sized transport companies

- Usually undertake a blend of domestic and transit goods transport and are highly affected by domestic vs transit goods licensing regulations regime, as they have vehicles of both kinds.
- May face challenges accessing vehicle finance on reasonable terms in order to expand their business, as they rarely have an international parent company or extra funds available.
- Face more pressure to overload than small and very large / regional companies, but have more cash available than small companies to pay bribes if need be, as well as stronger connections / relationships at weighbridges / with police to negotiate overload.
- Sometimes the 'medium sized' transport companies are in fact the transport arms of much larger multi-sector logistics companies. E.g. the own-account transporter for a major shipper or freight forwarding agency.

Large transport companies

- Large companies are generally better able to negotiate long-term, stable contracts with large shippers and freight forwarders, providing them with more stability and business.
- Larger companies focus primarily on transit goods transport, rather than local transport within Kenya. They are better able to negotiate and secure longer term contracts with 'reputable' freight forwarding and import businesses, and also better able to develop relationships with the exporters from inland countries who provide the backload destined towards the Port of Mombasa.
- More often than not, may combine transport with some forwarding and ancillary activities on behalf of a shipper.
- Often for the same reason, they are able to negotiate backload with regional exporter (e.g. tea, coffee, agricultural products).
- Have very large overheads and are squeezed by smaller / informal transporters who have lower overheads and therefore can accommodate lower tariffs if need be (and who may use looser accounting standards).
- A number of larger companies state that they have strict 'no bribery' policies and do not overload at all. This is sometimes because they have a large and/or international parent company, with firm corporate standards made clear to all stakeholders.

4.3 Kenya Road Network Overview

Kenya has about 178,000 km of roads of which 63,575 km are classified while the rest are unclassified. Until recently, the classified roads were under the Ministry of Roads, Public Works and Housing (MoRPWH) while responsibility for unclassified roads fell under the Ministry of Local Government (MoLG), the Kenya Wildlife Service (KWS) and the Forest Department. In July 2007, however, the government created three key institutions to be responsible for the development, and maintenance of international classified roads (KeNHA), urban roads (KURA) and rural roads (KeRRA).

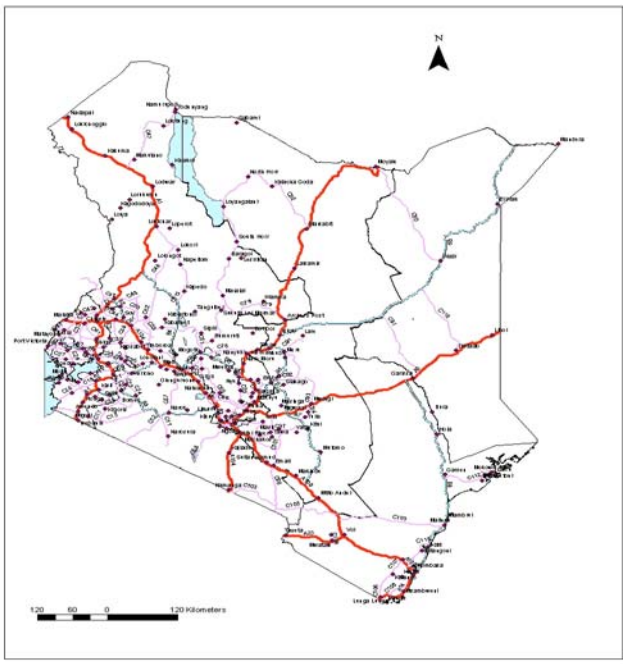
KeNHA estimates that about 70% (44,100 km) of the classified road network is in good condition, while the balance requires rehabilitation[22]. Funds for development, rehabilitation and maintenance are inadequate. During the period 1998-2008 output in road transport averaged over 30 % of total output per annum. The sector currently accounts for over 93% of total domestic freight and passenger traffic.

The first category of National Roads is managed by KeNHA and comprises a 14,000 km network of highways divided into Class A (international), B (national) and C (primary) roads. The Class A roads are the international trunk roads, linking centres of international importance and major border crossings, and the focus of this study.

There are seven Class A roads, comprising 3,755 km, of which 2,886 km are paved and 869 km unpaved. The roads are listed and illustrated in the Figure below.

[22] www.kenha.co.ke, Roads Networks Link, Accessed October 28, 2010

Figure 4-4: Class A Road Network in Kenya



Road & Associated Links

- **A1:** Tanzania border (Isebania-Kisumu-Kitale-Sudan Border (Lokichoggio) 886 km
- **A2:** Nairobi-Thika-Isiolo-Moyale (Ethiopia border), 833 km
- **A3:** Thika-Garissa-Somalia border (Liboi) 556 km
- **A104 :** Uganda border (Malaba)-Nakuru-Nairobi-Athi River-Tanzania border (Namanga) 648 km
- **A109:** Athi River - Mombasa 473 km
- **A14:** Mombasa-Tanzania border (Lunga Lunga) 106 km
- **A23 :** Voi-Tanzania border (Taveta) 114 km

Source: Kenya Roads Board, Ministry of Roads

Of the Class A roads listed above, the A104 and A109 have the most prominent international or port-connecting functions. These roads include the link from the Port of Mombasa to the Malaba border with Uganda, which also is the busiest route in Kenya. The link is also designated as part of the Lagos-Mombasa long-distance highway (Link 8) under the Trans-Africa Highway Programme. The entire route is paved, and most of it is in very good condition following significant reconstruction investment by the Kenyan government over the past two years.

In recent years, the north-south A1 which runs along the western edge of Kenya up to South Sudan has also become an important route for provision of supplies (especially humanitarian relief) to Southern Sudan, although it still carries a very small proportion of total traffic in the region. The challenges on this section of the road include road in very poor condition around Lokichoggio in northern Kenya, limiting driving speeds to 30km in some sections.

The southern segment of the A104 (Namanga to Athi River), links southwards to Tanzania's T2 route from Dar es Salaam via Arusha, and onwards to Zambia via T5 and T1 routes through Mbeya.

The specific challenges identified through our research and consultation suggest there are three core areas where improvements in road infrastructure are still needed in Kenya which would greatly enhance the flow of goods in the Northern Corridor region.

- **Nairobi By-Passes:** the only route for trucks travelling from Mombasa inland towards the Malaba (or the South Sudan border) requires them to literally pass through the heavily congested Nairobi city centre. Passing through the city centre takes a truck, on

average, 2 hours once they reach the city limits. The government has already approved development of three by-passes running north, south and east of the city centre, respectively, but progress has been slow and none is yet constructed and operational (the north and south by-passes are still dirt track). The southern by-pass is the most advanced and is expected to be concessioned this year. Once constructed, the toll roads are expected to save 1.5 hours of time, cutting the journey through Nairobi to about 30 minutes. The figure below shows the status of the implementation of the Nairobi By-Pass Projects.

Figure 4-5: Implementation Status of Nairobi Bypass

Road	Length	Progress Status
Southern Bypass	29 km	Detailed Engineering design is ongoing, construction works expected to commence in March 2011
Eastern Bypass	32 km	Road construction (to bitumen standard) is ongoing, permanent works are almost complete and road is expected to be opened to traffic anytime soon
Northern Bypass	21 km	Under construction

Source: Kenya Highways Authority

- **Dual Carriageway:** While the Mombasa – Malaba road is currently in very good condition along most segments, there is still heavy congestion along many sections of it due to a lack of dual carriageway. Only three segments of the highway are dual carriageway: approximately 5-6 km departing from Mombasa; 70 km passing through Nairobi; and about 16 km around Nakuru. Introducing dual carriageway across the whole road, and at the very least from Mombasa to Nairobi, would significantly reduce transit time, ease congestion and lead to fewer accidents resulting from unsafe overtaking practices. We understand that the average speed travelled by a loaded truck along this core route is between 50 – 55 km.

- **Road to South Sudan:** The A1 highway leading up to Southern Sudan through Kenya is in very poor condition, particularly between Lodwar and Lokichoggio. We understand from stakeholders that segments of the road are frequently washed out by rain, and that the Karobegil bridge near Lokichoggio is sometimes overflowed by the same. When this happens, transporters simply need to wait until the water subsides before continuing. As a result of the poor road conditions, trucks can travel a maximum speed of 30 km/h along some of the sections of the road, leading to higher insecurity and banditry. We understand that the rehabilitation of this road is not a current priority of the Kenyan government.

The dramatic improvement in road conditions along the main Northern Corridor route (Mombasa-Nairobi-Malaba) were much appreciated by all stakeholders interviewed. However, there was concern that without stricter enforcement of overloading regulations, the newly rehabilitated roads would soon deteriorate. The average cost to rehabilitate Class

A highways is approximately US $1 million per kilometer[23]; this quite high value is due to the many points where climbing lanes are needed (for overtaking on steep hills).

The table below summarizes the official condition of the Northern Corridor road from Mombasa inland to Malaba and Busia.

Figure 4-6: Road condition of the Northern Corridor Kenyan section

Road Sections	Dual/ Single Carriageway	Length (km)	Condition of the road
Makupa Round about - Changamwe	Dual	4.5	Good
Changamwe - Miritini	Single	9.2	Good
Miritini- Mazeras	Dual	5	Excellent –rehabilitated in 2008
Mazeras – Maji Ya Chumvi	Single	29	Excellent –rehabilitated in 2008
Maji Ya Chumvi – Bachuma Gate	Single	55	Fair
Bachuma Gate – Voi - Mtito Andei	Single	149	Fair
Mtito Andei – Sultan Hamud	Single	131	Excellent –rehabilitated in 2006
Sultan Hamud - Machakos Turnoff-Athi River	Single	75.8	Excellent –under rehabilitation, progress of works is 95% complete
Athi River - JKIA	Dual	12.5	Excellent –under rehabilitation, progress of works is 93% complete
JKIA – Museum Hill Round about	Dual	14.5	Excellent –rehabilitated in 2009
Museum Hill Round about-End of dual carriageway (Jnctn to Mai Mahiu)	Dual	30	Good
End of dual carriageway-Naivasha	Single	58.5	Good
Naivasha - Lanet	Single	49.5	Excellent –rehabilitated in 2008
Lanet – Njoro Turnoff	Dual	17	Excellent –rehabilitated in 2009
Njoro Turnoff - Timboroa	Single	83	Excellent – rehabilitated in 2010.
Timboroa - Malaba	Single	220	Fair. Entire 220 km being rehabilitated / strengthened, starting in late 2010.
Mau Summit-Kericho-Kisumu	Single	135	Fair
Kisumu - Busia	Single	108	Fair

Source: Engineer Omer Okech, Kenya Highways Authority

To date, road maintenance in Kenya has primarily been done on an “as needed” basis. However, a new 15-year “Road Sector Investment Plan” is currently under development which will guide investment in construction, maintenance and rehabilitation of the Kenyan road network using a more integrated and systematic programme. A first draft of the plan has already been reviewed, and the final version is expected to be completed in 2010.

The historical and planned annual expenditure for road construction including roads under Northern Corridor Transport Improvement Project (NCTIP) can be obtained from the Kenya Roads Board (KRB). It is the mandate of KRB to review, individually, the Annual Road Works Programmes (ARWPs) submitted by Road Agencies and sub-Agencies, and consolidate these ARWPs into an Annual Public Roads Programme (APRP).

[23] Rough estimate provided by Engineer Omer Okech, KenHA

This APRP is prepared by KRB and contains detailed programmes of road works that are to be undertaken in a given Financial Year.

Currently, NCTIP is overseeing rehabilitation works at a cost of approximately Kshs. 15.5 Billion of the following projects:

- Sultan Hamud - Machakos Turnoff Road (A109)
- Machakos Turnoff – JKIA Road (A109/A104)
- Njoro Turnoff – Mau Summit – Timboroa Road (A104)

Rehabilitation works on these roads are almost complete and the stretches are in excellent condition.

With the assistance of development partners and Government of Kenya, the NCTIP plans to spend approximately Kshs. 22 Billion for rehabilitation of:

- Mau Summit – Kericho Road (B1)
- Kericho – Nyamasaria Road (B1/A1)
- Nyamasaria - Kisian Road (A1/B1) and
- Kisian – Busia Road (B1)

Rehabilitation works contracts for sections between Mau Summit, Kericho and Nyamasaria have been awarded and contracts signed. Construction works is to commence in April 2010. Procurement of works contracts for section in between Nyamasaria, Kisian and Busia is ongoing.

KeNHA is spending approximately Kshs. 11 Billion for works contracts for rehabilitation of the road sections between Timboroa and Malaba. Two works contracts were awarded in 2010 for the Eldoret-Webuye section and Webuye – Malaba sections. African Development Bank financial support has been secured to complete the Timboroa – Eldoret sections.

KeNHA is also currently procuring works for a 1.5 km long auxiliary lane to accommodate trucks approaching the Mariakani weighbridge station (the first weighbridge outside of Mombasa). This will reduce the heavy congestion along the single-lane highway in the Mariakani area.

Finally, KeNHA is also working with the World Bank to prepare critical sections of the Northern Corridor for capacity upgrades through Public Private Partnerships.

4.4 Kenya Trade with EAC countries

The main commodities exported by Kenya to East Africa countries are:

- Iron and steel
- Cement

- Bottles and other containers
- Salt and pure sodium chloride
- Petroleum oils
- Gypsum, anhydrite and plasters

The first partner for Kenya exports is by far Uganda (68% of total Kenya exports in volumes to EAC) and the second one is Tanzania (21%). Burundi (3%) and Rwanda (8%) are more marginal export trade partners.

The main commodities imported by Kenya from EAC countries are:

- Hides and skins
- Electric generating sets
- Dried leguminous vegetables
- Bran, sharps and other residues
- Maize (corn)
- Natural sands of all kinds
- Uncoated craft paper and paperboard

Tanzania is the first source of imports for Kenya (58% of total imports from EAC) followed by Uganda (41%), while Kenya imports nearly nothing from Rwanda and Burundi (less than 1%). The following tables and graphics show the Kenya exports and imports from EA countries in volumes and respectively in FOB and CIF values.

Figure 4-7: Kenya Exports to EAC (Nov 2008 - Oct 2009), Major Commodities in volumes (Kilotonnes: 000 000) and FOB Value (KSH Million)

Commodities	Burundi			Rwanda			Uganda			Tanzania		
	Net Weight (k-tonnes)	*% of total trade - net weight*	*FOB Value (KSH millions)*	*Net Weight (k-tonnes)*	*% of total trade - net weight*	*FOB Value (KSH millions)*	*Net Weight (k-tonnes)*	*% of total trade - net weight*	*FOB Value (KSH millions)*	*Net Weight (k-tonnes)*	*% of total trade - net weight*	*FOB Value (KSH millions)*
Flat-rolled products of iron or non-alloy steel,	13.7	25.95%	1090.0	0.245	0.19%	20.5	0.127	0.01%	12.4	5.3	1.50%	454.2
Portland cement, aluminous cement, slag cement, supersulphate cement and similar hydraulic cements,	4	8.06%	48.1	7.4	0.1	89.0	557.1	0.5	6292.6	14.5	0.0	168.1
Carboys, bottles, flasks, jars, pots, phials, ampoules and other containers,	3	0.1	152.7	3.9	0.0	200.4	10.4	0.0	480.3	21.2	0.1	976.7
Salt and pure sodium chloride,	1	1.98%	12.63	29	21.95%	237.2	135	11.68%	1429.722	53	14.97%	564.9
Petroleum oils and oils obtained from bituminous minerals, other than crude;	2	4.35%	110.0	24	18.57%	855.4	52.841417	4.57%	3113.688	29	8.35%	1286.1396
Gypsum; anhydrite; plasters	-	0	0	10.2	0.1	25.2	0.1	0.0	1.4	0.1	0.0	1.2
Beer made from malt --- Other	-	0.00%	-	0	0.17%	20.3	66	5.70%	1984.449	-	0.00%	-
Others	29	0.5	2961.5	56.4	0.4	7104.4	335.4	0.3	27236.4	229.2	0.7	25081.9
Total	**53**		**4374.8725**	**132**		**8552.4532**	**1 157**		**40551.05**	**353**		**28533.256**
Kenya total export to EA Countries by volume in %	**3.13%**			**7.77%**			**68.30%**			**20.81%**		

Source: Kenya Revenue Authority

Figure 4-8: Kenya Exports to Major Commodities to EAC (Nov 2008 – October 2009)

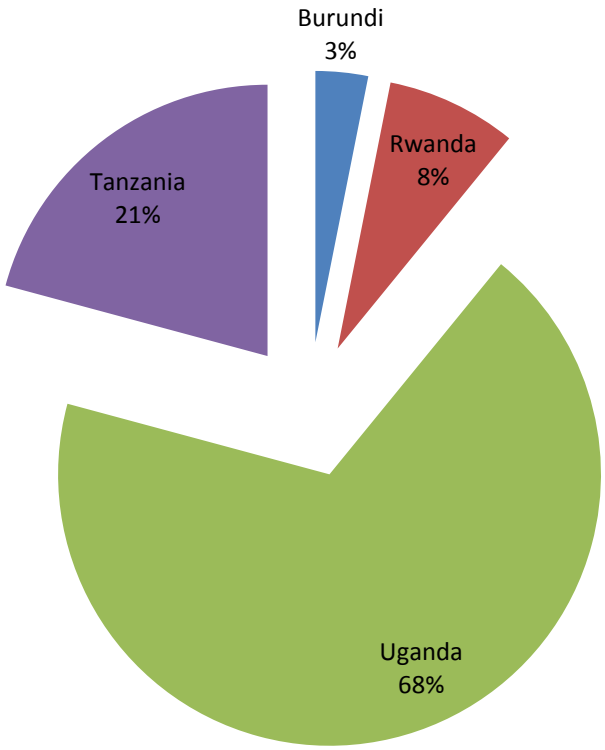


Figure 4-9: Kenya Imports from EAC (Nov. 2008 to October 2009)

Major Commodity import in volumes (Kilotonnes: 000 000) and CIF Value (KSH Millions)

	Burundi			Rwanda			Uganda			Tanzania		
Commodities	*Net Weight (kt)*	*% of total trade - net weight*	*CIF Value (Million Ksh)*	*Net Weight (kt)*	*% of total trade - net weight*	*CIF Value (Million Ksh)*	*Net Weight (kt)*	*% of total trade - net weight*	*CIF Value (Million Ksh)*	*Net Weight (kt)*	*% of total trade - net weight*	*CIF Value (Million Ksh)*
Raw hides and skins prepared)	0.5	67%	66.2	0.4	38%	53.1	0.2	0.11%	25.2	0.0	0.01%	2.9
Other raw hides and skins prepared	0.1	10%	8.8	0.1	7%	6.9	0.0	0.01%	0.5	0.0	0%	0.0
Raw hides and skins of bovine	0.1	20%	2.2	0.1	12%	4.8	0.0	0%	0.0	0.0	0%	0.0
Electric generating sets and rotary converters.	0.0	0%	0.0	0.2	21%	99.2	0.0	0%	0.0	0.0	0%	0.0
Dried leguminous vegetables, shelled, whether or not skinned or split.	0.0	0%	0.0	0.0	0%	0.0	21.9	14%	338.0	1.7	1%	24.5
Bran, sharps and other residues, whether or not in the form of pellets, derived from the sifting, milling or other working of cereals leguminous plants. - Of other cereals	0.0	0%	0.0	0.0	0%	0.0	18.0	12%	126.4	3.2	1%	32.5
Maize (corn). - Seed	0.0	0%	0.0	0.0	0%	0.0	17.1	11%	225.3	0.1	0%	0.1
Oil-cake and other solid residues,	0.0	0%	0.0	0.0	0%	0.0	7.3	5%	572.5	34.4	16%	342.5
Natural sands of all kinds,	0.0	0%	0.0	0.0	0%	0.0	0.0	0%	0.0	22.5	10%	155.8
Uncoated kraft paper and paperboard, in rolls or sheets,	0.0	0%	0.0	0.0	0%	0.0	0.0	0%	0.0	14.2	7%	941.9
Other	0.0	4%	4.0	0.2	21%	1.8	87.8	58%	3304.9	139.0	65%	5747.2
Total	**0.7**		**81.2**	**1.2**		**165.8**	**152.2**		**4592.9**	**215.1**		**7247.4**
Kenya import from EA countries in volumes expressed in %	0.2%			0.3%			41.2%			58.3%		

Source: Kenya Revenue Authority

4.5 Vehicle Operations Costs

4.5.1 Evaluation Methodology

Vehicle Operating Costs (VOCs) are the main component of the tariff charged by transporters, and can be broken down into fixed and variable costs. Fixed Costs include the costs incurred regardless of any vehicle usage, while Variable Costs are incurred proportional to vehicle usage. Fixed costs comprise depreciation, financial charges, vehicle insurance, commodity insurance, labour (including wages, salaries, bonuses, social payments), general taxes, overheads (cost of rental of land/ buildings, equipment furniture, communications, cost of licenses). Variable costs comprise vehicle maintenance (servicing, repairs, spare parts), tires, fuel and lubricants and informal costs (bribes en route, border crossing costs).

Virtually all well established transport companies will recognize their costs in these two high-level categories. However, it is rare for much smaller and informal sector companies to keep records in line with this breakdown, either due to lack of accounting understanding or lack of time / incentive to do so. As part of our transporter survey, we asked operators to provide us with a breakdown of their costs according to their fixed and variable costs, as listed in the figure below.

Figure 4-10: VOC, Fixed and Variable Costs

Vehicle Operating Costs
Fixed Costs
Depreciation of vehicle
Financing costs (interest payments)
Vehicle Insurance Costs
Labour Costs (Salary of Driver, turn-boy)
Overhead Costs (building, communications, licenses, general taxes)
Variable Costs
Occasional maintenance (excluding tires)
Cost of Tires and Tubes
Fuel and Lubricants Cost
Subsistence allowance for driver (for hotel, food, incidentals, road tolls, informal bribes)

Before presenting the VOC figures, below we describe the factors affecting each of these line items, and the assumptions we used in our calculations (based on our interviews).

4.5.2 Factors affecting the Vehicle Operating Costs

Depreciation on Vehicles

In Kenya, depreciation rates for large and medium-sized companies are typically 7 years for new trucks, and 3 years for second hand trucks.

Smaller/informal sector companies primarily use second hand vehicles. They tend not to account for depreciation in a strict format for accounting. They will use trucks as long as

possible until retiring or re-selling them, suggesting longer depreciation periods. For example, depreciations is likely closer to 5 years for a second hand vehicle.

Financing Costs

Approximately 90% of the vehicles transporting goods in Kenya are second hand, with only 10% being purchased new. However, Motor vehicles of over 8 years old are not allowed to be imported into Kenya as per the KS 1515:2000 quality standard by the Kenya Bureau of Standards. Kenya Customs enforces this requirement.

Larger companies are still buying new trucks, with new Chinese trucks having recently entered the market with highly competitive prices. However, the most common practice is still to bring in second hand, reconditioned trucks from Europe or Japan, with between 300,000 – 400,000 km mileage. The large companies then operate the trucks for another 300,000 km or so, before selling them on to smaller companies or re-selling them in other countries.

The average cost for a prime mover (3 axle, 6 x 4) vehicle, before any duties or taxes (where applicable) is:

- New vehicles: between $100,000 and $110,000
- Second hand (good condition, 3- 4 years): $35,000 - $40,000
- Second hand (older, 5 – 7 years): $25,000 - $30,000
- Second hand (more than 8 years old): $20,000 or less

The average cost for a three-axle semi-trailer is:

- New: US$30,000 – US$35,000
- Second hand: US$15,000 – US$25,000

This means that the total price for a new truck and semi-trailer is approximately US$ 137,000, while the price for a second hand truck and semi-trailer is approximately US$55,000.

On top of these base costs, purchasers pay the following for any vehicles imported into Kenya.

Figure 4-11: Additional Costs to Import Vehicles

Additional Charges to CIF	New Truck	2nd hand Truck	New semi-trailer	2nd hand semi-trailer
Import duty (% of CIF value)	0%	0%	10%	10%
Excise duty (% of CIF value + Import duty), based on EAC Harmonised rates	0%	0%	0%	0%
VAT (16% on CIF value + import duty + excise duty)	0%	0%	16%	16%
Import Declaration Fee (% of CIF value), or KSH 5,000, whichever is higher	2.25%	2.25%	2.25%	2.25%

The financing rates for companies purchasing vehicles are typically an interest rate of 16% - 18%, with a 2.5 to 3 year pay back period.

Vehicle Insurance Costs

These costs differ according to the type of insurance and the country.

Labour Costs

Fixed labour costs include the salary of the driver and turn boy. Using Kenya as a typical example (and given that most transport along the Northern Corridor is carried out by Kenyan companies), typical salaries are presented below:

- Lowest salary: KSH 10,000 – 15,000 per month for smaller companies / new drivers (US$133 – US$200)
- Average salary: KSH 20,000 – 25,000 per month (US$266 – US$ 333)
- Highest salary: KSH 30,000 – 35,000 per month (larger, new vehicles, well-established company and driver) (US$ 400 – US$466)
- Salary above also covers the cost of the turn-boy to assist the driver

There are many drivers in the market, so salary costs are very competitive (and quite low). This is one of the reasons that fuel siphoning is apparently such a big problem (along with the fact that the travel subsistence allowance is not very high, see below).

Overhead / Admin Costs

They are much higher for larger companies. Smaller / informal companies have limited overheads.

Occasional Maintenance

This refers to maintenance undertaken on occasion throughout the year to repair faults or small damages in the vehicle due to day to day wear and tear. It does not include major maintenance renewals, which would be likely included in overhead costs (e.g. the cost of running a full maintenance workshop).

Costs of tires and tubes

- New tire for prime mover: KSH 26,000 (US$346)
- 2nd hand for prime mover: KSH 13,000 (US$ 173)

Fuel Costs

Fuel is the largest component of VOCs for all transporters in the Northern Corridor region.

- Fuel quality in Kenya is considered low, which contributes to cost. The refinery in Mombasa produces relatively low quality (higher sulphur – 'dirty fuel') which impacts on the journey and vehicles. **The refinery at Mombasa could be upgraded to produce better fuel, which would have a positive impact on transport costs across the region**
- About 3-4 businesses do all the bulk fuel transportation in Kenya and we understand there is some price-fixing / monopolistic behaviour in the costs of transportation they charge for fuel.
- Too few companies are operating and transporting fuel to establish a competitive price for the public.
- Technology used by KPC is old and needs to be updated
- All people interviewed felt that fuel costs were too high (not surprising) and this was in part because of i) the high costs of the taxes on fuel and ii) collusion by the KPC and fuel transport companies.

Fuel requirements for journeys:

- Mombasa-Nairobi return (860 km return): requires only 400 litres for a light container (below 10 tons), or 420 litres for a normal/heavy container (28 tons). Transporters often give an extra 25 litres which is 'for emergency', but everyone recognises it is being siphoned by drivers along the road.
- Mombasa – Kampala return (2,300 km return): 1,350 litres required total.
- Fuel price: diesel price average over the past year has been about KSH 70 / litre (in 2008 was closer to 78 KSH / litre). This is equivalent to about US$0.94 / litre.
- Large transporters estimate oil/lubricant costs are equal to 2.5% of fuel costs.

Subsistence allowance

A 'safari allowance' is given to the driver and turn-boy to cover all of their costs en-route, including food and hotels. From the safari allowance, they are also expected to cover the cost of police checks (small bribes). For any large weighbridge overloading payments, the costs would be provided separately (extra cash provided for bribes).

The safari allowance is perceived to be quite low among transport drivers (not surprising), and was quoted as a source of the problem of fuel siphoning. To give an example, an average 'safari allowance' for two people (driver and turn boy) for a round trip from Mombasa to Kampala is approximately KSH 9,000 per trip (US$120). With an average return trip length of 8.5 days, this amounts to about $14 per day shared between the driver and turn boy.

4.5.3 Vehicle Operating Costs for Kenyan truckers

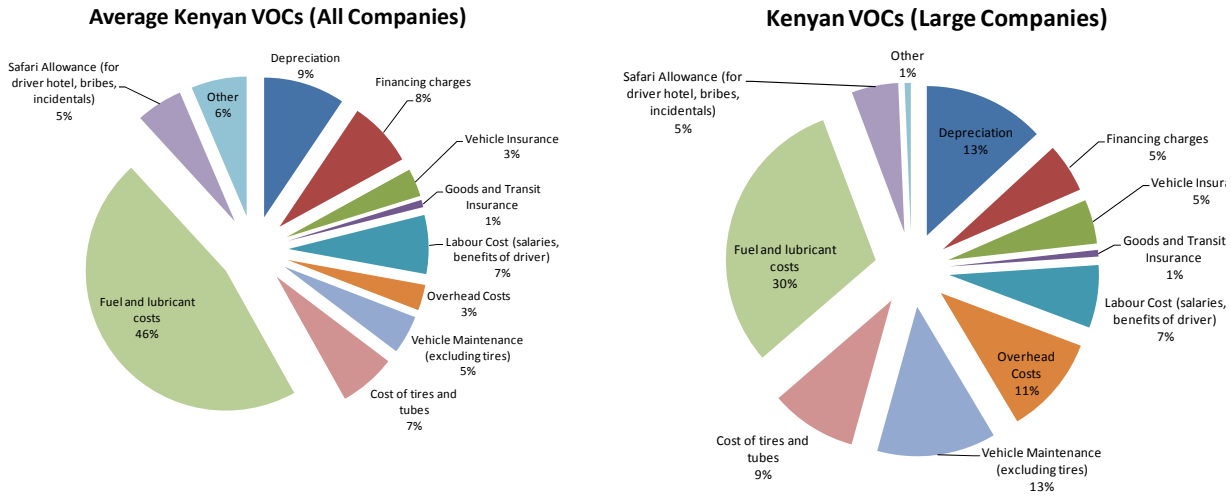
Below we present a number of tables illustrating typical Vehicle Operating Costs according to type of transporter in Kenya: informal, small, medium and large. The VOCs for informal, small and medium transport companies generally refer to the use of second hand trucks. The VOCs for large companies include the average of VOCs for new and second hand trucks.

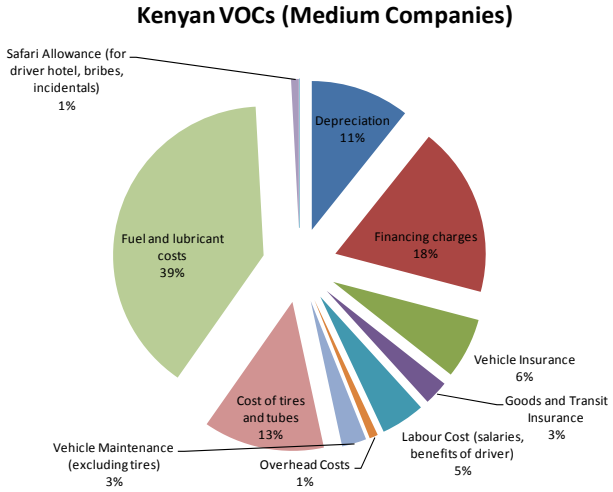
Figure 4-12: Structure of Vehicle Operating Costs in Kenya

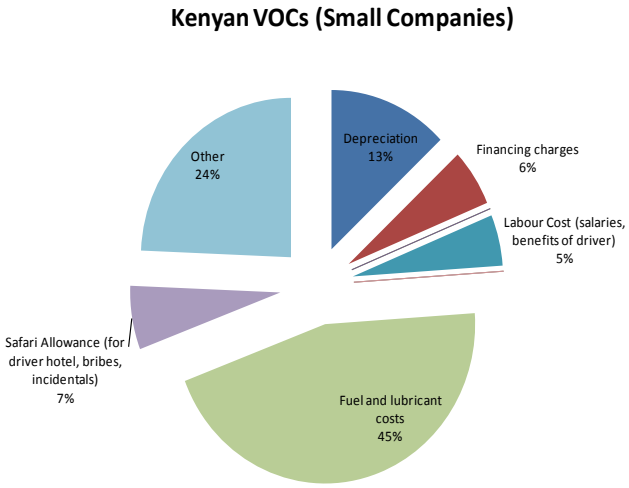
	Large	Medium	Small	Informal	Average
Fixed Costs					
Depreciation	13%	11%	13%	0%	9.3%
Financing charges	5%	18%	6%	0%	7.3%
Vehicle Insurance	5%	7%	0%	1%	3.3%
Goods and Transit Insurance	1%	3%	0%	0%	1.0%
Labour Cost (salaries, benefits of driver)	7%	5%	5%	10%	6.8%
Overhead costs (building, admin, communications, licences, taxes)	11%	1%	0%	0%	3.0%
Total fixed costs	**42%**	**44%**	**24%**	**23%**	**33.3%**
Variable Costs					
Vehicle Maintenance (excluding tires)	13%	3%	0%	2%	4.5%
Cost of tires and tubes	9%	13%	0%	3%	6.3%
Fuel and lubricant costs	30%	39%	45%	65%	44.8%
Safari Allowance (for driver hotel, bribes, incidentals)	5%	1%	6%	9%	5.3%
Other	1%	0%	24%	0%	6.3%
Total variable costs	**58%**	**56%**	**76%**	**77%**	**66.8%**

The figures below illustrate the average number above using graphics for large, medium and small companies, as well as an average for all types of companies in Kenya (including informal).

Figure 4-13: Structure of Vehicle Operating Costs in Kenya







Fuel cost accounts for the largest proportion of costs, averaging approximately 45% of total VOCs. It accounts for 30% to 65% depending on the type of trucker formal/informal and the size of the company[24]. High transport costs, in addition to being explained by these high fuel costs, are also due to the fact that truck hire charges are based on a round trip. Given the trade imbalance in the region (with more imports than exports), many transporters will charge enough on the import journey to ensure they can cover their costs on the return journey when they have little or no backload.

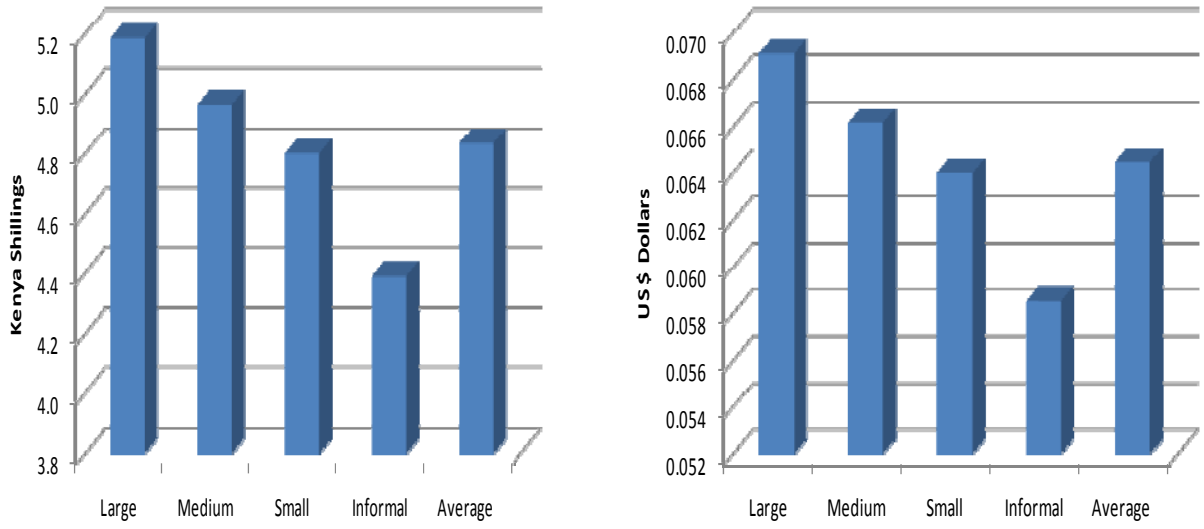
It is also interesting to note the different total VOC cost per tonne-km for each vehicle according to company type. The table and graphic below present this for Large, Medium, Small and Informal companies. **We note that because of the overhead costs, the cost per tonne-km is decreasing with the size of the company:** US$0.069 for large companies, US$ 0.066 for medium ones, US$0.064 for small ones and US$0.059 for informal truckers. However, drawing any conclusions from these estimates and the link between VOCs and company size should be done with caution; it is possible that the VOC are lower for small and informal companies than for larger companies simply due to their different cost reporting and accounting standards. **We will base our estimation of the transport costs on the basis of the average amount: US$0.64 per tonne-km or US$1.13 per km.**

[24] Kenya Transporters Association- KTA estimation of fuel cost is 42%, while the Kenya Shippers Council estimation is 46% (source: report prepared by Megadev (K) Limited, Nairobi, for Kenya Shippers Council, “Transport and Logistics Costs, Cause and Effect on Competitiveness of Kenyan Shippers”, November 2008.

Figure 4-14: Total Cost per Tonne-km (exclusive of VAT and profit margin)

	Large	Medium	Small	Informal	Average
Total Cost per Km (KSH)	121	105	67	48	85
Total Cost per Km (US$)	1.60	1.4	0.90	0.64	1.13
Total Cost per Tonne-km (KSH)	5.20	5.00	4.80	4.39	4.80
Total Cost per tonne-km (US$)	0.069	0.066	0.064	0.059	0.064

Figure 4-15: Total Cost per Tonne-km (KSH and US$)



The cost of hiring a truck to transport a 20ft container loaded with 19 tonnes of goods from Mombasa to Nairobi ranges from US$ 1,100 – US$1,500. On average, a shipper pays a total tariff of US$1,300, which is inclusive of VAT. The following table shows the breakdown of this tariff for a 20ft container, from Mombasa to Nairobi (industrial area) by road. In Section 4.6, we outline some of the external factors which contribute to the tariff.

The average VOC total transport by road from Mombasa port to the end user warehouse in Nairobi is US$2.44 per km or US$0.129 per tonne-km.

Figure 4-16: Breakdown of Tariff for transport of 20 ft container from Mombasa to Nairobi

Cost	%	Amount (US$)
Average total Tariff charged by transporters (VAT included)		**1300**
Components of this tariff		
Depreciation	13%	136.5
Financing charges	5%	52.5
Vehicle Insurance	5%	52.5
Goods and Transit Insurance	1%	10.5
Labour Cost (salaries, benefits of driver)	7%	73.5
Overhead costs (building, admin, communications, licences, taxes)	11%	115.5
Total Fixed costs per trip (one way)	**42%**	**441**
Vehicle Maintenance (excluding tires)	13%	136.5
Cost of tires and tubes	9%	94.5
Fuel and lubricant costs	30%	315
Safari Allowance (for driver hotel, bribes, incidentals)	5%	52.5
Other	1%	10.5
Total Variables costs per trip (one way)	**58%**	**609**
Total Operating costs		**1050**
Profit margin		**250**
% of profit margin		24%
Total VOC per tonne-km (20' container with net weight 19T)	**0.129**	
Total voc per km	**2.44**	

4.6 Factors Affecting Road Transport and Tariffs

In this sub-section, we outline a number of factors unique to the Northern Corridor which affect the movement of cargo through the corridor by road. The impact of these factors will have been considered / included in the tariffs charged by operators to shippers, through inclusion in VOCs.

4.6.1 Axle Load Control Policies

Overloaded freight transport vehicles contribute to road destruction, which in turn increases the operating costs for transporters due to higher maintenance, fuel and vehicle investment costs. These higher costs are ultimately borne by final purchasers of goods, as the final price will reflect the increased costs of transportation.

Axle load policies and regulations are the main means for governments to regulate the weight of vehicles, primarily through the use of weighbridges. Weighbridges are large scales that weigh entire vehicles (or parts thereof) and their contents. It is well recognized that in the Northern Corridor region, and in Kenya in particular, axle load control measures have not effectively reduced damage to the roads, with widespread corruption and weak weighbridge management at most weighbridges.

There are seven weighbridges operated along the main Northern Corridor route between Mombasa and Malaba in Kenya.

- Mariakani (30 km from Mombasa Port)
- Mlollongo (at Athi River, just outside Nairobi)
- Mai Mahiu
- Gilgil
- Eldoret
- Bungoma
- Amagoro (Malaba-Uganda border)

Mariakani and Mlollongo weighbridges are by far the busiest weighbridges along the entire Northern Corridor route, as they are both located between the Port of Mombasa and Nairobi, where most goods passing through or into Kenya must travel. Simply put, with the exception of goods destined for transit to Northern Tanzania, the quickest route for transit goods leaving Mombasa Port by road to all of the other Northern Corridor countries is to pass through Nairobi, requiring use of both of these weighbridges. Three weighbridges have been licensed to private operators in an effort to decrease corruption, improve performance and compliance of overloaders. Mariakani and Mlollongo (Athi River) weighbridges are operated by SGS, while Gilgil weighbridge is operated by Avery East Africa Ltd.

At Mariakani and Mllolongo (Athi River), delays are 3-4 hours on average. Delays at other weighbridges are 1-2 hours on average.

Mariakani is the most problematic weighbridge, especially in the afternoons between 4pm – 7pm. This is because convoys for certain escorted goods only leave the port for Mariakani from the port once per day, at around 5pm – 6pm. According to one clearing agent we spoke with, you pay an informal price of KSH 200 for the escort to Mariakani. From Mariakani, a separate escort is provided up to Malaba border, which leaves at 2am or 3am. As such, there is always a delay for escort goods at Mariakani because they must wait until the evening at the port, and then wait again at Mariakani until the following early morning to depart. This is only to travel the 35km from Mombasa Port to Mariakani.

Escorts are only provided for:

- High value transit goods (sugar, rice, electronics, tyres, etc) and
- Very risky / dangerous domestic goods (firearms, explosives) or domestic wide load vehicles

Another challenge at Mariakani weighbridge is that the highway is currently only single-lane. This means that trucks in the queue to be weighed cause major congestion for other traffic which is travelling in the same direction (towards Nairobi). KeNHA is currently procuring works for a 1.5 km long auxiliary lane to accommodate trucks approaching the weighbridge, which should reduce this congestion in future.

Axle load limits are set out in the Traffic Act (Cap 403) of the Laws of Kenya. The most recent amendment to axle load limit regulations came into force on October 1st, 2008 and had a major impact on the transport industry in Kenya. The legislation required the removal of the fourth axle on all vehicles, which was until then common practice for most trailers[25]. The fourth axle removal was designed to reduce damage to the road from overloading, and in particular the exponential impact of an additional axle. Road damage depends in part on the weight on the heaviest axle, rather than simply on the gross weight of the truck. The damage is approximately proportional to the weight of an axle raised to its 4th power. This means that a 9 tonne axle causes about 60% more damage than an 8 tonne axle[26].

For these reasons, the regulations include maximum limits on the weight of each axle, as well as gross vehicle weight, as set out in the Figures below.

Figure 4-17: Maximum Axle Load Limits (each axle)

Axle Group (Pneumatic Tyres)	Maximum Axle Load
Single Steering Axle (2 wheels – single tyre)	8,000 kg (8 tonnes)
Single Axle (4 wheels – dual tyres)	10,000 kg (10 tonnes)
Tandem Axle Group (8 wheels – dual tyres)	16,000 kg (16 tonnes)
Triple Axle Group (12 wheels – dual tyres)	24,000 kg (24 tonnes)
Vehicle with 2 axles	18,000 kg (18 t)
Vehicle with 3 axles	24,000 kg (24 t)
Vehicle with semi-trailer with total of 3 axles	28,000 kg (28 t)
Vehicle with 4 axles	28,000 kg (28 t)
Vehicle with semi-trailer with total of 4 axles	34,000 kg (34 t)
Vehicle and drawbar trailer with total of 4 axles	36,000 kg (36 t)
Vehicle with semi-trailer with total of 5 axles	42,000 kg (42 t)

[25] Exceptions to use a fourth axle are still granted on special request, for example, to carry a large piece of machinery.
[26] World Bank, "Kenya: Issues in Trade Logistics", July 2005

Axle Group (Pneumatic Tyres)	Maximum Axle Load
Vehicle and drawbar trailer with total of 5 axles	42,000 kg (42 t)
Vehicle with semi-trailer with total of 6 axles	48,000 kg (48 t)
Vehicle and drawbar trailer with total of 6 axles	48,000 kg (48 t)

Source: Ministry of Roads, Road Department, Public Legal Notice No 118 on Traffic (Amendment) Rules, 2008.

The figure below shows the formal fines which are to be applied at weighbridges when overloading takes place.

Figure 4-18: Minimum Fines for Excess Weight

Excess Weight: Each axle or gross vehicle weight	Fine for First Conviction (KSH)	Fine on Second or Subsequent Conviction (KSH)
< 1,000 kg	5,000	10,000
1,000 kg – 1,999 kg	10,000	20,000
2,000 kg – 2,999 kg	15,000	30,000
3,000 kg – 3,999 kg	20,000	40,000
4,000 kg – 4,999 kg	30,000	60,000
5,000 kg – 5,999 kg	50,000	100,000
6,000 kg – 6,999 kg	75,000	150,000
7,000 kg – 7,999 kg	100,000	200,000
8,000 kg – 8,999 kg	150,000	300,000
9,000 kg – 9,999 kg	175,000	350,000
> 10,000 kg	200,000	400,000

Source: Ministry of Roads, Road Department, Public Legal Notice No 118 on Traffic (Amendment) Rules, 2008.

The most common vehicle transporting goods over long-haul distances on the Northern Corridor is in the category “vehicle and semi-trailer with total of 6 axles”, with a maximum gross vehicle weight of 48,000 kg (48 tonnes). This is a vehicle with the following configuration:

- A tractor (engine) with one single steering axle with 2 tires (weight limit 8 tonnes), and one tandem axle with a total of 8 tires (weight limit 16 tonnes), and
- A semi-trailer with a triple axle with 12 tires (weight limit 24 tonnes)

In the above example, transporters with a 6-axle vehicle are limited to carrying no more than 25 – 27 tonnes of goods (net weight), depending on variations in weight of the engine, trailer and container. Prior to the latest regulations, with a permitted fourth axle, the same vehicle could have a gross vehicle weight of 70 tonnes, and be permitted to carry about 34 tonnes of

cargo. In theory, this means from a simple analysis that 30% more trucks would now be needed to carry the same amount of cargo. This also means more fuel and input costs per unit of goods transported.

