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Maputo Corridor Summary Report

A Transport Logistics Diagnostic Tool Study

March 2008

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Transport Logistics Diagnostic Tool Study

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Executive Summary

This report has been prepared by Nathan Associates, Inc. under contract to USAID. It was prepared by a team working in Mozambique and South Africa with input from many stakeholders in the Maputo Development Corridor. It summarizes the general characteristics of the Corridor and the constraints on transport/logistics efficiency in the Corridor compared with international standards. Then it suggests potential actions that could improve corridor performance.

The Maputo Corridor is a major import and export route connecting the northeast provinces of South Africa with the capital and main port of Mozambique. It also serves the South African provinces of Limpopo, Mpumalanga, and Gauteng (to a lesser extent), as well as Swaziland and southwest Mozambique. This includes major productive mining, industrial and agricultural, regions in South Africa, extending to Johannesburg and Pretoria on the western end of the corridor. The corridor's transport facilities include roads, rail lines, and ports. This corridor competes with alternative import and export routes through the Port of Durban in South Africa.

The Maputo Corridor has only recently overcome a history of conflict that allowed its infrastructure and services to deteriorate. This situation has been greatly alleviated with new management of the port, terminals and highway system based on concession agreements and substantial investments in infrastructure, including port access roads and a well-maintained toll road. A period of cooperation has started between South African institutions and Mozambican institutions, including the railways (CFM and Spoornet) and the Customs agencies. This has been facilitated by the Maputo Corridor Logistics Initiative, which is an active coalition of private and public shareholders.

Nevertheless, there some inefficiencies in port, border post, customs, and transport infrastructure and operations that were identified during this study (see detailed discussion in the text). The stakeholders identified key issues concerning:

- Customs and Border Posts – inadequate facilities, lack of electronic data interchange with customs, duplicative processes and significant delays
- Rail connections and services – including infrastructure, coordination of operations, rolling stock and service linkage across the border
- Government policies and regulations - that prevent close cooperation across the border for freight transport

- Shipping services – frequency of container service is an issue, especially for smaller shippers.
- Cargo scanning price – expensive compared with other ports and not transparent to South African Shippers. X ray container scanning issues are holding up port investments and slowing its annual growth from 13 percent from 2003 to 2 percent in 2007

The FastPath analysis which used international standards as benchmarks highlighted additional areas of strengths and weaknesses for the corridor:

- The port and customs operations are relatively efficient however, they are somewhat more expensive and have more variation in time than international norms which places them in the range of “fair” performance
- The border post operations are only somewhat more lengthy than international norms, however, increasing congestion and inefficient processing times for paperwork bring the rating into a “poor” performance range.
- Road transport outside of the border posts is in the “good” performance range, however, relatively high prices per tonne-km reduces the level of performance
- Rail transport is the lowest performer in the corridor and has a long way to go to be competitive. There are long waiting times at Komatipoort border facilities due to lack of CFM locomotive availability.

There are promising signs for further improvement in the Corridor and the active participation of both public and private stakeholders is continuing requirement for improved competitiveness.

The analysis of potential traffic for the Corridor is also promising as there is enough demand to double or triple current levels, if the conditions are right. Plans for the development of the port and supporting rail and customs infrastructure will facilitate this increase, but other actions are needed to improve competitiveness with Durban from a shipper’s viewpoint.

A number of potential improvements were identified during this performance assessment both by stakeholder observations and through FastPath analysis. The most important are:

- One-stop border posts with increased capacity in 2010 (one for commercial freight, one for passengers and one for rail)
- Customs information systems linkage between the two governments
- Improved cross-border rail operations through coordinated planning of trains
- Additional locomotives and rolling stock for CFM
- Rehabilitation of the railway line enabling 20-ton axle loads, and the running of longer and heavier trains
- Additional policy actions to improve and encourage multimodal container transport in the Corridor

- Improved customs services in peak periods, December and Easter

Continual monitoring of the situation by MCLI and pursuit of the detailed actions identified in Chapter 8 of this report will contribute significantly to the development of the Maputo Corridor.

1. Introduction

REPORT BACKGROUND AND OBJECTIVES

This report is a summary of information produced for the Maputo Corridor as part of a larger study of the development and testing of the Transport Logistics Diagnostic Tool (*FastPath*TM). This is a tool that is intended to assist USAID, other donors, governments, and the private sector in developing countries in identifying and addressing transport logistics problems.¹ It measures the performance of transport logistics chains in terms of time, price, and reliability and identifies bottlenecks and assesses their impact on transport systems that constrain the seamless flow objective of freight.