Transporters face significant delays as most are presently being required to stop and be weighed at all weighbridges during their journey. This is in spite of a 2009 Presidential Directive in Kenya which stated that transit vehicles should only be required to stop at the first and last weighbridges in Kenya – not all weighbridges. It seems reasonable to weigh the non-sealed domestic goods vehicles, but there is no reason why sealed transit goods vehicles should be required to stop at all weigh bridges. However, in practice, these transit goods vehicles are being stopped at all weigh bridges for weighing, even though their containers are sealed until they reach their final destination (e.g. the weight has not changed). The Presidential Directive is not currently being implemented.

Only escorted transit goods vehicles are exempt from multiple weighing; they are permitted to be weighed once, where they receive a weigh bridge ticket which enables them to pass through the remainder of the weigh bridges without being weighed. But even in this case, the vehicle must stop and have their documents stamped prior to proceeding on their journey causing a delay regardless.

Significant cost savings would be made if the Presidential Directive was implemented and transit goods vehicles were exempt from being required to stop at all weighbridges, given their containers are sealed and weights should not change. To prevent any misconduct, occasional checks for compliance could be made for transit goods vehicles using mobile weighbridges as appropriate.

The axle-load regulations in Kenya require weighing of each axle of the vehicle, rather than a grouping of axles (e.g. a triple axle grouping). The process of weighing each axle is very time consuming, and not always accurate. It often requires the driver to spend considerable time driving back and forth over the scales until they get the axle perfectly aligned.

Furthermore, weighing a grouping of axles might be more realistic given the conditions of the road in Kenya. If goods shift in a container while in transit (common on the numerous hills in Kenya), one axle might weigh a tonne over the limit, while another axle would be one tonne under the limit. When this happens, the transporter is required to either adjust his cargo until the axles are all within the limit, unload their cargo, or pay an informal fine to be allowed to pass. By law, if any axle on the vehicle is overloaded it is not allowed to continue on its journey. In practice, a small payment appears to facilitate reason on most occasions.

It would be useful to replace the practice of weighing each axle with the practice of weighing axle groups. This could be done through introduction of weigh in motion (WIM) scales which would provide a faster and more efficient weighing process. In cases where serious overloads are measured, the vehicles could be stopped and further examined on static scales. In fact, KeNHA's latest decongestion strategy for Mariakani weighbridge includes placement of a low-speed WIM facility at the entrance to Mariakani.

Transporters indicated that the different weighbridges are not properly calibrated, so that readings vary from from one weighbridge to another along the corridor. It was felt that all of the weighbridges needed to be upgraded with better equipment, providing more consistent, reliable readings.

Overall, while no one we spoke with disputed the benefits of the three axle rule, and the need for strict overloading regulations, many felt frustrated at the lack of enforcement in a fair and predictable way, without causing delays. In addition, stakeholders consulted felt that that axle load control regulations and limits should be uniform across all member states of the Northern Corridor. The axle-loading regime should fall within a regional programme, based on recommendations passed by the COMESA-SADC-EAC tripartite[27].

4.6.2 Informal costs for overloading

Unfortunately, it appears that the stricter axle load policies, stiff financial penalties and privatisation of the Mariakani and Mlollongo weighbridges have not resulted in a major decrease in overloading. Axle loads regulations (from 4 to 3 axles on semi-trailers) have definitely resulted in an increase in the number of trucks on the road, but the increase in the number of trucks has not been proportional to the decrease in overloading, which is still extremely common. We estimate from our interviews with over 50 stakeholders in Kenya (and secondary reports) that between **50% - 55% of trucks plying the Kenyan roads are still overloading**, some with cargo of up to 60 tonnes of cargo.

The prevalence of overloading is a significant cost to the public and users of the road, and appears to be exacerbated by the oversupply of vehicles on the roads. When business is bad and cargo coming into Mombasa is low – as has been the case for the past two years – the oversupply of transporters creates a major problem and is a major contributor to overloading. Transporters who become desperate for business feel compelled to lower their prices in order

[27] Burundi, D R Congo, Kenya, Rwanda and Uganda have signed the NCTA which also includes the maximum allowable axle load limits for each vehicle using the Northern Corridor. These limits were further adopted by COMESA, which also includes member States of the Northern Corridor. Although the regulations have been in force for more than 20 years, the implementation has not been fulfilled, partly due to lack of appropriate legal and regulatory mechanisms. In most of the countries, traffic regulations dating from the colonial era have not been updated to include the current developments in the transportation of goods and development of road infrastructure. Although some countries have installed weighbridges in their respective territories for the control of axle load limits and have adopted similar NCTA/COMESA regulations, modalities of implementation differ from one country to another

For further details see "*Concept paper on Enhancing the Implementation of the Axle Loads Control along the Northern Corridor",* Prepared for discussion at the **Regional Forum on Enhancing the Implementation of over Load Control along the Northern Corridor** in Kinshasa, DRC from 15th to 16th September 2010. It is clear from ongoing discussion that the key issue remains implementation at a national level, rather than reaching broad agreement at the regional level. The implementation issue is common to all countries, although somewhat less severe in Kenya and Uganda.

to get business, and then overload their vehicles to compensate for the loss in tariff. We understand from our interviews that decreasing tariffs is particularly common for smaller and medium sized firms, who are viewed by more professional and larger firms as undercutting prices unfairly. This is not to say that there are no larger transport firms overloading – it certainly does happen.

As stated above, the law requires that overloaded trucks must unload (or re-pack) until they are within the legal axle weight limits, but in practice most overloaded trucks are not being prevented from continuing on their journeys. The payment of bribes at weighbridges is extremely prevalent, and such corruption – often planned and arranged ahead of time – is common practice among a large number of transporters.

The Kenya Transport Association estimated that Kenya loses approximately US$1.2 billion each year to officials manning weighbridges across the country[28], and that weighbridge officers can earn as much as KSH 180,000 per month (US$2,400) through informal payments from overloaders.

Obtaining precise estimates on the levels of bribery required at weighbridges is difficult for obvious reasons. Almost none of the transporters we met admitted to any overloading, and many made clear they have strict policies against it. Nevertheless, a number of transporters and other stakeholders provided us with some estimates of the informal costs (bribes) required to pay for an overloaded truck.

Most estimates were provided based on the cost of bribes for the whole journey, for a significant overload (e.g. 20 tonnes), and are set out in the figure below. There are no informal payments at weigh bridges if you are not overloaded.

Figure 4-19: Typical Bribes for Overloading, per journey, for 20 tonnes overload, US$

Route	Informal Payments for entire journey
Mombasa – Nairobi	$150 - $250
Mombasa – Kampala	$250 - $500
Mombasa – Kigali	$750 - $1,000
Mombasa – Bujumbura	$750 - $1,000
Mombasa – Goma	$750 - $1,000

Much smaller overloads, or overloads due to shifting of weight apparently draw a small payment of KSH 300 (US$4).

The Kenyan Government recognises many of these challenges as evidenced by the following policy measures included in their latest (draft) Transport Policy[29]:

[28] Kenya Transport Association Magazine, "Overloading: the Blame Game Continues", June 2009.
[29] Kenya National Transport Policy (draft, May 2009), Section 4.10.5

- Axle load regulations will be strictly enforced.
- Administrative and other weaknesses such as corruption in law enforcement will be eliminated.
- Axle load control operations will be privatised.
- Weighbridges will be located only at major sources of freight and exit border points.
- Efficiency and capacity of Railway transport operations will be improve through public / private partnerships (PPPs).
- Measures will be taken to ensure efficient operation of Kenya Pipeline Co. Ltd. (KPC) to minimize road damage by transit fuel tankers from the neighbouring countries.
- Installation of weigh-in-motion equipment together with modernization of existing weighbridges.
- Freight transport operators will be sensitized on the need to adhere to axle load regulations

The Government of Kenya is already acting to address some of these challenges. Telecommunications links for Mariakani and Mlollongo (Athi River) weighbridges and KeNHA headquarters in Nairobi have been procured and are under implementation. These will allow live data transmission between the weighbridge sites and KeNHA headquarters. In addition, as mentioned above, a decongestion strategy for Mariakani weighbridge station is under discussion with the private operator, which includes placement of a low-speed WIM facility at the entrance to Mariakani weighbridge.

4.6.3 Police Checks on the Road

Police checks are very common across the Northern Corridor, and particularly in Kenya. These police checks / road blocks are in theory designed to increase security on the roads and improve professional standards in the transport business. They have increased security to a small degree, but are not playing the major role in security improvements that they should be, considering the delays and costs involved.

At each roadblock a driver will typically be asked for:

- Vehicle Inspection sticker
- Vehicle insurance
- Tyres (police check they are in good condition)
- Driver's license
- Police also ask for description / value of goods being carried

If the above are in order the police will usually simply let a truck pass, but **virtually always (95% or more of the time)** subject to the payment of a small bribe ("kitu kidogo" / something small). The payment per police check is usually KSH 50 – 150 (US$ 0.66 - $2). This is not a large sum, but there are delays involved. In limited instances, the payment solicited will be larger: if the vehicle is refrigerated, clearly very overloaded, or has goods of very high value, the payment might be closer to KSH 500 – KSH 1000 per police check (US$6 - $13).

Only companies with extremely strict "no bribery" policies refuse to pay the police bribes. It seems that eventually the police simply stop asking such companies for bribes, as they begin to recognise the company name and vehicle markings.

According to our interviews, the approximate number of police checks in Kenya is:

- Mombasa – Nairobi, about 8-10 road blocks
- Mombasa – Malaba, about 12 - 15 road blocks

Each police check delays the transporter by about 10 – 15 minutes, due to the time required for them to slow down, have a discussion with the police and speed up again. **This means that on a typical journey from Mombasa – Malaba, a driver could waste at least 120 minutes (2 hours) at police checks.**

The Kenya Shippers Council (KSC) has also undertaken research in the area of delays and believes the true hidden costs in road transport are the delays caused by various parties along the route, which lead to lost business[30]. KSC estimates that the unnecessary delays are 23% of logistics time – leading to a loss of one trip each month (Mombasa – Kampala) for a typical transporter running this route. In the Mombasa – Kampala example, KSC believes there is 2 full days of unnecessary waiting taking place on each trip by road, so if transporters can only do 2.5 round trips per month (Mom-Kampala), they are wasting 5 days per month with delays, which is enough to fit in one more trip. KSC estimates that half of these delays (1 day out of 2 days) for each trip is caused by the practices of the driver (stopping more than necessary, siphoning and selling fuel); the other half is police checks, weighbridges and border crossing.

4.6.4 Requirement for Transit Goods Licensing of Vehicles

Another factor which contributes to increased costs is the requirement for **vehicles** to be licensed for use as either domestic or transit goods vehicles, but not both.

In the EAC, transit goods coming from or destined to countries outside of the EAC region must be carried on specially marked trailers, which require a special Transit Goods license. Containers holding the goods must be sealed (other than for exceptional loads) and must bear in very clear print "TRANSIT GOODS" on both sides of the trailer. The transit goods must only be carried on the roads as approved by the customs agencies of each country (on the main transit routes), and not on any side roads. Transit Goods vehicles cannot be used to transport any goods between two countries in the

[30] Report prepared by Megadev (K) Limited, Nairobi, for Kenya Shippers Council, "Transport and Logistics Costs, Cause and Effect on Competitiveness of Kenyan Shippers", November 2008.

EAC and regular (non-transit) licensed vehicles cannot transport transit goods into or out of the EAC region.

In practice this means that a Transit Goods licensed vehicle can bring import transit goods from Mombasa Port under bond to Uganda, and can return with export transit goods from Uganda to Mombasa port for export from the EAC region. However, the Transit Goods vehicle would not be able to transport goods from Uganda to be released in the Kenyan market, nor could they transport any goods within Uganda or Kenya exclusively. Only domestic licensed vehicles can perform inter-EAC movements and domestic movements within one country.

These regulations limiting transport of Transit Goods to specially licensed vehicles create inefficiency in vehicle use, underused vehicles, and additional costs for the transport business. They prohibit inter-country transfer of goods within the region on such transit goods vehicles, and lead to a waste of resources for transporters who might otherwise be able to transport some local goods, either within the borders of their own country, or across borders within the EAC region. It means that transport companies cannot allocate their fleet in the most efficient manner, and also leads to more trucks being on the road than necessary, as most transit goods vehicles must return to Mombasa port empty for their entire journey.

4.7 Direct and Indirect Costs of Delays

The direct and indirect costs of delays include the costs associated with delays clearing the port / CFS and the delays in road transport time from Mombasa to destination. The main effect of delays is loss of business or loss of contracts when supplies are not delivered at the agreed time. These costs are considered indirect or hidden.

4.7.1 Delays at Port / CFS

The main causes of delay at the port / CFS stage of the logistics chain include the following:

- Delays if consignee / clearing agents do not have their paperwork ready in time for clearance procedures once the vessel has docked;
- CFS delays are about 2-3 days if paperwork is in order;
- KRA procedures are the largest delay. KRA software (SIMBA) has many technical glitches, of which the most frustrating is the inability to make electronic amendments to the manifest, so someone needs to go to KRA offices in Nairobi to make adjustments manually to the manifest (which KRA then inputs into SIMBA).
- KWATOS (KPA system) and SIMBA system are not yet fully interlinked.
- Clearance procedures are onerous. For each ship, you need to produce up to 17 copies of the ship manifest for all of the people at the Port: KRA, KPA, Standards Bureau, Port Health, Plant Health, etc.

The table below shows that clearing process for domestic containers at the port or CFS takes between 6 and 27 days, or 15 days in average. Most of delays (67%) are due to the time

needed by the consignee or his agent to prepare and present all the needed documents. KRA procedures and frequent SIMBA shutdowns are the second most significant component responsible for delays.

Figure 4-20: Clearing delays for local containers at Port / CFS

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port or CFSs	1	17 %	3	20%	5	15%	4	15%
Time needed for consignee or agent to present needed documents	3	50 %	8	53%	21	64%	18	67%
KRA average time required to release goods, once an entry was made by the consignee or his agent in the SIMBA system	2	33 %	4	27%	7	21%	5	19%
Total clearing delays	**6**	**100**	**15**	**100%**	**33**	**100%**	**27**	**100**

4.7.2 Delays during Road Transport

The time it takes to move cargo by road, after clearance from the port of Mombasa /CFS to the end use points, varies depending on the truck/trailer speed, time taken at weighbridges (weighing cargo and clearing with customs and police at the weighbridge), and police checks on the road, as well as time taken as rest stops by the drivers on the way.

The figure below summarises the transit time and delays for domestic shipment Mombasa-Nairobi according to the different operators interviewed, once departed from the port/CFS. The estimation of the logistics cost will be based on the average transit time, while the difference between the lower end and the higher end constitute the unreliability and will be used for the estimation of another component of the total logistic costs: the cost of unreliability. On average, the one way trip from Mombasa to Nairobi (industrial zone) takes 29.8 hours, with + or - 14.7 hours. Given the total distance (430 km) and the good quality of the road, as well as the delays due to the driver's stops for personal reasons, our minimum estimation of the total delays is 50% of the total transport time or 15 hours[31].

[31] According to KSC, the Mombasa-Nairobi total delay is 13.45 hours. (Source: S*pecific advocacy and policy recommendations for the Kenya Shippers Council (KSC)* - FINAL REPORT - Megadev (K) Limited, Nairobi, Kenya. November, 2008)

Figure 4-21: Transit Time, Domestic Shipment, Mombasa - Nairobi, One way

Journey Point	Distance (km)	Lower End (overnight driving)		Average		Higher End (peak congestion)		Unreliability (hours)
		Transit time (hours)	% of journey	Transit time (hours)	% of journey	Transit time (hours)	% of journey	
Driving Time: Mombasa Port/CFS to Mariakani weighbridge	30	0.75	3%	1	3%	1.25	3%	0.5
Weighing (and waiting) at Mariakani Weighbridge	-	1.5	7%	3	10%	5	13%	3.5
Driving Time: Mariakani to Athi River weighbridge	370	6	27%	7	24%	8	21%	2
Weighing (and waiting) at Athi River Weighbridge	-	1.5	7%	3	10%	4.5	12%	3
Driving Time: Athi River to Nairobi	30	0.5	2%	0.75	3%	1	3%	0.5
Police Checks	-	1.3	6%	2.0	7%	2.5	7%	1.2
Driver Rest Time / Other driver delays	-	10	44%	11	37%	12	32%	2
Time for offloading @ destination	-	1	4%	2	7%	3	8%	2
Total Time Mombasa-Nairobi (hours)	**430**	**22.6**		**29.8**		**37.3**		**14.7**
Total Time Mombasa Nairobi (days)	**430**	**0.9**		**1.2**		**1.6**		**0.61**

4.7.3 Analysis of Direct and Indirect Costs of delays in Kenya

The dwell and transit times at Mombasa Port and its extension through the CFS were assessed above. It appears that before the introduction of the CFSs in October 2007, the monthly average dwell time for import containers **at the port's** container terminal ranged from 12 to 14 days. With the introduction of the CFSs, the average monthly dwell time has been ranging between **4 to 6 days** for the 9 month period ending in October 2009 and represents the average dwell time for transit traffic which is normally kept at the container terminal for clearing and transfer to the delivery transport mode. As noted above, when comparing these numbers, one must however take into account the fact that with the CFS concept, for the same 6 month period ending in October 2009, 40% to 45% of the containers which were for domestic delivery were transferred to a CFS and that generally 95% the physical movements of the containers being transferred to a CFS are completed within a 24 hour period from ship discharge; these containers are therefore being assigned one day only in the calculation of the average monthly dwell time at the port's container terminal. As such, the improved average dwell times disguise the fact that there are delays still taking place at the CFS stations – in other words, importers may not necessarily be getting their goods any quicker.

The ICDs and CFSs were canvassed by the KPA Container Terminal Manager for their average dwell times and reported a fairly consistent average of **8 days.**

According to a study conducted in January to March 2009 by the Kenya Revenue Authority on the time elapsed for customs clearance for transit goods and mentioned above, the KRA average time required to release the goods, once an entry was made by the consignee or his agent in the SIMBA system, was between **3 and 4 days** per sample. It however shows that the consignee or his agent are responsible for the biggest portion of the total time required for clearance since it took on average between **6 and 20 days** average per sample for an entry to be made in the SIMBA system from the date of the ship manifest.

The methodology for the evaluation of the indirect (hidden) costs of delays is developed in the methodological chapter.

Transit dwell time: The average value of loaded goods per truck depends on the compliance of the transporters to the axle load regulations in each country and their overloading practice, despites those regulations. In Kenya where the axle load regulation is applied strictly and where the loading limit is 28 tonnes per truck due to three axle limitation per vehicle, our estimation based on our interviews with shippers, is US$ 40,000.

The fixed truck operating costs per day are estimated according to the table below at US$220/day including the vehicle depreciation, the driver's salaries and allowance, the vehicles and goods insurances and the overhead costs. Given that interest rates in Kenya are 16% - 18%, the economic opportunity cost of capital which is always higher than the real financial interest rate is estimated at 25%. The value of one dwell day per truck (once it's loaded and left the port) is therefore equal to **US$247/day.**

Costs of extra stock due to unreliability: They are associated with loss in business contracts due to unreliability. The average value of inventory stocks depend on the type of activity of the cargo owner and the value of products transported. Most interviewed cargo owners indicated a value ranging from 0.2 to 1 US$ Million. We will base therefore our estimation of the indirect costs of delays on average total inventory cost of US$ 0.6 million including an extra inventory of one month of US$ 0.2 Million financed at an opportunity cost of capital of 25%. **The opportunity costs of one month extra inventory is therefore UD$136.99** per day.

Figure 4-22: Estimate of Hidden costs per day (in US$), Mombasa – Nairobi

Dwell transit time per day	
Value of transported goods per truck (V)	40000
Capital opportunity cost (C)	25%
Fixed vehicle operating costs per day (T)	220.00
Z = {V*(C/365)} + T	**247.40**
Cost of unreliability per day	
3 months inventory value	600,000
1 month extra stock	200,000
Capital opportunity cost	25%
One month extra stock opportunity cost	50,000
Extra stock opportunity cost per day	**136.99**
Total hidden costs per day of delay	**384.38**

The total of indirect (hidden costs) per day of delays is US$384.

The table below summarizes the direct and indirect costs of delays for a local 20' container.

The demurrage charges at the port or CFS are based on a daily rate of US$25 and the average number of days to clear the cargo at the port (15 days) plus the average time needed on the road to reach the final destination (1.2 days), minus the free of charges days allowed by the port (5 days for local containers). The container demurrages are based on a daily rate of US$4 and the same number of days of delays.

The cost of truck dwell time is the fixed vehicle operating costs per day (see table above) multiplied by the average number of days of delays to reach the final destination.

The opportunity cost of extra inventory reflects the costs of delays due to the unreliability of the transport chain. It's equal to the difference between the minimum and the maximum of transit times needed to clear the cargo at the port and reach the final destination, times the opportunity cost of one day of extra-inventory (see table above).

The total hidden costs (indirect costs of delays), are the sum of the trucks (and cargo) dwell time costs and the opportunity costs of extra inventory.

The total costs of delays is the sum of the direct cost (demurrages charges at the port and for the container) and the total of hidden costs.

Figure 4-23: Total costs of delays on Mombasa-Nairobi Route

Type of costs	US$	%
Direct costs due to delay		
Days demurrage at the port/ICDs and CFSs*	280	6.3%
Container demurrage	65	1.5%
Total direct costs	***294.8***	***7.8%***
Indirect (hidden) costs		
Trucks transit dwell time	297	6.7%
Opportunity cost of extra inventory	3782	85.5%
Total hidden costs	***4079***	***92.2%***
Total costs of delays	**4424**	100,0%

* The first 5 days are free for local containers

Three main conclusions appear from the analysis above:

- Direct and indirect costs of delays are higher per trip ($4,424) than the amount of the transport cost by road.
- Indirect delay costs (extra costs related to loss of business) account for the largest proportion of total delay costs (92%).
- The direct costs related to KPA/CFS demurrage charges and container demurrage charges are relatively small (6.7%).

4.8 Structure of Full Logistics Chain Costs

In this section we bring together full analysis of all logistics costs to present a full picture of the costs at each stage of the domestic import logistics chain (Mombasa – Nairobi). A typical logistics cost structure on the route comprises: shipping line costs, transhipment costs, port terminal / CFS costs, inland route costs, transport costs along the corridor, terminal costs to final destination, and inventory cost due to unreliable delivery systems.

The sea freight shipping charges vary considerably depending on the port of origin and the type of product (see Figure 2-4).

The structure of the total logistic costs will change considerably and the conclusions will differ for one route to another and for one product to another.

As indicated in the methodological chapter and for study homogeneity reasons, we have

chosen to base our analysis on the sea freight shipping tariff of a frequent route (Mombasa-Singapore) and a common industrial product (batteries), therefore a sea freight shipping charge of US$1,700/container for a 20' container.

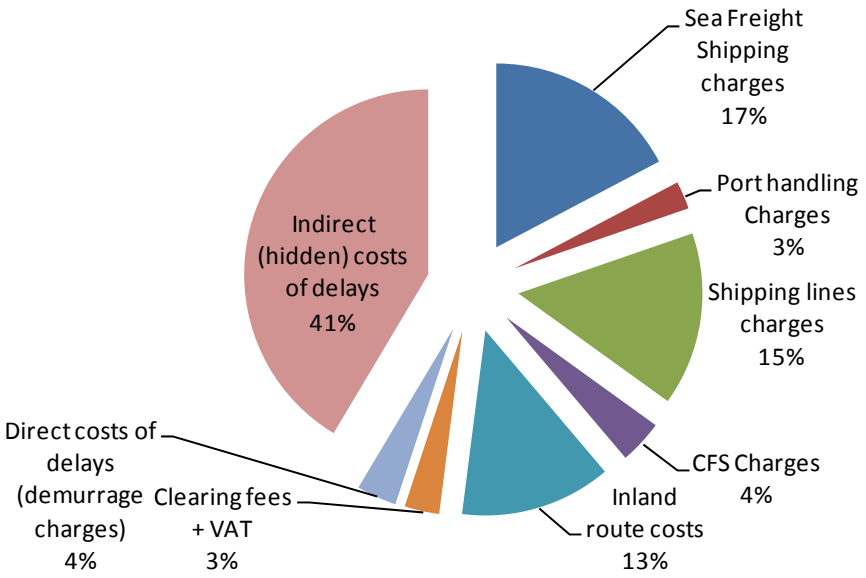
The figures below and the relevant graphic show that the total logistics cost of importing a 20' container through Mombasa to Nairobi is US$9,844, including US$4,079 (41.4%) of indirect costs due to delays and unreliability (hidden costs).

Figure 4-24: Total Logistics costs in US$ for a 20' container (Mombasa- Nairobi)

Costs type	Amount in US$	% of total logistics costs
Sea Freight Shipping charges		
Sub-Total Sea Freight Shipping charges*	1700	17.3%
Port handling Charges		
Stevedoring	90	
Shore-handling (Imports - Domestic)	90	
Wharfage	60	
Sub-total Port Charges	***240***	2.4%
Shipping lines charges		
Sub-total shipping Line charges (excluding container demurrage)	1,500	
Sub-total Shipping lines charges	***1,500***	15.2%
CFSs Charges		
Re-marshalling	150	
Special CFS Handling	110	
Transfer from KPA to the CFS	120	
Sub-total CFSs Charges	***380***	3.9%
Inland route costs (freights)	***1300***	13.2%
Clearing Agent fees + VAT	***300***	3.0%
Direct costs of delays		
Days demurrage at the port/ICDs and CFSs	280	
Container demurrage	65	
Sub-total direct costs	***344.80***	3.5%
Indirect (hidden) costs of delays		
Trucks Transit Dwell time	297	3.0%
Opportunity cost of extra inventory (unreliability costs)	3782	38.4%
Sub-total hidden costs	*4079*	41.4%
Total Logistic costs	**9,844**	**100,0%**

* shipping tariff of a 20' batteries and coming from Singapore

Figure 4-25: Logistics costs breakdown, 20' Container, Mombasa-Nairobi



To lower the logistics costs for domestic shipments in Kenya, it is imperative therefore that those delays in the whole export or import process are addressed, because delays account for the largest proportion of the total logistic costs. The majority of delay costs are indirect (hidden costs related to business loss). A prioritized set of policy measures has been developed in the Chapter 15 to address the issue of delays.

5 Northern Corridor Logistic Costs for Uganda

This chapter analyses the logistic costs in Uganda, the landlocked country which makes more use of the Northern Corridor than any other such country for its imports and exports: 80% of the traffic transiting through Mombasa port is destined to or originated from Uganda. Uganda is also a transit country for the other countries using the Northern Corridor: Rwanda, Burundi, Eastern DRC and Southern Sudan (although some goods to Southern Sudan travel directly from Kenya without passing through Uganda).

5.1 Uganda Macroeconomic Performance

This section describes the overall macro-economic environment in Uganda, considering performance for the five years (2002-2007) that correspond with the first five years of Uganda's Second Road Sector Development Programme (RSDP2). Transport costs analysed for Uganda are mainly for the year 2009.

The performance of the Ugandan economy is shown by the indicators in the figure below.

Figure 5-1: Performance of the Ugandan Economy, 2002/03 – 2006/07

Variable	2002/03	2003/04	2004/05	2005/06	2006/07
Total GDP (Million Shillings) at Current Prices	11,775,200	13,191,339	16,165,610	17,350,908	19,497,930
Total GDP (Million Shillings) at 1997/98 Prices	10,102,036	10,644,612	11,365,464	11,941,051	12,717,158
Real (at 1997/98 Prices) GDP Growth Rate	4.7	5.4	6.8	5.1	6.5
Per Capita GDP Shs-in real terms (1997/98 prices)	413,016	421,484	435,802	443,480	457,418
Per Capita GDP Percentage Increase (Growth Rate)	1.4	2.1	3.4	1.8	3.0
Total Population Increase (Growth Rate)	3.3	3.3	3.3	3.3	3.3
Manufacturing GDP Percentage Contribution	9.4	9.4	9.8	9.4	9.1
Manufacturing GDP Growth Rate	4.2	4.6	11.9	(0.1)	2.9
Agriculture GDP Percentage Contribution	39.0	37.3	35.1	33.3	31.9
Central Govt Taxes Million Shs	1,394,360	1,750,839	1,999,342	2,325,649	2,689,425
Total Tax Revenue Percentage of GDP	12.0	13.0	13.0	13.0	14.0
Overall Fiscall Balance (excl. Grants) Billion Shs	(1,336)	(1,416)	(1,363)	(1,948)	(1,682)
Overall Fiscal Bal (incl. Grants) Billion Shs	(1,516)	(200)	(108)	(576)	(563)
Overall Budget Deficit (excl. Grants) Percent of GDP	11.6	11.1	100	8.9	8.6

Variable	2002/03	2003/04	2004/05	2005/06	2006/07
Overall Budget Deficit (incl. Grants) Percent of GDP	4.4	1.5	0.7	303	3.0
Overall Balance of Payments (Million US$)	51.3	189.5	230.5	156.4	437.1
Balance of Payments Percent of GDP	7.8	28.2	27.6	15.9	41.0
Total Exports (FOB) (Million US$)	507.5	647.2	786.3	889.4	1,204.6
Debt Stock Percentage of GDP	67.0	65.0	51.0	58.0	
Debt Service Percentage of GDP	2.2	2.4	2.1	2.1	
Debt Service Percentage of Exports of Goods and Service	17.6	16.0	15.4	13.1	

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Real GDP (1997/98 constant prices) achieved an average growth rate of 5.7% per annum in the 5 years (2002/3 - 2006/7), while the per capita GDP average growth rate was 2.3% per annum. The average manufacturing sector contribution to GDP was about 9.4% for the 5 years. Manufacturing GDP growth rate had a significant improvement from 4.2% in 2002/03 to 11.9% in 2004/5 but suffered a downturn in the next two years plummeting to 2.9% in 2006/07. The agriculture sector did not perform well. The share of agricultural production to GDP declined by almost 7 percentage points; from 39% in 2002/3 to 31.9% in 2006/7. Agriculture GDP growth rate fell by almost 3 percentage points from 2.3% in 2002/3 to -0.6% in 2005/06, ending at 1.9% in 2006/7.

Tax revenue improved from 12% of GDP in 2002/03 to 13% in 2003/04 and remained almost constant for the rest of the period. The overall budget deficit consistently eased over the period, reducing by 3 percentage points from 11.6% of GDP in 2002/03 to 8.6% in 2006/07. The balance of payments position had a generally positive trend over the period, rising by 33.3 percentage points from 7.8% of GDP in 2002/03 to 41% of GDP in 2006/07. Exports had a consistent steady growth rising by a total of US$697 million, (a 137% increase). This was from US$508 million in 2002/03 to US$1,205 million in 2006/07. The total debt stock decreased from 67% of GDP in 2002/03 to 58% in 2005/06. The decrease in debt stock is more attributable to the Highly Indebted Poor Countries (HIPC) debt initiative than to any other measures. Debt servicing is still a problem to contend with. The debt service ratio had no significant change at 2.2% of GDP in 2002/3 and at 2.1% in 2005/06.

At the performance levels given above, especially the appreciable rise in GDP growth rate, the increase in tax revenue as a percentage of GDP and the decrease in debt stock as a percentage of GDP, the Ugandan economy was set to generate substantial transport activity both locally and internationally, especially along its main transport axis - the Northern Corridor.

5.2 Uganda Institutional Organization of the Transport Sector

The key institutions in the transport sector in Uganda are summarised below.

- **Ministry of Works and Transport** (MoWT) which focuses on policy formulation, strategic planning, setting standards, regulation and sector monitoring.
- **Ministry of Finance, Planning and Economic Development** (MFPED) for the mobilization and disbursement of funds needed by the sector, and monitoring the use of these funds.
- **Ministry of Local Government** (MoLG) together with district and urban councils which are planning authorities in their areas of jurisdiction. Local governments plan, programme and implement district road maintenance and rehabilitation programmes.

There are other autonomous and semi-autonomous institutions in the sector that are charged with service delivery and sector regulations. These are parastatals, regulatory bodies, councils and boards.

- **Uganda National Roads Authority** (UNRA) is responsible for managing the provision and maintenance of the National Roads network in a more efficient and effective manner and rendering advisory services to Government.
- **National Road Safety Council** (NRSC) is responsible for providing a central organisation to plan and intensify road safety activities and to exploit fully and continuously available knowledge and experience in all matters connected with Road Safety.
- **Transport Licensing Board** (TLB) is responsible for regulating the use of public service vehicles, private omnibuses and goods vehicles throughout the country.

Private Sector

Operation of road services is currently a private sector domain that includes:

- **Public passenger transport services**. This service is offered by individual operators using minibuses under their umbrella of Uganda Taxi Owners and Drivers Association (UTODA) and Private Companies operating omnibuses under Uganda Bus Operators Association (UBOA).
- **Goods / Freight Transport Services.** The service is offered by both individual operators (especially for local transport) and organized companies (especially for international and regional transport). The international/regional transporters operate under three umbrella organizations: the Uganda Freight Forwarders Association (UFFA), Uganda Clearing Industry and Forwarding Agencies Association (UCFA) and Uganda Commercial Truck Owners Association (UCTOA). The Trucking operators total to about 55 firms.
- **Construction and maintenance** of the road infrastructure, which is carried out mainly by consultants who undertake planning, engineering design, programme management and training; and contractors who execute road works.

5.3 Uganda Road Network Quality and Maintenance Costs

Roads in Uganda differ in terms of size, pavement strength and geometry, which in turn vary based on the function of the road. The road network in Uganda has been categorized administratively into the two types of roads.

National roads, which include:

- Roads connecting the main centres or district headquarters within the country to each other and to the borders.

District, Urban and Community Access Roads (DUCAR), which include:

- District roads linking communities and connecting the countryside to major trading centres and to national roads;
- Urban roads located within the boundaries of city/municipal/town councils; and
- Community access roads which are small link roads providing access from village to the fields, community centres, schools, health centres and connecting all these to district or national roads.

Road maintenance and improvement in Uganda is done under a ten year programme known as **Road Sub-sector Development Programme (RSDP)**. In 1996/97, the Government of Uganda prepared the first 10 years Road Sub-sector Development Programme (RSDP1) for the period 1996/97 to 2006/07 that was reviewed in 2001/02 and rolled over to RSDP2. The first five years of RSDP2 (2002/03 to 2006/07) provides a representative account of the nature and extent of infrastructure maintenance and improvement in Uganda.

Below we summarise the outcomes from the RSDP2 National Roads Maintenance and Improvement objectives, followed by progress in National Road Maintenance and Development objective.

5.3.1 National Roads Maintenance and Improvement

One of the RSDP2 strategic objectives for road management is ensuring sustainable road maintenance and improvement. Road maintenance serves to optimise the functional life of roads; and preserves the asset to a desirable standard. Any lapse in road maintenance risks loss of investment through premature pavement failures, and results into the road asset requiring rehabilitation or reconstruction that is three times, or more, the cost of normal maintenance. The RSDP2 strategy therefore requires that road maintenance take precedence over road rehabilitation or construction.

The physical achievements and financial outturn for national roads maintenance, by intervention and by year, for the period for the period 2002/03 – 2006/07, are presented in **Figure 5-2**, **Figure 5-3** and **Figure 5-4**, and analysed below.

Routine Maintenance

Over the 5 years, a total of 49,587 km received manual routine maintenance at a cost of US$ 19,290,000 (14% of US$ 136,000,000 total *routine* maintenance), giving an average cost of US$ 389/km. Mechanized routine maintenance was done on 35,437 km, at a cost of US$ 116,719,000 (86% of US$ 136,000,000 total *routine* maintenance), giving an average cost of US$ 3,293/km. The combined (manual + mechanized) average cost of maintenance was US$ 1,599/km.

The RSDP2 target on routine maintenance, over the 5 year period was 46,335 km, at a cost of US$ 113,370,000, as shown in **Figure 5-3** and **Figure 5-4** respectively (the RSDP2 target did not differentiate between manual and mechanized routine maintenance). This gives an average cost of US$ 2,446 per km, which is over 1½ times the achieved/implemented US$1,599 per km. The inference here is that the achieved/implemented routine maintenance standard/quality was below the RSDP2 standard/quality target.

Periodic Maintenance

A total of 562.3 km of bituminous roads were resealed over the 5 years at a cost of US$ 18,470,000, giving an average cost of US$ 32,847/km. The RSDP2 target on resealing only, over the 5 years was 616.9 km, at a cost of US$ 18,710,000 as given in **Figure 5-3** and **Figure 5-4** respectively. This gives an average cost of US 30,329/km, which is about the same as the US$ 32,847/km achieved/implemented. The resealing only maintenance of bituminous roads met the RSDP2 standard/quality target.

Regravelling maintenance was done on 3,757.5 km of unpaved roads at a cost of US$ 30,130,000, giving an average cost of US$ 8,018 per km. The RSDP2 target on regravelling maintenance (periodic maintenance and rehabilitation of gravel roads) over the 5 years was 5,869 km at a cost of US$ 147,800,000, as shown in **Figure 5-3** and **Figure 5-4** respectively. This translates to an average cost of US$ 25,183/km, which is 3 times the achieved / implemented US$ 8,018 per km. The implication is that the achieved/implemented regravelling maintenance standard was much below the RSDP2 standard/quality target.

Substandard work

For both routine and periodic maintenance, the achieved/implemented quality of work was much below that set at the formulation of RSDP2 in 2002/03. This has resulted in a poor ride quality on the affected roads; and high vehicle operating costs. In addition, the life of the affected roads is much shorter than that planned under RSDP2. Consequently, further maintenance, or even the rehabilitation interventions have been required much earlier than would have been the case had RSDP2 standard/quality targets been adhered to. Premature road failures and public outcry about shoddy works is a manifestation of this state of affairs.

Assessment of the physical and financial performance which is quantitative, measured in distance (km) covered and money (US$) expended, respectively, has to be looked at taking into account the quality of works described above.

MoWT revealed that with the available financial resources, only 50-60% of the national road network maintenance would be covered, if they were to adhere to the RSDP2 set standards. The consequence of this is abandoning 40-50% of the national network; which was deemed socially and politically undesirable. In the circumstances, therefore, the ministry opted for lower standard/lower-cost interventions in an attempt to carry out maintenance on the entire network and keep it motorable. The strategy has resulted in the routine maintenance and regravelling periodic maintenance achieved/implemented standard/quality being much below the RSDP2 standard/quality target.

Figure 5-2: Physical Achievement and Financial Outturn of Uganda National Roads Network Maintenance.

Year	02/03			03/04			04/05			05/06			06/07			Five Year Totals		
Work Type	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)	Achieved (Km)	Outturn (US$)	Av.Cost/Km (US$)
MAINTENANCE																		
a) PERIODIC MAINTENANCE																		
Bituminous Roads																		
Reseal only	259.7	8,530,000	32,845.591	67.0	2,200,000	32,835.821	109.0	3,600,000	33,027.523	98.0	2,500,000	25,510.204	28.6	1,640,000	57,342.657	562.3	18,470,000	32,847.235
Unpaved Roads																		
Regravelling	685.5	5,500,000	8,023.341	520.0	4,170,000	8,019.231	919.0	7,290,000	7,932.535	900.0	7,680,000	8,533.333	733.0	5,490,000	7,489.768	3,757.5	30,130,000	8,018.629
b) ROUTINE MAINTENANCE																		
ALL ROADS																		
Mannual Mtce.	10,000.0	3,890,000	389.000	8,000.0	3,110,000	388.750	10,538.0	4,190,000	397.609	10,511.0	3,930,000	373.894	10,538.0	4,170,000	395.711	49,587.0	19,290,000	389.013
Mechanised Mtce.	6,145.0	34,260,000	5,575.264	7,185.0	27,410,000	3,814.892	7,463.0	19,090,000	2,557.953	8,000.0	18,700,000	2,337.500	6,644.0	17,250,000	2,596.328	35,437.0	116,710,000	3,293.450
TOTAL MTCE.	17,090.2	52,180,000	3,053.212	15,772.0	36,890,000	2,338.955	19,029.0	34,170,000	1,795.680	19,509.0	32,810,000	1,681.788	17,943.6	28,550,000	1,591.097	89,343.8	184,600,000	2,066.176

Source: MoWT Ministerial Budget Policy Statements

Figure 5-3: Physical Performance of Uganda National Roads Network Maintenance in Km

Year	02/03				03/04				04/05				05/06				06/07				Five- Year Totals			
	Target	Achieved		Backlog	Target	Achieved		Backlog	Target	Achieved		Backlog	Target	Achieved		Backlog	Target	Achieved		Backlog	Target	Achieved		Backlog
Work Type		Absolute	%			Absolute	%			Absolute	%			Absolute	%			Absolute	%			Absolute	%	
MAINTENANCE																								
a) PERIODIC MAINTENANCE	1,253.0	945.2	75%	307.8	1,322.9	587.0	44%	735.9	1,428.1	1,028.0	72%	400.1	1,243.3	998.0	80%	245.3	1,239.0	761.6	61%	477.4	6,486.3	4,319.8	67%	2,166.5
Bituminous Roads																								
Reseal only	51.6	259.7	503%	(208.1)	150.6	67.0	44%	83.6	219.3	109	50%	110.3	69.8	98.0	140%	(28.2)	125.6	28.6	23%	97.0	616.9	562.3	91%	54.6
Unpaved Roads																								
Regravelling	1,201.4	685.5	57%	515.9	1,172.3	520.0	44%	652.3	1,208.8	919	76%	289.8	1,173.5	900.0	77%	273.5	1,113	733	66%	380.4	5,869.4	3,757.5	64%	2,111.9
b) ROUTINE MAINTENANCE																								
ALL ROADS	9,267.0				9,267.0				9,267.0				9,267.0				9,267				46,335.0			
Mannual Mtce.		10,000.0				8,000.0				10,538				10,511.0				10,538				49,587		
Mechanised Mtce.		6,145.0				7,185.0				7,463				8,000.0				6,644				35,437		
TOTAL MTCE.	10,520.0	17,090.2			10,589.9	15,772.0			10,695.1	19,029.0			10,510.3	19,509.0			10,506	17,943.6			52,821.3	89,343.8		2,166.5

Source: (1) RSDP2 Main Report for RSDP2 Targets. (2) MoWT Ministerial Budget Policy Statements for Achievement

Figure 5-4: Financial Performance of Uganda National Roads Network Maintenance in US$ million.

FY	2003			2004			2005			2006			2007			5-Year Totals			
ACTIVITY	Target	Outturn	Gap	Target	Outturn	Gap	Target	Outturn	Gap	Target	Outturn	Gap	Target	Outturn	Gap	Target	Outturn		Gap
NATIONAL ROADS- PHYSICAL INFRASTRUCTURE																	Absolute	%	
ROAD MAINTENANCE AND REHABILITATION																			
Routine Maintenance (all roads)	24.12	38.15	(14.03)	24.79	30.52	(5.73)	24.70	23.28	1.42	19.57	22.63	(3.06)	20.19	21.42	(1.23)	113.37	136.00	1.20	(22.63)
Mannual Mtce		3.89			3.11			4.19			3.93			4.17			19.29		
Mechanised Mtce		34.26			27.41			19.09			18.70			17.25			116.71		
Regrav.Mtce (Periodic mtce & Rehab.-gravel roads)	14.62	5.50	9.12	34.10	4.17	29.93	34.25	7.29	26.96	35.79	7.68	28.11	29.04	5.49	23.55	147.80	30.13	0.20	117.67
Periodic mtce – bit/paved roads			0.00			0.00			0.00			0.00			0.00	0.00	0.00		0.00
Resealing only	4.82	8.53	(3.71)	3.53	2.20	1.33	5.40	3.60	1.80	1.79	2.50	(0.71)	3.17	1.64	1.53	18.71	18.47	0.99	0.24
Total periodic mtce- bit/paved rds	**4.82**	**8.53**	**(3.71)**	**3.53**	**2.20**	**1.33**	**5.40**	**3.60**	**1.80**	**1.79**	**2.50**	**(0.71)**	**3.17**	**1.64**	**1.53**	**18.71**	**18.47**	**0.99**	**0.24**
Total periodic mtce (all roads)	**19.44**	**14.03**	**5.41**	**37.63**	**6.37**	**31.26**	**39.65**	**10.89**	**28.76**	**37.58**	**10.18**	**27.40**	**32.21**	**7.13**	**25.08**	**166.51**	**48.60**	**0.29**	**117.91**
TOTAL NAT.ROAD MTCE AND REHAB.	**43.56**	**52.18**	**(8.62)**	**62.42**	**36.89**	**25.53**	**64.35**	**34.17**	**30.18**	**57.15**	**32.81**	**24.34**	**52.40**	**28.55**	**23.85**	**279.88**	**184.60**	**0.66**	**95.28**

Source: (1) RSDP2 Main Report for RSDP2 Targets. (2) MoWT Ministerial Budget Policy Statements for Achievement

5.3.2 National Roads Development and Improvement

One of the objectives of RSDP2 was to upgrade and improve parts of the road network that were economically justifiable to those standards commensurate with projected traffic demands, safety requirements and environmental concerns. The improvement measures consisted of:

- Pavement strengthening;
- Capacity improvement;
- Upgrading;
- Constructing new road links; and
- Miscellaneous construction works.

Although RSDP2 does not specifically include feasibility and engineering design studies and production of study reports in its programme, these preparatory activities require funding. They are time consuming; and are a prerequisite to execution of road projects.

In the 5-year period, a total of 195 km were reconstructed at a cost of US$ 50,500,000; giving a reconstruction unit cost of US$ 258,974/km. The RSDP2 target on reconstruction was 444 km at a cost of US$ 150,020,000, giving a unit cost of US$ 337,882/km. The achieved reconstruction unit cost of US$ 258,974/km is 77% of the target unit cost of US$ 337,882/km. The achieved reconstruction standard/quality was below the RSDP2 standard/quality target.

A total of 507.2 km unpaved roads were upgraded to paved standard at a cost of US$ 103,620,000; giving an average cost of US$ 204,298/km. The RSDP2 target was to upgrade 866.8 km of unpaved roads to paved road standard at a cost of US$ 245,410,000; giving an average cost of US$ 283,121/km. The implemented/achieved unit cost is therefore 72% of the RSDP2 unit cost target. The achieved upgrade standard was below the RSDP2 standard/quality target.

The achieved/implemented road improvement /development standards were much below the RSDP2 standard/quality targets. Taking into account the time value of money, the achieved/implemented quality of work must be much less than the above percentages (77% for reconstruction and 72% for upgrade to paved road); where the implemented unit cost was not adjusted for inflation.

Due to the low quality of work, the roads constructed will last much shorter than the RSDP2 design life; thus requiring periodic maintenance interventions much earlier than planned. This overstretches the already inadequate maintenance budget. As stated under national roads maintenance, assessment of the physical and financial performance, which is quantitative, is to take into account the quality of work described above.

New construction in 5 years totalled 20 km at a cost of US$ 53,000,000, or US$ 2,650,000/km. The RSDP2 target was 20.8 km at a cost of US$ 43,070,000 or US$

2,070,673/km. The achieved/implemented cost per km of US$ 2,650.000 was about 28.8% higher than the RSDP2 target of US$ 2,070,673/km. With 0.8 km yet to be done, an extra US$ 9,930,000 over and above the US$ 43,000,000 RSDP2 target has been spent. This is a very high increase in terms of new construction costs. The increase in cost is mainly attributed to:

- A two-year delay in procuring the contractor and consultant for the project;
- Escalating world oil prices;
- Delay in compensating landlords; and
- Errors in detailed design and feasibility studies.

5.4 Uganda Trade through the Northern Corridor

The actual flow of goods in and out of Uganda is given in the external trade statistics on imports and exports recorded by the Customs department of Uganda Revenue Authority (URA). These statistics show the direction of the trade in goods with respect to Uganda and the rest of the world. With regard to exports, commodities are categorized into Traditional Exports and Non-Traditional Exports. The traditional exports include coffee, cotton, tea and tobacco, while non-traditional exports include commodities other than the above four, like maize, beans and other legumes, fish and fish products, soap, cattle hides, sesame seeds, etc. Almost all the traditional exports move along the Northern Corridor route (Kampala-Mombasa).

5.4.1 Exports from Uganda

Figure 5-5 below gives the Uganda exports by commodity and by quantity for the period 2004-2008. Coffee remains the main export with export tonnage rising by 25% from 159,983 tonnes in 2004 to 200,640 tonnes in 2008 followed by tea, rising also by 25% from 36,874 tonnes in 2004 to 46,022 tonnes in 2008. Of the non-traditional exports, maize contributes the most significant volume to Uganda's exports at 90,576 tonnes in 2004, and 101,233 tonnes in 2007, though falling to 66,671 tonnes in 2008. This is followed by beans and other legumes rising from 26,233 tonnes in 2004to 37,211 in 2008.

Figure 5-5: Uganda Exports by quantity, 2004 – 2008

Commodity	Unit	2004	2005	2006	2007	2008
Traditional Exports						
Coffee	Tonne	159,983	142,513	126,887	164,540	200,640
Cotton	Tonne	29,293	30,403	18,480	16,230	7,960
Tea	Tonne	36,874	36,532	30,584	44,015	46,022
Tobacco	Tonne	27,843	23,730	15,794	26,384	29,042
Non-Traditional Exports						
Maize	Tonne	90,576	92,794	115,259	101,233	66,671
Beans and other Legumes	Tonne	26,233	28,332	27,087	22,532	37,211
Fish and Fish products	Tonne	31,808	39,201	36,461	31,681	24,965

Commodity	Unit	2004	2005	2006	2007	2008
Cattle hides	Tonne	18,502	25,349	22,214	20,942	13,042
Sesame seeds	Tonne	4,283	7,412	7,568	5,945	14,154
Soya beans	Tonne	468	574	3,048	5,798	3,250
Soap	Tonne	16,281	17,072	11,681	28,109	23,081
Electric Current	000 Kwh	193,104	62,577	53,019	65,927	65,368
Cocoa beans	Tonne	5,155	7,600	7,632	9,404	8,982
Cobalt	Tonne	438	582	861	684	1,949
Hoes and hand tools	'000	180	466	68	55	239
Pepper	Tonne	394	817	218	194	304
Vanilla	Tonne	71	234	195	422	192
Live animals	'000	37	12	0	23	95
Fruits	Tonne	1,297	3,061	7,821	7,361	3,114
Groundnuts	Tonne	1	22	63	101	30
Bananas	Tonne	1,792	2,196	494	1,151	396
Roses and Cut flowers	Tonne	6,092	6,162	4,989	5,267	5,349
Ginger	Tonne	14	8	4	3	109
Gold and gold compounds	Kg	5,465	4,241	6,937	3,602	2,055

Source : Uganda Bureau of Statistics, URA, UCDA and UMEME
Note : 2008 figures are provisional

The directions of Uganda's exports are provided by statistics in value terms rather than quantity. **Figure 5-6** below gives Uganda's exports by percentage, region and country of destination for the period 2004-2008. The analysis of the figures in this table shows the following main findings:

- COMESA and the European Union (EU) member states remained the major destinations for Uganda's exports. The COMESA region registered the highest market share of 42.1% in 2008 as compared to 37.9% in 2007. This was followed by the EU whose market share increased slightly from 24.3% in 2007 to 26.7% in 2008. Meanwhile, the Asian market accounted for 5.7%, and the Middle East saw a significant reduction in its market share to 8.1% in 2008 compared to 14.3% registered in 2007. The drastic fall in the value of exports to the Middle East could be explained by increased market share for the COMESA region.

- The value of exports to COMESA increased significantly by 43.2 percent from US$ 506.5 million in 2007 to US$ 725.2 million in 2008. Among the COMESA partner states that registered the most remarkable increase was Sudan, accounting for the highest share of 14.3 percent. It was followed by Kenya (9.5%), Rwanda (7.9%) and the DRC (7.2%). The figures show a significant shift from past trends where Kenya took the lead as the main export destination.

- The total export value to the EU region increased from US $ 324.4 million in 2007 to US$ 460.2 million in 2008. This led to a shift in market shares from 24.3 percent to 26.7 percent in 2007 and 2008 respectively. The countries that contributed to this increment were United Kingdom (6.9%), Netherlands (4.7%), Germany (4.4%) and Belgium (3.7%). On the other hand, in 2008, exports to the Middle East, Asia, and

North America were valued at US$ 139.1 million, US$ 98.2 million and US$ 19.8 million, respectively.

- The other African countries outside COMESA region that contributed significantly to Uganda's foreign exchange earnings include Tanzania, Congo DR and South Africa whose market shares stood at 1.8%, 1.3% and 0.9% respectively.

Figure 5-6: Uganda Exports by percentage, region and country of destination, 2004 – 2008

Region/Country	2004	2005	2006	2007	2008
COMESA	26.8	30.7	29.5	37.9	42.1
Other Africa	5.7	4.8	3.9	6.6	4.2
European Union	27.7	31.1	27.4	24.3	26.7
Other Europe	16.7	10.1	5.1	6.8	9.2
Europe	10.2	21.0	22.3	17.4	17.5
North America	2.9	2.3	1.7	1.8	1.2
Middle East	5.6	10.8	20.6	14.3	8.1
Asia	8.9	7.5	7.8	5.4	5.7
South America	0.1	0.1	0.1	0.2	0.0
Rest of the World	0.0	0.1	0.0	0.0	0.1
Unknown	5.7	2.5	3.8	2.8	2.8
Export to selected countries					
COMESA					
DRC	4.3	7.4	4.7	7.5	7.2
Rwanda	3.7	4.4	3.2	6.2	7.9
Sudan	3.4	6.2	9.5	11.8	14.3
Kenya	11.6	8.9	9.1	8.8	9.5
Burundi	2.7	2.6	2.1	3.2	2.6
Egypt	0.4	0.4	0.4	0.2	0.1
Other	0.6	0.7	0.4	0.2	0.3
Other Africa					
South Africa	1.4	1.2	1.1	0.8	0.9
Tanzania	1.8	1.9	1.4	2.3	1.8
Congo BR	1.9	1.2	0.8	3.2	1.3
Other	2.5	1.7	1.4	3.5	0.3
European Union					
United Kingdom	4.4	3.3	3.1	4.0	6.9
Germany, Federal Republic	2.7	4.2	4.4	4.9	4.4
Belgium	4.0	4.1	4.1	3.9	3.7
Netherlands	8.7	10.5	6.4	5.0	4.7
France	3.4	4.9	4.0	2.4	2.0
Spain	2.1	2.2	2.0	2.0	1.6
Italy	0.7	0.7	1.5	1.0	1.9
Other	2.0	2.0	3.4	2.1	1.6
Other Europe					
Switzerland	16.4	9.2	3.4	6.5	9.0
Romania	0.1	0.2	0.1	0.0	0.0
Other	0.7	0.8	1.6	0.4	0.2

Region/Country	2004	2005	2006	2007	2008
North America					
United States	2.4	2.0	1.5	1.5	0.9
Canada	0.5	0.3	0.2	0.2	0.1
Other	0.1	0.0	0.0	0.1	0.2
Middle East					
Israel	0.2	0.3	1.1	0.7	0.3
Saudi Arabia	0.2	0	0	0	0.1
United Arab Emirates	5	10.4	19.4	13.3	7.4
Other	0.1	0.1	0.2	0.3	0.2
Asia					
Hong Kong	2.4	1.6	1.3	0.8	0.9
Australia	0.5	0.5	0.7	0.2	0.1
Japan	0.9	0.6	0.4	0.4	0.5
Singapore	3.4	3.6	3.6	1.7	1.5
India	0.2	0.1	0.2	0.3	1.1
China	0.7	0.7	0.7	1.1	0.7
Viet Nam	0	0.1	0.4	0.5	0.4
Other	1.7	1.2	1.8	2.4	0.4
South America					
Brazil	0	0	0	0.1	0
Colombia	0	0	0	0	0
Others	0	0.1	0.1	0.1	0
Rest of the World	0	0	0	0	0.1
Unknown	5.7	2.3	0	2.8	2.8
Total	**100**	**100**	**100**	**100**	**100**

Source : UBOS
Note : 2008 figures are still provisional

5.4.2 Uganda Imports

Import trade data is also available in value only in the statistics. Without data on quantities, the values are a proxy of quantities. **Figure 5-7** gives imports in US$ by region and country of origin for the period 2004-2008.

The key points to note are the following:

- The Asian continent maintained its position as the leading source for Uganda's imports. In 2008, the share of the imports from the Asian countries increased marginally to 34.8% from 33.6% during 2007. The total expenditure bill to the region in 2008 was US $1,574 million as compared to US $ 1,175 million in 2007. The main countries that contributed significantly were India, China, Japan and Malaysia with market shares estimated at 10.4%, 8.1 percent, 5.9% and 3.2% respectively.

- The import bill for the African continent grew from US $803.3 million in 2007 to US$971.6 million in 2008. However, in terms of proportion to the overall imports bill, its market share reduced from 23.0% to 21.5% in 2008. Countries that were among

the major sources of imports to Uganda were Kenya (11.3 percent), South Africa (6.7%) and Tanzania (1.2% market share).

Figure 5-7: Uganda Imports by region and country of origin ('000 US$), 2004 – 2008

Region/Country	2004	2005	2006	2007	2008
COMESA	434,177	565,011	450,419	560,321	596,451
Other Africa	160,147	177,881	188,853	242,712	375,101
Asia	501,100	540,808	749,982	1,174,968	1,573,959
European Union	314,033	387,158	481,209	717,642	877,988
Other Europe	15,485	21,703	69,894	66,049	152,685
Middle East	118,129	206,879	489,218	566,592	740,652
North America	122,984	105,723	98,615	128,779	144,896
South America	26,116	31,550	11,557	32,407	53,730
Rest of the World	34,067	17,424	17,561	5,921	10,398
Imports from selected countries					
COMESA	**434,177**	**565,011**	**450,419**	**560,321**	**596,451**
Egypt	8,973	14,962	16,241	26,826	38,016.6
Kenya	399,198	520,686	400,965	495,687	511,333.5
Mauritius	3,140	1,202	1,752	2,587	2,980.6
Rwanda	637	498	488	3,786	2,879.3
Sudan	169	208	79	182	280.2
Swaziland	16,821	17,882	27,919	25,221	24,436.4
Zambia	480	839	980	1,576	972.8
Zimbabwe	918	921	383	871	1,134.9
Other	3,842	7,812	1,612	3,583	14,416.5
Other Africa	**160,147**	**177,881**	**188,853**	**242,712**	**375,101**
South Africa	140,899	143,676	156,272	207,191	305,182
Tanzania	15,779	30,093	28,709	30,800	55,483
Other	3,469	4,112	3,872	4,721	14,435
Asia	**501,100**	**540,808**	**749,982**	**1,174,968**	**1,573,959**
China	103,090	109,217	138,260	274,268	365,783
Hong Kong	13,377	16,511	20,513	40,264	46,865
India	121,773	131,813	208,987	341,394	470,490
Japan	121,984	146,552	174,470	229,920	268,728
Korea, Republic of	11,816	16,368	26,306	29,062	47,568
Malaysia	67,430	47,214	48,871	63,215	145,951
Pakistan	11,973	10,115	9,862	19,639	18,649
Singapore	12,169	9,798	37,268	60,089	94,234
Thailand	14,171	14,765	17,430	28,822	27,268
Viet Nam	10,655	11,732	10,972	5,525	8,943
Other	12,661	26,723	57,044	82,771	79,480
European Union	**314,033**	**387,158**	**481,209**	**717,642**	**877,988**
Belgium	35,321	31,073	35,812	49,362	52,831
Denmark	8,593	17,919	15,064	40,787	43,077

Region/Country	2004	2005	2006	2007	2008
France	35,525	35,317	37,155	99,923	179,163
Germany	36,346	49,256	74,869	81,144	88,424
Italy	20,433	49,222	33,127	45,097	87,467
Netherlands	37,165	43,875	51,672	55,985	75,457
Spain	7,643	5,582	5,653	16,972	12,361
United Kingdom	84,422	99,405	124,021	117,897	137,642
Sweden	30,343	22,643	31,863	98,707	96,535
Other	15,257	23,901	71,972	111,768	105,030
Other Europe	**15,485**	**21,703**	**69,894**	**66,049**	**152,685**
Norway	3,494	1,773	1,376	7,245	50,736
Romania	108	70	1,913	-	-
Switzerland	6,711	7,555	29,272	28,183	22,641
Turkey	3,654	5,486	15,827	15,189	46,826
Ukraine	1,296	5,836	19,961	14,611	31,820
Other	223	983	1,546	821	662
Middle East	**118,129**	**206,879**	**489,218**	**566,592**	**740,652**
Israel	8,739	16,728	10,337	11,557	13,802
Saudi Arabia	14,893	22,776	52,277	45,720	115,665
United Arab Emirates	84,881	136,702	325,253	412,356	515,527
Bahrain	731	20,767	85,815	59,113	46,843
Kuwait	3,051	3,982	6,426	23,947	27,884
Other	5,835	5,924	9,111	13,898	20,931
North America	**122,984**	**105,723**	**98,615**	**128,779**	**144,896**
Canada	19,115	27,150	7,745	25,124	25,651
Mexico	37	117	59	-	225
United States	103,390	78,143	89,720	100,939	117,360
Other	442	313	1,091	2,717	1,660
South America	**26,116**	**31,550**	**11,557**	**32,407**	**53,730**
Argentina	17,806	24,507	2,323	18,660	47,443
Brazil	8,228	6,507	9,100	8,289	5,560
Uruguay	-	201	10	3,895	590
Other	83	536	134	1,563	137
Rest of the World	**34,067**	**17,424**	**17,561**	**5,921**	**10,398**
Total	**1,726,238**	**2,054,137**	**2,557,308**	**3,495,391**	**4,525,859**

Source : UBOS, URA and UMEME
Note : 2008 figures are provisional.

5.4.3 Traffic through Uganda/Kenya border post

Data from the Uganda Bureau of Statistics (UBOS) Statistical Abstract 2007 show that trucks (Heavy Goods Vehicles-HGV) had a 7.3% average annual growth rate for the period 2003 to 2006. Assuming that trucks on the Northern Corridor had the same growth rate, the current traffic volumes on the Corridor are estimated from the 2001 and 2002 data for trucks and tonnage respectively, and are given in Figure 5-8 below.

Figure 5-8: Total journeys /trucks through Malaba and Busia 2001 and 2009

Border Posts	2001	2009
Malaba	41,190	83,204
Busia	16,117	32,556
Total	**57,307**	**115,750**

Source: MoWT, Uganda

The total HGV traffic going through the Uganda/Kenya borders in 2009 was 115,750 trucks per year or an average of 316 trucks per day. Of this, Uganda destined traffic is 269 trucks per day (85%), Rwanda destined 13 trucks per day (4%), Burundi destined 4 trucks per day (1.4%), DRC destined 16 trucks per day (5%) and Sudan destined 15 trucks per day (4.6%). In terms of tonnage, total traffic destined for Uganda through Malaba and Busia border posts in 2009 was 3,232,085 tonnes, or 85% of the total 3,804,446 tonnes for the five countries. Tonnage traffic for Rwanda, Burundi, DRC and Sudan is 152,754 (4%), 54,356 (1.4%), 189,425 (5%), and 175,202 (4.6%) respectively. These figures are illustrated in the table below.

Figure 5-9: Traffic in Tonnes through Malaba and Busia

Border Post	Uganda		Rwanda		Burundi		DRC		Sudan		Total	
	2001	2009	2001	2009	2001	2009	2001	2009	2001	2009	2001	2009
Malaba	1,231,271	2,327,102	58,192	109,983	20,707	39,136	72,162	136,386	66,659	125,986	1,449,291	2,739,160
Busia	478,827	904,983	22,630	42,771	8,053	15,220	28,063	53,039	26,040	49,216	563,631	1,065,286
Total	1,710,098	3,232,085	80,822	152,754	28,760	54,356	100,225	189,425	92,699	175,202	2,012,922	3,804,446

Source: NCTTCA, Mombasa

5.5 Vehicle Operating Costs in Uganda

In this section we review the VOCs for road transport in Uganda. The figure below gives the average VOC structure based on four transport operators on the Kampala-Mombasa corridor which spans approximately 1,200 km. The data was analysed based on a real trip transport operation for an average net weight of 19 tonnes. The average transport price charged is US$ 3,400, ranging from US$2,100 (export cargo) to US$10,500 (for the car carrier, carrying 7 Vehicles).

Total VOC is US$2,803 on average and the percentage of fixed cost of total VOC is 45% on the average. Fuel and lubricants as shown in the figure are the largest cost component at 32% of the total VOC followed by labour (18%) and tyres (11%). VOC per tonne-km average US$ 0.145. Total VOC for a 20' foot container weighting 19 Tonnes is US $ 2.63 per kilometre.

Comparative to Kenyan truckers on the Mombasa-Nairobi road, Ugandan truckers are less competitive on the Mombasa-Kampala axle: US$1.9/km for Kenyan transporters versus US$2.63/km for Ugandan transports, and US$0.129 versus US$0.145/ tonne-km respectively for the same.

Figure 5-10: Structure of VOC on the Mombasa-Kampala Corridor (US$ per trip)

Firm / Operator	Average	% of total VOC
FIXED COSTS		
Depreciation	215.0	8%
Financial charges	41.5	1%
Vehicle Insurance	82.3	3%
Commodity Insurance	256.8	9%
Labour	511.3	18%
General Taxes	40.5	1%
Overheads	119.8	4%
Total Fixed Costs	**1267.1**	**45%**
VARIABLE COSTS		
Vehicle Maintenance	296.0	11%
Tyres	234.3	8%
Fuel and Lubricants	896.0	32%
Upkeep Allowance	18.5	1%
Informal (bribes, etc)	92.0	3%
Total Variable Costs	**1536.8**	**55%**
TOTAL VOC	***2803.8***	***100%***
Average Transport Price	**3400.0**	
Profit margin	**21%**	
Total VOC per tonne-km (20' container with net weight 19T)	**0.145**	
Total VOC per km	**2.637**	

5.6 Direct and Indirect Costs of Delays

The methodology we used for the evaluation the direct and indirect (hidden) costs of delays is set out in the methodology and approach in Chapter 2.

The lower, average and higher clearing delays at Mombasa port for **transit containers**, including Customs procedures, are summarized in the table below. The average time is 21 days, ranging from a minimum of 10 days to a maximum of 39 days. The delay unreliability (difference between minimum and maximum delays) is therefore 29 days.

Figure 5-11: Clearing delays at Mombasa Port for transit containers

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port	1	10%	3	14%	5	13%	4	14%
Time needed for the consignee or his agent to present all needed documents	5	50%	12	57%	25	64%	20	69%
KRA (customs) average time required to release the goods, once an entry was made in the SIMBA system.	4	40%	6	29%	9	23%	5	17%
Total clearing delays	**10**	**100%**	**21**	**100%**	**39**	**100%**	**29**	**100%**

Once the goods are loaded on trucks and leave Mombasa port, the average transit time to reach Kampala is 3.4 days, ranging from 2.8 to 4.6 days, including time spent at the weighbridges, road blocks, border crossing and for offloading at destination. A breakdown of these values is presented in the figure below.

Figure 5-12: Transit time and delays - Mombasa-Kampala one way

		Lower End		Average		Higher End		Unreliability (hours)
Journey Point	Distance (km)	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	
Waiting for an Escort @ the port	-	3	3%	3.5	3%	4.5	4%	1.5
Driving Time: Mombasa Port/CFS to Mariakani weighbridge	30	0.75	1%	1	1%	1.25	1%	0.5
Weighing (and waiting) at Mariakani Weighbridge	-	1.5	2%	3	3%	5	4%	3.5
Driving time: Mariakani to Athi River weighbridge	370	6	7%	7	7%	8	6%	2
Weighing (and waiting) at Athi River Weighbridge	-	1.5	2%	3	3%	4.5	4%	3
Driving Time: Athi River to West Nairobi (through central Nairobi)	50	2	2%	2.5	2%	3.5	3%	1.5
Driving Time: West Nairobi to Malaba	470	12	21%	11	10%	19	9%	7
Five weighbridges between Nairobi & Malaba	-	6	7%	8	7%	10	8%	4
Police Checks along journey (Kenya side)	-	2.5	3%	3	3%	3.75	3%	1.25
Malaba Border Clearance	-	4.0	4%	6.0	6%	7.5	6%	3.5
Driving Time: Malaba to Kampala	250	5.0	6%	6.0	6%	7	2%	2
Weighbridges in Uganda (no fixed weighbridges between border and Kampala)	-	0.0	0%	0.0	0%	0	0%	0
Police checks along journey (Uganda side)	-	0.5	1%	1.0	1%	1	1%	0.5
Driver Rest Time / Other Driver time	-	35	39%	45	42%	50	39%	15
Time for offloading @ destination	-	4	4%	7.5	7%	10	8%	6
Total Time (hours)	**1170**	**68**	**100%**	**81**	**100%**	**110**	**100%**	**42**
Total Time (days)	**1170**	**2.8**	**0.0**	**3.4**	**0.0**	**4.6**	**0.0**	**1.8**

The costs of delays components and methodology of evaluation were developed in the methodological chapter. Our analysis of hidden costs of delays is presented below. Key points to note are the following:

- **Transit dwell time:** The average value of loaded goods per truck in Uganda as it appears from the shippers surveys is US$ 50,000. The fixed truck operating costs per day are estimated according to figure above at US$1,267 for a trip of 3.4 days in average, i.e. US$372/day including the vehicle depreciation, the driver's salaries and allowance, the vehicles and goods insurances and the overhead costs. Given that interest rates in Uganda are around 18%, the economic opportunity cost of capital which is always higher than the real financial interest rate is estimated at 30%.**The value of one dwell day per truck (once it's loaded and left the port) is therefore equal to US$413.6/day**.

- **Costs of extra stock due to unreliability:** Based on an extra inventory of one month of US$ 0.2 Million financed at an opportunity cost of capital of 30%, **the opportunity costs of one month extra inventory is US$164.38** per day.

- Total indirect (hidden) costs are **US$ 578.14** per day.

Figure 5-13: Hidden costs per day (in US$) Mombasa –Kampala

Dwell transit time per day	
Value of transported goods per truck (V)	50,000
Capital opportunity cost (C)	30%
Fixed vehicle operating costs per day (T)	372,67
Z = {V*(C/365)} + T	**413,76**
Cost of unreliability per day	
3 months inventory value	600000
1 month extra stock	200000
Capital opportunity cost	30%
One month extra stock opportunity cost	60000
Extra stock opportunity cost per day	**164,38**
Total hidden costs per day	***578,14***

The figure below summarizes the direct and indirect costs of delays for a transit 20' container from Mombasa to Kampala. The most important component (74.5%) is the opportunity cost of extra inventory due to unreliability of the logistic chain.

Three main conclusions appear from these results:

- The direct and indirect costs of delays is about two times higher than the amount of the transport cost by road;

- Indirect delay costs (extra costs related to loss of business) account for the largest proportion of delay costs (95.1%); and
- The direct costs related to KPA and container demurrage charges are relatively marginal in the total delay costs (4.9%).

Figure 5-14: Total costs of delays Mombasa-Kampala - One way

Type of costs	US$	%
Direct costs due to delay		
Days demurrage at the port*	250	3.7%
Container demurrage	84	1.2%
Total direct costs	**334**	**4.9%**
Indirect (hidden) costs		
Trucks transit dwell time	1396	20.6%
Opportunity cost of extra inventory due to unreliability	5055	74.5%
Total hidden costs	**6451**	**95.1%**
Total costs of delays	**6785**	100.0%

* The first 11 days are free for transit containers

5.7 Total Logistic Costs Structure

A typical logistics cost structure on the route comprises of shipping line costs, trans-shipment costs, port terminal costs, inland route costs, transport cost along the corridor, terminal cost to final destination, inventory cost due to unreliable delivery systems.

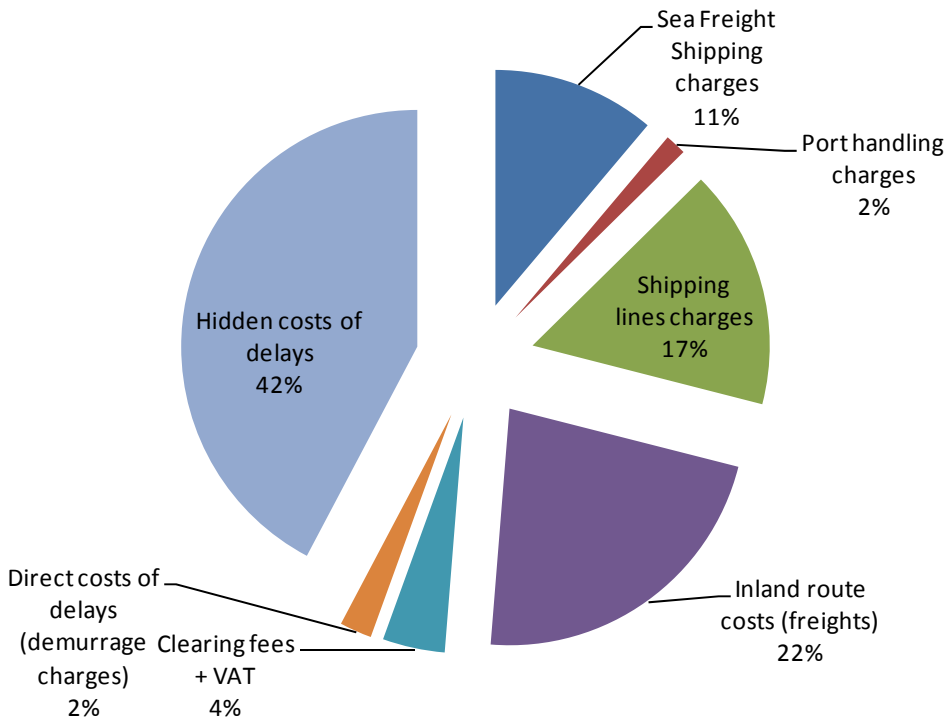
The average tariff charges for transporting a 20' container from Mombasa – Kampala is US$3,400 for transport only, and US$3,900 including clearing and forwarding charges.
The figure below and the relevant graphic show that the total logistics cost of importing a 20' container through Mombasa to Kampala is US$15,257, including sea freight shipping lines charges (11.1%), inland road transport (22.3%), and hidden costs due to delays (42.3%). Like in Kenya, the most important part of the logistics costs is due to the costs of delays (45%).

Figure 5-15: Total Logistics costs in US$ for a 20' container (Mombasa- Kampala)

Costs type	Amount in US$	% of total logistics costs
Sea Freight Shipping charges*	***1700***	**11.1%**
Port handling charges	**222**	**1.5%**
Shipping lines charges	**2500**	**16.4%**
Inland route costs (freights)	**3400**	**22.3%**
Clearing fees + VAT	**650**	**4.3%**
Direct costs of delays (demurrage charges)	**334**	**2.2%**
Hidden costs of delays	***6451***	**42.3%**
Total Logistic costs	**15,257**	**100.0%**

**Singapore-Mombasa (Products: Batteries)*

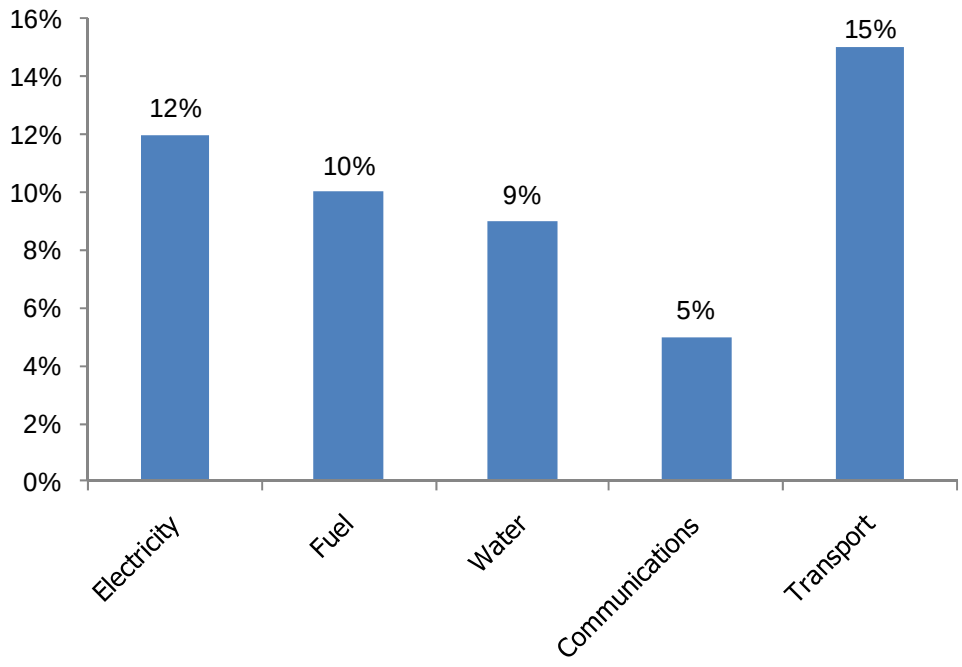
Figure 5-16: Logistics cost structure for a 20' container (Mombasa-Kampala)



6 Northern Corridor Logistic costs for Rwanda

Rwanda uses the Northern Corridor for approximately 80% of its total road-based import-export tonnage. The high cost of transport was the most commonly cited constraint to business growth, with 80% of businesses reporting it as a constraint, according to the 2008 Business & Investment Climate Survey conducted by the Rwanda Private Sector Foundation (PSF). This view was supported by responses from our own interviews. Indeed, those businesses that reported their monthly infrastructure costs, reported that transport makes up 15% of total monthly costs, as illustrated in the figure below.

Figure 6-1: **Utility Costs as a % of Monthly Cost (Source: PSF- Rwanda)**



Transport costs are particularly high in Rwanda due to the poor quality of rural roads, high costs of importing vehicles and high insurance premiums. Exporters and importers face cost disadvantages due to the extremely high cost of transport to and from the sea ports of Mombasa in Kenya and Dar-es-Salaam in Tanzania. These prohibitive costs usually mean that businesses will pass on high prices to consumers. On average, micro firms, generally dealing in commerce, incur up to 25% in transportation costs as percentage of total monthly costs, a significantly higher monthly cost compared to SMEs and larger firms, which incur only 13% and 12% respectively.

International transport is a major challenge, in particular the unpredictability of transport, which necessitates that businesses keep high levels of inventory in case stock does not arrive on time. This usually results in tying up capital that could have otherwise been used more productively for business growth and expansion (the opportunity cost of capital).

A recent study[32] considering transport barriers along the Northern Corridor identified four major reasons for high transport costs in Rwanda:

- Non-Tariff Barriers (NTBs), such as customs delays, road blocks, and bond guarantees;
- Infrastructure such as the condition and the routing of roads;
- Institutional set-up, such as harmonization and cooperation between Rwanda and the countries its goods must pass through en-route to the rest of the world and well as for its imports; and
- Information and Communications Technology, such as the effective use of customs clearance technologies, and communication of the different IT systems between countries.

6.1 Rwanda Macroeconomic Performance

Rwanda has made remarkable progress since the genocide and civil war in 1994. Peace and political stability have been restored, reconciliation efforts continue, and institutions and democratic processes are about to be consolidated. The indicators of poverty and social indicators have also improved. Rwanda has managed to maintain a generally stable macroeconomic situation and carry out deep reforms which have contributed to good results in terms of growth.

Rwanda's economy, which stood at US$ 4.2 billion in 2008, grew by 7.9% in 2007 and an estimated growth of 8.5% in 2008. The average real growth rate of GDP has slowed considerably compared to annual rates of approximately 10.5% achieved during the period 1996 to 2002 (the early years following the war) to fall to 5.6% during the period 2003 to 2007, (these rates again recorded a recovery in large part because of significant progress in the agricultural sector). Increased productivity in the agriculture and services sectors, coupled with significant activity in terms of investment in the public sector and the private sector were a major source of growth, employment and poverty reduction in the short and medium term.

The good results achieved in the implementation of macroeconomic policies helped Rwanda, in March 2005, to reach the completion point under the Initiative for Heavily Indebted Poor Countries (HIPC). They also completed in March 2006 the requirements to benefit from the Multilateral Initiative for Debt Relief (MIDR). Efforts were made in parallel to set up proper economic governance, which is characterized by independent regulatory bodies, strengthened systems of public expenditure, management bodies with independent audit and a strong focus on the fight against corruption. Until recently, inflation was mostly contained to a rate below 10% since 1997 but experienced a significant increase estimated

[32] Assessment of Non Tariff barriers (NTB's) along the Northern & Central Corridors – EAC -Rwanda Private Sector Federation - Baseline Study 2008

at 15% in 2008 due to higher food and fuel prices. However, a decline in inflation in 2009 was expected due to falling import prices.

Currently, the global economic slowdown has had limited effect on the economy of Rwanda because of the relatively low level of integration into the global economy and its relatively high dependence on subsistence agriculture. However, a continued global slowdown could result in a decrease of 2.5% of GDP growth over the medium term, due to declining revenues in the tourism sector, the reduction in remittances and a slowdown in the construction sector. In addition, despite the sharp rise in export earnings for agricultural products, lower mineral and tourism sector activity is expected to worsen the trade deficit in 2009 due to stronger growth in payments to imports. The current account deficit is expected to increase, rising from US$ 303.5 million (or 7.1% of GDP) in 2008 to US$ 400.7 million (or 8.2% of GDP) in 2009.

Regional integration, particularly in infrastructure sectors - is a precondition for economic growth in a landlocked country like Rwanda. Rwanda joined the East African Community (EAC) on 1 July 2007. Rwanda is also a member of the Nile Basin Initiative, the Economic Community of Great Lakes Countries (CEPGL) and the Common Market for Eastern Africa (COMESA). Regional integration is therefore a key priority for the country.

6.2 Rwanda Institutional Organization of the Transport Sector

Ministry of Infrastructure

The transport sector in Rwanda is managed by the **Ministry of Infrastructure**. This Ministry is responsible of the following tasks:

- Develop, monitor and evaluate policies, strategies and programs related to public works, transport and energy;
- Develop strategies to strengthen, protect and ensure the maintenance of public infrastructure such as bridges and roads, inland waterways, public buildings, airports and seek other avenues connecting Rwanda to the ports;
- Develop strategies and programs for urban planning and housing;
- Develop strategies and programs to bring private operators to invest in the infrastructure sector;
- Establish mechanisms to ensure adequate availability of energy sources necessary and wise use; and
- Coordinate interventions and mobilize resources through the development of infrastructure.

Policy and management of transport infrastructure are the responsibility of the Rwandan **Office for Promoting the Development of Transportation**. The main tasks of this Office are listed below.

- Manage and control the national road network through the promotion of its safety and maintenance;
- Ensure control of airport infrastructure in order to keep it in good condition to ensure safety;
- Manage and control marine infrastructure and fluvial-lake infrastructure in order to ensure safety and quality; and
- Promote the development of rail infrastructure.

To accomplish these tasks, the Office focuses on the following activities:

- Assume the role of prime contractor on behalf of the State for all road projects, airports, maritime and fluvial-lake projects;
- Execute state policy on road, airport, railway and transportation of persons and goods by river-lake;
- Strengthen the policy of promoting companies and public agencies working in the field of transportation of persons and goods by road, air, rail and river-lake;
- Preparing and executing the action plan for rehabilitation of road infrastructure, airports, rail and river-lake. This action plan includes the usual work of road maintenance, periodic work and unscheduled work and emergency;
- Initiate and oversee the implementation of planned or emergency work in the areas of road, airport, rail and river-lake;
- Perform roadwork on highways, airport facilities, rail and fluvial-lake including rehabilitation and construction and concession contracts for recovery;
- Ensure compliance with regulations on environmental protection during construction and rehabilitation of road infrastructure, airport, rail and river / lake;
- Prepare and propose plans for development of roads, airports, rail and fluvial-lake and monitor decentralized administrative entities in connection with this infrastructure and provide technical support;
- Collect and process statistical reports related to the road network and airport facilities, rail and river-lake;
- Install weighbridges on the national grid;
- Build relationships and collaborate with other institutions both regionally and
- internationally with similar responsibilities;
- Advise the Government on all actions that may accelerate the development of roads, airports, rail and river / lake; and
- Perform any other activities related to transportation in general.

The Road Maintenance Fund (RMF)

The Road Maintenance Fund (RMF) aims to provide funding for road maintenance in Rwanda. It provides funding on the basis of an annual work program established, first by the Ministry in the roads and bridges in its attributions and approved by the Council of Ministers, and second, by local authorities having lawful jurisdiction managing road infrastructure.

The current revenues of the Road Maintenance Fund come from: (i) fuel tax (56%); (ii) road tax levied on foreign heavy goods vehicles (43%); and (iii) other resources (mainly fines). These other resources represent about 1% of total revenue.

The RMF will pay for maintenance, inspection and technical audit and financial contracts awarded by public tender under the rules of allocation (procurement) as well as costs related to network monitoring and programming road maintenance.

6.3 Rwanda Road Network Quality and Maintenance Costs

The transport sector is a strategic sector for Rwanda. The fact that this country is landlocked has a negative impact on economic growth and development. The cost of transport is particularly high in both national and international terms, and the scarcity of available modes of transport for people in urban and rural areas constitutes an important constraint that must be considered in sector policies to achieve the short, medium and long-term development goals that Rwanda has set.

Transport infrastructure in Rwanda is divided as follows:

(i) Road, which is so far the main form for passenger travel and freight, with a network of about 14,000 km corresponding to a density Road 0.53 km / km ²;
(ii) Air transport with two international airports and five airfields scattered throughout the country; and
(iii) Lake transport, which is limited mainly to Lake Kivu.

Rwanda does not have rail transport, but transport systems using road and rail via neighbouring countries (Tanzania, Uganda and Kenya) are used as transit routes, and partly contribute to the delivery of goods exported or imported by Rwanda in a multimodal combination of rail and road. The planned railway Dar Es Salaam - Isaka-Kigali / Keza - Gitega Musongati connecting Rwanda (and Burundi) to the Tanzanian port of Dar es Salaam will provide a direct link to international routes of passage.

On the Northern Corridor, the state of road segments is variable, as listed below:

- Akanyaru-Kigali: Condition good even if, on the section between Gitarama and Kigali, there are a few points under repair;
- Kigali - Gatuna: Average condition, the base is beginning to show signs of fatigue and there are sections where the coating is completely gone;
- Kigali-Gisenyi: Conditions are poor on the Kigali-Ruhengeri section, while in Gisenyi-Ruhengeri, the road is in very good condition, because it has just been upgraded.
- Kigali-Nemba/Gasenyi: The road is in very good condition because it has been constructed and paved recently.

The descriptions above are summarised in the following figure.

Figure 6-2: Length and condition of sections of the corridor in Rwanda

Section	Length	Condition	Observations
Akanyaru – Gitarama – Kigali	165 km	Good	Some degradations (holes begin to appear on the section Gitarama and Kigali), repairs are underway
Kigali- Gatuna	80 km	Fair	The effects of fatigue of the road are visible. The road needs to be rehabilitated.
Kigali- Ruhengeri	93 km	Bad	Section very damaged
Ruhengeri- Gisenyi	87 km	Very good	The section has been rehabilitated
Nemba- Kigali	60 km	Very good	The highway has been built and is the alternative route to Burundi

The Ministry of Infrastructure has established a four-year Strategic Plan for the transport sub-sector (2009 - 2012). This Strategic Plan is used to determine the resources and the basis of indicative planning figures to establish the Rwandan budget for the construction, rehabilitation and maintenance of roads.

The total expenditure arising from the Strategic Plan is projected at US$ 431.2 million. The contribution of the international community of donors is estimated at US$ 302.5 million. Some maintenance work on the national road network is funded by the National Budget.

In Rwanda, for primary and secondary networks, under the responsibility of the Ministry of Infrastructure since 2005, the average budget to be spent on routine maintenance is estimated at 3 billion Rwandan francs (US$ 5.2 million), and the average budget spent on maintenance intervals may be estimated at about 8 billion Rwandan francs per year (US$14 million). These costs correspond to an amount of between 11 - 13 billion Rwandan francs per year (US$ 19 – 23 million) for the maintenance of a classified network of 5,400 km.

In principle, it is for network managers, namely the Directorate of Roads (DR), the mayor of Kigali and the provinces and districts to schedule road maintenance, funding comes from the RMF. The private sector is generally contracted for implementation of road maintenance.

The budget and expenditures on road maintenance in Rwanda are given in the Figure below.

Figure 6-3: Expenditure on Road Maintenance in Rwanda, 1999 – 2009, US$

Year	Proposed Budget	Actual Expenditures
1999	4 673 168	5 294 295
2000	4 493 752	4 795 972
2001	5 104 055	2 699 272
2002	5 147 447	5 276 099
2003	5 909 520	4 114 961
2004	6 728 632	4 091 792
2005	10 557 060	8 859 957
2006	11 726 629	10 923 346
2007	11 373 100	16 701 452
2008	21 332 924	21 230 517
2009	17 602 737	5 852 341

Source: RMF

The table above shows that Rwanda had a relatively low budget in 2009. This can be explained by the fact that Rwanda adopted, since July 2009, a revised budgeting system of the East African Community countries which resulted in a different accounting standard (the figures for 2009 were provided to CPCS in January 2010).

6.4 Rwanda trade through the Northern Corridor

The key commodities imported and exported by Rwanda are illustrated in the two following tables and graphs.