The Maputo Corridor was selected as a test case for the tool in the measurement of performance and to judge its ability to help prioritize projects to improve the logistics performance in the corridor. During this test two reports were produced: the Maputo Corridor Diagnostic Report and the Performance Measurement Report. This summary report contains the results of the analyses in these two reports and the conclusions and recommendations. These results were modified in response to the comments of the MCLI on the original reports.

The *FastPath*TM framework is designed to work primarily with container traffic, and this was a limitation in the case of the Maputo Corridor which is primarily used for bulk traffic with limited container flows. Nevertheless, the framework proved useful in measuring the performance of the different components of the corridor and summarizing performance as a whole compared with international norms.

REPORT STRUCTURE

This report is the third technical report under the TLDT implementation activity. It briefly presents an overview of the Maputo Corridor and its transport logistics system. Then, it summarizes results and findings from stakeholder interviews, emphasizing the identification of constraints along the corridor. The report then summarizes the Corridor performance, and suggests potential improvements to the Corridor.

¹ The TLDT was developed with funding from both USAID (under the Trade and Capacity Building contract) and Nathan Associates and its partners.

2. Maputo Corridor Transport Logistics System

OVERVIEW

The Maputo Corridor is a major import/export route that connects the northeast provinces of South Africa with the capital and main port of Mozambique, as shown in the map in Figure 2-1. It also serves the South African provinces of Limpopo, Mpumalanga, and Gauteng (to a lesser extent), as well as Swaziland and southwest Mozambique. The corridor runs through some of the most industrialized and productive regions of southern Africa, including mining and agricultural areas and large concentrations of manufacturing, processing, mining, and smelting industries, which are located in Johannesburg and Pretoria on the western end of the corridor.

In the past 12 years the governments of South Africa, Mozambique, and Swaziland have promoted the revival of the Maputo Development Corridor with bilateral policies and substantial public and private sector investment, designed to stimulate sustainable growth and development in the region.² Private businesses, however, have been cooperating recently through the Maputo Corridor Logistics Initiative (MCLI) to promote the development and use of the Maputo Development Corridor.

TRANSPORT FACILITIES IN THE CORRIDOR

The corridor's transport facilities include roads, rail lines, and ports. These are described here.

Road Network

The main road on the South African side is the N4, a two- to four-lane national toll road. In Mozambique the N4 becomes the EN4 after crossing the Mozambique border and progresses to Maputo. The EN4 completed in 2004 is operated by the concessionaire Trans African Concessions (TRAC). TRAC is responsible for building, operating, and maintaining the EN4 highway until 2028. The EN4 is connected to the port in Maputo by a special access road completed in 2006 with a modern gate facility at the entrance to the port (see Figure 2-3 and 2-11). The entire network is built to carry the 56-ton trucks that are used for heavy international freight. (See Diagnostic Report for details on road infrastructure.)

² The South African Spatial Development Initiatives program began in 1995 with the Maputo Development Corridor.