Figure 6-4: Top commodities imported in Rwanda-2007

Rank	Commodity	Quantity (tonnes)	Value (1000 $)	Unit value ($/tonne)
1	Maize	45207	3752	83
2	Flour of Wheat	32757	11404	348
3	Sugar Raw Centrifugal	19365	12092	624
4	Rice Milled	18605	7448	400
5	Palm oil	15691	13145	838
6	Malt	9093	7549	830
7	Oil of vegetable origin, nes	8257	6200	751
8	Wheat	5738	2800	488
9	Cassava Dried	4902	383	78
10	Oil Hydrogenated	4157	4220	1015
11	Sugar Confectionery	3880	3702	954
12	Sugar Refined	2920	1836	629
13	Peas, dry	2289	800	350
14	Flour of Maize	2171	472	217
15	Groundnuts Shelled	1927	654	339
16	Food Prep Nes	1789	6204	3468
17	Sorghum	1697	124	73
18	Beans, green	1526	818	536
19	Beer of Barley	1113	873	784
20	Pastry	1002	1146	1144

Source: Rwanda Abstract-2008

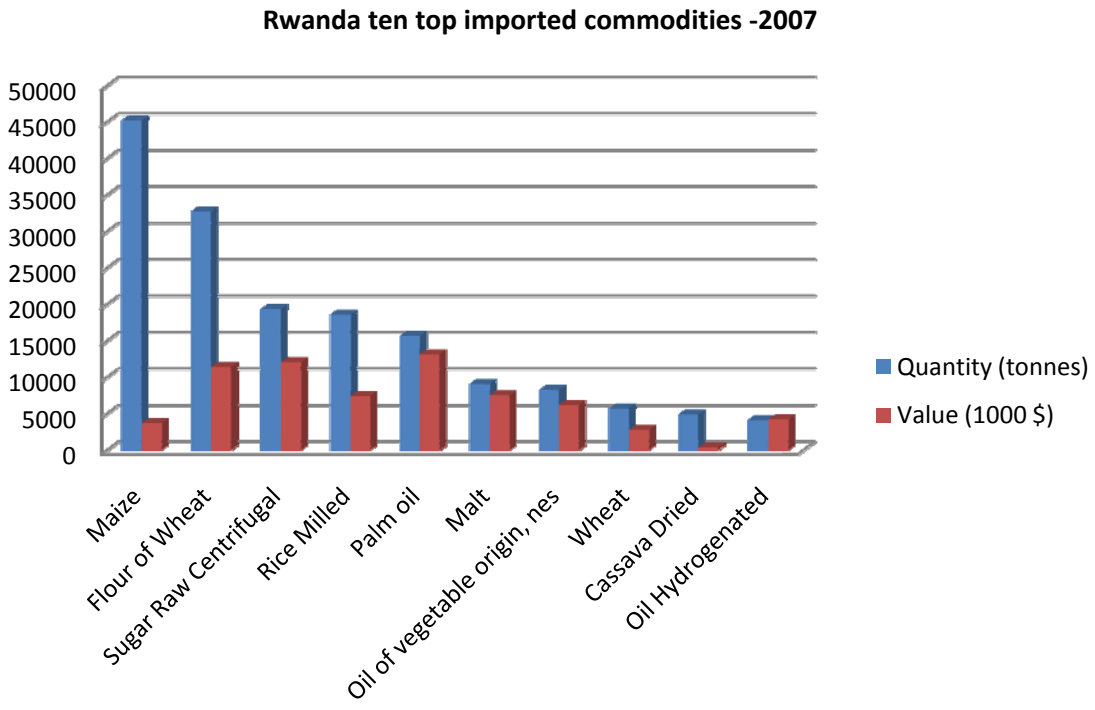
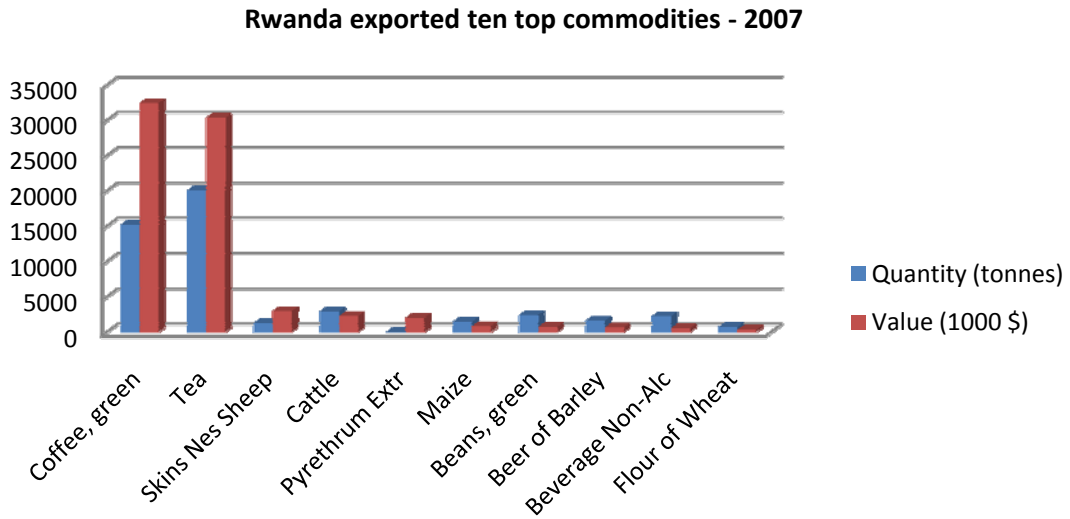


Figure 6-5: Top commodities exported by Rwanda-2007

Rank	Commodity	Quantity (tonnes)	Value (1000 $)	Unit value ($/tonne)
1	Coffee, green	15219	32460	2133
2	Tea	20056	30369	1514
3	Skins Nes Sheep	1266	2983	2356
4	Cattle	2944	2285	776
5	Pyrethrum Extr	32	1995	62344
6	Maize	1465	834	569
7	Beans, green	2421	759	314
8	Beer of Barley	1598	659	412
9	Beverage Non-Alc	2262	598	264
10	Wheat Flour	762	351	461
11	Skins Nes Goats	241	281	1166
12	Hides Nes Cattle	160	159	994
13	Tobacco Products Nes	19	151	7947
14	Hides Nes	111	125	1126
15	Food Prep Nes	131	117	893
16	Fruit Fresh Nes	615	97	158
17	Bananas	31	96	3097
18	Wheat	483	88	182
19	Cigarettes	13	82	6308
20	Beans, dry	183	72	393

Source: Rwanda Abstract-2008



The following two tables illustrate total imports to Rwanda, illustrating that transport through the Northern Corridor countries of Uganda and Kenya dominates in comparison to Burundi and other countries.

Figure 6-6: Rwanda Imports through the Northern Corridor (Kg)

Country of Origin / Product	Burundi	Kenya	Uganda	Other countries	Total
Year 2004					
Cement	0	3 213 225	76 333 346	56 300	**79 602 871**
Fertilizers	0	942 825	177 900	1 120 725	**2 241 450**
Food Products	50 500	34 498 286	18 791 268	23 380 877	**76 720 931**
Machines / Tools	0	647 986	305 650	1 622 921	**2 576 557**
Metals	0	3 860 170	6 986 092	3 502 862	**14 349 124**
Vehicles & Motorcycles	1 000	478 078	298 372	1 288 680	**2 066 130**
Paper	0	1 556 665	812 622	379 086	**2 748 373**
Oil Products	0	109 452 464	1 568 818	8 798 302	**119 819 584**
Plastics	0	2 128 947	970 401	1 165 541	**4 264 889**
Other	900	11 795 641	9 077 038	15 695 334	**36 568 913**
Total	**52 400**	**168 574 287**	**115 321 507**	**57 010 628**	**340 958 822**
Year 2005					
Cement	0	902 324	42 507 874	137 050	**43 547 248**
Fertilizers	0	2 958 050	232 134	1 731 909	**4 922 093**
Food Products	0	35 926 997	29 523 849	11 915 038	**77 365 884**
Machines / Tools	0	522 566	193 118	1 962 157	**2 677 841**
Metals	0	3 976 857	11 273 656	4 947 207	**20 197 720**
Vehicles & Motorcycles	0	463 006	361 868	1 280 869	**2 105 743**
Paper	0	2 288 654	982 980	118 424	**3 390 058**
Oil Products	0	103 878 508	758 402	46 511 408	**151 148 318**
Plastics	0	2 320 507	704 804	819 735	**3 845 046**
Other	4 590	12 473 704	13 033 020	21 088 010	**46 599 324**
Total	**4 590**	**165 711 173**	**99 571 705**	**90 511 807**	**355 799 275**
Year 2006					
Cement	0	2 950 285	65 795 561	255 751	**69 001 597**
Fertilizers	0	0	121 485	8 665 846	**8 787 331**
Food Products	12 090	34 456 389	83 640 433	22 828 934	**140 937 846**
Machines / Tools	0	857 749	410 047	2 355 782	**3 623 578**
Metals	0	7 127 598	15 372 045	8 842 310	**31 341 953**
Vehicles & Motorcycles	0	725 786	104 038	1 847 788	**2 677 612**
Paper	0	2 314 022	973 283	758 511	**4 045 816**
Oil Products	0	142 924 479	1 787 958	28 785 746	**173 498 183**
Plastics	0	2 410 839	1 256 779	360 722	**4 028 340**
Other	40	20 083 147	17 771 366	20 057 130	**57 911 683**
Total	**12 130**	**213 850 294**	**187 232 995**	**94 758 520**	**495 853 939**
Year 2007					
Cement	0	6 321 082	88 083 028	12 813	**94 416 923**
Fertilizers	0	2 645 638	490 928	5 280 225	**8 416 791**

Country of Origin / Product	Burundi	Kenya	Uganda	Other countries	Total
Food Products	1 760	38 694 367	146 711 066	18 481 945	**203 889 138**
Machines / Tools	0	1 264 841	453 583	3 298 912	**5 017 336**
Metals	0	6 971 701	20 283 041	8 691 297	**35 946 039**
Vehicles & Motorcycles	0	1 112 825	674 044	2 307 789	**4 094 658**
Paper	0	2 592 644	1 277 401	1 934 222	**5 804 267**
Oil Products	0	159 107 626	1 296 648	20 247 661	**180 651 935**
Plastics	0	3 294 516	830 062	977 921	**5 102 499**
Other	208	18 286 408	23 819 309	26 665 982	**68 771 907**
Total	**1 968**	**240 291 648**	**283 919 110**	**87 898 767**	**612 111 493**
Year 2008					
Cement	0	9 977 850	154 320 421	202 366	**164 500 637**
Fertilizers	0	11 996 712	61 650	155 653	**12 214 015**
Food Products	1 030	38 325 866	63 640 184	17 817 644	**119 784 724**
Machines / Tools	0	1 172 954	946 956	7 230 692	**9 350 602**
Metals	0	11 365 242	25 606 745	17 351 524	**54 323 511**
Vehicles & Motorcycles	0	501 620	815 616	1 511 591	**2 828 827**
Paper	0	2 976 937	1 415 319	3 623 273	**8 015 529**
Oil Products	0	137 176 121	2 206 607	18 452 005	**157 834 733**
Plastics	0	4 589 500	1 017 652	933 457	**6 540 609**
Other	1 554	22 040 908	27 975 157	32 655 229	**82 672 848**
Total	**2 584**	**240 123 710**	**278 006 307**	**99 933 434**	**618 066 035**

Source: Rwanda Abstract-2008

Between 2004 and 2008, the quantity of imports that were transported across the Northern Corridor increased by 16% annually from 340,959 tonnes to 618,066 tonnes. Between 2005 and 2008, the annual growth rate of imports through the Northern Corridor was slightly higher: 20%.

Three types of products represent more than 70% of the total tonnage of goods imported by Rwanda through the Northern Corridor. These products are petroleum products, cement and food products. Exports from Rwanda under the Northern Corridor are in turn reflected in the following table.

Figure 6-7: Rwanda Exports through the Northern Corridor (Kg)

Country of destination / Product	Burundi	Kenya	Uganda	Other countries	Total
Year 2004					
Coffee	0	9 480 760	6 042 834	5 174 777	**20 698 371**
Minerals	0	582 246	2 647 056	2 507 695	**5 736 997**
Tea	0	3 000 405	10 378 716	31 300	**13 410 421**
Other	0	911 747	803 980	834 494	**2 550 221**
TOTAL	**0**	**13 975 158**	**19 872 586**	**8 548 266**	**42 396 010**

Country of destination / Product	Burundi	Kenya	Uganda	Other countries	Total
Year 2005					
Coffee	0	53 800	0	13 753 686	**13 807 486**
Minerals	0	186 769	0	6 744 438	**6 931 207**
Tea	0	16 545 165	85 866	23 200	**16 654 231**
Other	0	1 174 670	539 875	2 334 589	**4 049 134**
TOTAL	**0**	**17 960 404**	**625 741**	**22 855 913**	**41 442 058**
Year 2006					
Coffee	0	164 640	0	19 502 623	**19 667 263**
Minerals	0	232 780	0	5 103 248	**5 336 028**
Tea	0	16 518 810	169 260	28 205 327	**44 893 397**
Other	0	618 144	1 727 787	732 325	**3 078 256**
TOTAL	**0**	**17 534 374**	**1 897 047**	**53 543 523**	**72 974 944**
Year 2007					
Coffee	0	299 592	115 131	11 771 979	**12 186 702**
Minerals	0	0	43 511	5 845 580	**5 889 091**
Tea	0	20 006 222	0	0	**20 006 222**
Other	60 000	1 038 495	2 427 082	1 800 987	**5 326 564**
TOTAL	**60 000**	**21 344 309**	**2 585 724**	**19 418 546**	**43 408 579**
Year 2008					
Coffee	0	209 900	661 073	13 780 604	**14 651 577**
Minerals	0	0	0	3 346 073	**3 346 073**
Tea	0	19 967 723	0	116 089	**20 083 812**
Other	750 000	10 756 870	16 836 962	2 147 885	**30 491 717**
TOTAL	**750 000**	**30 934 493**	**17 498 035**	**19 390 651**	**68 573 179**

Source: Rwanda Abstract-2008

For exports, Rwanda also uses the Northern Corridor countries of Kenya and Uganda more than Burundi, but much less than for its imports. The growth rate is also lower. Between 2004 and 2008, Rwanda's exports passing through the Northern Corridor increased from 42,396 tonnes to 68,573 tonnes, with annual growth of 13% per year. This situation is linked to the fact that, like Burundi, Rwanda imports far more imports than the quantity of goods exported.

These imbalanced trade situations result in higher costs of transportation since the trucks make several trips to Kigali or Bujumbura with a full load, but return to Mombasa empty. This leads the truckers to charge importers almost double their one way vehicle operating costs to cover their total transport costs.

Figure 6-8: Origin-Destination Matrix of Goods through Northern Corridor, 2008, tonnes

Destination Origin	Rwanda	Burundi	Uganda	Kenya	Others via NC	Total
Rwanda	-	750	17 498	30 934	19 351	68 573
Burundi	3	-				
Uganda	278 006		-			
Kenya	240 124			-		
Others via NC	99 933				-	
Total	618 066					-

About 60% of all goods imported to Rwanda were transported by foreign registered vehicles compared to 40% transported by Rwandan registered vehicles, while 62% of Rwanda's exports were transported by foreign registered vehicles compared to 38% transported by Rwandese registered vehicles[33].

6.5 Vehicle Operating Costs in Rwanda

The statistics given in the following tables result from the answers provided by transportation companies we interviewed during our research. Noting that the responses often varied from one company to another, we performed the cross-checking of data based on reasoned and understandable answers but also by learning from other sources such as the insurance and banking sectors. This allowed us to adjust the most outlying answers as well as those who presented in costs of operating vehicles near or above the average values. Thus the following adjustments were made for some answers we considered as departing from reality:

- Insurance premiums have been calculated on the basis of information provided by insurance companies such as SORAS and SONARWA; and
- Financial costs have been calculated taking into account the information gathered from the services of Rwanda Commercial Banks: 20% to 30% of the amount of the acquisition of the transport vehicle shall be borne by the applicant's credit and the interest rate charged in Rwanda is about 18%.

The cost of vehicle operations in Rwanda are presented in the following two tables: one for transport between Kigali and Mombasa, and the other for regional transport to Kampala and Kisumu / Eldoret and Nakuru.

[33] **Source : Assessment of Non Tariff barriers (NTB's) along the** Northern & Central **Corridors – EAC - Rwanda Private Sector Federation - Baseline Study 2008**

Figure 6-9: Detailed VOCS for a return trip from Kigali to Mombasa (in US$)

Company Code	ATR	BTR	FTR	HTR	GTR	ITR	JTR	JTR	KTR	LTR	Average
Depreciation	1091	750	720	1 035	800	1 000	870	1200	1000	800	**926**
Financial expenses	785	520	520	745	575	720	625	865	720	575	**665**
Vehicle Insurance	12	10	10	10	10	15	12	12	12	10	**11.3**
Insurance Products	110	110	450	450	450	600	600	500	550	600	**442**
Salaries and drivers allowance	150	150	150	150	150	150	150	150	150	150	**150**
Taxes and Duties	430	430	500	500	500	500	450	450	500	500	**476**
Overhead	1 250	1 250	1 100	1 250	1 150	1 140	1 150	1250	1250	1250	**1204**
Total Fixed Costs (TFC)	**3 828**	**3 220**	**3 450**	**4 140**	**3 635**	**4 125**	**3 857**	**4 427**	**4 182**	**3 885**	**3875**
Vehicle Maintenance	1 150	1000	1150	1 050	1100	1200	1150	1050	1000	1150	**1100**
Cost of tires	1500	1500	1500	1500	1500	1 500	1500	1500	1450	1500	**1495**
Fuel & Lubricants	3 400	3 000	3 500	3 200	3 300	3 900	3 500	3200	3000	3500	**3350**
Mileage Driver	500	500	500	500	600	600	500	500	600	500	**530**
Bribes Road	900	900	800	800	600	900	800	700	700	600	**770**
Total Variable Costs (TVC)	**7 450**	**6 900**	**7 450**	**7 050**	**7 100**	**8 100**	**7 450**	**6 950**	**6 750**	**7 250**	**7245**
Total VOCS	**11 278**	**10 120**	**10 900**	**11 190**	**10 735**	**12 225**	**11 307**	**11 377**	**10 932**	**11 135**	**11120**
TFC in % total VOCS	**33.9%**	**31.8%**	**31.7%**	**37.0%**	**33.9%**	**33.7%**	**34.1%**	**38.9%**	**38.3%**	**34.9%**	**34.8%**
VOCS / tonne-km (1)			**0.09**	**0.09**	**0.09**	**0.1**	**0.1**	**0.1**	**0.09**	**0.09**	**0..094**
VOC by m^3	**322.2**	**289.1**									**305.65**

(1) The number of tonne-kilometers is calculated by multiplying the legal load (35T) by 3400 km

Figure 6-10: Detailed VOCs for return trip from Kigali to Kampala, Kigali-Kisumu / Eldoret and Nakuru-Kigali (in US$)

Company Code	CTR (2)	DTR (3)	ERT	JTR Bis	HT	KTR bis	Average
Depreciation	656	735	900	650	500	750	**699**
Financial expenses	472	530	480	468	375	475	**467**
Vehicle Insurance	10	10	10	10	10	12	**10**
Insurance Products	110	110	100	100	100	100	**103**
Salaries and drivers allowance	125	125	100	150	150	125	**129**
Taxes and Duties	300	350	250	350	500	250	**333**
Overhead	525	565	450	525	630	525	**537**
Total Fixed Costs (TFC)	**2 198**	**2 425**	**2 290**	**2 253**	**2 265**	**2 237**	**2 278**
Vehicle Maintenance	570	550	500	500	750	500	**562**
Cost of tires	750	650	750	750	750	750	**733**
Fuel & Lubricants	1700	1650	1500	1500	2100	1500	**1 658**
Mileage Driver	250	300	250	250	250	250	**258**
Bribes Road	550	500	500	500	500	500	**508**
Total Variable Costs (TVC)	**3 820**	**3 650**	**3 500**	**3 500**	**4 350**	**3 500**	**3 720**
Total VOCS	**6 018**	**6 075**	**5 790**	**5 753**	**6 615**	**5 737**	**5 998**
TFC in % total VOCS	**36.5%**	**39.9%**	**39.6%**	**39.2%**	**34.2%**	**39.0%**	**38.1%**
VOCS / tonne-km (1)			**0.1**	**0.1**	**0.12**	**0.1**	**0.11**
VOC by m^3	**171.9**	**173.6**					**172.8**

(1) The number of tonne-kilometres is calculated by multiplying the legal load (35T) by 3400 km

The tables above show that VOCs are between US$.09 and US$.10 per tonne-km for transportation companies operating on the Mombasa-Kigali route. They fall between US$.10 and US$.12 per tonne-kilometre for transportation companies operating on the route from Kigali to Kampala, Kisumu, Eldoret and Nakuru.

Unlike Burundi, Rwanda buys petroleum products both in Kenya and Tanzania, because the distance is also more or less equal, but the crossing of two borders between Kenya and Rwanda requires the carrier to bear some additional cost. The vehicle operating costs per cubic meter respectively amounted to $ 289 and $ 322 for transportation of fuel from Mombasa, to $ 171.9 and $ 173.6 on the route from Kigali- Kisumu/Edoret and Kigali-Nakuru. The difference is mainly due to depreciation costs and higher financial costs for the shorter journeys, because of the lower mileage.

6.5.1 Other factors contributing to VOCs

Below we discuss three additional factors which affect transport costs in Rwanda.

Right Hand Drive Ban

Rwanda's East African neighbours drive on the left, while Rwandan laws require driving on the right hand side. There are historical examples of countries that have reversed the driving side of their transport systems to conform to neighbours for economic reasons. The heavy commercial transporter trucks in Rwanda spend the vast majority of the time driving on the left during their journey to the ports of Mombasa and Dar es Salaam in any case. A number of the vehicles on the road in Rwanda are right hand side drive vehicles (e.g. for driving in the right hand lane).

On May 18th 2005 the Government of Rwanda banned the import of Right Hand Drive (RHD) vehicles. The justification was a safety issue: commuter buses with exit doors on the left meant people exited vehicles on the side of traffic, increasing the risk of accidents. Commercial transporters argue the ban should be lifted and Rwanda should, in time, convert the transport system to drive on the left in harmonization with their East African neighbours since Rwanda does more business with EAC and COMESA countries, and given Rwanda's accession to the EAC Customs Union on July 1, 2007.

Commercial transporters are cited as the groups most adversely affected by the ban and argue that the ban should be lifted for four reasons:

i) It reduces the competitiveness of Rwandan enterprises by increasing costs;
ii) There is no improvement in road safety as a direct result of the ban;
iii) The ban contravenes WTO guidelines; and
iv) Mid-sized trucks do most of the transport at both national and regional level transporting consumer goods. Most of these trucks are manufactured in Japan and also sold in Dubai cheaply, but now businesses are forced to buy expensive trucks from Europe and this adversely affects an already uncompetitive commercial transport industry.

Regulations on Road Axle Weight

Another important for issue for Rwandese truckers is the regulations on Road Axle Weight.

Statistically, about 95% of Rwandese registered trucks are pulling trucks (drawbar trailers) a requirement prompted by the nature of Rwanda's landscape. Semi-Trailers are not advisable in Rwanda. On August, 8th, 2007, the Kenyan Ministry of transport published new regulations on the road axle weight carried in the Traffic Act cap. 403 Traffic (Amendment) Rules, 1999, Legal Notice No. 112 of 12th July 1999 which stated that the maximum number of axles which may be fitted on any vehicle shall be SEVEN, provided that the rear-most axles shall be steering axles. The problem with this regulation is that just one year after

implementing the 2007 regulation; the Kenyan government published a new regulation "LEGAL NOTICE N°118 OF THE TRAFFIC ACT (cap 403)" that was effective on October 1st, 2008 stating that the maximum number of axles which may be fitted on any vehicle shall be SIX provided that the rear-most axles shall be steering axles. Compliance with the changes in the Kenyan axle load regulations is source of new costs and investments for truckers in Rwanda.

Regulations for loading goods on Rwandese Trucks in Kenya

Another challenge which increases costs for Rwandese transporters along the Northern Corridor relates to Kenyan regulations regarding loading of goods on Rwandan vehicles. Rwandan registered trucks are currently not allowed to load goods from Kenya unless they get a clearance, signed and stamped by the Commissioner of Customs. This is quite tedious, time consuming and costly, yet Kenyan registered trucks load goods from Rwanda freely. These kinds of procedures tend to be very costly, since some trucks spend up to 2 weeks after unloading looking for return goods to transport, resulting in major losses to the truck owner. According to the shipping companies/transporters, each day you park a truck (that costs about 200,000 Euros) waiting for the documents costs money, losing approximately US$ 400 per day.

6.6 Direct and Indirect (Hidden) Costs of Delays

In this section we consider the direct and indirect (hidden) costs of delays for transport for Rwanda along the Northern Corridor.

During the CPCS team's visit to Akanyaru and Gatuna border posts we found that the crossing time was about 1 hour for Akanyaru and about two hours for Gatuna. It varied between 3 and 5 hours on the Ugandan side. While traffic is low at Akanyaru as it relates to Burundi and part of South Kivu (Uvira), transit formalities at the Ugandan side at Gatuna take a long time, even if that post welcomes traffic from Burundi, Rwanda and eastern DRC. Recognizing this problem of delays, the Rwandan authorities intend to expand the post and install equipment and the environment for the timely processing of documents, including a scanner working 24 hours a day, 7 days a week. We understand studies on this matter are underway.

The parking areas that were installed along the route from Kigali to Gisenyi and Kigali - Akanyaru for vehicles in transit have been closed in order to respect the NCTTCA agreements on the removal of physical barriers. These parking areas are currently used by tankers waiting for unloading when the warehouses are full of fuel. Those delays of course generate additional costs.

Along the whole export route from Kigali to Mombasa we parted with US$ 864.23 in bribes in order to pass. This is a very high figure when you add on the estimated shipping cost of US $ 4,329.9 bringing the total shipping cost to US$5,194.13. The direct monetary cost of petty corruption along the Northern Corridor (Export route only) was equivalent to 20% of the estimated shipping cost.
Source: Assessment of Non Tariff barriers (NTB's) along the Northern & Central Corridors – EAC **-**Rwanda Private Sector Federation - Baseline Study 2008

When visiting the office of Gatuna, we counted 5 police checkpoints. Unlike Burundi, the trucks are not routinely stopped in Rwanda, and there are limited delays at this level.

Regarding clearance procedures in Rwanda, there are a number of stations where truckers can clear, including Gatuna, Rusumo, Gatsata, Gikondo border posts and parking areas for goods in transit to Shyorongi and Runda. There are also several customs agencies who work closely with the Rwanda Revenue Authority (RRA).

The Customs Service makes a notice of arrival after unloading of goods in the warehouses of MAGERWA, a public private partnership bonded warehouse company in Kigali which handles about 90% of Rwandan imports and exports, as well as some transit traffic for Burundi and DRC. The MAGERWA systems are connected by internet to the RRA ASYCUDA software. A RELEASE ORDER Form is issued after payment of an amount of about US$ 5. After obtaining the release order, the registrant obtains an invoice for the price of goods to clear customs and pays RRA directly. The fees entered range from 25%, 10% and 5% of the cost of the goods depending on their origin. The payment also includes parking fees, handling fees and storage. The price of parking is about US$ 10 per night, while handling fees are US$ 5 for 100 kg. Fees for Customs agency is about US$ 100 including VAT, per file.

Generally, customs clearance takes two days. But as noted above, when fuel stores are full, the unloading time for petroleum products can be longer, causing additional costs of parking and therefore contributing to the increased cost of transportation.

The two tables below summarize the clearing delays at Mombasa Port and destination, and the road transit delays, once the cargo has left the port, including delays at weighbridges, road blocks and border crossings. The clearing process in Mombasa port, including dwell time and customs procedures takes a minimum of 11 days and a maximum of 42 days, with an average of 23 days, including an average of 12 days for the consignee or his agent to prepare and present the required documents. The unreliability of the clearing process is therefore 31 days (difference between the minimum and maximum delays).

Once the goods were loaded on trucks and have left Mombasa port, the average transit time to reach Kigali is 6.1 days, with an unreliability of 2 days, including time spent at the weighbridges, road blocks, border crossing and for offloading at destination.

Figure 6-11: Clearing delays for transit containers: Mombasa-Kigali

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port	1	9%	3	13%	5	12%	4	13%
Time needed for the consignee or his agent to present all the needed documents	5	45%	12	52%	25	60%	20	65%
KRA average time required to release the goods, once an entry was made by the consignee or his agent in the SIMBA system	4	36%	6	26%	9	21%	5	16%
Clearing delays at destination	1	9%	2	9%	3	7%	2	6%
Total clearing delays	**11**	**100**	**23**	**100**	**42**	**100**	**31**	**100**

Figure 6-12: Transit Time, Transit Goods Shipment, Mombasa – Kigali, one way

		Lower End		Average		Higher End		Unreliability (hours)
Journey Point	**Distance (km)**	**Transit Time (Hours)**	**% of journey**	**Transit Time (Hours)**	**% of journey**	**Transit Time (Hours)**	**% of journey**	
Waiting for an Escort @ the port	-	3.0	2%	3.5	2%	4.5	3%	**1,5**
Driving Time: Mombasa Port/CFS to Mariakani weighbridge	30	0.8	1%	1.0	1%	1.3	1%	**0,5**
Weighing (and waiting) at Mariakani Weighbridge	-	1.5	1%	3.0	2%	5.0	3%	**3,5**
Driving time: Mariakani to Athi River weighbridge	370	6.0	5%	7.0	5%	8.0	5%	**2**
Weighing (and waiting) at Athi River Weighbridge	-	1.5	1%	3.0	2%	4.5	3%	**3**
Driving Time: Athi River to West Nairobi	60	2.0	2%	2.5	2%	3.5	2%	**1,5**
Driving Time: West Nairobi to Malaba border	470	9.0	7%	10.0	7%	11.0	6%	**2**
Five weighbridges between Nairobi & Malaba	-	6.0	5%	8.0	5%	10.0	6%	**4**
Police Checks along journey (Kenya side)	-	2.5	2%	3.0	2%	3.8	2%	**1,3**
Malaba Border Clearance	-	4.0	3%	6.0	4%	7.5	4%	**3,5**
Driving Time: Malaba to Rwanda border	650	12.0	10%	13.0	9%	15.0	9%	**3**
Weighbridges in Uganda	-	1.0	1%	2.0	1%	3.0	2%	**2**
Police checks along journey (Uganda side)	-	0.5	0%	0.8	1%	1.0	1%	**0,5**
Uganda-Rwanda Border Clearance	-	6.0	5%	7.0	5%	8.0	5%	**2**
Driving Time: Border to Kigali	120	2.5	2%	3.5	2%	4.5	3%	**2**
Weighbridges in Rwanda (none)	-	0	0	0	0	0	0	**0**
Driver Rest Time / Other Driver time	-	60.0	49%	65.0	45%	70.0	41%	**10**
Time for offloading @ destination	-	5.0	4%	7.5	5%	10.0	6%	**5**
Total Time (hours)	**1700**	**123.3**		**145.8**		**170.5**		**47.3**
Total Time (days)	**1700**	**5.1**		**6.1**		**7.1**		**2**

The methodology of evaluation of direct and indirect (hidden) costs of delays was developed in chapter 2.

- **Transit dwell time:** The average fixed vehicle operating costs for a Mombasa – Kigali trip which takes in average 6.1 days are estimated above at **US$ 3875 for a return trip or US$ 317 per day.** For a value of loaded goods per truck in Rwanda as it appears from shipper's surveys of US$ 55,000, and an economic opportunity cost of capital of 30%, the value of one dwell day per truck (once it's loaded and left the port) is equal to **US$ 363/day.**

- **Costs of extra stock due to unreliability:** Based on the same extra stock value of US$200,000, the costs due to unreliability are US$ 164.38 per day.

The total of indirect (hidden costs) due to delays on the Mombasa-Kigali corridor is US$527.59 per day.

Figure 6-13: Indirect (hidden) costs of delays, Mombasa-Kigali, US$

Cost of dwell transit time per day	
Value of transported goods per truck (V)	55000
Capital opportunity cost ©	30%
Fixed vehicle operating costs per day (T)	318,00
Z = {V*(C/365)} + T	**363.21**
Cost of unreliability per day	
3 months inventory value	600000
1 month extra stock	200000
Capital opportunity cost	30%
One month extra stock opportunity cost	60000
Extra stock opportunity cost per day	**164.38**
Total hidden costs per day	**527**

The table below summarizes the direct and indirect costs of delays for a transit 20' container. The most important part (67.1%) is due to the opportunity cost of extra inventory due to the unreliability of the logistics chain. Total indirect or hidden costs of delays represent 94.5% of the total cost of delays.

Figure 6-14: Total costs of delays Mombasa-Kigali -One way

Type of costs	US$	%
Direct costs due to delay		
Mombasa port demurrage tariff per day	25	
Average number of delays (exceeding the free days : 11 days for transit containers)	13	
Days demurrage at the port*	325	4.0%
Demurrage container tariff per day	4	
Number of days of delay	30.1	
Container demurrage	120.4	1.5%
Total direct costs	***445.4***	**5.5%**
Indirect (hidden) costs	US$	%
Trucks transit dwell time	2216	27.4%
Opportunity cost of extra inventory due to unreliability	5420	67.1%
Total hidden costs	**7635**	**94.5%**
Total costs of delays	**8081**	100.0%

6.7 Logistics cost structure

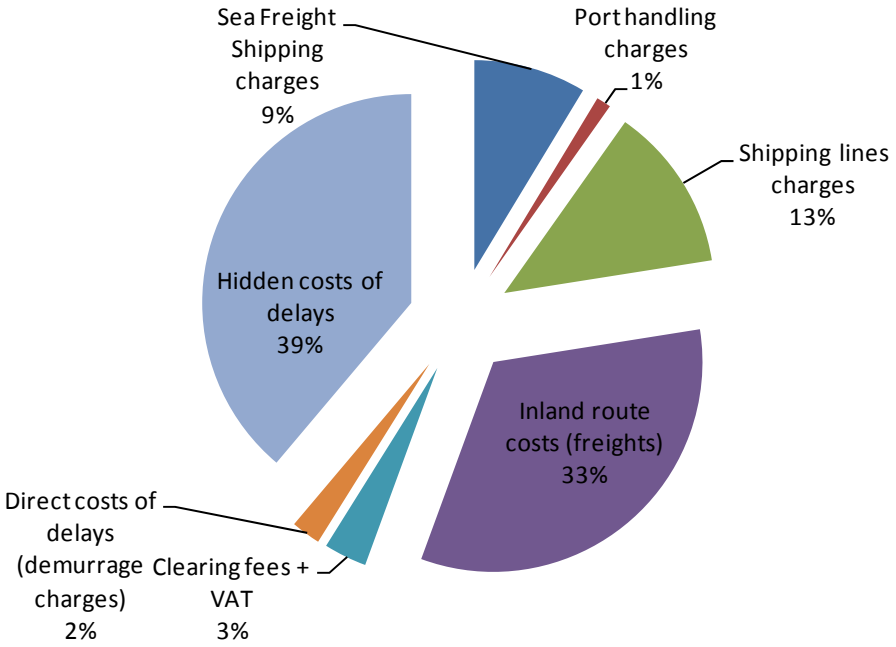
The table below and the relevant graphic show that the total logistics cost of importing a 20' container through Mombasa to Kigali is US$19,653, including sea freight shipping charges (8.7%), shipping lines charges at the port (12.7%), inland road transport (33%), direct cost of delays (2.3%), indirect or hidden costs of delays (38.9%). Like in Kenya and Uganda, the most important part of the logistics costs is due to the costs of delays (41.2%)

Figure 6-15: Total Logistics Costs for 20' Container, Mombasa-Kigali, US$

Costs type	Amount in US$	% of total logistics costs
Sea Freight Shipping charges*	1700	8.7%
Port handling charges	222	1.1%
Shipping lines charges	2500	12.7%
Inland route costs (freights)	6500	33.1%
Clearing fees + VAT	650	3.3%
Direct costs of delays (demurrage charges)	445	2.3%
Hidden costs of delays	7635	38.9%
Total Logistic costs	**19,653**	**100%**

**Singapore-Mombasa (Products: Batteries)*

Figure 6-16: Total Logistics Cost Structure for 20' container, Mombasa-Kigali



7 Northern Corridor Logistics Cost for Burundi

As a landlocked country Burundi depends on its neighbours for the delivery of its exports and imports. Transport costs are generally related both to the state of infrastructure and to the length of network. Burundi uses the Central Corridor more than the Northern Corridor for its international trade goods movements.

7.1 Macroeconomic Performance

This section summarises the macroeconomic performance in Burundi between 2000 and 2008. The figure below shows production and income (GDP per capita in US$) over this period.

Figure 7-1: Performance of the Burundian Economy, 2000 – 2008, Burundi Francs (BIF)

Year	GDP in BIF billon	Population (thousands)	GDP / capita (BIF)	Rate of exchange BIF/$	GDP/ capita (in US $)
2000	511	6,473	76.67	720	106
2001	550	6,847	80.33	830	96
2002	584	7,029	83.17	930	89
2003	644	7,226	89.22	1,082	82
2004	748	7,428	100.77	1,100	91
2005	860	7,562	113.85	1,081	105
2006	934	7,743	120.72	1,030	117
2007	1,012	7,815	129.60	1,081	119
2008	1,314	8,038	163.49	1,185	137

Source: MPDRN, Economie Burundaise 2008, Rapport final, Bujumbura, 2009, Tableaux annexes ; BRB, Bulletin mensuel, XXXIème Année, N°07, Juillet 2009, p. 102.

Annual income per capita expressed in US dollars, decreased gradually from 2000 to 2003: from US$ 106.4 per capita in 2000, to US$ 82 in 2003, its lowest level. This means that income per capita decreased by over 29% during the first four years of the 2000-2008 period. Since 2003, GDP per capita expressed in dollars, increased from US$ 82.4 to US$ 137.9 in 2008, representing an average annual growth of 10.8%.

Over the same 2000-2008 period, the average annual growth of GDP in dollars was only 3.3%. Three main factors have contributed to this relatively low GDP development:

- A low output growth in real terms: Prices increased to 102.3% while production increased by only 157.2% in nominal terms between 2000 and 2008;
- The increase in population from 6.7 million to 8 million between 2000 – 2008 (2.37% growth per year) despite the crisis; and
- Devaluation / depreciation of the Burundi franc: The exchange rate of the dollar/BIF increased by 1.65 between 2000 and 2008.

The figure below shows GDP contributions by sector. Production is carried out mainly in the primary sector, in large part, to meet the needs of consumption. A small portion of the sector's output is marketed.

Figure 7-2: Gross Domestic Product by Sector (in billions of BIF)

Years / Sectors	2005	2006	2007	2008
Primary sector	**389,5**	**422,4**	**442,8**	**573,7**
In % of GDP_{CF}	**48,6**	**48,4**	**46.9**	**46,7**
Agriculture	319,7	330,1	357,8	440,5
Food Livestock, Fisheries and Forestry	60,4	65,5	71,5	93,4
Agriculture for export	9,4	26,8	12,8	39,8
Secondary Sector	**132,4**	**143,0**	**158,9**	**204,7**
In % of GDP_{CF}	**16,5**	**16,4**	**16,8**	**16,7**
Industries, Mines and Energy	91,1	97,0	109,1	139,4
Construction	41,3	46,0	49,8	65,3
Tertiary Sector	**279,8**	**306,9**	**343,3**	**449,7**
In % of GDP_{CF}	**34,9**	**35,2**	**36,3**	**36,6**
Services merchants	99,0	108,1	124,2	160,8
Services non merchants	180,8	198,8	219,1	288,9
GDP at Costs of factors	**801,7**	**872,3**	**945,0**	**1 228,1**
Net Indirect Taxes	59,2	62,4	67,8	86,0
GDP at Market prices	**860**	**934**	**1 012**	**1 314**

Given that the production prices increased by 24.3% in 2008, the Bank of the Republic of Burundi (BRB) stated that: "The value added of the tertiary sector has also decelerated (5.4% against 6.4%) following the decline in activity observed in market services (4.8% against 8.4%), while non-market services increased (5.8% against 5.3%)[34]."

Further, the Central Bank mentioned: "The slow growth of market services is linked to reduced activity of branches of trade and transportation. Lake transport has declined in terms of inputs (-32.1 %). The operation of the port Bujumbura has declined by 13.2% of the tonnage of goods that came. Likewise, the output of goods has experienced a decline of 32.1 % related to the low harvest coffee in 2007/2008"[35].

7.2 Institutional organization of the Transport Sector

Under Decree No. 100/286 of October 12, 2007 on reorganization of the Ministry of Transport, Posts and Telecommunications, the Transportation Department in Burundi was given the mission "to develop and regulate the transport systems and communications by land, air, sea, rail and lake favourable to opening up the country".

To achieve this mission, the Department has the services of the government headquarters

[34] Source: Central Bank Annual Report, 2009
[35] Source: Central Bank Annual Report, 2009

and customs under its tutelage. The services include the Headquarters Office of the Minister and the General Directorate of Transport, Posts and Telecommunications. The latter in turn includes three branches, two of which concern the transport sector. They are: the **Directorate of Internal Transport** and the **Directorate of International Transport**.

The Directorate of International Transport is responsible for:

- Development of international surface transport;
- Developing and monitoring policies of international surface transport;
- Initiation of studies for the development of international transportation; and
- Processing files and applications for approval of traders in international surface transportation, etc.

The international transport of goods in turn also depends on the **Ministry of Commerce**, in particular for the international transport of petroleum products.

Regarding road infrastructure, the following administrative entities are under the **Ministry of Public Works and Equipment**:

- The Office of Roads (ODR);
- Equipment Hiring Agency (ALM);
- The National Road Fund (FRN);
- The National Laboratory of Building and Public Works (LNBTP).

The first three entities are established as administrative entities and have management autonomy while the National Laboratory of Building and Public Works is a Customs Administration. They are all headed by a CEO and board of directors, but the Laboratory is headed by a Director.

The Office of Roads (ODR)

This Highways Agency was established by Decree No. 100 / 118 of 27 October 2001. Its missions are to:

- Provide multi-year planning, supervision and coordination of road maintenance classified and unclassified, and the construction of new roads;
- Monitor the condition of roads including rural roads;
- Establish standards for road maintenance and the criteria for selecting investments in this sector;
- Evaluate the costs of reference of the road and make their updates where necessary;
- Contribute to the development of a traffic law;
- Oversee the studies, controlling road works and works relating thereto;
- Develop and propose policies to promote corporate and national offices accepted by the Government;

- Initiate and oversee the implementation of emergency repairs that occur in the road sector;
- Ensure the role of prime contractor General on behalf of the State in all road infrastructure projects;
- Ensure compliance with environmental guidelines for any establishment or maintenance of road infrastructure;
- Coordinate all activities of the various stakeholders in rural roads; and
- Search for potential partners to support the implementation of programs of rehabilitation and development of rural roads.

Equipments Hiring Agency (ALM)

This agency was established by Decree No. 100/119 of 27 October 2001. Its missions are to:

- Ensure the continued availability of road maintenance equipment for rental;
- Ensure the organization and coordination of the maintenance strategy and equipment rental;
- Ensure, as necessary, procurement and efficient management of spare parts for maintenance of equipment;
- Update standard costs of equipment rental, road;
- Proposing a reform of fully depreciated equipment and strategies for the renewal of equipment; and
- Follow the regular depreciation of equipment leased and the terms of its rehabilitation.

National Road Fund (FRN)

The current National Road Fund was established by Decree No. 100/119 of 27 October 2001. The missions of the National Road Fund are as follows:

- Coordinate the mobilization of financial resources to ensure funding for road maintenance;
- Monitor the implementation of Law No. 1 / 06 10 / 09/2002 laying down the National Road Fund resources and prepare orders for its implementation;
- Determine, in collaboration with the Office of Roads, the overall needs of road maintenance in order to mobilize the necessary funds from donors;
- Adopt programs for maintenance of the Highways Agency for funding under the National Road Fund and provide funding; and
- Mobilize resources and provide funding for emergency road work.

National Laboratory of Building and Public Works (LNBTP)

The National Laboratory of Building and Public Works was established by Decree No. 100/114 of 2/8/1990. Its missions are to:

- Run all the tests, supervise all studies, and conduct research on soil and construction materials in building and civil engineering; and
- Participate in training of technical personnel in the field of study and control of materials.

7.3 Road Network Quality and Maintenance costs

Burundi was provided with infrastructure of high quality and which is equally distributed throughout the territory. However, this infrastructure has deteriorated significantly over the ten years of crisis for lack of sufficient funds for maintenance and due to persistent insecurity. The infrastructure requires a broad and widespread rehabilitation so that it can continue to play its role in supporting agricultural and industrial production.

The country's road network is grouped into two categories: classified and unclassified. The classified road network is determined by ministerial order. The current classification system is organized by the Ministerial Order No. 720/804/CAB/2002 of 23/10/2002.

The classified network consists of three sub networks:

- The primary network consists of National Roads;
- The secondary network composed of provincial roads; and
- The tertiary network consisting of local roads.

The total road length across the country is about 13,700 km including 7,500 km of classified roads and 6,200 km of unclassified roads. The classified road network comprises 1,949 km of national roads, 2,522 km of provincial roads, 2,587 km of local roads and 462 km of urban roads. About 1,300 km of the classified road network is paved, 2,200 km are in laterite and 3,500 km are dirt.

A landlocked country is penalized relative to countries with access to the sea since it depends on the infrastructure and equipment of transit countries, over which they have little or no control. For international transport, Burundi uses the following main routes to transport its products:

- Road to the port of Mombasa after passing through Burundi, Rwanda, Uganda and Kenya, called the Northern Corridor.
- Road south of the Lake Tanganyika port of Mpulungu in Zambia which serves to reach Southern Africa. This path is called Southern Corridor.
- Road, lake and rail to the port of Dar es Salaam via the port of Kigoma on Lake Tanganyika. This path is the Central Corridor.

The Northern Corridor linking Bujumbura, the capital of Burundi to the Port of Mombasa in Kenya via Rwanda and Uganda is about 2,000 km long. The condition of the sections in Burundi may be characterized as follows:

- Bujumbura – Kayanza - Akanyaru border with Rwanda (115km): can be qualified by "fair" despite a few points that need to be rehabilitated. The rehabilitation of these critical areas are underway.
- Bujumbura, Kayanza, Kirundo, Gasenyi, Rwanda border: the section Bujumbura Kirundo is in average condition and the section Kirundo- Gasenyi is in good condition (the road has been paved).

Burundi and Rwanda are very mountainous countries. This means that the roads in these countries are characterized by steep slopes and tight curves, generally prohibiting speeds beyond 60 km / h for light vehicles and 40 km/h for heavy goods vehicles. On hills, the speed is sometimes less than 20 km / h for loaded trucks. This speed limit has an influence on the operating cost of vehicles in general and the cost of transport in particular. Indeed, areas with steep slopes and sharp turns are black spots in terms of road accidents.