Figure 2-1

Map of the Maputo Corridor

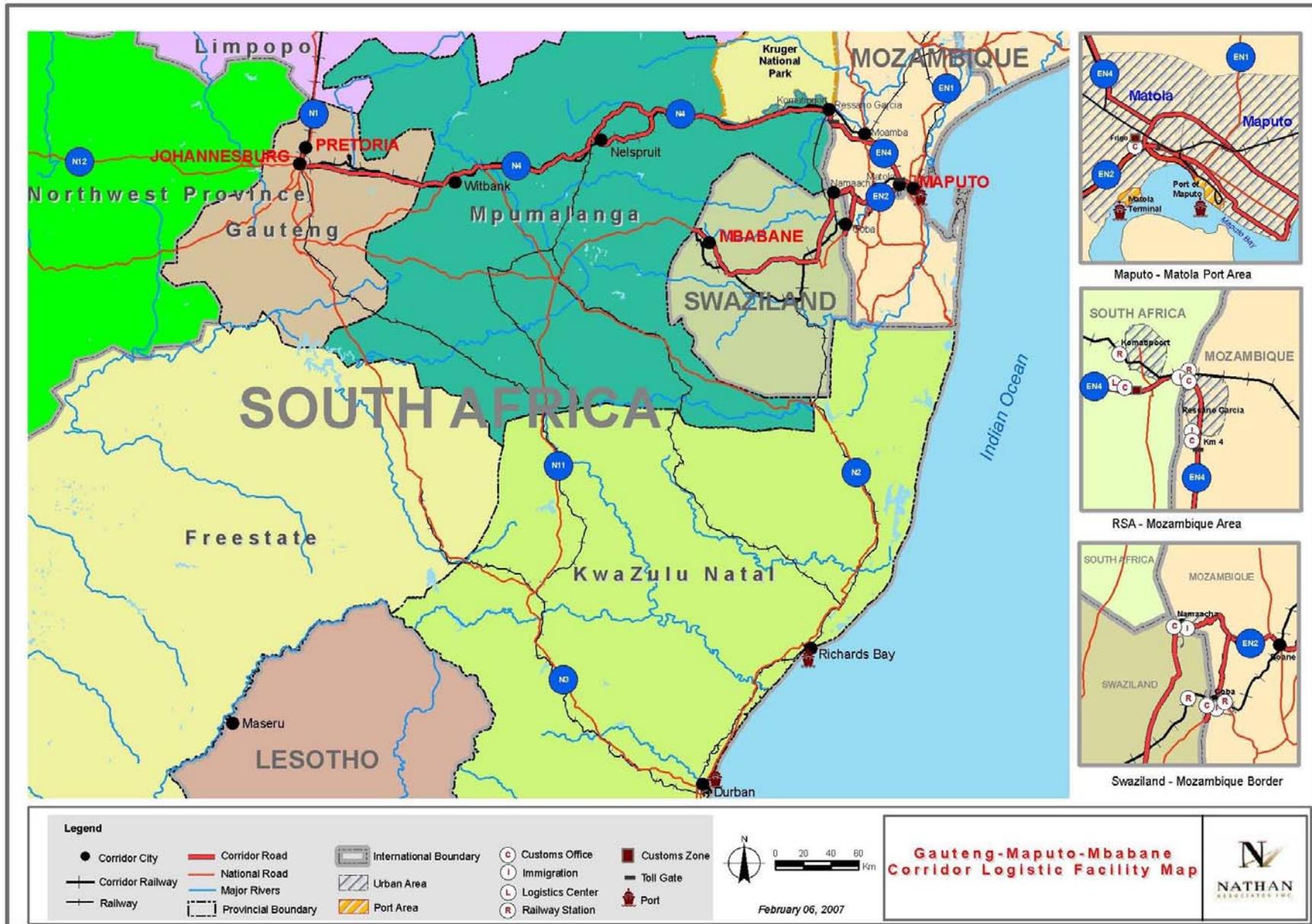


Figure 2-2
Port Access Road



Figure 2-3
Maputo Toll Gate on EN4



Figure 2-4

EN4. Two-lane Section

Figure 2-5

EN4. Two-lane Section

Rail Network

In South Africa, the rail lines are owned and operated by South Africa's national railway Spoornet. Caminho de Ferro de Moçambique (CFM-Sud) operates the rail line on the Mozambican side. In 2006, CFM-Sud undertook repairs on the line's worst portions and reinforced three major bridges on the Ressano Garcia-Maputo Port segment to reduce the transit time to four hours. An ongoing project will raise the line to South African standards and make it capable of running nonstop locomotives for seamless movement across the border by July 2007.³ This involves a US\$20 million investment in the rail infrastructure for the procurement of new 54 kg/m rail, modernization of a concrete sleeper factory, the re-sleeper and re-ballast of the track, inspection and repair of bridges, and the procurement of new equipment at yards and stations. A picture of the rehabilitated rail line in the Port is shown in Figure 2-6.

Figure 2-6

Rehabilitated Rail Link Inside Port of Maputo



Ports—Maputo and Matola

The corridor includes the Port of Maputo, which has two main terminals, Maputo and Matola (see inset in Figure 2-1). The Matola Bulk Terminal, six kilometers upriver from the Maputo Terminal, handles primarily bulk cargo, such as coal, aluminum, light and heavy fuels, mineral oil products, and cereals. Maputo Terminal handles all other cargo, including general cargo, containers, and some specialized bulk cargos. The deepwater port is concessioned to the Maputo Port Development Company (MPDC). The concession commenced in 2003 for a period of 15

³ Minutes of Mpumalanga Freight Logistics Forum, November 8, 2006.

years with the option for a 10-year extension. MPDC has been granted the rights to finance, rehabilitate, operate, manage, maintain, develop, and optimize the port area⁴.

The channel to the Maputo and Matola ports is continually dredged to a depth of 10.3 meters. This allows ships of up to 60,000 DWT to enter the ports. Pictures of the ports and their operations are shown in Figures 2-7 through 2-13.

Figure 2-7

Cement Unloading and Containers Being Loaded on a MACS Ship at Maputo



Figure 2-8

Ship at Mozambique International Port Services



⁴ See Maputo Corridor Diagnostic Report for details on the terminal facilities.

Figure 2-9

MIPS Gantry Cranes



Figure 2-10

Sugar Entering the New Bagged-Sugar Warehouse



Figure 2-11

Rail Discharge of Ferrochrome for Export



Figure 2-12

Maputo Port's New High-Security Port Entrance Gate



SOURCE: *Maputo Port Development Company*

Figure 2-13

Truck Being Scanned by Kudumba X-ray Machines Located inside the Port



BORDER FACILITIES

South Africa–Mozambique Highway Border Facilities

The border posts in the corridor between South Africa and Mozambique are about 90 kilometers from Maputo at Lebombo on the South African side and Ressano Garcia on the Mozambican side (see inset in Figure 2-1). Pictures of these two border posts are shown in Figures 2-14 and 2-15.

Figure 2-14

Lebombo Border Post: Trucks Waiting to Enter Mozambique



Figure 2-15

Ressano Garcia Border Post

There is also a customs facility at Kilometer 4 on the Mozambican side that is used for clearing trucks in the Christmas and Easter seasons when border traffic is heavy. This location is scheduled to become a one-stop border post in the near future, when negotiations are completed between the two governments and funding becomes available. The idea is to concentrate all the border operations of both South Africa and Mozambique border control departments in a single post to speed customs clearing, limit paperwork, improve security control, and in general facilitate trade and optimize the Maputo Corridor's freight transportation capacity. The project has been spearheaded by the Mozambique customs department which reports to the Minister of Finance and provides quarterly reports for the national ministers meeting.

The post, which would be located in the 500 hectare area granted by the Mozambican government for the new dry port, would have a bypass road from the N4 directly into the terminal, with divided areas to separate cargo not destined for direct export market from cargo destined for the port, and would include other facilities, such as infrastructure for clearing agents, freight forwarders, hotels, banks, and housing. The one-stop post may have separate locations for the two directions.

The costs of the project were estimated in a pre-feasibility study at US\$40–50 million. It will be designed to handle 400,000 containers per year in the first phase of its development. Preliminary plans for one version of the proposed one-stop border post are shown in Figures 2-16 and 2-17. A view of current Kilometer 4 facilities is shown in Figure 2-18.

Figure 2-16

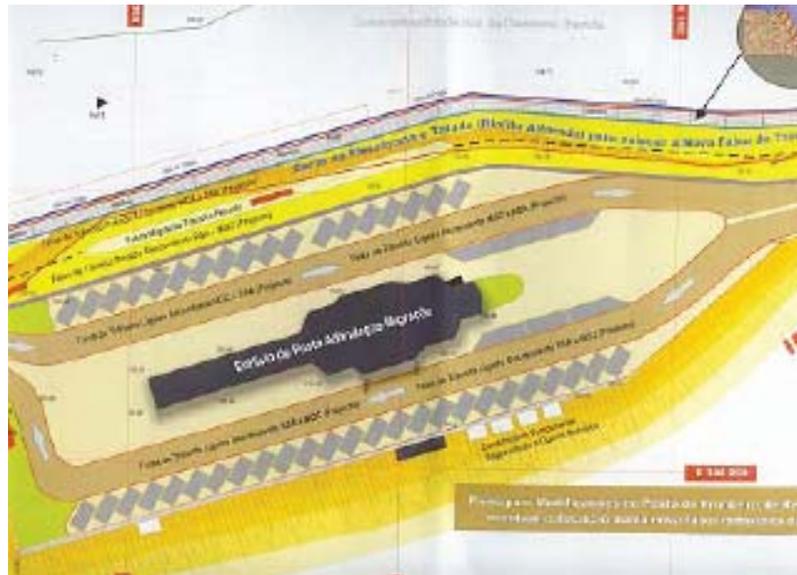
Proposed One-Stop Border Post: Customs Offices, Parking, Other Facilities



SOURCE: Maputo Corridor Logistics Initiative

Figure 2-17

Proposed One-Stop Border Post: Customs Offices



SOURCE: Maputo Corridor Logistics Initiative

Figure 2-18

Kilometer 4 Mozambique—Future Location of one component of the One-Stop Border Post



South Africa–Mozambique Rail Border Facilities

Customs for rail imports are handled by agents based in the Komatipoort Customs Zone, known as “the Airfield.” Exports are normally registered with customs at the rail starting point for the shipment. Trains with export cargo do not stop at the Komatipoort station for customs, only for dispatching.