The description above is synthesized in the figure below.

Figure 7-3: Length and State of Northern Corridor in Burundi

Road	Length	State	Comments
Bujumbura-Kayanza-Akanyaru	115 km	Good	The major degradations are being repaired
Kayanza- Muyange-Kirundo (alternative pathway for the Northeast Corridor)	100 km	Fair	Periodic maintenance works on the section Muyange - Kayanza were made in 1993. This requires strengthening works. As for the section Muyange - Kirundo, the periodic maintenance works should be planned in the short term.
Kirundo- Gasenyi	35 km	Very good	This section is newly constructed with asphalt concrete.

The government realizes that domestic financial resources must increase to finance routine maintenance and prompt periodic maintenance to avoid increased costs if the work is regularly delayed. Some provisions have already been taken to increase these resources and others will be taken. For example, the levy for road maintenance on the price of fuel sold was increased gradually from 2 US cents in 2004 to 8 US cents in 2008.

Expenditure on road maintenance in Burundi between 2003 and 2009 is summarised in the figure below. The figures are from the National Road Fund budget.

Figure 7-4: Expenditure on road maintenance in Burundi, 2003-2009 (US$)

Year	Follow-up expenses	Road Maintenance Works	Total Budget
2003	-	578 697	578 697
2004	79 129	2 271 650	2 350 779
2005	213 606	2 179 121	2 392 726
2006	350 273	3 095 727	3 446 998
2007	335 546	2 959 818	3 295 363
2008	469 874	4 430 157	4 900 031
2009	493 720	5 807 971	8 301 690

As can be seen from the figure above, investment in road works has increased substantially over the past five years. This is due in part to the government conducting a major campaign to mobilize resources from international development partners to cover its needs in this sub-sector. With the support of donors, the roads are now more or less regularly rehabilitated or constructed; further actions are underway or planned in the short to medium term to continue with this progress.

7.4 Burundi trade through the Northern Corridor

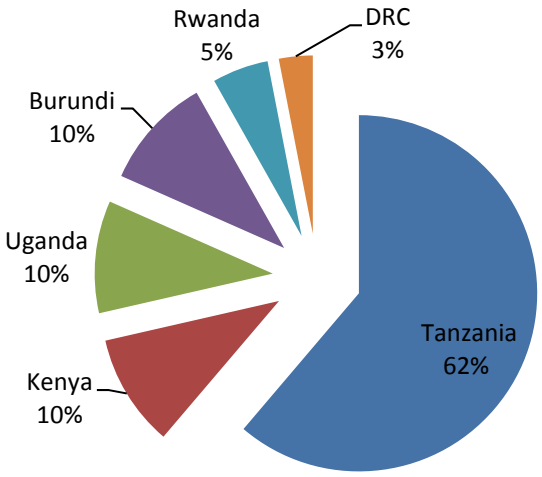
The table and graphic below shows that the international road traffic to/from Tanzania is 61.2% of all international road traffic, and approximately 10% or less for each of the Northern corridor countries. This illustrates the importance of the Central Corridor to Burundi, compared to the Northern Corridor.

Figure 7-5: International Road Traffic in Burundi, 2009

Country	Number of vehicles	%
Tanzania	6 092	61.2%
Kenya	1 015	10.2%
Uganda	1015	10.2%
Burundi	1015	10.2%
Rwanda	508	5.1%
DRC	305	3.1%
Total	9 950	100.0%

Source : SETEMU

Figure 7-6: Illustration of International Road Traffic in Burundi, 2009



Imports to Burundi through the Northern Corridor are shown in the table below.

Figure 7-7: Burundi Imports through the Northern Corridor (Kg)

	Country / Products	Rwanda	Kenya	Uganda	Other countries	Total
2005	Cement	780 000	159 000	9 225 850	0	**10 164 850**
	Vehicles & Motorcycles	5 500	24 000	7 450	314 944	**351 894**
	Petroleum Products	20 950	8 059 630	24 460	65 942 251	**74 047 291**
	Food Products	494 315	850 621	293 374	130 113	**1 768 423**
	Other	89 799	7 891 112	4 980 042	1 292 571	**14 253 524**
	Total	**1 390 564**	**16 984 363**	**14 531 176**	**67 679 879**	**100 585 982**
2008	Cement	392 500	2 680 300	67 874 505	155 450	**71 102 755**
	Vehicles & Motorcycles	8 408	186 215	27 610	1 327 043	**1 549 276**
	Petroleum Products	293 108	7 597 412	57 852	98 261 618	**106 209 990**
	Food Products	106 588 027	1 194 005	15 063 477	215 147	**123 060 656**
	Other	814 626	16 933 449	10 862 553	2 044 762	**30 655 390**
	Total	**108 096 669**	**28 591 381**	**93 885 997**	**102 004 020**	**332 578 067**

Data from the previous table shows that Burundi imports through the Northern Corridor have increased significantly, from 100,586 tonnes of cargo in 2005 to 332,578 tonnes in 2008, a rate of growth of 49% per annum during the period. Petroleum products and cement account for more than half of shipments.

Regarding exports, the quantities passing through the Northern Corridor are shown in the figure below.

Figure 7-8: Burundi Exports through the Northern Corridor (Kg)

		Rwanda	Kenya	Uganda	Other countries	Total
2005	**Coffee**	132 000	0	686 700	108 600	**927 300**
	Tea	0	2 393 325	30 720	0	**2 424 045**
	Sugar	1 620 000	0	0	0	**1 620 000**
	Beer **(Amstel)**	1 407 458	0	0	4 430	**1 411 888**
	Fabrics of Cotton	10 596	0	0	0	**10 596**
	Minerals	121 300	0	0	0	**121 300**
	Hides and Skins	0	138 400	0	120 000	**258 400**
	Other	934 634	187 000	674 029	2 745 582	**4 541 245**
	Total	**4 225 988**	**2 718 725**	**1 391 449**	**2 978 612**	**11 314 774**
2008	**Café**	1 205 610	0	139 254	414 000	**1 758 864**
	Thé	0	4 041 154	0	0	**4 041 154**
	Sucre	2 545 000	0	0	0	**2 545 000**
	Bière (Amstel)	506 880	0	0	504 079	**1 010 959**
	Tissus de Coton	0	0	0	0	**0**
	Minerais	34 200	20 000	0	4 395	**58 595**
	Cuirs et Peaux	0	1 083 400	53 000	946 000	**2 082 400**
	Autres	1 227 647	503 610	5 216 239	219 110	**7 166 606**
	Total	**5 519 337**	**5 648 164**	**5 408 493**	**2 087 584**	**18 663 578**

Burundi is also using Northern Corridor for exports, although much less than for imports. The growth rate is also lower. Between 2005 and 2008, exports of Burundi passing through the Northern Corridor increased from 11,315 tonnes to 18,664 tonnes, with annual growth of 18% per year. This situation is linked to the fact that Burundi is importing far larger quantities of goods than it is exporting, but also that Burundi's main export good, coffee, is exported largely through the port of Dar-Es-Salaam (Central Corridor).

Below we summarise the flow of goods between countries of the Northern Corridor.

Burundi imported 332,578 tonnes through the Northern Corridor in 2008 and exported only 18,864 tonnes. This imbalance is found in respect of all partner countries. The consequence is that trucks often return empty to their countries of origin after delivering goods.

For the reported year (2008), by adding the quantities exported with those imported by country, it should be noted Rwanda was the largest trading partner for Burundi among members of the Northern Corridor.

Figure 7-9: Burundi Origin-Destination Matrix through the Northern Corridor (tonnes), 2008

Destination Origin	Burundi	Rwanda	Uganda	Kenya	Others via NC	Total
Burundi	-	5 519	5 409	5 648	2 088	18 664
Rwanda	108 097	-				
Uganda	93 886		-			
Kenya	28 591			-		
Others via NC	102 004				-	
Total	332 578					-

7.5 Vehicle Operating Costs structure

The calculation of vehicle operating costs in Burundi was achieved on the basis of the same methodology and using the same questionnaire as the other Northern corridor countries. In the same way, insurance premiums were calculated on the basis of information provided by the Insurance Company of Burundi (SOCABU). Similarly, the cost information collected from financial institutions in Bujumbura allowed us to adjust our interview figures as appropriate, taking into account 40% of the purchase price of vehicles that are supported by the carrier who applies for a loan. In addition, interest rates have been estimated at 16% per year.

Similarly, the comparatively overhead costs reported by some carriers were adjusted downward to between 12% and 15% of the revenues reported by different carriers. Fuel costs were also adjusted whenever the reported level exceeded one litre for 1.6 km along the route Bujumbura-Mombasa or 1.25 km on the route Bujumbura-Kampala. In turn, the cost of lubricants was estimated at US $ 300 for a roundtrip Bujumbura-Kampala and US$ 500 for a roundtrip Bujumbura-Mombasa.

The cost of vehicle operations in Burundi are presented in the following two tables one of which focuses on the domestic VOCs (within Burundi) and the other on regional transport (Bujumbura-Mombasa).

Figure 7-10: Detailed VOCs for domestic transport in Burundi (in US$)

Company Code	AT LOCAL	BT LOCAL	CT LOCAL	DT LOCAL	Average
Depreciation	80	80	180	200	**135**
Financial expenses	65	70	145	65	**86.25**
Vehicle Insurance	10	10	10	70	**25**
Insurance Products	0	0	0	55	**13.75**
Salaries and drivers allowance	40	16	30	70	**39**
Taxes and Duties	0.3	0.8	1.8	0.5	**0.85**
Overhead	80	60	50	210	**100**
Total Fixed Costs (TFC)	**275**	**237**	**417**	**671**	**400**
Vehicle Maintenance	15	15	15	20	**16.25**
Cost of tires	75	50	40	130	**73.75**
Fuel & Lubricants	85	40	40	540	**176.25**
Mileage Driver	15	10	10	30	**16.25**
Bribes Road	0	10	0	0	**2.5**
Total Variable Costs (TVC)	**190**	**125**	**105**	**720**	**285**
Total VOCS	**465**	**362**	**522**	**1391**	**685**
TFC in % total VOCS	**59.2**	**65.5**	**79.9**	**48.2**	**63.2**
VOCS / tonne-km (**1**)	**0.063**	**0.074**	**0.149**	**0.097**	**0.091**
Distance with return (Km)	**210**	**140**	**100**	**408**	**214.5**
Average age of vehicles (years)	**10**	**12**	**10**	**3**	**8.75**
Average purchasing cost of vehicles (USD)	**50 000**	**50 000**	**120 000**	**162 000**	**95500**

(1) The number of tonne-kilometres is calculated by multiplying the legal load (35T) by the distance with return

The table above identifies the relatively short, medium and long distances on a Burundi scale. In ascending order, the considered distances are 50 km (100 km round trip), 70 km (140 km round trip), 105 km (210 kilometres round trip) and 204 km (408 km round trip). The journey of 50 to 70 km is a relatively short distance to the extent that it corresponds to the distance between the capitals of two neighbouring provinces in Burundi. The journey of 105 km, is a moderately long distance in all of Burundi because it is the distance between Bujumbura, west of the country and Gitega, in central Burundi. The journey of 204 km, is the distance from Bujumbura to Kirundo, north-eastern Burundi.

The VOCs are calculated taking into account the distance on the main routes for different transport companies. The VOCs range between US$.06 and US$.15 per tonne-km, with an average of US$.09. The most expensive items are depreciation, financial expenses and overhead in the fixed costs, while fuels and lubricants and tire costs represent the greatest burden in terms of variable costs.

Figure 7-11: Details VOCs for a Bujumbura – Mombasa Transport with return, US$

Company Code	DT	ET	GT	IT	JT	KT	LT	Average
Depreciation	600	1 250	800	800	960	1 240	830	926
Financial expenses	450	750	600	600	810	1 040	700	707
Vehicle Insurance	10	15	10	15	10	15	10	12
Insurance Products	600	500	600	600	500	600	600	571
Salaries and drivers allowance	150	150	150	150	150	150	150	150
Taxes and Duties	700	700	700	700	700	700	700	700
Overhead	1 250	840	1 250	1 250	840	1 140	1 100	1096
Total Fixed Costs (TFC)	**3 760**	**4 205**	**4 110**	**4 115**	**3 970**	**4 885**	**4 090**	**4162**
Vehicle Maintenance	1 330	1200	1330	1 330	1200	1200	1200	1256
Cost of tires	1500	1200	1500	1500	1500	1 500	1500	1457
Fuel & Lubricants	4 000	3 900	4 000	4 000	3 900	3 900	3 900	3943
Mileage Driver	600	600	600	600	600	600	550	593
Bribes Road	900	600	900	900	600	900	900	814
Total Variable Costs (TVC)	**8 330**	**7 500**	**8 330**	**8 330**	**7 800**	**8 100**	**8 050**	8063
Total VOCS	**12 090**	**11 705**	**12 440**	**12 445**	**11 770**	**12 985**	**12 140**	**12225**
TFC in % total VOCS	**31,1**	**35,9**	**33**	**33,1**	**33,7**	**37,6**	**33,7**	34
VOCS / tonne-km (1)	**0,09**		**0,09**	**0,09**		**0,09**	**0,09**	**0,09**
VOC by m^3		**390.2**			**392.3**			**391.25**

(1) The number of Tkm is calculated by multiplying the legal load (35T) by 4,000 km

Figure 7-12: Details VOCs for a Bujumbura – Kampala Transport with return, US$

Company Code	AT	BT	CT	FT	HT	Average
Depreciation	625	930	500	930	500	697
Financial expenses	375	780	375	780	375	537
Vehicle Insurance	10	10	10	10	10	10
Insurance Products	100	100	100	100	100	100
Salaries and drivers allowance	150	150	150	150	150	150
Taxes and Duties	500	500	500	500	500	500
Overhead	840	630	700	665	630	693
Total Fixed Costs (TFC)	**2 600**	**3 100**	**2 335**	**3 135**	**2 265**	**2687**
Vehicle Maintenance	750	700	750	700	750	730
Cost of tires	1200	1 200	1 200	1200	1200	1200
Fuel & Lubricants	2100	2050	2100	2050	2100	2080
Mileage Driver	250	250	250	280	250	256
Bribes Road	500	500	500	500	500	500
Total Variable Costs (TVC)	**4800**	**4700**	**4800**	**4730**	**4800**	4766
Total VOCS	**7 400**	**7 800**	**7 135**	**7 865**	**7 065**	**7453**
TFC in % total VOCS	**35.1**	**39.7**	**32.7**	**39.9**	**32.1**	**35.9**
VOCS / tonne-km (1)	**0.13**	**0.14**	**0.13**	**0.14**	**0.13**	**0.134**

(1) The number of tonne-kilometers is calculated by multiplying the legal load (35T) by 1,600 km

The tables above show that the operating costs of vehicles are about US$.09 per tonne-kilometre for transportation companies operating on the route Bujumbura-Mombasa, and range between US$.13 and US$.14 per tonne-kilometre for transportation companies operating on the route Bujumbura - Kampala.

Vehicle operating costs of on Bujumbura-Kampala route are higher compared with those on route Bujumbura-Mombasa route. This is probably due to the difference in traffic flow depending on the gradient, sinuosity and the general condition of roads.

Per cubic meter, the operating costs of vehicles amounted to about US$ 390. It is important to note that this applies only to fuel transportation; fuel for vehicles being transported, in large part, from Dar-Es-Salaam through the central corridor.

7.6 Direct and Indirect Costs of Delays

In the case of Burundi, CPCS noted about seven police checkpoints between Bujumbura and Akanyaru border. On the alternative route through the new border post at Gasenyi via Kirundo, the police checkpoints are about 10 in total. In the first position (or last depending

on whether the counting begins with the border) which is the entrance to the city of Bujumbura all vehicles coming from abroad must stop for the dual control of police and customs at a place called "roundabout Kamenge". The majority of imports and exports by road to the two ports of Mombasa and Dar es Salaam pass by this place. After the inspection, all vehicles transporting goods from abroad are escorted to the bus station (for trucks carrying goods to be unloaded at the port elsewhere) or to the port of Bujumbura where unloading takes place.

Clearance procedures in Burundi are also a source of delaysas can be seen from the following paragraph.
At the border post of entry in Burundi, Customs will provide a document called "Passavant à Caution" (CAP) which indicates the location of clearance. In Burundi, there are three Customs Offices where you can clear: Bujumbura, Kayanza and Gitega. The CAP received from the border post is delivered to the Customs Research Service located at the "Roundabout Kamenge", at least for those who go to the Bureau of Customs clearance of Bujumbura.

The owner chooses a Customs Agency to deal with the declaration and customs clearance and gives the following documents: (i) Bill of Lading, (ii) Commercial invoice of goods, (iii) Import License, (iv) Tax Identification Number, and (v) Certificate of Origin for goods manufactured in member countries of the East African Community.

It should be noted that only the following fees are required for goods originating in member countries of the EAC: Value Added Tax (VAT), equivalent to 18% of CIF; 4% of the FOB price for a standard deduction of taxes; and 0.5% of the CIF for the Fee Administration. For other goods, in addition to these taxes, Customs Duties are levied as follows: 0% for raw materials; 10% for intermediate products; and 25% for finished products.

After payment of the required fees, there is the payment of parking fees if the truck is parked at the bus station or the costs of handling and storage if the goods are stored in warehouses. The price of parking is about $ 10 per day for the trucks loaded and $ 5 for empty trucks, while the costs of handling and storage were respectively on average US$ 10 per tonne and US$3 per container 20' per day, but the first 7 consecutive days are free. The cost of the services of a Customs Agent is approximately US$50 per truck and for parcel consolidation, US$ 100 for a 20' container and US$ 200 for a 40' container.

Generally, customs clearance lasts not more than three days, especially for petroleum products. But, in most cases and for several reasons, the customs clearance of other products lasts longer than three days, but rarely exceeding one week. This longer duration on customs clearance contributes to the increased cost of transportation.

Apart from this source of increased cost of transportation, travel restrictions which are specific to Burundi also affect the cost of transportation. This is due essentially to the following facts:

- The border is only open from 6 am to 6 pm;
- Driving at night is not recommended for security reasons; and
- At the border, which is 35 km from Bujumbura, trucks are not allowed to circulate beyond 4pm.

The other factors that influence delays in Burundi are linked to the state and limits of transport infrastructure. Although the road between Bujumbura and Mombasa is paved, the route Bujumbura - Kigali – Gatuna - Kabale (Uganda), has sections that are very steep and winding. Flooding and large settlements are frequent on this route during the rainy season, in addition to road accidents. All these factors lead to increased cost of transportation.

The two tables below summarize the minimum, average and maximum clearing delays at Mombasa port and at destination, as well during the road transit from Mombasa to Bujumbura and borders crossing.

Figure 7-13: Clearing delays for Transit Containers, Mombasa - Bujumbura

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port	1	7%	3	11%	5	10%	4	11%
Time needed for the consignee or his agent to present all the needed documents	7	50%	15	56%	30	61%	23	66%
KRA average time required to release the goods, once an entry was made by the consignee or his agent in the SIMBA system,	4	29%	6	22%	9	18%	5	14%
Clearing delays at destination	2	14%	3	11%	5	10%	3	9%
Total clearing delays	**14**	**100**	**27**	**100**	**49**	**100**	**35**	**100**

Figure 7-14: Road transit delays: Mombasa-Bujumbura

Journey Point	Distance (km)	Lower End		Average		Higher End		Unreliability (hours)
		Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	
Waiting for an Escort @ the port	-	3.0	2%	3.5	2%	4.5	3%	**1,5**
Driving Time: Mombasa Port/CFS to Mariakani weighbridge	30	0.8	1%	1.0	1%	1.3	1%	**0,5**
Weighing (and waiting) at Mariakani Weighbridge	-	1.5	1%	3.0	2%	5.0	3%	**3,5**
Driving time: Mariakani to Athi River weighbridge	370	6.0	5%	7.0	5%	8.0	5%	**2**
Weighing (and waiting) at Athi River Weighbridge	-	1.5	1%	3.0	2%	4.5	3%	**3**
Driving Time: Athi River to West Nairobi (through central Nairobi)	60	2.0	2%	2.5	2%	3.5	2%	**1,5**
Driving Time: West Nairobi to Malaba	470	9.0	7%	10.0	7%	11.0	6%	**2**
Five weighbridges between Nairobi & Malaba	-	6.0	5%	8.0	5%	10.0	6%	**4**
Police Checks along journey (Kenya side)	-	2.5	2%	3.0	2%	3.8	2%	**1,3**
Malaba Border Clearance	-	4.0	3%	6.0	4%	7.5	4%	**3,5**
Driving Time: Malaba to Rwanda border	650	12.0	10%	13.0	9%	15.0	9%	**3**
Weighbridges in Uganda	-	1.0	1%	2.0	1%	3.0	2%	**2**
Police checks along journey (Uganda side)	-	0.5	0%	0.8	1%	1.0	1%	**0,5**
Uganda-Rwanda Border Clearance	-	6.0	5%	7.0	5%	8.0	5%	**2**
Driving Time: Border to Kigali	120	2.5	2%	3.5	2%	4.5	3%	**2**
Weighbridges in Rwanda (none)	-	0	0	0	0	0	0	**0**
Driving time Kigali-Bujumbura	300	8		12		16		**8**

		Lower End		Average		Higher End		Unreliability (hours)
Journey Point	Distance (km)	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	
Rwanda-Burundi Border Clearance		6		10		18		
Driver Rest Time / Other Driver time	-	65	49%	70	45%	75	41%	**10**
Time for offloading @ destination	-	40	4%	62	5%	90	6%	**50**
Total Time (hours)	**2000**	**171.3**		**221.3**		**299.5**		**100.3**
Total Time (days)		**7.1**		**9.2**		**12.5**		**5.3**

Based on the two figures above, on average, it takes 27 days to clear the cargo at Mombasa port (including 15 days for the consignee or his agent to present all the needed documents) and about 9 days to make the road trip form Mombasa to Bujumbura including delays at weigh brides, police control, border crossings and driver rest time. The unreliability of this transport chain is quite high since the whole delays can vary by more or less 20 days.

The methodology of evaluation of direct and indirect (hidden) costs of delays is developed in the methodological chapter.

- **Transit dwell time:** The average fixed vehicle operating costs for a Mombasa – Bujumbura trip which takes in average 9.2 days are estimated above at **US$2,081 for a one way trip which takes in average 9.1 days, or US$225 per day. For a average loaded truck of 35 tonnes and a** value of loaded goods per truck in Burundi as it appears from the shipper's surveys of US$ 60,000 and economic opportunity cost of capital of 30%, the value of one dwell day per truck (once it's loaded and left the port) is equal to **US$275/day.**

- **Costs of extra stock due to unreliability:** They are associated with loss in business contracts due to unreliability. The average value of inventories stocks depend on the type of activity of the cargo owner and the value of products transported. On the basis of an average total inventory of US$0.6 Million including an extra inventory of one month of US$ 0.2 Million financed at an opportunity cost of capital of 30%, **the cost of unreliability is US$164** per day.

The total indirect (hidden) costs due to delays on the Mombasa-Kigali section are US$439 per day.

Figure 7-15: Indirect (hidden) costs of delays (in US$), Mombasa-Bujumbura

Cost of dwell transit time per day	
Value of transported goods per truck (V)	60000
Capital opportunity cost ©	30%
Fixed vehicle operating costs per day (T)	225.69
Z = {V*(C/365)} + T	**275.01**
Cost of unreliability per day	
3 months inventory value	600000
1 month extra stock	200000
Capital opportunity cost	30%
One month extra stock opportunity cost	60000
Extra stock opportunity cost per day	**164.38**
Total hidden costs per day	***439.39***

7.7 Logistics Cost Structure

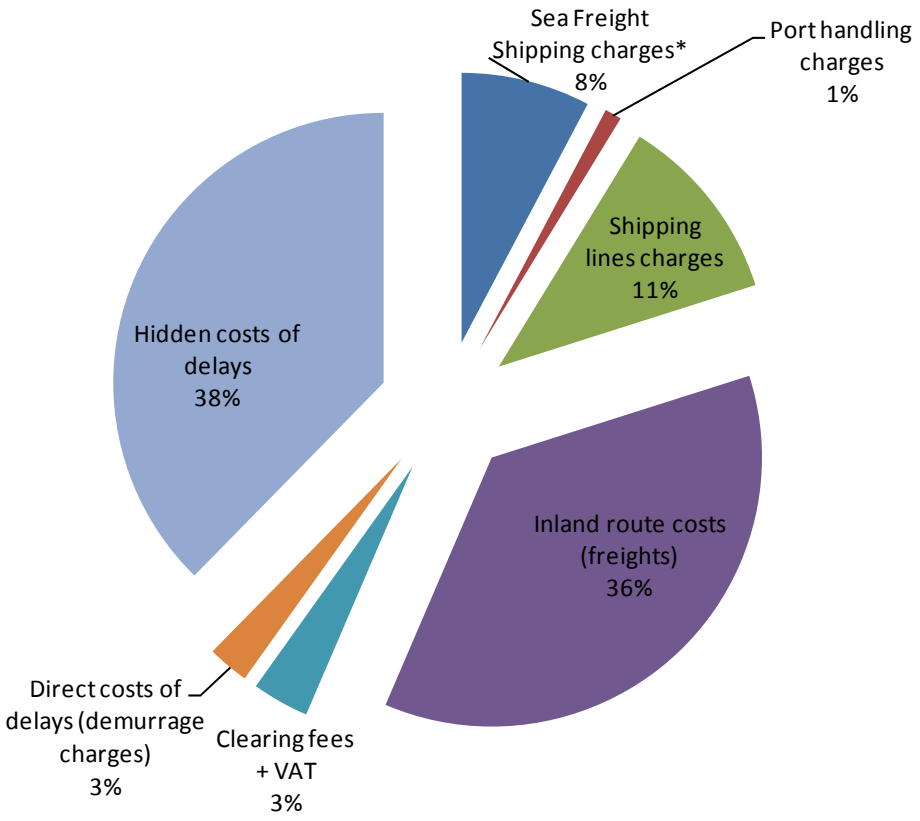
The table below and the relevant graphic show that the total logistics cost of importing a 20' container through Mombasa to Bujumbura is US$22,006, including sea freight shipping lines charges (7.7%), inland road transport (36.4%), direct costs of delays (2.5%) and indirect or hidden costs of delays (37.3%). Like in Kenya, Uganda and Rwanda, the most important part of the total logistics costs is due to the direct and indirect costs of delays (40.2%)

Figure 7-16: Total Logistics costs in US$ for a 20' container (Mombasa- Bujumbura)

Costs type	Amount in US$	% of total logistics costs
*Sea Freight Shipping charges**	*1700*	7.7%
Port handling charges	222	1.0%
Shipping lines charges	2500	11.4%
Inland route costs (freights)	8000	36.4%
Clearing fees + VAT	750	3.4%
Direct costs of delays (demurrage charges)	545	2.5%
Hidden costs of delays	*8289*	37.7%
Total Logistic costs	**22,006**	**100.0%**

**Singapore-Mombasa (Products: Batteries)*

Figure 7-17: Total Logistics costs structure for 20' container (Mombasa-Bujumbura)



8 Northern Corridor Logistic Costs for Eastern Democratic Republic of Congo

The transportation sector in Eastern DRC – an area which forms part of the Northern Corridor – is experiencing problems due to the inadequacy and poor condition of transport infrastructure and an inadequate institutional and regulatory framework. One major concern of the DRC Government is to create conditions conducive to sustainable economic growth of the country and the fight against poverty. The role of transport in achieving this goal was reaffirmed in the most recent transport sector policy defined by the government.

Study Scope of Analysis of Northern Corridor in DRC

The Northern Corridor extends from the Port of Mombasa as far inland as Kisangani in DRC. However, the TOR for this study (Section I.5) indicated that due to the poor condition of the road network in DRC, goods are primarily transported by road up to Goma, Beni or Bunia and then airlifted to Kisangani. As a result, we focused our field interviews and research between November 2009 and April 2010 on the route from Mombasa to Goma (rather than Mombasa to Kisangani).

During the Stakeholder Workshop held in Kigali to discuss the Draft Final Report of this study in September 2010, it was brought to our attention by representatives from DRC that the road between Beni and Kisangani was recently rehabilitated and is now being used for road transportation. Between the submission of the Draft Final Report and this Final Report, it was not possible to conduct additional field research and interviews for the Mombasa-Kampala-Beni-Kisangani route. However, a representative from the *Office des Gestion du Fret Multimodal (OGEFREM)* in DRC kindly furnished the CPCS team with additional information on this recently re-opened route.

The information provided by OGEFREM was not sufficient to complete a full logistics cost analysis to the same level as for the journey to Goma. However, we have included a sub-section at the end of this chapter describing the particular transportation and logistics costs for the Mombasa to Kisangani route, based on the information available. In future, this route is likely to become increasingly important for transport to Kisangani (and as a result, imported goods to Kisangani should become less expensive compared to being airlifted).

8.1 Institutional Organization of Transport Sector

At present, the institutional responsibility for the transport sector in the DRC rests primarily with the following departments:

- Ministry of Transport and Communication Channels (MTVC) is responsible for the regulation and coordination of the sector;

- Ministry of Infrastructure, Public Works and Reconstruction (MITPR) manages the national road network, including urban roads; and
- Ministry of Rural Development (MDR) is responsible for managing rural roads.

In addition, the Ministry of Planning and Finance provides the programming and implementation of financing public investments in the transport sector, including the road sub-sector. The current institutional structure suffers from a multiplicity of actors but also from coordination difficulties. The Government is aware of these shortcomings and has initiated a study, financed by the World Bank, to provide the country with an institutional and legal transport sector framework adapted to socio-economic development. This framework should clarify the role and responsibilities of each stakeholder.

Road administration is the responsibility of the MITPR for roads of national and urban roads and the MDR for roads of local interest and rural roads. Three bodies are responsible for managing the road sub-sector: i) the Office of Roads (OR) and the ii) Office of Roads and Drainage (OVD), which fall under the MITPR, manage the national and urban road networks, respectively, and iii) the Directorate of Inland Feeder Agriculture (ARVD), managed by the MDR, oversees local roads and rural roads.

Within MITPR, the Infrastructure Cell (IC) with an administrative and financial autonomy ensures coordination of all road infrastructure projects financed with external resources for which it acts as Client representative. In the new institutional framework, the IC will also support: i) planning, programming and budgeting for investment and road maintenance ii) regulation of market functioning; iii) the protection of the environment; and iv) development of the road construction industry.

As an institutional support structure, the various programs conducted by the IC include actions to strengthen human capacity and material of the OVD and the OR.

In eastern DRC, the Provincial Division of Transport and Communication Channels coordinates the transport sector. The North Kivu with its capital Goma, had been elevated to the status of Province by Order Act No. 88-031 of July 20, 1988 after splitting the region of the former Kivu into three autonomous regions. This territorial division by the Division of Provincial Transportation and Communication Channels began to exist and be independent vis-à-vis Bukavu (capital of the former eastern DRC).

The Decree n° CAB.MIN/FP/JMK/305/2002 of December 20, 2002, determines the organizational framework and the actual functioning of the provincial Division in eastern DRC. According to this Decree, the provincial division of Transport and Communications Channels mission is to:

- Administer the Provincial Services of the Ministry of Transport and Communication Channels for work ordered;
- Check the companies under its supervision;
- Improve the collection of fees related to public transport;

- Strengthen the control over the regulatory and pricing; and
- Ensure the implementation of regulations on land transport, lake, river, and air to ensure the safety of goods and people.

Based on these missions, the Ministry of Transport and Communication Channels is responsible for approving companies who want to practice as carriers. During our stay in North Kivu, the Authorities of the Provincial Division of Transportation and Communication Channels told us that only two companies in international transport have so far been received and formally approved.

In terms of road infrastructure, the Provincial Directorate of the Office of Roads is responsible for this sub-sector.

The transport sector policy defined by the government aims to phase out the weaknesses and physical and institutional dysfunctions in the transport sector. The policy is focused, in the short term and medium term, on the revival of this sector to serve as support for other sectors of the economy, by providing adequate infrastructure and services, promoting trade and mobility of people and property. In the long term, the policy states that the transport sector will contribute in particular to:

(i) Ensuring the integration of economic entities in the country by rehabilitating and interconnection of the transport network;
(ii) Guaranteeing optimal conditions for safe operation networks through compliance with international standards;
(iii) Meeting the transportation needs of populations at competitive prices, further involving the private sector; and
(iv) Promoting regional integration.

8.2 Eastern DRC Road Network Quality and Maintenance Costs

The transport system in DRC is characterized by the diversity of modes of transport: road, rail, river / lake, sea and air. But the lack of international funding programs for over a decade and inadequate and irregular chronic national resources allocated to the maintenance of transport infrastructure has led to a collapse of the entire network transport and breaks in the logistics chain. This has made it expensive, even dangerous, to transport goods across the country, creating a scarcity of regular food in cities, particularly in Kinshasa. Because of the vastness of this country (2.34 million km²), and given its level of access to basic social services, the transport system of the DRC, if rehabilitated, could play a key role to ensure the optimal conditions for security and national cohesion.

Road transport in the DRC is one of the main modes of moving goods and people and operates upstream and downstream of the agricultural and industrial production. The supply of road transport consists of a network of approximately 152,400 km.

The road network in North Kivu (which forms part of the Northern Corridor) is the responsibility of the Provincial Directorate of the Office of Highways. The sections in North Kivu include 1,642 km of road, of which only 262 km are paved. The state of deterioration of the road networks is such that the operation of road transport services is very uncertain. The condition of the road in North Kivu is summarised in the Figure below.

Figure 8-1: Length and condition of sections of the corridor in North Kivu

Section	Length	Condition	Observations
Goma – Rusturu	72 km	Fair	Some maintenance works were carried out by NGOs and WFP under Humanitarian Programmes
Rutshuru- Bunagana (border with Uganda)	24 km	Bad	Work has not been undertaken in many years since the crisis. This is the case across the country and in North Kivu in particular.
Rutshuru- Ishasha	63 km	Poor	Same comments as above
Kasindi (Uganda border) – Beni	89 km	Poor	Same comments as above
Butembo- Beni	54 km	Poor	Same comments as above
Goma – Gisenyi	< 5 km	Good	Cities very near of each other, good road condition

In general, as the roads in North Kivu have not been adequately maintained for several years following the crisis; with an inadequate budget, they are all in poor condition. This results in a lower service level of road infrastructure in eastern DRC and especially following the insecurity for international transport to Uganda and Kenya through Kigali. The funding for maintenance of roads in North Kivu – as shown in the figure below – is very inadequate.

Figure 8-2: Expenditure on Road Maintenance in North Kivu, by source of funding, 2006 – 2008, US$

Funding sources US$	Years		
	2006	2007	2008
Government of North Kivu	-	88 643	217 127
Highway Tools	408 029	303 088	665 928
Office of Roads / Kinshasa Branch	-	-	12 258
MONUC /BENI	19 065	117 367	
TOTAL	**427 094**	**509 098**	**895 313**

Recognizing the problem of inadequate maintenance budget, the DRC recently put in place a Road Maintenance Fund of the 2nd generation called FONER, for the sustainability of financing of road infrastructure. The FONER is operational since August 2009 and routine maintenance has been financed by the latter. The board of the OR is being enhanced with

equipment, through financing of major Donors such as the World Bank, EU etc, and the government of the DRC. It is within this framework that the Office of the Provincial Directorate of Roads has been equipped with two brigades of public works equipment with funding from the European Union, one of which will be based in Goma and the other in Beni.

8.3 Eastern DRC trade through the Northern Corridor

The trade data collected during a CPCS Consultant mission in Goma was so fragmented that it was possible only to extract consistent data for 2006 exports. These are summarized in the table below.

Figure 8-3: Exports of Eastern DRC through the Northern Corridor in 2006, Kg

Products/ Countries	Burundi	Kenya	Rwanda	Uganda	Other countries	Total
Minerals	0	0	1 097 361	12 000	10 354 372	11 463 733
Coffee	0	19 200	0	0	8 034 286	8 053 486
Cocoa	0	0	0	14 030	491 580	505 610
Cinchona	0	0	0	0	8 049 508	8 049 508
Tea	0	178 020	0	0	0	178 020
Wood	0	5 927 720	20 000	1 724 932	462 354	8 135 006
Other	5 350	46 162	14 828	526 161	976 978	1 569 479
Total	**5 350**	**6 171 102**	**1 132 189**	**2 277 123**	**28 369 078**	**37 954 642**

In 2006, eastern DRC exported a total of 37,955 tonnes of goods through the Northern Corridor. This corresponds to approximately three times the amount of exported goods that Burundi was passing through this route in the same year and half of Rwanda's exports shipped through the same channel.

Four types of products represent more than 90% of the total volume of exported products from DRC: minerals, timber, coffee and cinchona. As for other Northern Corridor countries, eastern DRC exports unprocessed primary products.

8.4 Vehicle Operating Costs

The data in the following tables was obtained from responses provided by transportation companies to our interview questions. Responses differed considerably across operators. We therefore proceeded to cross-checking of data taking into account the most reasonable answers.

In interviews, most transporters said they are buying trucks for cash instead of resorting to bank loans because the interest rate charged is very high (about 36% per year). This rate was applied in calculating the financial costs.

For the transport of cement, when the security situation allows it, the carriers of Goma have a choice of two routes: (i) direct route through Bunagana border with the DRC even if the road conditions is not good and (ii) through Kigali and the Gatun border. The latter route is very long but has the advantage of high practicability. Indeed, the route is completely paved, although some sections (Kigali-Ruhengeri and Kigali - Gatuna) need to be rehabilitated.

For the transport of fuel and other goods, the safest route is the one which passes through Kigali and Gatuna (road more or less in good condition).

The vehicle operating costs in Goma are presented in the following two tables, one of which focuses on regional transport to Mombasa and the other on regional transportation to Kampala / Kisumu.

Figure 8-4: Detailed VOCS for return trip Goma - Mombasa / Nairobi (in US$)

Company Code	ATEC	DTEC Bis	FTEC	HTEC	GTEC	ITEC	JTEC	Average
Depreciation	850	715	800	750	650	650	650	724
Financial expenses	1200	775	864	790	720	720	720	827
Vehicle Insurance	10	10	10	10	10	12	12	11
Insurance Products	115	115	450	300	200	350	385	274
Salaries and drivers allowance	150	150	150	150	150	150	150	150
Taxes and Duties	430	430	500	500	500	500	450	473
Overhead	1 250	1 250	1 100	1 250	1 050	1 140	1 050	1156
Total Fixed Costs (TFC)	**4 005**	**3 445**	**3 874**	**3 750**	**3 280**	**3 522**	**3 417**	**3613**
Vehicle Maintenance	1 265	1 265	1 285	1 285	1 150	1 150	1 150	1221
Cost of tires	1 500	1 400	1 500	1 500	1 250	1 200	1 200	1364
Fuel & Lubricants	3 800	3 800	3 850	3 850	3 500	3 500	3 500	3686
Mileage Driver	500	500	500	500	400	500	500	486
Bribes Road	1150	1000	1200	1000	800	750	800	957
Total Variable Costs (TVC)	**8 215**	**7 965**	**8 335**	**8 135**	**7 100**	**7 100**	**7 150**	**7714**
Total VOCS	**12 220**	**11 410**	**12 209**	**11 885**	**10 380**	**10 622**	**10 567**	11328
TFC in % total VOCS	**32.8**	**30.2**	**31.7**	**31.6**	**31.6**	**33.2**	**32.3**	31.9
VOCS / tonne-km (1)					**0.09**	**0.09**	**0.09**	**0.09**
VOCS / tonne-km (2)			**0.1**	**0.1**				**0.10**
CEV par m^3	**407**	**380.3**						**393.7**

(1) for the journey Goma - Nairobi

(2) for the journey Goma – Mombasa

Figure 8-5: Detailed VOCs for return trip, Goma – Kampala/Kisumu

Company Code	BTEC	CTEC	DTEC	ETEC	HTEC Bis	ITEC Bis	Average
Depreciation	850	850	850	550	550	750	733
Financial expenses	375	375	500	595	595	475	486
Vehicle Insurance	10	10	10	10	10	12	10
Insurance Products	115	115	115	100	100	100	108
Salaries and drivers allowance	100	100	125	125	100	125	113
Taxes and Duties	300	300	300	300	300	250	292
Overhead	735	756	756	486	500	525	626
Total Fixed Costs (TFC)	**2 485**	**2 506**	**2 656**	**2 166**	**2 155**	**2 237**	**2368**
Vehicle Maintenance	720	790	865	500	500	500	646
Cost of tires	750	770	1 400	750	750	750	862
Fuel & Lubricants	2 160	2 375	2 600	1 500	1 500	1 500	1939
Mileage Driver	250	250	250	200	200	250	233
Bribes Road	500	500	500	500	500	500	500
Total Variable Costs (TVC)	**4 380**	**4 685**	**5 615**	**3 450**	**3 450**	**3 500**	**4180**
Total VOCS	**6 865**	**7 191**	**8 271**	**5 616**	**5 605**	**5 737**	**6547,5**
TFC in % total VOCS	**36.2**	**34.4**	**32.1**	**38.6**	**38.4**	**39**	36.45
VOCS / tonne-km (1)				**0.22**	**0.22**	**0.1**	**0.18**
CEV par m^3 (2)	**196.1**	**205.5**					**200.8**
CEV par m^3 (3)			**236.3**				**236.3**

(1) The number of Tkm is calculated by multiplying the legal load (35T) per 730 km for a return journey Goma - Hima

(2) The total operating cost per vehicle m3 return Goma-Kisumu/Eldoret

(3) The total operating cost per vehicle m3 return Goma - Nakuru

The tables above show that the VOCs are US$.09 and US$.10, per tonne-kilometre for transportation companies operating on the route Goma-Mombasa and Goma-Nairobi routes, respectively, while they range between $US.10 and US$.22 per tonne-kilometre for transportation companies operating on the route from Kigali to Kampala.

Like Rwanda, Eastern DRC uses two sources of supply of petroleum products: Kenya and Tanzania. The vehicle operating costs per cubic meter range from US$ 196.1 to US$205.5 per cubic metre on the Goma-Kisumu route via Eldoret, while they are US$ 243.5 on Goma-Nakuru route. They are between US$ 380.3 and US$ 407.3 for the transportation of fuel from Mombasa. These costs are generally higher compared to those found for Burundi and Rwanda, because the trucks to and from the eastern DRC are routinely overloaded and therefore pay higher illegal amounts (bribes). In addition, the bank's rates of interest are far higher than in other countries and financial costs are therefore also higher.

8.5 Direct and Hidden Costs of Delays

In eastern DRC, the hidden costs are greater than in the other countries along the Northern Corridor. However, the transit time to the position of Goma / Gisenyi is relatively short because there is no parking. All trucks are sent escorted into the city offices of the Customs Office for clearance. This is where the time for clearance varies from one day to several days.

Other delays are often recorded on the route Kabale-Bunagana-Goma, following insecurity and safety problems (the carriers are often held for ransom). In addition, the condition of the road is very bad on the DRC side and the infrastructure only allows the passage of trucks carrying 30 tonnes maximum. It should be noted that the section Kabale - Bunagana is under construction.

Regarding the clearance procedures, 80% of goods from Kenya or Uganda are unloaded and sold in Goma. Another centre for customs clearance in North Kivu is BUTEMBO (Beni). In DRC, the Customs Services (like Burundi) use ASYCUDA software for data capture and output of documents related to the statement. The procedures are almost identical to those in Burundi.

The two tables below summarize the clearing and transit delays from origin in Mombasa to final destination in Goma (via Kigali). The clearing process in Mombasa port, including dwell time and customs procedures takes a minimum of 13.5 days including an average of 9 days for the consignee or his agent to prepare and present the required documents. Once the goods were loaded on trucks and have left Mombasa port, the average transit time to reach Goma is 8.2 days, including time spent at the weighbridges, road blocks, and borders crossing and for offloading at destination. The unreliability of the logistics chain from Mombasa to Goma is very high.