The Komatipoort Spoornet dispatcher has a goal of five trains per day (three coal and two manganese). If all functions normally, Spoornet can meet this target. If the dispatcher has more than three coal trains, the trains will be kept in the yard as staging for the next day. The dispatcher also handles the occasional train with sugar or other export goods.

Coal and manganese shipments are pre-cleared by customs. These trains continue with Spoornet locomotives to the port. As the trains cross the border at Ressano Garcia, Mozambican drivers take over, but they are Spoornet drivers, not CFM’s.

For sugar and general cargo exports, the dispatcher at Komatipoort telephones CFM to send a locomotive. If one is available, it comes, but often there is a wait, which could take hours or days, depending on the availability of locomotives. Also, the CFM locomotive may be underpowered and the train split up. In this case, the second half may have to wait for up to three days to be picked up. CFM is expecting a delivery of locomotives that will solve this problem.

Swaziland–Mozambique Border Facilities

The corridor crosses the Swaziland–Mozambique border at two locations: Goba–Mhlumeni and Naamacha–Lomohasha. The Naamacha-Lomohasha border post is shown in Figures 2-19 and 2-20. This report does not examine this border crossing in depth, but concentrates on the Mozambique–South Africa border.

Figure 2-19

Naamacha-Lomohasha Border Post



Figure 2-20

Naamacha-Lomohasha Border Post



Lebombo Dry Port Facility

There is a private initiative to create a dry port near Komatipoort called the Lebombo Dry Port. This is located in the former Komatipoort airport just off of N4 (see inset in Figure 2-1). The airport site has offices for freight forwarders, clearing agents, and road freight associations. It has also a space for general cargo storage, truck parking, restrooms, and restaurants. It is planned for development into a dry port with customs facilities, bus terminal, overnight lodge, regional shopping center, warehouses, and an emergency clinic. This initiative, however, is caught up in political discussions about the one-stop border post (described in Chapter 4). It is not known how these discussions will end or whether this facility will attain its desired dry port status. Meanwhile, it functions as a logistics center for some logistics service providers. Figure 2-21 shows these facilities.

Figure 2-21

Freight Forwarders Offices at Lebombo



Customs

South Africa Revenue Services (SARS) and Alfândegas de Moçambique are the primary border customs control agencies.

Komatipoort Airport

On the South African side, goods are not cleared at the Lebombo border post, but 4 kilometers in, on the N4, in a facility built in 1998 at the old airport, and is therefore known as “the Airport.” Commercial traffic is inspected in Komatipoort. The facility and its operations have improved, thanks to the provision of more infrastructure for commercial processes and to the shift of cargo processing to these facilities. The commercial facility has an area for clearing agents and facilities for the many people crossing the border, something that has also contributed to the decongestion at the border post. Figure 2-22 shows these facilities.

Figure 2-22

Customs Offices in the Lebombo Customs Zone



Tiro, or “Frigo”

On the Mozambican side, clearance of goods destined for the Mozambique market that exceed a US\$500 value takes place at Tiro (also known as Frigo). From the Ressano Garcia border, where the truck driver presents the customs document, goods are transported to Tiro offices, about 80 km from the border. Depending on the type of cargo, trucks may be transported under customs control to avoid freight being offloaded on the way. In TIRO, trucks can be offloaded and wait for the custom clearance to be completed. Most of the commodities analyzed for this study are in transit through Mozambique, and therefore are not cleared here. The Frigo entrance is shown in Figure 2-23.

Figure 2-23

“Frigo” Entrance



STAKEHOLDERS

The Maputo Corridor Logistics Initiative (MCLI) was formed in 2004 and is located in Nelspruit.⁵ Its mission is “to support the development of the Maputo Corridor into a sustainable, highly efficient transportation route, creating an increasingly favorable climate for investment and new opportunities for communities along the length and breadth of the corridor.” It serves as a voice for the private sector, and plays a major role in coordinating the development of logistics policy between the public and private sectors. Its activities include

- Coordinating initiatives and engaging authorities in planning service and infrastructure improvements;
- Organizing events, fact-finding missions, forums, and meetings;
- Communicating progress and developments through electronic newsletters and the media;
- Promoting positive attitudes toward and perceptions of the corridor, and logistical benefits offered by the corridor;
- Facilitating training opportunities, including industry cross-training of public and private stakeholders to ensure full understanding of the supply chain;
- Putting users in touch with service providers and providing information on all aspects of how to use and benefit from the corridor;
- Developing of a corridor supporter and service provider directory and website;
- Organizing strategic quarterly forums; and
- Organizing service provider forums.

A wide spectrum of stakeholders from South Africa, Mozambique, and Swaziland have shown interest in and supported MCLI. These include government departments, cargo owners, road haulers, intermodal operators, rail service providers, logistics companies, clearing agents, forwarding agents, shipping lines, port agents, shipping brokers, professional bodies, associations, financial institutions, border post management, and officials.

⁵ See the MCLI website at www.mcli.co.za for more detail.

3. Market and Traffic Flow

GEOGRAPHIC MARKET

The geographic market served by the Maputo Corridor covers one of the most industrialized and productive regions of Sub-Saharan Africa. This area includes

- **South Africa**
 - **Gauteng Province (Johannesburg and Pretoria).** This region forms the western axis of the corridor. Also known as the Witwatersrand, this area is the commercial, financial and services hub of South Africa. It also has a large concentration of manufacturing, processing, mining and smelting industries.
 - **Mpumalanga Province.** Mpumalanga, with its capital Nelspruit, has a diversified economy supported principally by manufacturing, mining, electricity generation, tourism, chemicals, agriculture, and forestry. Landlocked and with a large commodity export base, Mpumalanga is seen as the primary beneficiary of the Maputo Corridor.
 - **Limpopo Province.** Bordering Mpumalanga in the north, Limpopo Province forms a subcorridor connecting to the vast magnetite deposits of Phalaborwa to the South African/Mozambican border at Komatipoort by 280 km of rail.
- **Swaziland.** To the south Swaziland uses the Port of Maputo for significant exports of bulk and bagged sugar, citrus and forest products and for imports of cereals.
- **Mozambique.** At the eastern end of the corridor the Mozambican deep-water Port of Maputo has traditionally provided the nearest facilities for the importers and exporters of the regions above. The port also serves the rapidly strengthening industrial base of Maputo and southern Mozambique.

FREIGHT FLOWS

There are two main freight flows along the Maputo corridor:

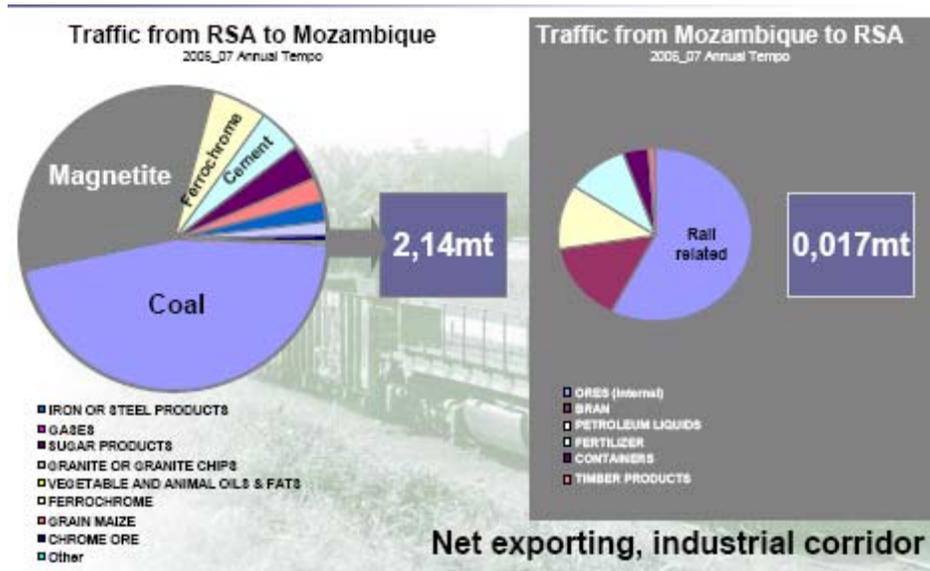
- **Road freight** consists of bulk and other commodities from Mpumalanga for export and domestic consumption and goods from Gauteng for domestic consumption in Mozambique.
- **Rail freight** consists mainly of bulk exports from Mpumalanga and Limpopo Provinces destined for export through Maputo Port.