Figure 8-6: Clearing delays for transit containers: Mombasa-Kigali-Goma

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
Dwell time at Mombasa port	1	7%	3	11%	5	10%	4	11%
Time needed for the consignee or his agent to present all the needed documents	9	67%	18	65%	33	66%	24	66%

Causes of delays	Lower End (days)	%	Average (days)	%	Higher End (days)	%	Unreliability (days)	%
KRA average time required to release the goods, once an entry was made by the consignee or his agent in the SIMBA system	3	22%	4	15%	7	14%	4	11%
Clearing delays at destination	0.5	4%	2.5	9%	5	10%	4.5	12%
Total clearing delays	**13.5**	**100%**	**27.5**	**100%**	**50**	**100%**	**36.5**	**100%**

Figure 8-7: Transit delays: Mombasa-Kigali-Goma

Journey Point	Distance (km)	Lower End		Average		Higher End		Unreliability (hours)
		Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	Transit Time (Hours)	% of journey	
Waiting for an Escort @ the port	-	3.0	2%	3.5	2%	4.5	3%	**1,5**
Driving Time: Mombasa Port/CFS to Mariakani weighbridge	30	0.8	1%	1.0	1%	1.3	1%	**0,5**
Weighing (and waiting) at Mariakani Weighbridge	-	1.5	1%	3.0	2%	5.0	3%	**3,5**
Driving time: Mariakani to Athi River weighbridge	370	6.0	5%	7.0	5%	8.0	5%	**2**
Weighing (and waiting) at Athi River Weighbridge	-	1.5	1%	3.0	2%	4.5	3%	**3**
Driving Time: Athi River to West Nairobi (through central Nairobi)	60	2.0	2%	2.5	2%	3.5	2%	**1,5**
Driving Time: West Nairobi to Malaba	470	9.0	7%	10.0	7%	11.0	6%	**2**
Five weighbridges between Nairobi & Malaba	-	6.0	5%	8.0	5%	10.0	6%	**4**
Police Checks along journey (Kenya side)	-	2.5	2%	3.0	2%	3.8	2%	**1,3**
Malaba Border Clearance	-	4.0	3%	6.0	4%	7.5	4%	**3,5**
Driving Time: Malaba to Rwanda border	650	12.0	10%	13.0	9%	15.0	9%	**3**
Weighbridges in Uganda	-	1.0	1%	2.0	1%	3.0	2%	**2**
Police checks along journey (Uganda side)	-	0.5	0%	0.8	1%	1.0	1%	**0,5**
Uganda-Rwanda Border Clearance	-	6.0	5%	7.0	5%	8.0	5%	**2**
Driving Time: Border to Kigali	120	2.5	2%	3.5	2%	4.5	3%	**2**
Weighbridges in Rwanda (none)	-	0	0	0	0	0	0	**0**
Driving time Kigali-Kusumu-Goma	180	3		5		7		**4**
Rwanda-DRC border crossing		6		15		24		**19**
Driver Rest Time / Other Driver time	-	70.0	49%	85.0	45%	95.0	41%	**25**
Time for offloading @ destination	-	24	4%	36	5%	48	6%	**24**
Total Time (hours)	**1880**	**155.3**		**196.8**		**277.5**		**104.3**
Total Time (days)		**6.5**	**0**	**8.2**	**0**	**11.56**		**5**

The evaluation of direct and indirect (hidden) costs of delays is done according to the same methodology than for the other Northern Corridor countries:

- **Transit dwell time:** The average fixed vehicle operating costs for a Mombasa – Kigali-Goma trip are estimated at **US$ 220.3 per day.** Because of the frequent overloading of Congolese trucks, the value of loaded goods per truck is higher than for the other countries and estimated at US$ 65,000. The interest rates are also higher and the opportunity cost of capital is higher too: 45%. The value of one dwell day per truck (once it's loaded and left the port) is equal to **US$300.46/day.**

- **Costs of extra stock due to unreliability:** On the basis of the same assumption of an average total inventory of US$ 0.6 Million including an extra inventory of one month of US$ 0.2 Million, the **opportunity costs of one month extra inventory is therefore US$246.6** per day.

The total of indirect (hidden costs) due to delays on the Mombasa-Kigali section are US$547.03 per day. As for the other countries, the highest part of the delays costs (78.5%) is due to the cost of extra inventory due to the unreliability of the logistics chain.

8.6 Logistic cost structure

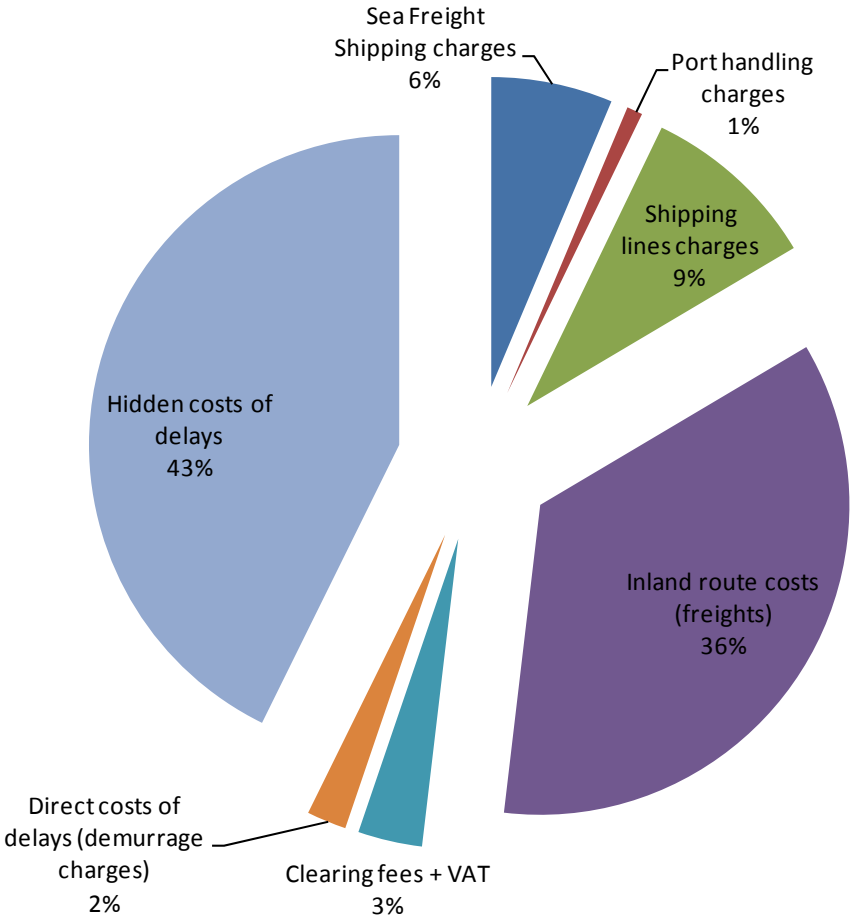
From the table below and the relevant graphics, it appears that the total logistics cost of importing a 20' container through Mombasa to Goma is US$26,841. This logistic cost includes sea freight shipping lines charges (6.3%), shipping lines charges at the port (9.3%), inland road transport (36%), direct cost of delays (2.1%), indirect or hidden costs of delays (42.7%). Like in Kenya and Uganda, Rwanda and Burundi, the most important part of the logistics costs is due to the costs of delays (44.8%)

Figure 8-8: Total Logistics costs in US$ for a 20' container (Mombasa- Kigali-Goma)

Costs type	Amount in US$	% of total logistics costs
*Sea Freight Shipping charges**	*1700*	6.3%
Port handling charges	222	0.8%
Shipping lines charges	2500	9.3%
Inland route costs (freights)	9500	35.4%
Clearing fees + VAT	900	3.4%
Direct costs of delays (demurrage charges)	555.3	2.1%
Hidden costs of delays	11464	42.7%
Total Logistic costs	**26841**	**100.0%**

**Singapore-Mombasa (Products: Batteries)*

Figure 8-9: Total Logistics Costs structure for 20' container, Mombasa-Kigali-Goma



8.7 Analysis of Mombasa to Kisangani Route

This sub-section describes the transit route between Mombasa and Kisangani. Our analysis is based on information provided by OGEFREM/Beni in October 2010, and is complemented with information from analysis done for the Mombasa to Goma route.

State of Road Infrastructure

The route between Mombasa and Kisangani is approximately 2,590 km in length and crosses through Kenya, Uganda and into eastern DRC at the border point at Mpondwe (Uganda)/ Kasindi (DRC). Further to recent rehabilitation and opening of the road between Beni and Kisangani in DRC, the overall road infrastructure is now in good or very good condition along most parts. The state of the road infrastructure is summarised in the figure below.

Figure 8-10: Road Infrastructure, Mombasa - Kisangani

Country	Road Section	Km	State of Infrastructure	Average Speed
Kenya	Mombasa-Nairobi	440	Very good	80 km / h

	Nairobi – Malaba	490	Very good	80 km / h
Uganda	Malaba – Kampala	250	Very good	60 km / h
	Kampala – Mpondwe	480	Very good	60 km / h
DRC	Mpondwe – Beni	80	Very bad	20 km / h
	Beni – Luna – Komanda	125	Good	50 km / h
	Komanda – Mambasa	95	Fair	20 – 40 km / h
	Mombasa – Niania	190	Good	50 – 60 km / h
	Niania – Bafwasende	78	Good	40 – 50 km / h
	Bafwasende – Kisangani	362	Good	50 – 60 km / h
Total		**2,590**		

Source: OGEFREM / Beni

Journey Description

We have assumed that on an import journey, the formalities at the port and up to Kampala are identical across transporters, regardless of their final destination. Beyond Kampala, the transport and logistics costs are different for this route, as the transporter will travel to the border at Mpondwe / Kasindi, rather than travelling south through Rwanda to reach Goma. According to OGEFREM's Beni offices, the journey from Mombasa to Kisangani takes approximately 17 days, including 10 days of moving (driving) time and approximately 7 days of delay at the border between Uganda and DRC. This 7-day delay is caused by delays on the DRC-side of the border, at Kasindi border post. Each segment of the journey is summarised in the table below, starting from departure from Mombasa.

Figure 8-11: Transit Times, Mombasa to Kisangani

Journey Point	Distance (Km)	Transit Time	% of Journey	Comments
Driving time from Mombasa – Malaba border	930 km	32 hours (4 days of driving, 8 hours per day)	7.8%	• Includes police checks and weighbridges in Kenya
Malaba Border Crossing	-	3 hours	0.7%	• 1 hour for Kenya • 2 hours for Uganda
Driving time from Malaba – Mpondwe (Uganda border)	730 km	16 hours (2 days of driving, 8 hours per day)	3.9%	• Includes 4 police checks
Border formalities Mpondwe (Uganda)	-	2 hours	0.5%	• Length of time depends on DRC importer's knowledge and preparation
Border formalities Kasindi (DRC)	-	168 hours (7 days, 24 hours per day)	41.2%	• Duplication in services • Various annoyances / procedures
Driving time from Kasindi – Beni – Kisangani	930 km	24 hours (3 days at 8 hours / day)	5.9%	
Driver rest time along journey	-	163 hours	40.0%	• Excludes sleeping time for Kasindi Border Delays
Total	**2,590 km**	**408 hours (17 days)**	**100%**	

Source: OGEFREM Beni

Three key observations stand out from the transit times described in the figure above:

- Although the road is in better condition in Kenya, the average effective speed of driving is slowest in Kenya (Mombasa – Malaba, 29 km/h), compared to driving in Uganda (Malaba - Mpondwe, 45 km/h) and driving in DRC (Kasindi – Kisangani, 39 km/h). This is due to the high number of weighbridges and police checks in Kenya.
- The border formalities at Kasindi in DRC are very cumbersome, causing an average of 7 days of delay, or 41% of total transit time. This is very costly for transporters who are losing the use of their vehicle for 7 days, and the transport tariff will reflect this delay.
- Driver rest time along the journey is similar to other routes in the Northern Corridor, in the 40%- 45% range.

Logistics Costs

Based on information provided by OGEFREM on the transport tariff for a 40' import container, we estimate the road transport tariff for a 20' import container to be approximately US$5,500 for the 1,700 km journey from Mombasa to Butembo/Beni[36]. From Butembo/Beni, goods are transferred onto different vehicles before continuing their journey to Kisangani. Assuming average cargo for a 20' container is 35 tonnes, the transport tariff is therefore approximately US$.92 cents / tonne-km. Applying this same tariff to vehicles carrying goods from Butembo/Beni to Kisangani (approximately 900km), would result in an additional tariff of approximately $3,000. **We therefore estimate the total tariff for road transport from Mombasa to Kisangani to be $US 8,500.**

Included in this tariff would be the formal and informal costs faced by the transporter. These are indicated in the figure below, as provided by OGEFREM.

Figure 8-12: Transit Costs, Mombasa - Kisangani

Country	Formal Costs	Informal Costs
Kenya	• $2.50 parking @ Malaba-Kenya	• Police checks: $100 • Weighbridges: $300
Uganda	• $20 parking @ Malaba-Uganda • $20 parking @ Mpondwe border	• Police checks: $50
DRC	• $284 - $334 customs costs @ Kasindi (includes: $50 foreign driver visa[37], $30 vehicle entry, $50 - $100 road toll, $100 transport and communication service, $40 parking, $10 return manifest, $4 border crossing fees)	• Police checks:$250 (Kasindi-Butembo)
Total	**$326 - $376**	**$700**

Source: OGEFREM / Beni

Using the same methodology as applied for other routes in the Northern Corridor, the figures below illustrate estimates for the total logistics costs for movement of a 20' container from Mombasa to Kisangani. We have assumed the same value of one day transit dwell

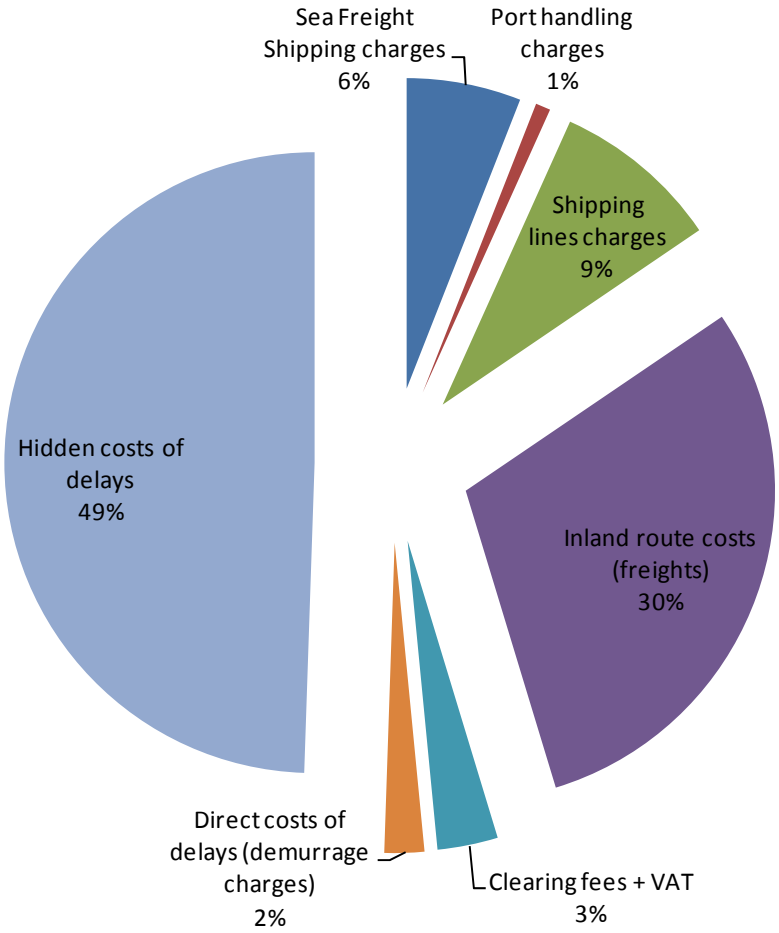
[36] OGEFREM stated transport of a 40' import container from Mombasa – Butembo is $6,500 - $7,000.
[37] Foreign drivers require a visa for travel into DRC. The cost is $50 per driver, and the visa only lasts 7 days, with additional costs for renewal. In contrast, visa costs in Kenya and Uganda are $25 and $50, respectively, but the visas last for 3 months with no renewal fees.

time for the truck ($300.46/day), and the same daily costs of holding extra inventory ($246.6), as for movements between Mombasa and Goma[38].

Figure 8-13: Logistics Costs, 20' Container, Mombasa - Kisangani

Costs type	Amount in US$	% of total logistics costs
Sea Freight Shipping charges	1,700	**6.0%**
Port handling charges	222	**0.8%**
Shipping lines charges	2,500	**8.8%**
Inland route costs (freights)	8,500	**29.8%**
Clearing fees + VAT	900	**3.2%**
Direct costs of delays (demurrage charges)	591	**2.1%**
Hidden costs of delays	14,108	**49.5%**
Total Logistic costs	**28,520**	**100.0%**

Figure 8-14: Logistics Cost Structure, 20' Container, Mombasa - Kisangani



[38] Based on value of loaded goods per truck $65,000, and opportunity cost of capital 45%

9 Northern Corridor Logistic Costs for Southern Sudan

9.1 Background

According to the Mombasa port activity report for 2009, Northern Corridor traffic to and from Southern Sudan is marginal as a share of port throughput, representing only 3.9% of the total Mombasa port transit traffic. Goods destined to Juba in Southern Sudan from Mombasa port travel through Kenya (via Nadapal), and also through Uganda (via Kampala and Nimule or Kaya).

Figure 9-1: Mombasa Port Transit Traffic to Sudan, 2005 – 2009, DWT

	2005	2006	2007	2008	2009
Imports	141,394	130,022	144,781	220,105	155,691
Exports	5,420	7,822	700	3,176	11,662
Total	146,814	137,844	145,481	223,281	167,352

We understand from our interviews that transporters are generally reluctant to travel from Mombasa to South Sudan (in comparison to other countries in the region) for a number of reasons:

- Roads are very poorly maintained (around Lokichogio in Kenya in particular)
- There are many road blocks, and police checks
- Bridges are in very poor condition and get washed out frequently
- Insecurity is much higher for shipments, including robbery (for example, the area between towns of Lokichogio and Nadapal has experienced fighting between communities from North-West Kenya and Southern Sudan)
- Additional logistics costs and taxes are much higher (see below)

Despite several official letters, it was not possible for the consultant to arrange appointments with public or private operators based in Juba. However, most of the transport of goods between Mombasa and Juba is undertaken by Kenyan or Ugandan transport companies, and we did interview a number of companies plying this route. In summary, given the material and organisational difficulties of travelling to Southern Soudan, our approach was to identify and interview a selection of transporters/shippers based in Kenya who operate on the Mombasa- Juba corridor[39].

[39] Five stakeholders provided specific information on South Sudan: Interfreight, Kenfreight, SDV Transami, World Food Programme, and Waki Clearing & Transport.

9.2 Transit problems and delays

In addition to the poor conditions of the roads, and high insecurity, there are delays with customs between Kenya and Southern Sudan. Although Kenya has a customs station at the border, the Sudan government clearing station is at Nadapal, about 30km away from the border. As a result, drivers must go back and forth to clear the goods: from Kenyan customs to Sudanese Customs and then back to the border. This clearing process at the border with Sudan is very slow and takes between 2 days and 4 days on average.

The direct costs to cross the border are also very high. According to interviewed shippers, at the Sudanese border (and state border) they must pay:

- Two national taxes, for the northern and southern governments (between 35%–50%)
- A state tax, based on the taxes already paid at the border. There is a State Act which states the amount to be collected before a truck is allowed to proceed to a specific state, but apparently this is not used by most officials. They sometimes give a figure based on the quantity of items being imported, and other times, they use a percentage varying from 20% - 40% of the CIF value of the goods.
- Applicable duties / taxes depending on the product being imported
- Additional insurance which is required to transport goods into Sudan
- Border clearing costs (before any taxes or duties) of approximately US$150 at the border, and another US$230 to clear the goods again in Juba.

The following figure shows that the average transit time from Mombasa to Juba is 38 days (one way), including 11 days for the road portion of the trip and 2 days for offloading at final destination. These delays vary from a minimum of 24 days and a maximum of 70 days, with a high unreliability of 46 days.

It is worth highlighting that transporters are given only 30 days by KRA to transit goods from Mombasa to the border post of Sudan, before they must start paying a penalty on the transit bond amount to KRA. The penalty is 2% of the bond amount per month. It is rare to get an extension of this 30 day period from KRA, and with the delays transporting goods to Sudan it can mean this limit if often not enough time to get from Mombasa to clearance at the Sudanese border.

Figure 9-2: Transit Time (days): Mombasa – Juba, one way

Transit Time (days)	Lower End	Average	Higher End	Unreliability (days)
	Transit Time (Days)	Transit Time (Days)	Transit Time (Days)	
Dwell time at Mombasa port	1	3	5	**4**
Time needed for the consignee or his agent to present all the needed documents	9	18	33	**24**

Transit Time (days)	Lower End Transit Time (Days)	Average Transit Time (Days)	Higher End Transit Time (Days)	Unreliability (days)
KRA average time required to release the goods, once an entry was made by the consignee or his agent in the SIMBA system,	3	4	7	**4**
Time from Origin -Destination (days)	10	11	22	**12**
Time @ destination to unload/clear customs	1	2	3	**2**
Total transit time (one way)	**24**	**38**	**70**	**46**

9.3 Vehicle operating costs

The information on vehicle operating costs collected from the main transporters/shippers operating on the Mombasa-Juba corridor are aggregated in the following table. The percentage of the fixed costs is 34%, lower than for other destinations because of the high cost of fuel and lubricants (1,950 litres costing US$2,600 for a one way trip). The total VOCs per tonne-km is US$0.149, about 20% higher than for other destinations in the Northern Corridor.

Figure 9-3: Vehicle Operating Costs: Mombasa-Juba

	US$
Transport price (tariff)	**9800**
Salaries and drivers allowance	550
Overhead	2 500
Total Fixed Costs (TFC)	**3 050**
Vehicle Maintenance	1 000
Cost of tires	1 000
Fuel & Lubricants	2 600
Mileage Driver	1000
Bribes Road	200
Total Variable Costs (TVC)	**5 800**
Total VOCS	**8 850**
TFC in % total VOCS	**34%**
Profit margin	**10.7%**
VOCS / tonne-km (1)	**0.149**

(1) for the journey Mombasa- Juba one way (1,700KM) and an average load of 35T

9.4 Costs of delays and logistic costs structure

The evaluation of direct and indirect (hidden) costs of delays is done according to the same methodology as for the other Northern Corridor countries. The three following tables and graphic indicate the direct and indirect costs of delays, the economic value of trucks dwell time and opportunity cost of extra inventories, and the total logistics costs in US$ for a 20' container.

Because of the high unreliability of the transport chain to Juba, the indirect (hidden) costs represent 43.3% of the total logistic costs.

Figure 9-4: Total Costs of delays, Mombasa-Juba

Direct costs due to delay	**US$**	**%**
Mombasa port demurrage tariff per day	25	
Average number of days of delay exceeding the free days (5 days for domestic containers and 11 days for transit containers)	14	
Cost of demurrage at the port	350	3.0%
Demurrage container tariff per day	4	
Number of days of delay	38	
Container demurrage	152	1.3%
Total direct costs	***502***	4.3%
Indirect (hidden) costs	US$	%
Trucks transit dwell time	277	2.4%
Opportunity cost of extra inventory due to unreliability	11342	97.6%
Total hidden costs	**11620**	**100.0%**

Figure 9-5: Indirect (Hidden) costs of delays (in US$)- Mombasa –Juba

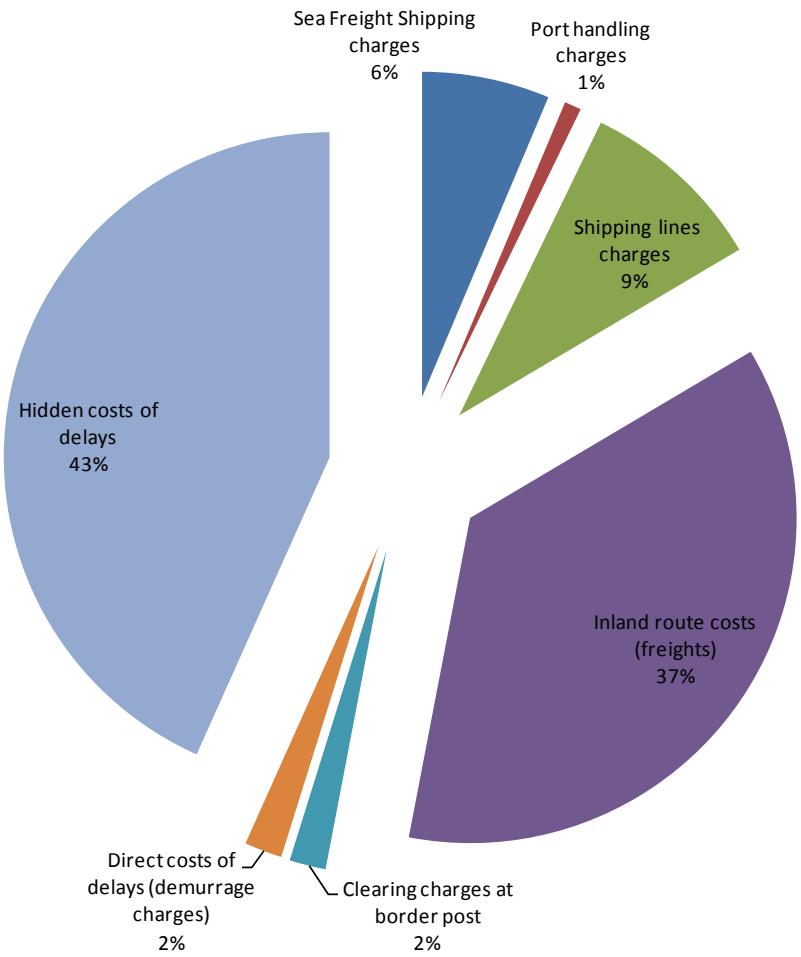
Cost of dwell transit time per day	
Value of transported goods per truck (V)	65000
Capital opportunity cost (C)	45%
Fixed vehicle operating costs per day (T)	220.32
Z = {V*(C/365)} + T	**234.62**
Cost of unreliability per day	
3 months inventory value	600000
1 month extra stock	200000
Capital opportunity cost	45%
One month extra stock opportunity cost	90000
Extra stock opportunity cost per day	**246.58**

Figure 9-6: Total Logistics Costs, US$, for 20' container, Mombasa-Kampala-Juba

Costs type	Amount in US$	% of total logistics costs
Sea Freight Shipping charges*	1700	6.3%
Port handling charges	222	0.8%
Shipping lines charges	2500	9.3%
Inland route costs (freights)	9800	36.5%
Clearing charges at border post	485	1.8%
Direct costs of delays (demurrage charges)	502	1.9%
Hidden costs of delays	*11620*	43.3%
Total Logistic costs	**26,829**	**100.0%**

**Singapore-Mombasa (Products: Batteries))*

Figure 9-7: Breakdown of Logistics Costs for 20' container, Mombasa-Kampala-Juba



9.5 Synthesis of Northern Corridor Logistics Costs Structure

The vehicles operating costs per Tonne-km and the logistics costs structure for each of the five countries (plus Southern Sudan) are summarized in the table below, as well as the mean weighted costs by the distance from Mombasa to each of the destinations.

With respect to logistic costs alone, direct and indirect delay costs account for the largest proportion of this component (54%), with indirect delays alone account for 53% of all the logistical costs. *Source: Specific advocacy and policy recommendations for the Kenya Shippers Council (KSC). Megadev (K) Limited, Nairobi, Kenya - November, 2008*

The average percentage of variable costs is 64% of total vehicles operating costs. The conclusion that the vehicles fixed operating costs are low (one third of the total VOCs) is in line with the literature and is as expected, given the low salaries and the advanced age of vehicles.

The average operating costs per tonne-km are US$.112, with a highest level of US$.149 for the Mombasa-Juba route. This is relatively high comparative to other corridors internationally and is one of the main reasons for high transport costs on the Northern Corridor.

The most important component of the total logistics costs is the direct and indirect delay costs (43%), with hidden costs alone accounting for 41% due to the cargo's dwell time and the opportunity costs of extra inventory due to the unreliability of the transport chain. This conclusion is also in line with the literature and other studies on other corridors.

The second highest component is the road freight transport (34%), due the high vehicle operating costs and the high cost of fuel in particular.

The shipping lines charges at Mombasa port (11.1%) are quite high and many of them are not justified.

The sea freight shipping charges, based on Singapore-Mombasa route and for a normal industrial product (batteries) represent only 7.7% of total logistics costs and reflect the common idea that inland costs on the Northern Corridor are much higher than sea freight costs.

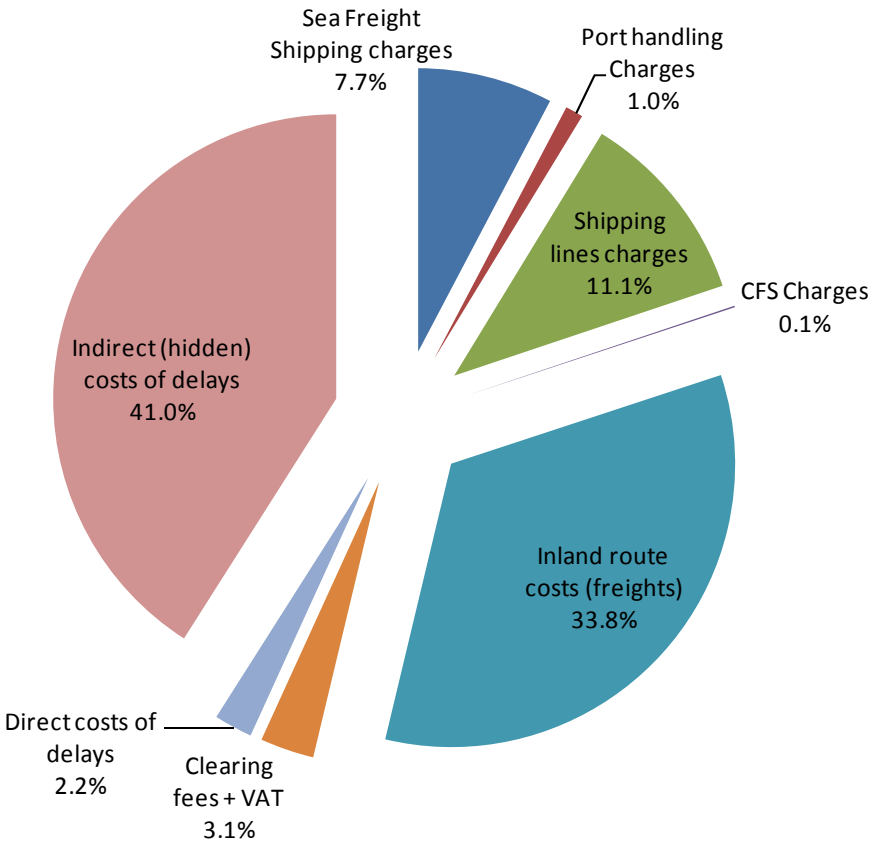
Overall, the total logistic costs for a 20' container vary from a minimum of US$9,844 for a domestic transport Mombasa-Nairobi to a maximum of US$26,829 for a Mombasa-Juba transport. Those amounts are very high and represent 5 to 15 times the sea freight charges from Singapore to Mombasa!

Figure 9-8: Northern Corridor: Total logistic costs structure (US$)

Costs	Mombasa-Nairobi	Mombasa-Kampala	Mombasa-Kigali	Mombasa-Bujumbura	Mombasa-Goma	Mombasa-Juba	Distance Weighted Mean	% of total logistic costs
Distance (km)	430	1170	1700	2000	1880	1700	-	-
% of Variables costs	58%	55%	65%	66%	68%	66%	**64%**	-
Total VOC per Ton-km	0.129	0.145	0.094	0.090	0.094	0.149	**0.112**	-
Sea Freight Shipping charges*	1700	1700	1700	1700	1700	1700	**1700**	7.7%
Port handling Charges	240	222	222	222	222	222	**223**	1.0%
Shipping lines charges	1500	2500	2500	2500	2500	2500	**2452**	11.1%
CFSs Charges	380	0	0	0	0	0	**18**	0.1%
Inland route costs (freights)	1300	3400	6500	8000	9500	9800	**7444**	33.8%
Clearing fees + VAT	300	650	650	750	900	485	**677**	3.1%
Direct costs of delays	345	334	445	545	555	502	**482**	2.2%
Indirect (hidden) costs of delays	4079	6451	7635	8289	11464	11620	**9028**	41.0%
Total Logistic costs	**9844**	15257	19653	22006	26841	26829	**22024**	100.0%

**Singapore-Mombasa (Products: Batteries)*

Figure 9-9: Northern Corridor Total logistic costs structure



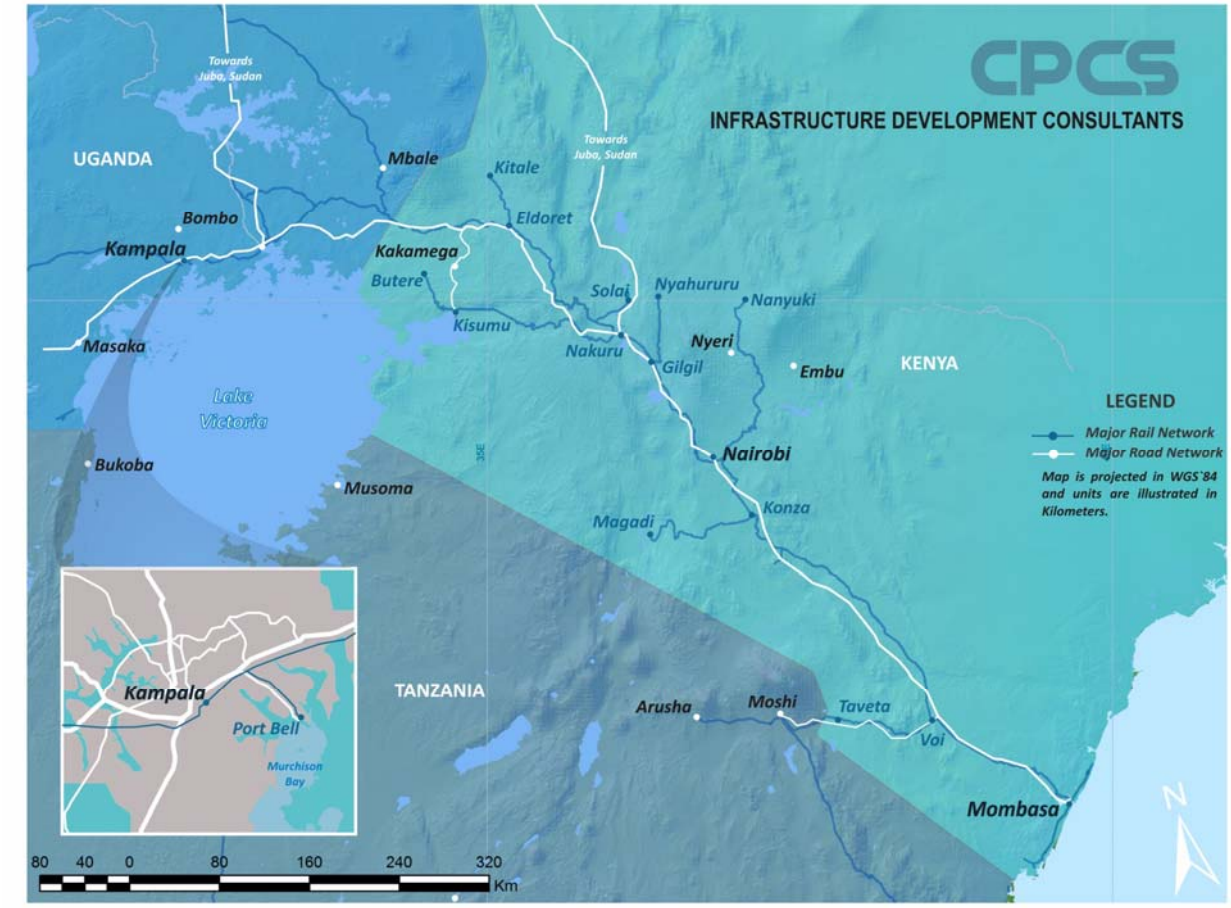
10 Railway Transport Costs and Performance

10.1 Background

Railway transport is the second most important mode of freight transport along the Northern Corridor, after road transport. Rail is particularly suitable for transporting bulky and heavy commodities over long distances. The metre-gauge railway extends from the Port of Mombasa in Kenya to Kampala, Uganda, with a number of branch lines.

The rail (and road) network is illustrated in the figure below.

Figure 10-1: Rail Network, Northern Corridor



In Kenya, the railway network comprises total track of 2,765 km owned by Kenya Railways Corporation (KRC). The mainline runs across the southern part of the country from the port of Mombasa to Malaba at the border with Uganda. The network has branch lines connecting to Kisumu (on Lake Victoria), Nanyuki, Nyahururu, Butere, Solai, Kitale and Taveta. It also has direct links to the ICDs. In addition to the track, railway assets in Kenya include land, infrastructure, rolling stock, wagon ferries and maintenance equipment and a large

workshop. A workshop in Nairobi is used by for rehabilitation and repair of locomotives and rolling stock.

The Uganda Railways Corporation (URC) is responsible for the rail system in Uganda totalling 1,300 km, but only a small portion of this is operational, from the Malaba border to Kampala, and from Kampala to Port Bell. The railway network stretches from Kampala to Malaba in the East, Kampala to Kasese in the West and Tororo to Pakwach in the North of the Country. There is also the Busoga loopline stretching from Jinja to Busembatia in the East. The Malaba-Kampala main line provides connections to the Ports of Mombasa in Kenya via Malaba by rail and by both rail and marine through Port Bell (Uganda) and Kisumu in Kenya and Dar es Ssalaam in Tanzania through Mwanza. The rail service runs block trains carrying imports and exports. The Kampala-Malaba line is aged but with continuous repairs and upgrading of some sections, the line is still in an operational condition.

There are five rail ferry vessels owned by the railways which are supposed to be operational on Lake Victoria: KRC owns one vessel (Uhuru), which is concessioned to RVR and was non-operational until very recently (September 2010); URC owns three vessels which are also concessioned to RVR, but all are non-operational (one is completely out of service and two are currently under contract for refurbishment). URC is also in the process of procuring design for a new ferry, the MV Kabalega II. Tanzania owns one vessel which is currently operational.

10.2 Institutional Framework

On November 1, 2006 the Kenyan Government /KRC and the Ugandan Government / URC signed two separate concession agreements for management and operations of the railway services with Rift Valley Railways (RVR). Under these agreements, freight services were conceded for a period of 25 years while the passenger services were conceded for 5 years. In Kenya, freight services are offered on almost all routes for both domestic and regional markets while passenger services are provided three times a week in the up and down direction between Nairobi and Mombasa and between Nairobi and Kisumu and once a week between Nairobi and Nanyuki.

The performance of the railway since the concession agreement was awarded (and indeed beforehand) has been declining steadily. Contract re-negotiations which began in August 2008 between GOK/KRC and GOU with a view to amending the concession agreements were completed in September 2010. Further to the re-negotiation, the shareholding of RVR is now:

- Ambience Railway Company (Citadel Capital, Egypt), 35%
- Ambience Ventures Ltd (Citadel Capital, Egypt), 16%
- Safari Rail (Transcentury, Kenya), 34%
- Bomi Holdings Lts (Uganda), 15%

Railway operations for both passengers and freight have in the past been affected by a number of accidents, attributed to infrastructure and equipment defects, poor loading, poor marshalling of trains and human error, although KRC had well developed guidelines, standards, and operational procedures that were expected to be adhered to in order to avoid accidents. Moreover, railway transport has no independent Safety Regulator. Under the concession agreement with RVR, however, the concessionaire is expected to submit a safety management plan, in accordance with good industry practice and laws of Kenya to KRC or the Railway Safety Regulator (when appointed), for approval. KRC or the Railway Safety Regulator will be expected to conduct at least one annual audit to ensure compliance.

Although railway transport services compete with road services, rail operators continue to be charged the Road Maintenance Fuel Levy along with other fuel consumers, thus subsidizing their competitor. The unique position where rail operators maintain their own infrastructure whereas road transport operators do not needs to be addressed. Given the large amount of fuel consumed by the railway, it is necessary to harmonize fiscal policies to avoid subsidization of one mode of transport by another in order to encourage fair competition.

One option to address this issue of cross-subsidization would be for the revenues from the levy on fuel to be placed in a multi-sector "Infrastructure Fund", rather than a Road Maintenance Levy Fund. The proceeds from the Infrastructure Fund could be allocated to roads, railways and other infrastructure sectors, not just roads maintenance and rehabilitation.[40]

10.3 Infrastructure Network

The railway system consists of a single meter gauge track connection Mombasa Port with Kampala. There are operating branch lines connecting the mainline to: Kisumu, Nanyuki, Nyahururu, Butere, Solai, Kitale and Taveta (in Kenya); and Kampala to Port Bell (in Uganda). The railways links to the rail ferries at Kisumu and Port Bell. The total railway network currently consists of 2,778 km comprising 1,083 km of mainline, 346 km of principle lines, 490 km of minor and branch lines and 859 km of private lines and sidings. Over the last ten years, the railway has not been expanded, with the exception of 38 km of private line.

The network is not well integrated with major urban centres within Kenya or other neighbouring countries. The current railway track is old and unreliable, with most railway infrastructure over 100 years old. The track has sharp curves and high gradient in certain sections that limit train speeds and haulage. The telecommunications and signalling systems used for train operations are also old and unreliable. It is expected that most locomotives, rolling stock and equipment will expire in the next 10 to 20 years. The current

[40] Another approach, being introduced in Zambia, is for fuel taxes paid by the railway to be periodicially rebated, subject to a proviso that they be earmarked for infrastructure improvements within a limited time period.

infrastructure in its present state cannot be expected to fully provide effective services to industry and people and to contribute to national and regional economic development.

For many years, KRC had not undertaken any major development either through rehabilitation and upgrading of its infrastructure, construction of new lines or modernization. Indeed, it had accumulated a substantial backlog of investments in both rehabilitation and upgrading of its infrastructure. This informs the rationale behind the concessioning of KRC operations to RVR with a provision of investment by the concessionaire of at least US$5 million per financial year in providing services.

The track, besides being operated as a single line, has not been extended despite its limited coverage. Considering substantial changes that have occurred in land use and in the location of economic activities since the construction of various lines, it is necessary to review the origin-destination points system-wide to realign them to fit the current socio-economic and commercial needs, taking into account developments in the roads sector. In this regard, it will be of critical importance to ensure efficient mutual complementarities with all existing modes. The development of infrastructure will inevitably require the participation of the private sector.

Currently, RVR and Magadi Railways (MR) offer rail transport operations in Kenya and Uganda, with MR operating a short line between Konza and Magadi (146 km) on behalf of the Magadi Soda Company Ltd, and Rift Valley Railways (RVR) operating the rest under concession with KRC and URC (2,735 km in Kenya and 306 km in Uganda). Given that the Magadi Soda trackage is not part of the concession, RVR must continue to honour a contract between KRC and Magadi Soda whereby the latter operates its trains to and from Mombasa by running over KRC's track between Konza and Mombasa, a distance of 457 kilometres.

RVR took over the operations of the network with various ailments ranging from missing or worn-out components and obsolete parts that to date have only been partially corrected. In order to enhance the safety and efficiency of the network, issues are being systematically sorted out through normal maintenance programmes and maintenance projects using outsourced labour. The poor condition of the track has lead to imposition of temporary speed restrictions on many sections across the track. Consequently, long transit times have been witnessed in train operations.

10.4 Railway freight performance per dominant commodities

Freight services constitute about 80% of railway operations. About 75 % of the freight traffic transported from or to the Port of Mombasa is destined to (or originates in) the local (Kenyan) market, while the rest is transit traffic to/from Uganda and other countries in the region (by road). The railway market share of container traffic at the port of Mombasa, which was as high as 12% a few years ago, fell below 5% in the fall of 2009.

Freight performance has been affected in the recent past by the global economic crisis. This has resulted in a drop in the overall tonnage being offered for transport, as well as deteriorating infrastructure quality. RVR operations have also suffered from the bad publicity circulating in the media regarding uncertainty of the concession. This has greatly eroded customer confidence and resulted in poor offerings for cargo to RVR.

In addition, RVR operations have also been affected by political related violence and sabotage of the track following the elections in January 2008. A similar occurrence took place in April 2009. These two incidents resulted in a reduction of freight and passenger services. A claim for compensation for the loss of business opportunity and actual damage has been submitted to KRC.

Finally, RVR traffic was negatively affected by the removal of free port storage last year. Prior to October 2009, storage of cargo at the port was free if the goods were travelling by rail; this free storage policy was adopted by KPA to increase the attractiveness of the rail option and reduce congestion on the road. However, in October 2009, rail users became subject to the same KPA storage charges and timeframes as road users (5 days free storage for domestic goods, 11 days free storage for transit goods). The change as made because there was starting to be a large build-up of rail cargo at the port. The re-instatement of KPA storage charges for rail resulted in a shift of some railway traffic to the road mode.

The Table below shows the performance of KRC and RVR from the years from 2005/2006 to 2008/2009.

Figure 10-2: RVR Traffic performance and Revenue

Years	Tonnages	Tonne - Kms	Revenues US$	Revenue per Tonne, US$	Revenue per Tonne-Km, US$
2005/2006	1 958 138	1 353 183 000	62 203 600	31,767	0,046
2006/2007	1 746 788	1 235 853 878	54 740 418	31,338	0,044
2007/2008	1 765 700	1 209 000 000	51 861 752	29,372	0,043
2008/2009	1 562 194	1 086 884 917	52 707 763	33,740	0,048

Source: RVR

KRC traffic levels were in the 3.5 million tonnes per year range in the early 1990s, but reduced to 1.6 million tonnes per year level by the mid 1990s and then grew back to some 2.3 million tonnes in the year 2000 only to resume their downward trend.

Since the beginning of the railway concession by RVR in November 2006, traffic fell to 1.65 million tonnes in 2008 as shown in the following table.

Figure 10-3: RVR Traffic per dominant commodities, Tonnes

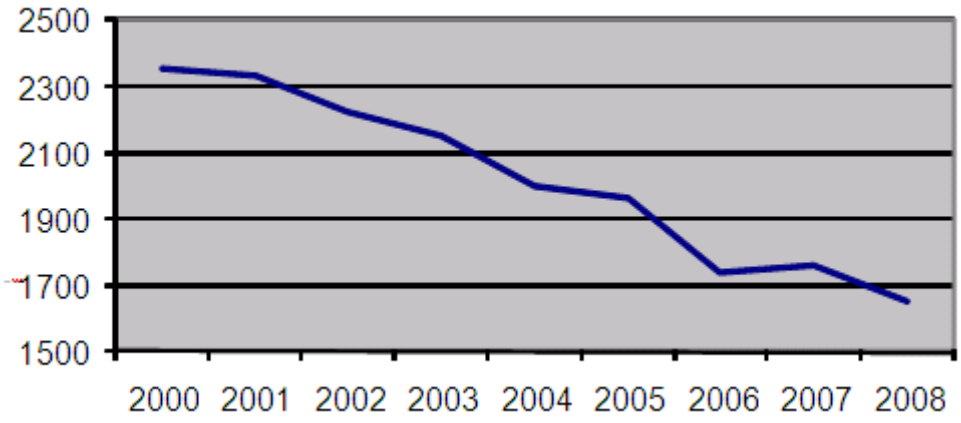
	2003/4	2008
Containers	483,364	505,432
Soda ash	361,354	433,655
Wheat, Grains & Maize	351,702	192,215
Petroleum products	202,339	116,307
Foodstuffs	193,337	123,596
Minerals & fertilizers	152,194	111,392
Vegetable oil	112,936	71,074
Cement	61,910	58,256
Iron & steel	30,535	7,027
Others	168,967	32,824
Total	**2,118,638**	**1,651,778**

Source: KRC & RVR

Although the freight volumes have reduced from the year 2003/04 to 2008, there have been few changes to the mix of commodities; the key change is that RVR is now focusing on large customers with basically single commodity movements and has conceded to trucks and the highway mode the market of individual small shippers which require delivery to off track facilities.

The following figure shows the decline of the railway traffic from 2000 to 2008.

Figure 10-4: KRC & RVR Freight Volumes, 2000 – 2008, 000s tonnes



Source: KRC & RVR

We have detailed the RVR traffic according to key commodities direction (up from Mombasa and down towards Mombasa) and traffic categories as shown in the following table.

Figure 10-5: RVR Traffic, Tonnes, 2008

		Domestic	Imports	Exports	Transit	Total
UP	Soda ash	7,657				7,657
	Cement	16,556		31,922	8,453	56,931
	Containers		260,716		122,295	383,011
	Wheat-Maize		74,821		125,981	200,802
	Pet. Products		77,848		32,252	110,100
	Oil vegetable		32,381		38,692	71,073
	Iron & Steel				6,226	6,226
	Sugar				23,808	23,808
	Salt				40,550	40,550
	Others	4,024	29,838	11,898	34,413	80,173
	Sub-Total	28,237	475,604	43,820	432,670	980,331
DOWN	Soda ash			425,767		425,767
	Canned fruits			20,595		20,595
	Coffee,tea, cocoa			11,597	26,628	38,225
	Sugar	12,348				12,348
	Bran, Sharpes	5,710				5,710
	Containers	10,106		106,403	5,686	122,195
	Timber,fencing		1,195		4,872	6,067
	Flouspar			17,254		17,254
	Others	6,148	358	14,370	2,410	23,286
	Sub-Total	34,312	1,553	595,986	39,596	671,447
TOTAL		62,549	477,157	639,806	472,266	1,651,778

Source : RVR

Soda ash produced by Magadi is the main commodity handled over RVR trackage although it is carried in Magadi trains which are also operated by Magadi under a running rights agreement.

Containers are however the largest type of traffic handled by RVR and represent some 40% of its handlings excluding soda ash. Wheat and maize make up the next largest commodity for RVR with bulk liquids completing its list of key commodities.

10.4.1 Breakdown of traffic by type

The RVR traffic classified as domestic movements (from one point in Kenya to another point in Kenya) represented less than 4% of handlings in 2008. This is the result of the fact that domestic traffic generally moves over shorter distances and requires pick-up and delivery to facilities which are located off track, a market for which RVR has difficulty competing with trucks. Cement and sugar are the two main commodities in this category of traffic.

Import traffic of some 477,000 tonnes represented 29% of RVR's handlings in 2008. It originates primarily at the port of Mombasa and is carried in the Up direction towards Nairobi and Uganda while a very small portion, some 1,500 tonnes, is in the Down direction

from Uganda and made up of timber and fencing materials. Four key commodities made up RVR's Import traffic: Containers, Wheat/Maize, petroleum products and Vegetable oil.

RVR's export traffic of some 640,000 tonnes represented 39% of its handlings in 2008 and moved primarily in the Down direction with the exception of some 44,000 tonnes which were exported to Uganda and were comprised mainly of cement.

As mentioned earlier, soda ash with some 425,000 tonnes of traffic in 2008 was the main commodity carried over RVR lines by Magadi. There were also some 106,000 tonnes of containerized traffic, 21,000 tonnes of canned fruits and 12,000 tonnes of coffee and tea carried by RVR to the port of Mombasa for export.

In 2008, some 472,000 tonnes or 29% of RVR's traffic was Transit traffic which moved between the port of Mombasa and Uganda. It was made up primarily of Container traffic, Wheat/maize, Petroleum products, Vegetable oil, Sugar and Salt.

10.5 Railway transit times and delays

RVR does not identify in a systematic manner the various components of their transit times and is not to our knowledge monitoring the transit times of individual movements from origin to destination; they have not yet totally focused their vision of the railway to that of the customer's perspective. RVR is still very internally focused, trying to run trains and move traffic in a very difficult environment where they are experiencing on average one derailment per day, locomotive failures, in addition to shortages of power and railcars. RVR is, however, monitoring performance measures that help them manage the operations such as locomotive availability, railcar turnaround times, etc.

We have obtained average transit times for key origin-destination movements based on the opinions of RVR managers and actual customers, but have not been in a position to substantiate them with hard data and statistics. Furthermore, RVR performance is very cyclical and dependant on the levels of business at the port, the availability of wagons which is a function of refurbishment programs and the availability of spare parts, etc.

While the reported transit times have a broad distribution, the best estimates of transit times for the two key origin-destination movements are generally from 2 to 3 days from Mombasa to Nairobi and between 8 to 14 days from Mombasa to Kampala; these transit times represent an improvement from the worst historical performances. These times were as high as one week to Nairobi and as much as 21 to 30 days for a return trip to Kampala.

According to one large clearing and forwarding agency who is a major user of the rail, the transit times for the rail appear more optimistic, as follows:

- Average time from Mombasa to Nairobi once cargo loaded and moving, 1 – 2 days
- Average time from Mombasa to Malaba once cargo loaded and moving, 3 – 5 days
- Average time from Mombasa to Kampala once cargo loaded and moving, 4 – 7 days

The RVR target for Mombasa-Nairobi is 24 hours and for Mombasa-Kampala is 5 days. Customers have mentioned that they would be happy with a consistent and reliable 48 hour service between Mombasa and Nairobi and a 7 day service from Mombasa to Kampala. The real issue from a customer perspective is unreliability of service.

With its current operation, RVR loads and departs domestic import containers at the port to ICDs as railcars become available. Since the customs clearance process takes place at the ICDs, there are no delays specific to the RVR operations at the port, other than when railcars are not available.

The current RVR practice to move transit containers to Uganda is to ensure the goods have obtained the required clearances before loading onto the railcars; they do not incur any delays from outside forces, other than those inherent to the RVR operation until they reach the border at Malaba. The current time required to cross the border is estimated at 3 hours, further to the recent improvements to the KRA systems and procedures and cooperation with URA.

Therefore, by monitoring the delays occurring at the Port, the ICDs and CFSs for railway traffic, we are capturing all the delays other than those inherent in the RVR operation. Given the actual transit time performance of RVR and those that customers would consider acceptable, we have estimated that on average, there is **a one to two days delay inherent to the RVR operation between Mombasa and Nairobi and a 4 to 10 day delay between Mombasa and Kampala.**

10.6 Railway operating costs

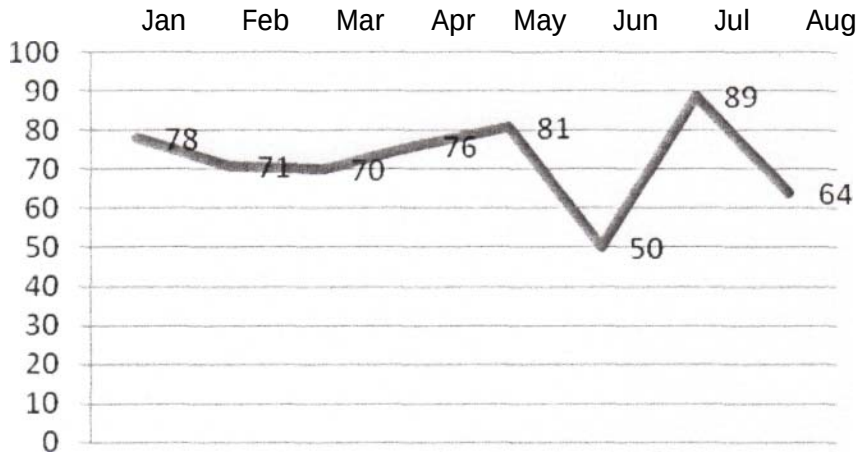
RVR inherited 39 mainline (Class 93/94) locomotives from KRC. These locomotives have been put to service to run trains across the network. Daily train targets have been 6 trains on the Mombasa - Nairobi section between July 2008 and January 2009. This was later revised upwards to 8 trains per day.

RVR projections for the current financial year are based on nine trains per day on the "A" Section between Mombasa and Nairobi. Out of these, four trains are planned to transport containers. In order to meet this target RVR locomotives have been supplemented by locomotives leased from the Magadi Soda Company (MSC).

RVR operations are handicapped by the poor condition of locomotives. RVR inherited a large number of unserviceable wagons at the time of commencement of the Concession. KRC has in the past two years scrapped a large number of such wagons. Out of the 39 mainline locomotives inherited from KRC only 25 are currently in service with varying degrees of suspect reliability due to a backlog of deferred maintenance. The backlog of deferred maintenance has lead to a high rate of locomotive failures of trains in transit. For example between January 2009 and August 2009, RVR experienced a total of 579 mainline

locomotive failures. Of these, 37.5% of the failures arose from engine shut downs and this has continued to be main source of failures, while wheel slips and poor pulling power each contributed to 14.1% of the total mainline locomotive failures. Poor brakes caused 15.6% of failures and mechanical causes were the cause of 18.8%. The figure below shows the RVR locomotive failures between January and August 2009.

Figure 10-6: RVR Locomotive failures



It is not surprising given the facts above that RVR has been making significant losses since the beginning of the concession in November 2006. There are many causes to this and we will not speculate, given the confidential nature of the concession and the recent renegotiations. We however need to highlight what we believe to be the root causes of this situation, in order to explain the rationale supporting our methodology for estimating the achievable operating costs of an efficient railway between Mombasa and Kampala.

There are two key ingredients to a successful railway operation: good track and reliable locomotives. If one cannot rely on a good infrastructure to operate its trains and on having reliable locomotives available, it will quickly become obvious to customers that they cannot rely on the rail and they will look for alternatives. Railway volumes will dwindle and given its very high fixed cost structure and need to generate sufficient volumes to cover them and generate a profit, the railway operations will lose money and enter into a spiral of worsening results.

The tariff for transporting goods by rail depends on the distance transported, type of product, and on the size/weight of the container being transported. From Mombasa to Kampala the approximate tariff by rail is US$ 1,408 (20' container) and US$ 2,552 (40' container); this will vary considerably according the shipment in question.

RVR has an internal costing program to estimate the cost of specific moves and to determine its tariff rates. **They have not shared this information with us.** We have therefore assumed that they are establishing their rate levels by including a profit margin that we estimate from our experience would be in the order of 20%. In estimating the costs,

they are most likely assuming favorable ratios of backhaul traffic where applicable and aggressive wagon cycles in order to be in a position to offer customers rates that are competitive with those of trucks.

We do not believe that the current costs of RVR which are in the order of 20% higher than their tariff revenues can be used to compare with the costs of the other modes of transportation along the northern corridor. It is our opinion that we need to estimate the railway mode's achievable operating costs which could then be used to compare with the pipeline and truck modes which are currently operating more closely to their potential achievable costs than RVR is.

Given their past and recent financial performance, their fully allocated cost estimates are most likely underestimated by a factor of some 30% to 40% since they are not generating the profit margin they have likely built in their tariffs and since their annual losses represent a further 20% order of magnitude of their turnover.

Given the average RVR revenue for the Kenya portion of their operations was in the range of 6 KSh/TKm for 2008 across all commodities and origin – destination pairs, an efficient railway operator should normally perform at a 0.75 to 0.85 operating ratio which would indicate **operating costs of some 4.5 to 5.0 KSh/TKm.**

11 Pipeline Transport Costs and Performance

11.1 Background

The major concern for the region and especially the land-locked countries has been security of supply of petroleum products, fuel prices and capacity of product transportation/distribution infrastructure. East and Central African countries are net importers of petroleum products i.e. refined petroleum products and crude oil processed at the Kenya Petroleum Refinery Ltd.

The transportation/distribution of petroleum products in the region is by a network of the pipeline, railway, roads and (previously) lake transport systems. The major fuel transportation routes are[41]:

- **Northern Corridor** – Mombasa - Nairobi through Eldoret/Kisumu to Uganda, Rwanda, Eastern DRC, Burundi , Northern Tanzania and Southern Sudan
- **Central Corridor** –Dar es Salaam via Dodoma to the four neighbouring countries of Burundi, Rwanda, Uganda and the DRC

The mode of transport combinations within these routes are shown in the following table.

Figure 11-1: Transportation / distribution of petroleum products

Country/ Destination	BULK TRANSPORTATION	RETAIL DISTRIBUTION
Kenya	**Through the Port of Mombasa** Pipeline, Rail, Road	Road
Tanzania	**Through the Port of Dar es salaam** Road and Rail **Through the Port of Mombasa to Northern Tanzania** Pipeline – Kisumu - Lake/Road Pipeline – Eldoret – Road	Road

[41] The current petroleum products supply logistics chain may well change as a result of ng the discovery of oil in Uganda and development of plans by the Government of Uganda to construct an inland refinery. Indications are that Uganda wouldbe able to refine about 100,000 barrels of oil per day and the refinery output will meet the Uganda market demand, with surplus for export to the other countries in the region.

Country/ Destination	BULK TRANSPORTATION	RETAIL DISTRIBUTION
Uganda, Eastern DRC, Burundi, Rwanda	**Through the Port of Mombasa** Pipeline – Kisumu - Road Pipeline – Eldoret – Road/Rail Rail and Road from Mombasa **Through the Port of Dar es salaam** Rail and Road Rail/Road and Lake Victoria Rail/Road through Lake Tanganyika	Road

11.2 KPC network and throughput performance

The existing pipeline system transports over 90% of the products consumed in Kenya and about 80% of products consumed by the neighbouring countries of Uganda, Rwanda, Burundi, Northern Tanzania, Eastern DRC and Southern Sudan. The current pipeline system has experienced capacity constraints, which has led to oil marketers uplifting their products at Mombasa/Nairobi using the more costly road and rail options.

The current pipeline system capacity is as shown in the table below.

Figure 11-2: Existing Pipeline Capacity

	Distance km	Pipe diameter (inches)	No. of Pumping Stations	Installed Maximum Flow Rate (m^3/hr)
Line-1 - Mombasa - Nairobi	450	14	8	880*
Line 2/3- Nairobi to Eldoret: Sinendet to Kisumu	446	8/6	4	220
Spur line from KOSF SOT	2.8	12		450

Source: KPC

** This is the target flow rate following installation of new pump stations along the Mombasa – Nairobi Pipeline System. KPC has so far been able to achieve a stable flow rate of 810M^3/hr following parallel running of the mainline pumps.*

The following table summarizes the achieved throughputs for the financial year 2008/2009.

Figure 11-3: KPC Throughput for Financial 2008/2009

Products	Volumes ENT M^3
Automotive Gas Oil (Diesel)-AGO	1,818,003
Jet A-I (Aviation Turbine fuel)- JET	909,324
Illuminating Kerosene-KERO	328,166
Motor Gasoline (Premium –Grade) - MSP	933,242
Motor Gasoline (Regular Grade)-MSR	59,097
TOTALS	4,047,832

11.3 Transit time for pipeline mode

We interviewed representatives from oil companies that use the KPC services and have prepared a synopsis of the KPC operations as viewed by their customers.

The ships carrying crude or refined oil products are subject to the same waiting times before docking as the container or conventional cargo ships that we described earlier and are estimated to be approximately 2-3 days in 2008 and 2009.

We have been told that there is a bottleneck at the Kipevu oil terminal as far as its capacity to unload ships and store the oil products and that on average, the industry representatives we interviewed indicated that there is somewhere between 20 to 30 days of inventory of oil products in Mombasa.

Once an order for the shipment of oil products is received in the system, the current transit time from Mombasa to Nairobi in the pipeline is approximately 3.5 days at the current KPC pumping rates which are reported to be in the range of 550 to 600 cubic meters per hour following the installation of 4 additional pumping stations. One needs to be reminded that KPC's pumping capacity was 440 cubic meters per hour a few years ago and that KPC has entered into a program to replace and upgrade its pumping capacity to 880 cubic meters per hour.

11.4 KPC Tariff Structure and Operating Costs

The past and current applicable KPC tariffs are set out in the table below.

Figure 11-4: KPC tariff structure

	Tariff 2009 Kshs:4.5/m3/km		Tariff Effective April 2010 Kshs.5.0/m3/km	
Depot	Local (ksh)	Export(US$)	Local (ksh)	Export(US$)
Moi Airport		28.93		32.14
Jomo Kenyatta Airport		28.93		32.14
Nairobi Terminal	2,025		2,250	

	Tariff 2009 Kshs:4.5/m3/km		Tariff Effective April 2010 Kshs.5.0/m3/km	
Nakuru Terminal	2,786	39.793	3,095	44.21
Eldoret Terminal	3,582	51.139	3,980	56.82
Kisumu Terminal	3,578	51.139	3,975	56.82

Based on an all inclusive pipeline tariff of 4.5 KSh per cubic meter-kilometer (cu.m-km) and a maximum product loss ratio of 0.25%, as reported by KPC and confirmed by shippers, and a KPC operating profit margin averaging 44% in 2007/8 and 2008/9, we estimate KPC's operating costs at some 2.5 KSh per cu.m-km.

Assuming an average density of 0.82 g/cu.cm (most oil products range between 0.79 and 0.84), KPC's tariff is approximately 5.5 KSh per tonne-kilometer (T-Km) and our estimate of its operating cost of 55% of revenue translates to an operating cost of some **3 KSh/TKm**.

The above tariff is for all services rendered i.e. transportation, storage, handling and loading, where applicable.

The following table summarizes the revenues and expenditures for KPC for the years 2005/6 to 2009/2010. It appears from this table that KPC is a very profitable company, generating gross profit margins between 53% and 62% over the past 5 years. In addition to these profits, it has been paying dividends to the shareholder as well as income taxes and has cleared all its debt.

Figure 11-5: KPC Revenue / Expenditure (in 1000Ksh)

Revenue / Expenditure	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010 (provisional)
Revenues*	8,450,104	8,730,951	8,133,303	9,965,616	13,096,769
Direct Costs	3,220,666	3,730,249	3,887,860	4,168,843	5,196,317
Gross Profit	5,230,846	5,072,933	4,367,684	5,897,521	7,729,521
Total Expenditure	4,604,426	5,047,208	5,805,052	6,476,655	8,130,298
Tax	1,244,621	1,043,125	892,990	1,460,067	1,866,953
Other Income	190,814	262,120	152,648	262,575	217,404
Net Profits After Tax	2,793,279	2,974,969	1,710,150	2,392,216	2,886,731
Gross Profit Margin	62%	58%	53%	59%	60%
Operating Profit Margin**	38%	42%	46%	41%	41%
Net Profit Margin	33%	34%	21%	24%	22%

Source: Kenya Pipeline Company (other than * and **), figures provided in October 2010

* Calculated by CPCS, based on formula: Net Profit Margin = Net Profit after Tax/Revenues

** Calculated by CPCS, based on formula: (Revenues-Gross Profit)/Revenues

11.5 Capacity Improvement Projects

Demand for fuel has risen following economic growth within region. The increasing demand for petroleum products has led to increased demand for KPC services. KPC is working on a variety of projects to increase the capacity of its existing network and to extend it from Eldoret to Kampala. KPC has experienced capacity constraints which are being addressed through a Capacity Enhancement Programme (CEP).

The first phase of the CEP entailed **construction of four additional pump stations along the Mombasa – Nairobi section of the Pipeline** to augment the existing four pump stations in order to increase the product flow rate from 440m^3/hr to 880m^3/hr. The project was commissioned in November 2008, and this pipeline segment is now able to achieve a flow rate of about 550m^3/hr – 600 m^3/hr.

The second phase of the CEP entails construction of a **parallel pipeline from Nairobi - Eldoret**. The project's objective is to enhance the supply of petroleum products for Western Kenya and the neighbouring countries to meet the growing demand.

Nairobi – Eldoret capacity enhancement has been phased as follows:

- **Phase I (immediate)** – Construction of a 325 km 14-inch diameter pipeline with mainline and booster pumps to achieve a flow rate of 378m^3/hr.
- **Phase 2 (Year 2022)** – Construction of additional mainline pumps and associated works to achieve a flow rate of 534m^3/hr.
- **Phase 3 (Year 2026)** – Construction of additional mainline pumps to achieve a flow rate of 709m^3/hr.

The project is at an advanced construction stage and commissioning is expected by June 2011.

Another project is the **Kenya – Uganda Petroleum Products Pipeline Extension**. The project is being developed jointly by the Government of Kenya, the Government of Uganda and Tamoil East Africa Limited as the project developer. The project objectives are to enhance supply of petroleum products to the region with the least cost means of transporting the products; reduce road damage and carnage; and provide an environmentally safe means of transporting petroleum products. The Project scope is:

- Installation of about 340Km long 10-inch pipeline.
- Tie in to the existing Mombasa – Eldoret pipeline system.
- Installation of pumping station at Eldoret and an intermediate booster pumping station.
- Construction of a storage and loading terminal at West Kampala.

The Project is at the definitional stage and the final investment decision has not been taken.

Kisumu Oil Jetty: The objective of the project is to enhance transfer of petroleum products from the pipeline system to lake vessels for transportation to Northern Tanzania and other neighbouring countries. The project scope consists of the installation of three dedicated product lines from the tank farm at the depot to the oil jetty including necessary connections and associated works. The project is at an advanced planning stage and construction work is expected to commence in 2011.

Parallel Pipeline to the Existing Mombasa – Nairobi: the project objective is to enhance capacity for transportation of petroleum products from Mombasa to Nairobi. The parallel pipeline will augment the existing pipeline to meet future demand. The project is planned to commence (design study) in 2012/13 financial year.

Mombasa Truck – Loading facility: the project objective is to provide 'common user' truck loading facilities in order to enhance distribution of petroleum products in the Coast Region.

Points of Presence: In the long term, the company intends to establish points of presence both internally and externally. Internal points of presence are Nanyuki, Lokichogio, Namanga, Mwanza, Lungalunga Taveta. External points of presence are Rwanda, Burundi and Tanzania. This may involve construction of storage and truck loading facilities.

The Table below shows the planned KPC investment and capital expenditures for the next 5 to 10 year horizon.

Figure 11-6: KPC Investment Plan and Capex, ongoing and possible projects (KSh)

Capital Budget	2009/10	2010/11	2011/12	2012/13
Capacity Enhancement Line - 1 (including PS 14 works)	1,187,325,819			
Capacity improvement of line II	5,453,149,000	6,702,719,000	619,406,000	
Installation of Additional Pumps along Line 1 (7No)			700.000.000	700,000,000
Mombasa - Nairobi - parallel pipeline				500,000,000
Extension of the pipeline to Kampala - Uganda (KPC contribution, 15% of equity - Project gearing of 70:30 Debt Equity)	275,000,000			
Nairobi LPG project (KPC Portion, 50% of equity, Project gearing of 50:50 debt: equity)	232,750,000			
Mombasa LPG project (KPC portion - 25% of equity, project gearing of 70:30 Debt: equity)	344.500.000			
Mombasa truck loading facility				20.000.000
Kisumu Oil Jetty	17.000.000	400000000		
Other Capital Expenditures (purchase and / or replacement of capital items, upgrade of svstems)	441,981,567	1,100,000,000	1,505,000,000	1,383,000,000
TOTAL CAPEX	**7,951,706,386**	**8,202,719,000**	**2,824,406,000**	**2,603,000,000**

12 Inland Water Transport Cost and Performance

12.1 Background

East Africa has many lakes and rivers, with varying degrees of navigability. The potential for water transport for both passengers and goods on most of these lakes and rivers has not been fully exploited, but inland water transport is a key component of intermodal transport which can provide a means of reducing congestion of the road infrastructure and of tackling air pollution. Lake Victoria (LV), the largest lake in Africa which is shared between Kenya, Tanzania and Uganda, is the only surface water body in the region with significant transport activities in the . This is so despite the fact that in some areas water bodies separate different parts of the same community forcing people to use the rivers and lakes as a means of transport.

Kenya is a net exporter to most of the countries in the Great Lakes region, with most of this export trade taking place through road transport. Inland water transport plays a negligible role in this trade, largely due to the poor multi-modal coordination and the limited role of railway transport. In addition the port of Kisumu which is part of the Northern Corridor transport system needs to be efficiently operated.

Kenya Railways Corporation (KRC) and its predecessors (East African Railways and Harbours and the East African Railways Corporation) have been operating marine services on the Lake on a continuous basis since 1907, i.e. soon after the Mombasa-Kisumu railway line reached Kisumu in 1901. However, there is currently only one operational ferry service on Lake Victoria, offered by Tanzania and focused on Mwanza port and movements of goods in the Central Corridor.

Although LV is strategically located at the convergence of two major transport corridors in the East African region, namely, the Northern Corridor and the Central Corridor, the potential of its marine transport has not been fully exploited. The former Corridor links land-locked countries in the Great Lakes Region with the port of Mombasa through Kenya, while the latter links the same countries with the port of Dar es Salaam through Tanzania. Both Corridors are of great importance to the land-locked countries namely, Uganda, Rwanda, Burundi, Southern Sudan and the eastern parts of the Democratic Republic of Congo (DRC).

The Kenyan portion of LV consists mainly of the Nyanza Gulf. It is the smallest compared to the portion in Tanzania (the largest) and the portion in Uganda. Transport modes in this part of the Lake and its environs (i.e. the lake basin) serve both Nyanza and Western Provinces

The densely populated Lake basin has a high agricultural potential, currently dominated by the production of sugar cane, maize, sorghum beans, sisal among others. Considerable potential for growing cotton, groundnuts and rice, which once thrived in the region, is yet to

be exploited. Fishing on the Lake and livestock farming are among the most important economic activities in the region.

The critical importance of inland water transport in the Lake Basin in Kenya is underlined by its link with the multi-modal transport network converging on Kisumu City as a hub from where road, railway, pipeline and air transport have direct connections to other destinations in Kenya and with all countries in the Great Lakes region through Tanzania and Uganda. This convergence is supported by the existence of a littoral road belt around the whole of the lake in East Africa connecting the various ports in Kenya, Uganda and Tanzania. Thus, through lake transport, Kisumu is linked to several ports around the Lake namely: Musoma, Mwanza, Bukoba and Kemondo Bay in Tanzania, and to Port Bell and Jinja in Uganda. This strategic position gives navigation on the Lake a major role in serving the basin within the EAC region.

12.2 Legal and Regulatory Framework

Until the collapse of the former EAC in 1977, inland water transport on LV was regulated by the East African Inland Water Transport Act of 1958 (later amended by Act No. 4 of 1970) and the East African Railways Corporation (EARC) Act (Cap. 18 of the Laws of the East African Community). These laws dealt with survey, vessel registration, life saving equipment, vessel loading and construction, rules of navigation and navigation equipment. They also introduced detailed requirements for certificates of vessel seaworthiness and registration, made mandatory provisions for life saving equipment to be carried on board, and for distress and signalling equipment, among other safety measures.

After the collapse of the EAC, Kenya, along with Uganda and Tanzania, incorporated respective Railways Corporations under respective statutory provisions. However, none of the countries incorporated the East African Inland Water Transport Act and regulations in its national laws. This created a void therefore, on the critical issues of safety of life, navigation, survey and on requirements for vessel registration and insurance.

Prior to November 1, 2006, KRC and URC were both operators and regulators of inland water transport. In terms of wagon ferries that move products between countries on Lake Victoria, KRC still owns one vessel and URC owns three vessels, but all four vessels are concessioned to RVR under the concession agreements. Until September 2010, all four vessels were non-operational. However, on September 3, 2010, the KRC-owned MV Uhuru made its first successful voyage from Kisumu to Port Bell since the signing of the RVR concession agreements in 2006.

The Government of Tanzania owns the only operational ferry on LV.

12.3 Inland waterway infrastructure

Inland water transport infrastructure on LV comprises port facilities at Kisumu, Port Bell, Mwanza and other ancillary ports.
At Kisumu, the port infrastructure includes:

- A 260m long main cargo quay equipped with four berths and two marginal wharves;
- A cargo shed (go-down) covering a total area of 4,000 square feet, with a rail each side;
- A passenger quay (of 100m. in length);
- An 18m wide platform (terminal) for wagon ferries with a span bridge measuring 28m. which links the rail wagon ferries to the land-based railway system; it serves both local and international marine vessels;
- A total fenced area of measuring 6,400 sq. m. allocated to shipyard activities;
- A repair workshop;
- One dredging equipment is not in working condition for some time;
- Two slipways measuring 100m and 60m each;
- An oil jetty (built in 1949) for oil exports;
- A dry dock measuring 217m Long, 100m wide, and 5m deep; and
- An administration building and customs warehouses.

A railway yard for manoeuvres and wagon shunting occupies the rest of the area. Eighteen lines totalling 4,200m of track in the port area are linked to the adjacent railway Kisumu station which further connects them to the main Kisumu-Nakuru line whose maximum capacity is 400 conventional wagons.

The port is about 100 years and has old equipment though considered to be in good working condition. Its workshop and dockyard facilities provided for the maintenance of all vessels in East Africa until 1977. It is, however, currently under-utilized and no longer serves vessels from Uganda and Tanzania since both countries have established similar and, in a number of cases, more efficient infrastructure at Kemondo Bay, Mwanza and Bukoba ports in Tanzania, and at Port Bell in Uganda.

The oil terminal operated by the Kenya Pipeline Company Limited and served by the oil jetty, is located 12km away from the port, making the transfer of fuel between the two terminals cumbersome. These challenges are being addressed by Kenya Pipeline Corporation under Capacity enhancement programmes.

Kisumu port is connected to several local piers with small go-downs along the Nyanza Gulf which include Kendu Bay, Homa Bay, Homa Lime, Kowuor, Homa Bay, and Asembo Bay. Some of these facilities and assets require maintenance and rehabilitation.

It is acknowledged that a lack of coordinated planning of all littoral transport modes has limited the opportunities to enhance their complementarities. Good roads around the Lake

would enhance consumer choices and promote inter-modal connectivity amongst roads, railway and inland water transport for the transportation of goods and passengers.

12.4 Inland Water Transport Service Operations

The competitiveness of inland water-way shipping, as one link in a transport chain, is dependent on the functioning of the entire corridor transport system – especially rail transport.

Inland waterways transport operations are presently low key due to low investment in vessels. Most of the vessels which used to ply Lake Victoria have either broken down or been surveyed and disposed of.

The largest vessel owned by KRC is the MV Uhuru, a wagon ferry with a cargo capacity of 1,200 tonnes (equivalent to 22 wagons). This vessel was concessioned to the railway operator (RVR) and was non-operational from prior to the signing of the concession until September 2010. It had been difficult to rehabilitate the vessel to Lloyds specifications due to its age and other factors and the Concession Agreement requires that the Wagon ferries comprised in the conceded assets be rehabilitated so as to comply with classified Lloyds registry 100A1class specification. The Concession Agreement was amended on 24th August, 2010 to facilitate the licensing of MV Uhuru and the ship made its first successful voyage under RVR on September 3rd, 2010[42].

Another constraint to inland water transport is the low capacity of the Nakuru-Kisumu railway track which makes port of Kisumu route less attractive for transit to Uganda and other land-locked countries. The track branching from Nakuru to Kisumu, though an important route connecting Kenya to both Tanzania and Uganda via water transport on Lake Victoria can only support low axle loads.

The Tanzanian Rail Ferry managed by Tanzania Marine Services operates on Lake Victoria between Mwanza, Tanzania and Port Bell, Uganda.

The existing Uganda Rail Ferries are currently non-operational. However, rehabilitation works for the MV Kaawa have now started.

The Government of Uganda, through the Ministry of Works and Transport, is also in the process of procuring design and supervision consultants for development of Port Bell and Jinja Ports, and for a new container ship / wagon ferry (MV Kabalega II). The design work is expected to commence before the end of 2010, and last for five months. Thereafter, a contractor will be procured for the civil works for both ports and construction of the ship/wagon ferry[43].

[42] Information provided by RVR in October 2010.
[43] Information provided in October 2010 by Mr. Benon Kajuina, Commissioner, Policy & Planning, Ministry of Works and Transport, Uganda.

In December 2009, RVR finished the refurbishment the MV Uhuru, and as stated above, the vessel made its first trip since the signing of the concession in September 2010. Given the ferry service only recently re-started, there are no current statistics available for inland waterways' traffic along the Northern Corridor as far as tonnages, transit times, delays, etc.

Below are the RVR tariffs that were published by RVR for the period September 2009 to August 2010 for the MV UHURU Rail Ferry.

Figure 12-1: RVR Tariffs for MV Uhuru

Imports	Exports
Mwanza – Port Bell sector: 43 USD per tonne.	Mwanza – Kisumu : USD 27.5 per tonne
Kisumu – Mwanza – Kisumu: US$ 25,000 per voyage of 22 wagons. This is a roundtrip charge inclusive of return of empty wagons.	Port Bell – Mwanza – USD 25 per tonne.
Kisumu – Port Bell Sector: (a) General Cargo US $ 30 @ tonne (b) Salt/Cement US $ 24 @ tonne (c) 20ft container US $ 630 (light) (d) 20ft container US $ 1,260 (Heavy) (e) 40ft container US $ 1,260	

12.5 Operating costs/Lake Victoria Ferries

For the reasons stated above, there are thus no recent operating costs available for this service and we can only base our analysis on the most recent costs study available[44].

Figure 12-2: Freight Costs ($/Tonne) for Comparative Routes, (Excluding modal change cost)

Route	Freight Cost US $ per Tonne (Approximate)		
	Rail/Lake	Road/Lake	All Road
Bujumbura (Lake Tanganyika)	$ 60	$ 243	$ 242
Kampala (Lake Victoria)	$ 100	$ 190	$ 170 (via Msa)

[44] CENTRAL DEVELOPMENT CORRIDOR (CDC) REGIONAL SPATIAL DEVELOPMENT INITATIVE PROGRAM (RSDIP) - INTEGRATED TRANSPORT STRATEGY – LAKES TANGANYIKA AND VICTORIA - Marine Logistics Limited - February 2009

13 Comparison of Operating Costs

13.1 Summary of Operating Costs per Inland Transport Mode

The following table and graphics synthesize the operation costs per tonne-km and per inland transport mode in US$ and Ksh.

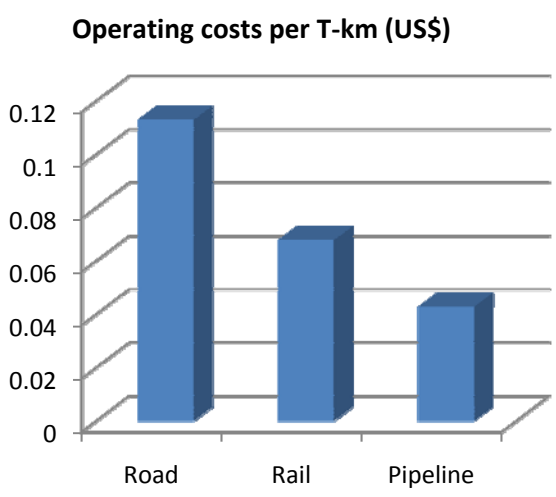
The conclusions which can be drawn from our analysis are as follows:

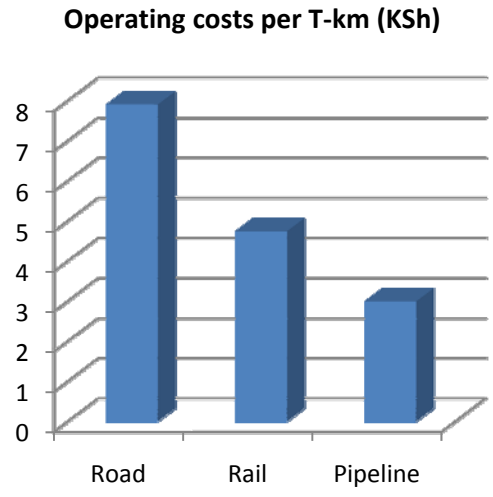
- The pipeline mode is the cheapest mode of transport (US$.043 per T-km), followed by the rail mode (US$.068 per T-km) and then the road (US$.112 per T-km);
- The operating costs of the road are 260% higher than the pipeline and 165% higher than the rail; and
- The rail operating costs are 158% higher than for pipeline.

Those conclusions are in line with many other studies, although not in the same proportions. The operating costs are exclusive of hidden costs, which were calculated in detail for the road sector in the relevant country chapters.

Figure 13-1: Operation costs per T-km and per inland transport mode

	Road	Rail	Pipeline
Operating costs per T-km (US$)	0.112	0.068	0.043
Operating costs per T-km (KSh)	7.83	4.75	3
Difference in % to pipeline	***260%***	***158%***	***100%***
Difference in % to rail	***165%***	***100%***	***63%***





14 Benchmarking with International Corridors

This section provides a summary of the benchmarking analysis conducted on five other selected corridors in accordance with the study's TOR. The detailed benchmarking analysis is provided in Appendix D.

The five selected corridors are:

- East Africa: Central Corridor (Dar es Salaam to Rwanda, Burundi, DRC)
- Southern Africa: Southern Corridor (Mozambique to South Africa)
- West Africa: Tema (Ghana) to Ouagadougou (Burkina Faso)
- Asia: East West Corridor (Vietnam, Laos, Thailand, Myanmar)
- Latin America: Bolivian Corridor

The benchmark provides a comparative assessment of transport and logistics costs including freight rates in the Northern Corridor with the aforementioned corridors. In our assessments, we use the example of movement of **twenty-foot equivalent (TEU) import containers from ports going inland, by road.**

We chose this type of movement for comparison for three reasons: 1) it is the most relevant for comparison to the Northern Corridor, as the majority of traffic on the corridor involves inbound (imports) to landlocked countries from the Port of Mombasa; 2) TEU containers are a standardised size which makes comparison across regions more meaningful; and 3) the best data available from other studies and reports uses the example of TEUs (rather than 40' containers or bulk) as the standard for comparison.

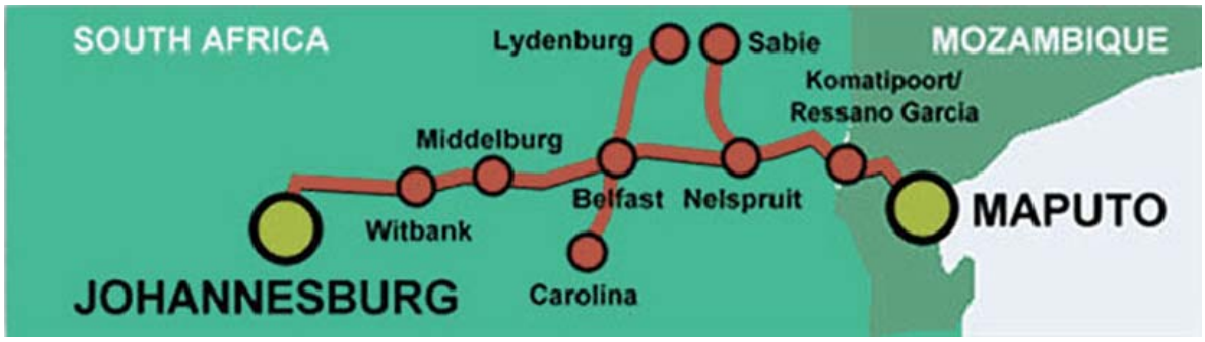
The benchmarking comparisons focus on direct logistics costs (formal and informal). They do not include the costs associated with hidden costs (e.g. extra inventory held due to delays). Not only is type of calculation is extremely time-consuming and beyond the scope of this study, but directly compatible data required for the comparison is not readily available for the other corridors.

14.1 Maputo Corridor

The Maputo Corridor connects the Port of Maputo in Mozambique to Gauteng province, the industrial heartland of South Africa. It comprises a concessioned road, a railway line and since very recently, a gas pipeline. It has emerged as one of the most successful implementations of the Spatial Development Initiatives (SDI) concept, a concept developed in the mid-1990s by the South African Trade Department and the Development Bank of South Africa (DBSA).

The corridor runs through some of the most industrialized and productive regions of southern Africa, particularly Johannesburg and Pretoria on the western end of the corridor. It supports a very high volume of traffic throughout the year, and unlike the Northern Corridor, this corridor sees more exports (South Africa to port) than imports (Maputo port inwards). The figure below illustrates the main Maputo to Johannesburg corridor.

Figure 14-1: The Maputo Corridor



Source: www.portmaputo.com

The figure below summarizes the cost for transporting a TEU by road along the corridor from Maputo to Johannesburg.

Figure 14-2: Cost for Road Transport of TEU Container, Maputo - Johannesburg, 21.5 tons, 550 km

Operation	Formal Cost ($/TEU)	Informal Cost ($/TEU)*	Total Cost ($/TEU)	% of total cost	Average Time	% of total time
Port Clearance (berthing to unloading)	350	35	385	18%	32 hours	46%
Customs Clearance	285	28.5	313.5	15%	24 hours	35%
Road Transport, (@$2 / TEU-km)	1,100	110	1,210	57%	9 hours	13%
Border Crossing	200	20	220	10%	4 hours	6%
Total (average)	**1,935**	**193.50**	**2,128.50**	**100%**	**69 hours**	**100%**

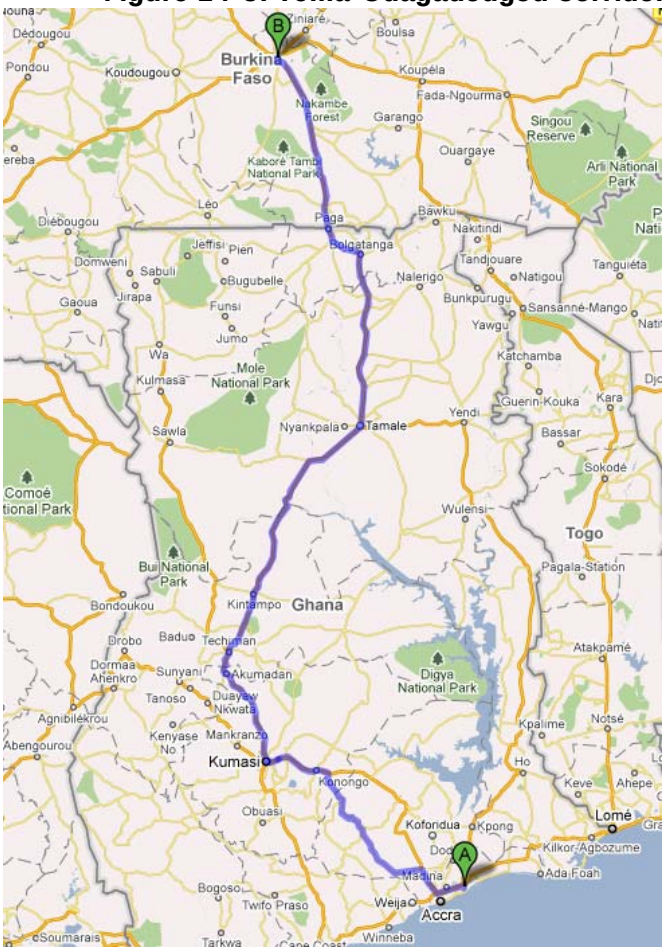
* Informal Cost estimated are 10% of total costs. Source of data: CPCS Analysis and Corridor Performance Assessment, A Transport Logistics Diagnostic Tool Study (Nathan, 2007)

14.2 Tema – Ouagadougou Corridor, West Africa

This 1,057 km road corridor runs from the port of Tema in Ghana near Accra, to the Burkina Faso capital of Ouagadougou. About 881 km (83%) of the road is in Ghana, and the remaining 176 km (17%) in Burkina Faso, and is considered in fair condition overall.

The road corridor is the only surface transport mode used to transport transit goods from Tema to Ouagadougou. Although there are rail and inland waterway links in Ghana, these are not used for transit goods between the two countries. The corridor crosses one border, at the towns of Paga (Ghana) and Dakola (Burkina Faso). The figure below shows the road corridor from Tema, running north to Ouagadougou.

Figure 14-3: Tema-Ouagadougou Corridor



Like the Northern Corridor, there is a major trade imbalance along the corridor, with imports from Tema to Ouagadougou far exceeding exports from Ouagadougou to Tema, in both volume and value terms. In 2006, Burkinabe import traffic through Tema port amounted to 320,000 metric tons. In the same year, export traffic accounted for about 40% of this amount, 130,000 metric tons.[45]

Summary

The Figure below summarises each step described above, and the costs and time required. The example shown is for an import TEU container, from Tema to Ouagadougou, weighing a typical 18 tonnes. **The total logistics costs to transit a 20' import container from ship docking to clearing in Ouagadougou over 1,057 km is US$4,053. This transit takes 21 days on average.**

[45] USAID West Africa Trade Hub, Transport and Logistics Costs on the Tema-Ouagadougou Corridor, Technical Report # 25, April 2010.

Figure 14-4: Cost for TEU Container, Tema to Ouagadougou, 18 tonnes, 1,057 km[46]

Operation	Formal Cost ($/TEU)	Informal Cost ($/TEU)	Total Cost ($/TEU)	% of total cost	Average Time[47]	% of total time
Port Clearance* (from berthing to unloading)	474	32	505	12.4%	41 hours (2 days)	9%
Customs Clearance	90	25	115	3%	65.5 hours (8 days)	38%
Road Transport (Tema-Ouagadougou)	2,142**	33 ***	2,174	54%	4.15 hours informal (0.4 days) 32 hours driving (4 days)	21%
Border Crossing (Paga)	0	24	24	0.6%	2 hours (1/4 day)	1%
Border Crossing (Dakola)	68	17	85	2%	5 hours (1/2 day)	2%
Ouagarinter Customs Clearance	943	205	1,148	28%	48 hours (6 days)	28%
Total (average)	**$ 3,717**	**$336**	**$4,053**	**100%**	**21 days**	**100%**

* Includes: Port & transit yard procedures ($90.5); forwarding ($281), and shipping line release ($102.3).
** OTRAF rates, 2007
*** Bribes, police checks, customs en route, of which $11 Tema – Paga, and US$21 Dakola-Ouagadougou.
**** 160 minutes delays Tema-Paga; 89 minutes delays (Dakola – Ouagadougou)

[46] All logistics costs and delays from USAID West Africa Trade Hub, transport and Logistics Costs on the Tema-Ouagadougou Corridor, Technical Report # 25, April 2010.
[47] Port clearance time works on 24 hour clock, remaining times based on 8 hour day.

14.3 Central Corridor (Dar Es Salaam to Rwanda, Burundi, DRC)

The Central Corridor starts at Dar es Salaam port in Tanzania and comprises road and rail/lake links to Burundi and DRC (via Lake Tanganyika), rail/road routes to Rwanda, and a road/rail/lake link to Uganda through Lake Victoria. The Central Corridor is one of a number of regional Spatial Development Initiatives across Africa.

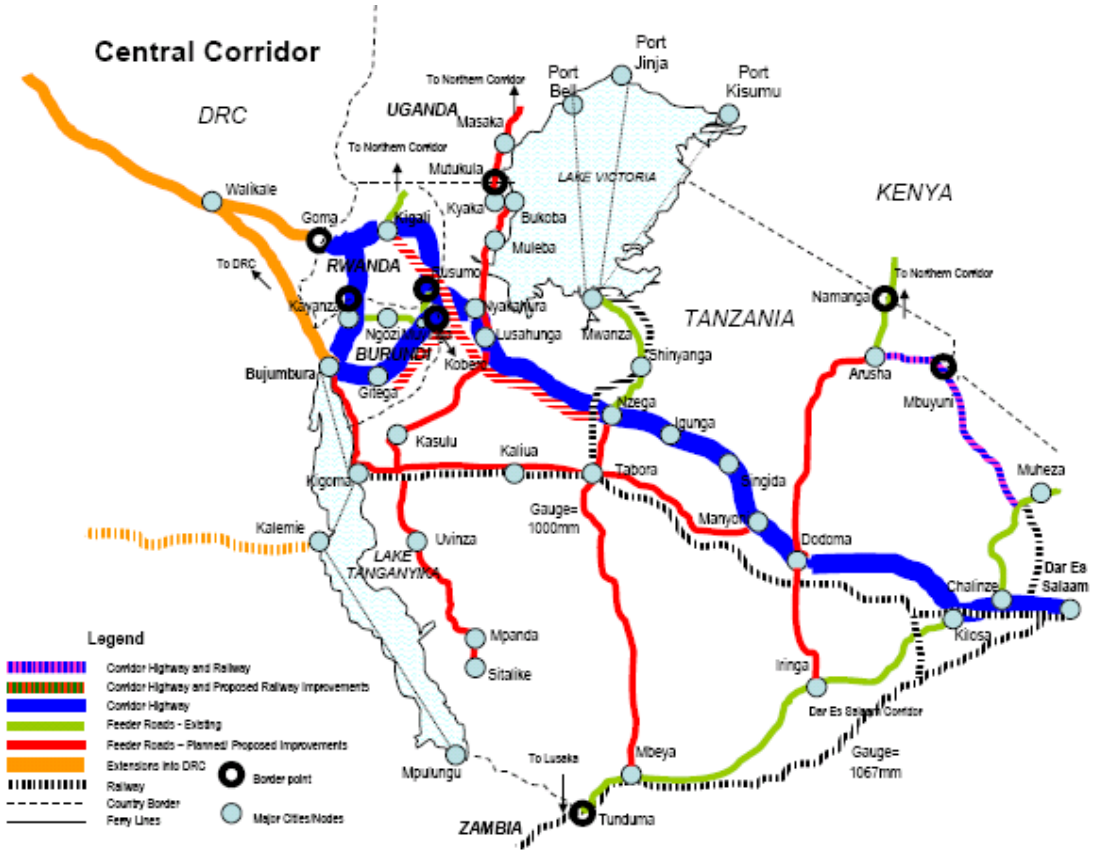
The Central Corridor infrastructure consists of the following:

- The 1,254 km central line operated by the Tanzania Railways Limited (TRL) from Dar es Salaam to Kigoma port on Lake Tanganyika, followed by trans-shipment to lake barges destined to Bujumbura;
- The Mwanza rail/lake route consisting of a 1,229 km railway from Dar es Salaam to Mwanza on Lake Victoria (using the central line until Tabora);
- The Dodoma road route from Dar es Salaam through Rusumo Falls (Tanzania-Rwanda border) to Kigali (1,486 km), and through Kobero (Tanzania-Burundi border) to Bujumbura (1,538 km); and
- The Isaka rail/road route, which consists of the train from Dar es Salaam to Isaka, with a transfer to trucks at an Inland Port at Isaka for onward delivery by road to Rwanda, Burundi or DRC[48].

Transit containers to (eastern) DRC account for the largest volume of transit movements from Dar es Salaam to inland countries, followed by Burundi. Dar es Salaam port is the main entry port for both countries, while Rwanda uses both the Central and Northern Corridor for its imports / exports[49]. Uganda traffic passes primarily through the Northern Corridor, especially given the current limited ferry services active across Lake Victoria.

[48] Construction of a railway link from Isaka to Kigali is in the planning stages.
[49] Marine Logistics Ltd, "Integrated Transport Strategy – Lakes Tanganyika and Victoria", Central Development Corridor Regional Spatial Development Initiative Programme, Volume 1, Recommended Transport Strategy, February 2009.

Figure 14-5: Map of East Africa showing the major components of the Central Corridor



Source: East Africa Corridor Diagnostic Study (USAID, 2009)

The figure below summarises the cost and delays for movement of an import TEU transit container by road from Dar es Salaam port to Kigali.

Figure 14-6: Cost for TEU Container, Dar es Salaam to Kigali, 18 tonne 20' container, 1,486 km

Operation	Formal Cost ($/TEU)	Informal Cost ($/TEU)*	Total Cost ($/TEU)	% of total cost	Average Time	% of total time
Port Clearance (including shipping line charges)	222	12	234	5%	14 days	62%
Customs Clearance	190	Included above	190	4%	Included above	-
Road Transport (Dar > Kigali, driving time only	3,972	Included in formal price	3,972	90%	5 days	22%
Border Crossing (Rusomo)	-	30	30	1%	3-4 days	16%
Total (average)	**4,384**	**42**	**4,426**	**100%**	**22 – 23 days**	**100%**

14.4 Greater Mekong Subregion East-West Corridor

The Greater Mekong Subregion (GMS) Economic Cooperation Programme is a programme that began in 1992 with support from the Asian Development Bank, and involves six countries in Asia: Thailand, Vietnam, China, Laos, Cambodia and Myanmar (Burma). The strategic thrust of the programme is to strengthen infrastructure linkages, to facilitate cross-border trade and investment, to increase private sector participation, and to develop labour competencies.

The GMS programme focuses on three economic and transport corridors:

- East West Economic Corridor, connecting Vietnam, Laos, Thailand and Myanmar
- Southern Corridor, connecting Thailand, Cambodia and Vietnam
- North-South Corridor, connecting southern China through Laos or Myanmar to Thailand

All of these corridors include fixed routes and border points, as illustrated in the Figure below. The East West Corridor, the focus of our comparative analysis for this chapter, is outlined in the box. In practice, although the corridor extends from coast to coast, the vast majority of activity (traffic movement) takes place between Vietnam and Thailand, via Laos, and does not involve Myanmar.

The East West Corridor (EWC) is approximately 1,350 km long and stretches from Danang Port in Vietnam to Mawlamyine Port in Myanmar. The corridor is the only direct and continuous land route between the South China Sea and the Indian Ocean (Andaman Sea). The road corridor is currently being utilised, although there are some missing links. The busiest parts of the corridor are those used as part of the other main transit route between Bangkok (Thailand) and Hanoi (Vietnam). The Second International Mekong Bridge (Friendship Bridge) between Mukdahan in Thailand and Savannakhet in the Lao PDR was inaugurated and opened on 20 December 2006. This has had a major positive impact on transit times along the EWC.

The EWC corridor involves four countries, and three border crossings:

- Myawaddy (MYA) – Mae Sot (T)
- Mukdahan (T) – Savannakhet (LAO)
- Dansavanh (LAO) – Lao Bao (VN)

The EWC road comprises both 2-lane and 4-lane roads, with 4-lane highways located primarily in Thailand. The figure below illustrates some basic macroeconomic information on the four countries, and the status of the EWC in each country.

Figure 14-7: Greater Mekong Subregion Economic Corridors

Source: GMS Cross-Border Transit Agreement, Protocol 1 Attachment. Box added by CPCS.

Summary of Performance

An analysis of the data for this corridor shows the total average cost to transit a TEU container from Danang Port to Tak over 1,110km is **$1,847 per TEU**. These costs **include** the payment of illegal / informal facilitation payments (bribes, etc). These informal costs vary considerably according to the type of commodity being transported, and are estimated at 10 % – 15% of total transport costs (average of 12.5%). From a cost perspective, approximately 43% of the door to door transport costs occur at customs and border crossings.

The average journey time for the same route is **43 hours (5.4 days)**, with nearly half of this time spent at customs or border crossings. Thailand has the best infrastructure and

truck conditions, with goods moving at an average speed of **51.58 km/h**. In contrast, freight moved across Laos and Vietnam moves at **45.8 km/h and 43.33 km/h**, respectively. This works out to an average speed of 45.7 km/h, considering the length of corridor in each country. At these speeds, if road transport was seamless and there were no customs and border delays, it would be possible for goods to move from origin to destination in 24 hours. Other than speed restrictions due to road conditions, delays are caused by the fact that cargo needs to be loaded and unloaded several times and that trans-loading is needed due to vehicle nationality restrictions. The lack of synchronisation at some border points is also delaying the smooth flow of goods.

The figure below shows the breakdown of the cost of transporting a TEU from Danang Port to Tak.

Figure 14-8: Cost for TEU Container, Danang to Tak, 1,110 km [50]

Operation	Formal Cost ($/TEU)	Informal Cost ($/TEU)*	Total Cost ($/TEU)	% of total cost	Average Time[51]	% of total time
Port Clearance* (from berthing to unloading, including customs)	$53	$7	$60	3%	5 hours	12%
Customs Clearance	Included above	Included above	Included above	-	Included above	-
Road Transport (Danang-Tak)**	$1,093	$137	$1,230	67%	24 hours	59%
Border Crossing (2 borders)	$495	$62	$557	30%	12 hours total	29%
Total (average)	**$1,642**	**$205**	**$1,847**	**100%**	**41 hours**	**100%**

* Informal costs vary by commodity, but are estimated at 12.5% of total costs

** Including transloading from Vietnamese to Thai Truck

[50] All logistics costs and delays from USAID West Africa Trade Hub, transport and Logistics Costs on the Tema-Ouagadougou Corridor, Technical Report # 25, April 2010.

[51] Port clearance time works on 24 hour clock, remaining times based on 8 hour day.

14.5 Bolivian Corridor

Bolivia is one of only two countries in Latin America that is land-locked, the other being Paraguay. Bolivia's most productive and densely populated area is very mountainous, with rough terrain, making it particularly difficult to access and increasing its international transport and logistics costs.

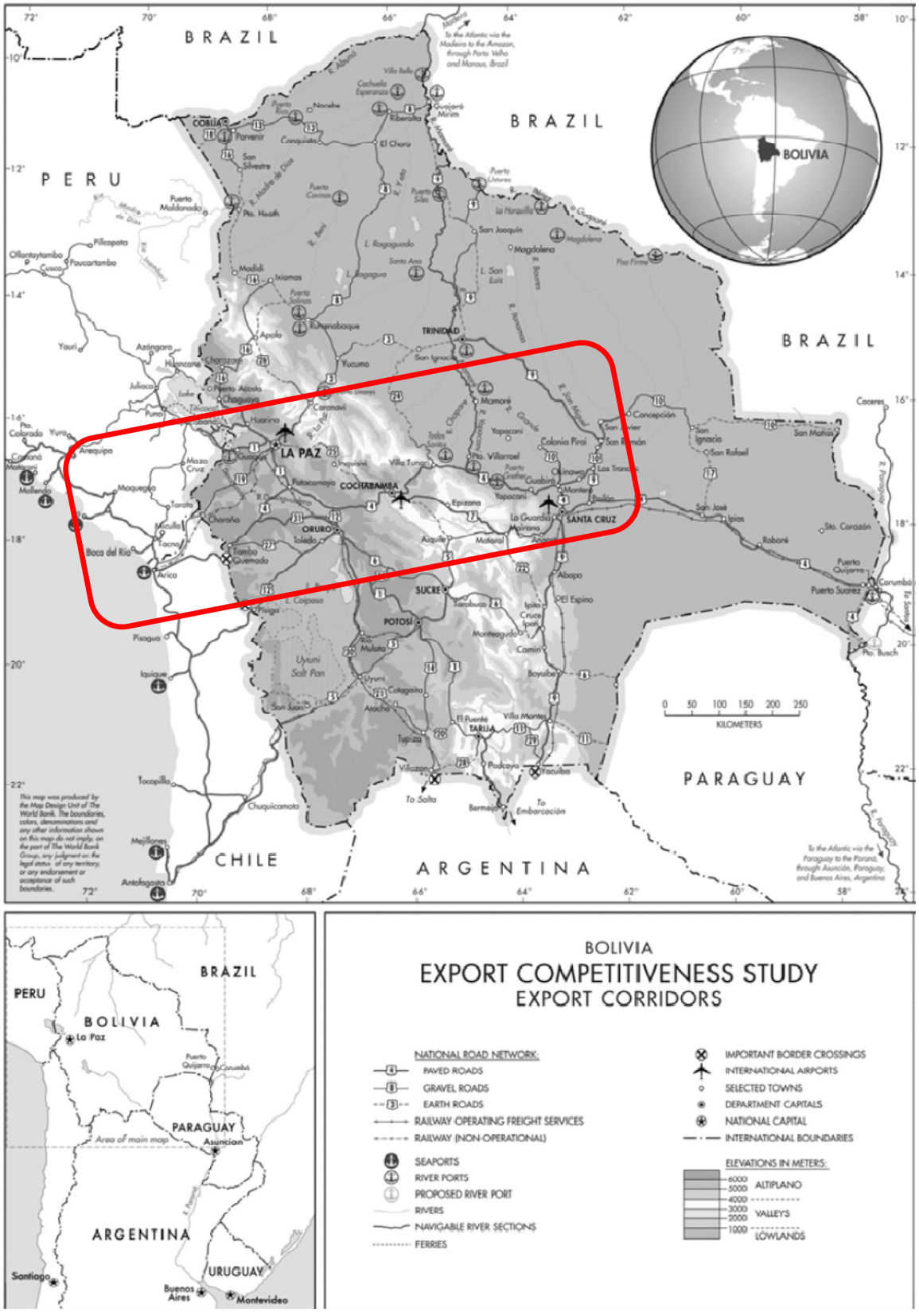
In spite of being one of the more liberalised economies in Latin America, Bolivia still faces significant barriers to trade. In recent years, the government has taken a major interest in export diversification, moving beyond reliance on the country's traditional mineral and natural gas exports. However, the government also realises that improving infrastructure is one of the critical components of this drive.

Unlike the other corridors analysed in this chapter, there is no well defined corridor concept for Bolivia yet. There is no formal corridor authority or institution established, nor any specific corridor transport and trade programmes. However, there is information on some of the key routes from Bolivia to reach the ocean. The corridor routes we analysed in the study are those from Arica port in Chile up to La Paz, Cochabamba and Santa Cruz in central-eastern Bolivia. The figure overleaf shows a map of Bolivia with these main corridor routes highlighted.

Summary of Performance

There is inadequate information available through desk-based research to estimate the full costs of the logistics chain for Bolivia. The most relevant statistic we can draw for comparison to the Northern Corridor is the average trucking tariff for a TEU import of US$ 1.92 / TEU-km.

Figure 14-9: Infrastructure Network in Bolivia



14.6 Comparison Across Corridors

The figure below summarises the comparison of performance between the Northern Corridor and four other corridors analysed in detail in this chapter. **The time comparisons exclude driver resting / break time, only considering working / moving hours.**

Figure 14-10: Comparison of performance Across Corridors, TEU Import Container, by Road

Performance Indicator	Northern Corridor: Mombasa-Kigali	Central Corridor : Dar es Salaam–Kigali	Southern African: Maputo – Jo'burg	West Africa: Tema – Ouagadougou	Asia: Danang – Tak
Road distance from Port - Destination	1,700 km	1,486 km	550 km	1,057 km	1,110 km
Average Port Clearance time from docking (hours)*	216 hours (excluding CFSs and customs)	336 hours (including customs)	32 hours	41 hours	41 hours
Formal Port handling costs ($/TEU)	US$222 (for transit containers)	US$ 222	US$ 350	US$ 474	US$ 53
Informal Port handling costs ($/TEU)	US$28	US$ 12	US$ 35	US$ 32	US$ 7
Total Port handling Costs ($/TEU)	**US$250**	**US$ 234**	**US$ 385**	**US$ 505**	**US$ 60**
Customs clearance time at port (hours)	68 hours	Included in port clearance	24 hours	65 hours	Included with port clearance
Formal Customs costs ($ / TEU)	US$185	US$ 190	US$ 285	US$ 90	Included with port clearance
Informal Customs costs ($ / TEU)	US$30	Included in port clearance	US$ 28	US$ 25	Included with port clearance
Total Customs handling Costs ($/TEU)	**US$215**	**US$ 190**	**US$ 313**	**US$ 115**	**-**
Road Transport Average Speed (Km/h)	35 km/h	37 km / h	60 km/h	40 km / h	45.7 km/h
Road Transport costs ($/TEU-km)	**$6,500 over 1,700 KM = $3.82/ TEU-km**	**$3,972 over 1,486km = $2.67 / TEU-km**	**$1,100 over 550 km = $2/TEU-km**	**$2,174 over 1,057 km = $2 / TEU-km**	**$1,230 over 1,110 km=$1.10/TEU-km**

Performance Indicator	Northern Corridor: Mombasa-Kigali	Central Corridor : Dar es Salaam–Kigali	Southern African: Maputo – Jo'burg	West Africa: Tema – Ouagadougou	Asia: Danang – Tak
Number of border crossings	2	1	1	1	2
Border crossing time (average per border crossing)	8 hours	28 hours	4 hours	7 hours**	6 hours
Formal Border crossing costs ($/TEU), avg per border	US$120	None	US$ 200	US$ 68	US$ 247
Informal Border crossing costs ($/TEU), avg per border	US$28	US$ 30	US$ 20	US$ 41	US$ 31
Total Border Crossing Costs ($/TEU)	**US$148**	**US$30**	**US$ 220**	**US$ 109**	**US$ 278**

* Port time works on 24 hour clock, other logistics components work on 8 hour day.

** Excludes Ouagarinter clearance: Final clearance for transit goods in Burkina Faso is done at Ouagarinter clearing complex near Ouagadougou, with only basic review of documents at the border. The clearing at Ouagarinter takes an average of 48 hours (6 days), and costs $1,148 per TEU.

15 Prioritized Policy Measures for the Northern Corridor

In view of the importance of logistics costs in determining the level of competitiveness of business in the region, policy, regulatory and operational changes must be undertaken to facilitate efficient cost-effective and competitive transport services. In this chapter we present a series of prioritized policy measures for the Northern Corridor.

While these recommendations appear to be focused on actions for Kenyan institutions, this is partly to be expected given that the majority of transit traffic arriving in Uganda and Rwanda, and to a lesser extent Burundi and DRC, must first transit through Kenya. Therefore, the problems in Kenya affect all countries in the corridor. It is also worth noting that the vast majority of traffic passing through Mombasa Port is destined to or from the Kenyan market; only 26% of total port throughput is destined to / from other countries and of this, 80% is destined to or from Uganda.

Efforts to improve corridor performance require a cooperative effort by the public and private sector. While some initiatives can be undertaken exclusively by the public sector, most require private sector involvement to ensure that the quality of services offered in the corridor is improved. The major challenge is to define a common set of objectives and, based on these, to coordinate the activities of the stakeholders. The private sector should take the lead where there is sufficient infrastructure and an appropriate regulatory environment. The public sector should take the lead where there is a requirement for significant improvements in infrastructure or for major regulatory reform.

There is also a general requirement to improve professionalism, through capacity building, training and sensitization, across the entire transport industry in the Northern Corridor. All stakeholders, be they public or private, should recognize that they are offering a service to facilitate – rather than impede – trade and economic development in the region. This includes the need to train port staff, transporters, weighbridge officers, clearing and forwarding agents, customs officers, etc.

15.1 Matrix of Actions for Port and Customs Clearance

Chapter 3 of this report provided a detailed background on some of the most pertinent challenges in clearing goods through the port of Mombasa, including port procedures and customs clearance procedures. Below is a review and a matrix of priority actions in these areas.

Maritime transport facilitates inter-modal links to the hinterland countries to and from the port of Mombasa. Largely however, maritime transport is a global phenomenon which operates in a competitive international environment and is subject to uneconomic pressures from foreign competitors. The competitiveness the Northern corridor countries' exports and processing of imports are highly influenced by the performance of Mombasa port.

Currently KPA plays the roles of both a landlord and a service provider at the port of Mombasa. Apart from managing the port KPA also provides stevedoring and shore handling services. To some extent this dual role has contributed to inefficiencies in port operations. There is therefore the need to inculcate efficiency in port operations by transforming the port into a landlord port in order to facilitate the involvement of the private sector in port operations such as stevedoring, storage, and shore handling activities. The involvement of the private sector in the crucial cargo handling activities would enable quick decision making by eradicating bureaucracy and political interference in crucial issues like equipment acquisition and engender discipline in port operations. This is the trend in ports administrations the world over.

Figure 15-1: Matrix of Actions for maritime transport

Issue	Action Required	Responsible Organizations	Priority
Enhance goods clearance and tracking system	• Enhance SIMBA to reduce downtime and failures which lead to major delays • Develop single window system to link entire port community • Integrate KRA/SIMBA 2005 and KPA/KWATOS with other systems under the Manifest Management System • Enable electronic changes to ship manifest online to encourage preparation of customs clearing information well before ship arrives • Ensure Port,CFS, appointed banks and other stakeholders involved in cargo clearance processes operate 24 / 7.	Kenya Revenue Authority (KRA) Kenya Ports Authority (KPA) Kenya Maritime Authority (KMA)	High
Enhance CFS performance system	• Monitor CFS charges to ensure they reflect KPA charges • Monitor CFS performance to ensure delays are not created unduly to generate additional revenues from storage • Develop container allocation / nomination system from Port to CFS which is transparent and based on supply and demand, not preferential treatment • Consider whether KPA could / should be the facilitator for CFS transactions, rather than requiring shippers to deal with CFS's directly	KMA KPA Kenya Shippers Council (KSC) CFS operators Inter-governmental Standing Committee on Shipping (ISCOS)	High

Issue	Action Required	Responsible Organizations	Priority
Reducing shipping lines and port charges	• Eliminate or reduce unjustifiable port and shipping lines charges. • Support implementation of regulations developed by KMA to create more efficiency and equity in maritime environment and charges	ISCOS KMA KPA KSC	High
Restructuring / improvement of port operations	• Reduction and simplification of cargo clearance and documentation procedures • Transformation of the port into a landlord port status • Promote private sector participation in stevedoring, storage and shore handling operations at the port • Introduce gate complex which involves prior registration of trucks and drivers entering the port and quicker movement of vehicle in/out of the port through bio-data identification, installation of transponders and cameras.	KPA KMA KRA ISCOS	Medium
License Additional Grain Handling conveyors at Mombasa Port	• Consider licensing additional private companies to provide grain handling through modern conveyor system • Address any challenges around delays at GBHL and monopolistic pricing	KPA KMA	Medium
Automation of Cargo Releases	• Consider automation of customs cargo releases at Port of Mombasa for transit goods • Station Northern Corridor country revenue agency personnel in Mombasa to collect taxes (as an interim step prior to full implementation of Customs Union) • Eliminate need for Transit Bonds or ensure regional COMESA Regional Bond Guarantee Scheme is enforced by national governments	Revenue Authorities of Northern Corridor countries COMESA	Low

15.2 Matrix of Actions for Road Sector

Most of the critical issues and challenges in the road transport sector have been discussed in the earlier country chapters. Below we present a matrix of priority actions in the road sector.

Figure 15-2: Matrix of Actions for the Road Sector

Issue	Action Required	Responsible Organizations	Priority
Axle-Load Regulations	• Harmonize implementation of Axle load regulations and policies across the TTCA countries, so that axle load controls are uniform in all countries of the Northern Corridor. The Axle-loading regime should fall within a regional programme, based on recommendations already passed by the COMESA-SADC-EAC tripartite. • Encourage financial institutions to offer favourable credit to businesses to invest in new vehicles compatible with Axle road regulations (when regulations change, as has been the case in Kenya in the past 3 years, transporters are forced to invest in new equipment) • Strictly enforce axle load regulations and eliminate corruption at weighbridges • Penalise shippers, not just transporters, for overloading practices.	TTCA EAC COMESA National Ministries of transport	High
Elimination of delays due to weighbridge processes, police checks	• Immediately implement Presidential Directive (Kenya) limiting unnecessary stops at weigh bridges for transit vehicles • Reduce number of weighbridge stops required in each country • Computerize weighbridges, with close monitoring by a central agency in each country • Use weigh in motion scales and weigh group of axles (not single axle) • Reduce frequency of police checks which cause delays (and therefore costs)	TTCA EAC National Government Roads Ministries and Police	High
Improving professionalism in the road transport industry	• Regulating the transit transport and freight forwarding licensing system • Increasing the role and activities of the Transport associations and Freight forwarding associations • Increasing credit access to informal and small transporters • Organizing training sessions for drivers and freight forwarders to improve professionalism (e.g. fuel siphoning; “briefcase” clearing agents)	- Transporters and freight forwarders Associations -Ministries of transport -all stakeholders	High

Issue	Action Required	Responsible Organizations	Priority
Change "Transit Goods" licensing regulations	• Change EAC licensing regime, which only allows "Transit Goods" vehicles to transport transit goods, in order to enhance productivity, avoid waste and decrease costs.	Ministries of Transport EAC Transporters associations	Medium
Implement regional "Transit Bond" and other customs policies across Northern Corridor	• Support implementation of COMESA Regional Customs Bond Guarantee Scheme to enable one customs bond accepted by all countries in the region. • Support harmonized implementation and respect of regional customs agreements across Northern Corridor countries.	COMESA EAC All national governments	Medium
Safety and Security	• Increase number of secure off-road parking areas (to reduce number of accidents at night from trucks parked on the road) • Offer better / safer overnight services for truck drivers to keep them from unsafe practices (e.g. alcohol consumption, risks of HIV/AIDS, theft) • Ensure minimum vehicle quality and maintenance standards are upheld for vehicles/trucks licensed to carry transit traffic on Northern Corridor roads.	EAC TTCA National Police Departments National vehicle licensing organizations	Medium
Rehabilitation of the road infrastructure	• Ensure Mombasa-Nairobi road is maintained, so that users continue to benefit from recent investments • Complete Nairobi by-passes • Improve road to South Sudan to enhance safety and lower logistics costs • Coordinate road sub-sector development and maintenance • Ensure sustainable and adequate funds for road infrastructure construction, rehabilitation and maintenance, particularly in DRC.	Ministries of Works Ministries of Transport TTCA Donors	Low

15.3 Matrix of Actions for railways sector

The mission of the railway transport sub-sector is to provide efficient, reliable, safe and secure railway transport services that are integrated with national and regional railway, road, water, pipeline and air transport services for the transportation of goods and passengers on a sustainable and competitive basis.

Rail transport is usually a better option than road to transport bulky goods over long distances. However, the rail system in the Northern Corridor has lost a lot of traffic to the road due to operational and technical constraints. In order to improve the economy, the railway should be improved and better integrated with other modes of transport. The improvement of the maritime sector and the reduction of road damage will highly depend on an efficient modern railway. The benefits that will accrue to the economy as a result of an efficient modern railway are enormous.

The challenges and constraints facing the railways are:

- Stiff competition from road and pipeline transport;
- Tax policies that result in the railways subsidizing road transport which is its major competitor through payment of the road maintenance fuel levy;
- An unreliable and aging infrastructure and rolling stock particularly the single track, bridges, telecommunication, signaling and other facilities; and
- Lack of investment by the Kenyan and Uganda Government, KRC and the Concessionaire.

The Kenya and Uganda Governments need to invest more in railways to provide a cost-effective rail transport and to save road damage, reduce accidents and achieve financial savings. Rail transport is not well integrated nationally and internationally. There is need to develop infrastructure and operations that serve all the parts of Kenya and connect to neighboring countries.

Improving Rail-Road competition

An absence of rail services creates opportunities for other modes to increase tariffs. . That is why intermodal competition on the Northern Corridor is critical. Increased competition from rail services benefits transport users primarily through comparable or lower transport costs. Actual or potential competition from road operators drastically limits the railways' pricing power, even in the situations where railways enjoy commanding market shares.

The current situation in Kenya does not favour rail usage for transit traffic. The shipping lines charge more to shippers if they want to use the rail option, as opposed to road transport; effective surcharge is $50 - $100 more per container, reportedly to cover the administrative costs of liaising with the rail company. The travel time for rail compared to road is not favourable. According to one large international shipper, the trip from ship docking at Mombasa to arriving at their factory in Nakuru by takes 2.5 – 3 weeks by road; but 1 month by rail. Overall, with the additional handling and transport (door to door) costs, the total transport costs end up being about $400 more per 20' container to use the train option overall, compared to road. In addition, we understand there are up to **$300** extra direct costs of using railway for containers which don't apply to options using road (excluding demurrage):

- Crane usage from transhipment to move container from railway yard onto a truck near destination (e.g. in Kampala) - $50- $60 / container
- Transport from railway yard to a warehouse in Kampala: $70 per container (includes return to railway yard with empty container)
- Returning the empty container by rail: $150
- Cost of transport of empty container from rail in Mombasa back to shipping line: $20

Introducing intermodal full infrastructure pricing policy

One fundamental aspect of road-rail competition that affects tariff differences between these two modes relates to government's existing policies toward road users. We note that long-standing policies to provide road infrastructure to users at less than full recovery costs create serious competition imbalances in the transport sector. Road infrastructure is usually financed through the government's general budget, implying significant cross-subsidies from non road to road users, leaving only a fraction of total costs to be financed by road users. This may not have mattered in the past as railways were owned and operated by governments (that is, total subsidies for road and rail were roughly the same). However, the introduction of the private railway operator, RVR, who is expected to fully cover their infrastructure maintenance and rehabilitation costs through users' fees, should alter significantly governments' thinking in this area. The railway operated by RVR does not benefit from subsidies or indirect infrastructure funding by the governments of Kenya or Uganda compared to the trucking industry who is enjoying substantial benefits from a highly subsidized highway network. In fact, RVR is presently subsidizing the highway network and indirectly its trucking competitors, because RVR is subject to the Road Maintenance Fuel Levy which is used for highway maintenance and expansion.

Figure 15-3: Matrix of Actions for rail transport

Issue	Action Required	Responsible Organizations	Priority
Establishment of an appropriate regulation framework	• Provide for a legal framework that encourages fair competition among the modes.	Ministry of transport KRC URC RVR	High
Promoting multi modal transport through integration of railway systems with other transport modes	• Initiate a long-term railway development programme that will provide efficient and reliable rail capacity	KPA KRC URC National Governments Transport Departments	Medium

Issue	Action Required	Responsible Organizations	Priority
Introducing intermodal full infrastructure pricing policy	• Exonerate the railway users from paying the Road Maintenance Fuel Levy which is used for highway maintenance, Alternatively, consider either placing the fuel levies into a multi-sector "Infrastructure Fund" which could be used for rehabilitation in all infrastructure sectors, not just road, or rebating fuel taxes to the rail operator.	Ministries of transport Ministries of finance	Medium
Development of ICT use in railways operations	• Expand the Rail tracker train operation information system • Implement comprehensive integrated information and communication technology systems	RVR KRC URC	Low

15.4 Matrix of Actions for Inland Waterways

Inland waterway transport is critical to enhancing land-sea inter modality. It was initially developed in the Great Lakes regions to link the DRC and Uganda with the Indian Ocean ports prior to the introduction of road transport. Although growth has been depressed on Lakes Tanganyika and Victoria, short inland waterway shipping has been growing significantly in some parts of the world over the last 10-20 years. Inland waterway transport is also normally part of a cycle involving other modes. The maritime leg can be complex and involve ships of different sizes in order to attain economies of scale or density on some routes. Nevertheless, as the goal is always to obtain the cheapest, fastest and most reliable transport conditions, the demand for inland waterway transport is related to the generalized cost of the whole transport cycle.

Inland waterways were much more integrated in previous years in the Northern Corridor than they are now. Integration with other modes has deteriorated over the years and is not capable of effectively supporting economic activities in the region. There is a need to integrate inland waterway transport with other modes of transport.

Figure 15-4: Matrix of Actions for Inland Waterways

Issue	Action Required	Responsible Organizations	Priority
Promotion and development of inland water transport on Lake Victoria in order to divert cargo from road to rail and marine transport.	• Developing an integrated multi-modal transport system in the Northern Corridor to facilitate regional trade between EAC partner states and with the land-locked countries in the Great Lakes region • Promote private sector participation in the provision of inland water transport services	EAC KMA KRC URC RVR	High
Development of infrastructure and water transport services	• Upgrade the Mau Summit-Kisumu rail section to enable high capacity locomotives to ply the Nakuru-Kisumu branch line • Encourage investment in the provision of water transport services • Support procurement of new ferries (already started in Uganda)	KPA KRC URC RVR	High
Safety and Security	• Ensure safety of passengers and goods on Lake Victoria • Harmonize safety and security regulations in the region • Promote environmental safety in the management of inland water transport	EAC KMA KRC URC RVR	Medium

15.5 Matrix of actions for Pipeline Transport

The pipeline transport system plays a significant role in the Northern Corridor region since it transports an average of 87% of petroleum products demanded in the region annually.

Transportation of petroleum in a cost-efficient matter is crucial to all Northern corridor countries. High fuel prices impact negatively on the overall economy through inflationary effects and unreliable supplies of energy and can negatively impact economic development efforts. In addition, fuel transportation to the landlocked countries is a major contributor to foreign exchange for Kenya.

KPC's mission is to provide an efficient, safe, reliable, cost effective means of pipeline transport, storage, distribution, infrastructure development and operations for refined petroleum products in Kenya and landlocked countries, with a view to minimizing road damage and satisfying the needs of shareholders and customers in an economically and environmentally sustainable manner.
KPC is 100% owned by the Government of Kenya. This arrangement impacts on its efficiency and management. The financing of pipeline maintenance, development and expansion has been through a combination of internal KPC funding and borrowing.

Although the extension of the pipeline to Kisumu, Nakuru and Eldoret was intended to reduce the number of vehicles transporting petroleum fuels from Mombasa to the hinterland the realized reduction in road traffic has not been significant.

In addition to pricing, there are other factors worth considering which affect road – pipeline fuel transport. We understand from KPC that the main reason for trucking of products from Mombasa by road (instead of pipeline) is due to current capacity constraints of the loading facilities at the oil marketing depots in Nairobi and pipeline capacity constraints from Nairobi to Western Kenya. As such, pricing may not be the driving force for the greater use of road fuel transport[52].

The critical issues in the pipeline transport system are:

- **Pipeline Maintenance and Rehabilitation:** The Mombasa – Nairobi segment of the pipeline was commissioned in 1978. The extensions to Eldoret and Kisumu through Nakuru were commissioned in early 1994. The ageing infrastructure is therefore a challenge in realizing optimum operations of the pipeline, although KPC does conduct ongoing and continuous rehabilitation works on the Mombasa-Nairobi pipeline to maximize effective capacity.

- **Infrastructure planning and Development:** Plans are at an advanced stage to extend the pipeline to Uganda and beyond. Currently, pipeline transportation does not cover Liquid Petroleum Gases (LPG), fuel oils (FO) and industrial diesel oil (IDO).

- **High pipeline tariffs**: These tariffs contribute to the overall high prices of petroleum products in the Northern corridor region.

Figure 15-5: Matrix of Actions for the pipeline transport

Issue	Action Required	Responsible Organizations	Priority
Institutional and regulatory framework	• Enact appropriate legislation that will govern the development and operation of the pipeline transport system. • Ensure that the KPC tariffs are competitive. • Ensure the integration of pipeline transport mode with other modes, particularly railway and road transport.	Energy Regulatory Commission (ERC) KPC	High

[52] Based on information provided by KPC following Stakeholder Workshop in September 2010.

Issue	Action Required	Responsible Organizations	Priority
Provision and maintenance of adequate infrastructure for an efficient and sustainable pipeline transport network that is competitive within the Northern Corridor	• Encourage private sector participation in the provision of pipeline infrastructure and in the operation of services • Ensure development of common user facilities that are convenient and compatible to all modes of transport.	ERC KPC	Medium
Pipeline management	• Encourage the utilization of ICTs in product monitoring and management • Develop and enforce energy saving measures that will focus on energy conservation and efficiency • Streamline the operations of KPC with a view to ensuring that it operates in the most efficient manner. • Enhance capacity building within the pipeline industry.	KPC	Medium
Safety and security	• Ensure security for pipeline infrastructure to enhance reliability.	ERC KPC	Low

16 Policy Implementation and Monitoring Indicators

16.1 Overview of an efficient corridor management policy

Physical access to world markets is a paramount constraint to the development of many of the poorest countries, especially landlocked developing countries like those in the Northern Corridor region. Their trade potential is hampered by the poor performance of the overland transit systems. Adverse factors come from transportation services, business practices, transport or customs procedures, governance, and infrastructure. The improvement of the global connection of East African landlocked countries is a high priority in their development agenda, but the experience shows that projects and reforms are complex to design and implement and are not always successful. Indeed, transit facilitation requires the implementation of a wide range of consistent measures in several sectors and countries.

The most promising approach to improve East African landlocked countries' access to global markets is via improving the performance of the Northern and Central transport corridors. The concept of a corridor is a powerful construct for addressing most of the major issues confronting freight transportation and especially for freight movements between and through adjoining countries. The concept includes not only a collection of routes, but also a portfolio of transport services. It provides a mechanism for focusing public and private sector efforts on a common objective: moving goods efficiently throughout the corridor. It creates a framework in which initiatives to improve cross-border freight movements can be defined, appraised, and evaluated. This framework can accommodate intermodal transport and integrated logistics.

Policy formulation processes can be said to be successful only when the policies are implemented, to achieve the desired results. Policy implementation imposes serious demands on data, information and reporting systems to determine the extent to which established targets and objectives are being met and whether the aspirations of the people in terms of their welfare are being adequately addressed. Therefore a monitoring and evaluation system must be established in a responsible institution that is capable of identifying policy performance targets and monitoring indicators and modalities.

Policies have associated benefits and costs. As such they have differential impact on different persons or groups. An important problem in the policy formulation process is to define clearly the policy beneficiaries. It is important that the difference between intended and unintended beneficiaries of a policy is articulated. Thus, there is a need for a policy impact assessment which should complement the policy formulation ideas proposed previously.

16.2 General actions required

The following actions are required to increase the efficient use of transit transport systems in the Northern Corridor region:

1) Promoting peace and security

Several countries in the Northern Corridor region have suffered from civil strife. But the peaceful elections in the DRC in 2006 and the earlier successful peace initiative in Burundi have ushered in a new era of peace and security in the sub region. Those countries that were ravaged by civil wars have now turned their attention to economic development (e.g. Rwanda), while others such as Kenya, which were caught up in the recent post-election violence, are back on track. Political stability provides an enabling environment for rapid economic growth, which will in turn increase Governments' revenues and their ability to undertake infrastructure development programmes, while encouraging more financial support from development partners as well as private sector investment.

2) Increased investment to improve transport infrastructure and related facilities

East Africa has in place the basic transport and related infrastructure in terms of maritime and inland ports, railways, roads, inland water transport, air transport and pipelines. However, the services rendered must improve in order to satisfy current and future trade and transport requirements. Yet efficient service delivery poses considerable challenges. The development and maintenance of infrastructure requires large-scale investments. Both the Governments and their development partners are aware of this, but also know that Governments have very limited resources. Under these circumstances, the way forward calls for:

- Improved project management by Governments in order to maximize the use of resources;
- increased budgetary allocation for development and maintenance of infrastructure;
- Substantially increased donor assistance, and
- The mobilization of private financing and management.

3) Improved intermodal coordination

East Africa has a chain of logistic facilities, namely ports, railways, roads and container depots, but intermodal coordination is weak. Now that the Uganda and Kenya railway networks have been leased to a single operator, RVR, opportunities have been created for greater intermodal coordination along the Northern Corridor. Faster and more reliable train services from the port of Mombasa to a container depot in Kampala would not only cut down the cost of transport, but also may well convince shipping lines to issue through bills of lading.

4) Establishment and improvement of information technologies

The introduction in 2005 of Simba, a customs information system in Kenya, closed the gap in a decade-long effort to computerize customs procedures in East Africa. The application of Simba at the port of Mombasa was so successful that the port has been encouraged to handle the development of two new systems — a waterfront management system, and a port community information system. The former is being designed to assist port operations, while the latter is intended to provide a platform for information gathering and sharing among port users (port, shipping lines, stevedores, customs, transport operators and forwarders). There is still room for improvement of the Simba system (to avoid breakdowns) and for greater integration between Simba and other goods clearance and tracking systems.

5) Effective implementation of regulatory frameworks

It is common knowledge that international conventions and regional and bilateral agreements are applicable to countries that have taken action to sign, ratify or accede to them. But it is not equally appreciated that the effective application of such legal instruments requires more action in terms of internalizing them in national legal frameworks and ensuring that the national control agents, such as customs officers or the police, understand and apply the new regulations, documentation and formalities. The introduction of regional instruments, such as common customs declaration documents, often results in difficulties in implementation. Efforts in East Africa so far to find solutions to technical problems related to the introduction of new regional instruments are commendable, but there is more work to be done. A future challenge is to implement both the COMESA Single Goods Declaration Document, which would replace the RCTD, and the Customs Bond Guarantee Scheme.

6) Strengthening institutional support systems

Governments, as part of their reform programmes, have delegated to regulatory bodies and dedicated road fund authorities some of the functions formerly performed in the ministries of transport. It is believed that functions such as road maintenance, licensing and revenue collection would be better performed by the specialized autonomous bodies. However, if this objective is to be attained, the ministries of transport need to respect the autonomy of their subsidiary and regulatory bodies, which, in turn, need to carry out their functions with diligence and confidence. The private sector has also established professional bodies, such as transporters' associations and associations of clearing and forwarding agents, which facilitate public and private sector dialogue, cooperation and collaboration. However, many of the associations' activities are limited to the big cities. To justify their claim that they represent their members, professional bodies must extend their membership beyond the big cities. They must hold regular meetings with their members and provide them with additional outreach services, for example business information and training opportunities (workshops and seminars).

16.3 Performance Indicators

The NCTTCA's vision is to contribute to sustainable social and economic development of the NCTTCA member States through an integrated transport system that promotes national, regional and international trade.

Defining and tracking a set of indicators measuring the performance of the Northern Corridor therefore plays a critical role in achieving this vision:

- It helps to identify areas for improvement in relation to targets (or benchmarks);
- It provides a set of tools for diagnosing problems/bottlenecks on the corridor; and
- It measures the evolution of the situation and leads, ultimately, to the measurement of the effectiveness of programs designed to address problems/bottlenecks identified during the diagnostic phase.

Performance indicators are needed to deal with three key factors in the Northern Corridor:

a) Quality and competitiveness of transport and logistics services,
b) Capacity and condition of public infrastructure used by these services, and
c) Domestic, bilateral, and sometimes, multilateral regulation of these services and the trades that they serve.

To be most effective, performance indicators should be reported **regularly** (e.g. quarterly, annually) and the results should be **published** and available to the public. The use of ICT software and monitoring systems is also important for routine and consistent performance analysis; an ad-hoc system of data analysis will not be effective.

The following performance indicators cover the three main corridor performance components which should be actively and systematically monitored and tracked by the NCTTCA in future to ensure any changes in policy and programming are having the desired effects.

Figure 16-1: Potential Performance Indicators

Port Indicators	Line-Haul Transport Indicators	Transit Time Indicators
• Time at anchorage before unloading • Time for Customs release • Total time time within the port complex (including CFS and other extensions – i.e. discharge of vessel to handing over to line-haul carrier) • Indicators for additional port service providers (shipping companies, clearing agents) • Service indicators could form part of new KMA regulations	• Average transit time by route and mode of transport • Average transit time by major origin-destination • Number of checkpoints (Customs, Police, weigh stations) between major origin-destination pairs • Average transit time by border post	• Average total transit time by vehicle type • Average total transit time by country • Average total transit time by commodity • Average total transit time by country of vehicle registration

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