Corridor traffic tonnage is dominated by Coal and Magnetite (an iron ore) transported by rail. It is also important to note that the corridor presents an imbalance between import cargo from South

Africa and export cargo from Mozambique. The distribution of traffic by type is given in Figure 3-1.

Figure 3-1

Rail Traffic Overview



SOURCE: *Maputo Corridor Logistics Initiative*

Road Freight Transit Flow

The freight transported on the corridor from South Africa to Mozambique or to the Port of Maputo by road was approximately 2.25 million tons per year in 2007. The estimated annual number of vehicles crossing the border is 168,780, with an average of about 560 vehicles per day. Because of the constraints on the rail line, what is traditionally rail cargo is transported to the port by road.

Rail Freight Transit Flow

The rail corridor carried in and out of the port approximately 1.7 million tons in 2007, but has the capacity to carry 18 million tons per annum. In 1980, CFM records show that the railway line conveyed 8 million gross tones (port inbound and outbound to RSA). Express trains operated on the corridor, moving both containers and perishables. But because routine maintenance was discontinued in Mozambique and South Africa, the volume of rail cargo has declined dramatically.

Port of Maputo

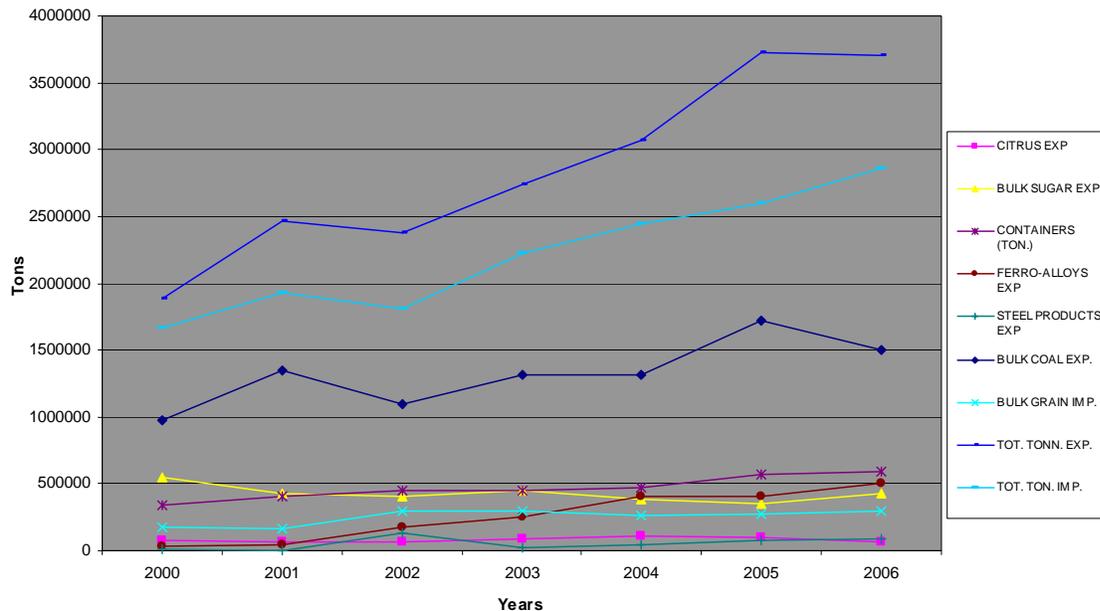
Port potential is currently seen as 11 million to 16 million tons per annum. MPDC sees the optimal capacity of Maputo Port terminals as 11 million tons per year and that of the Matola bulk terminal as 6 million tons per year. Ultimate capacity through further investment in infrastructure is thought by MPDC to be in excess of 20 million tons. Of total port traffic, South African exports comprised about 59 percent of all exports and 77 percent of all transit trade in 2007. The bulk of this traffic was South African coal and magnetite exports all shipped by rail.

CORRIDOR GROWTH

Despite infrastructure, operations and policies constraints, the corridor has shown significant growth. As shown in Figure 3-2 and Table 3-2 the corridor experienced total growth of 185 percent in annual tonnage handling from 2000 to 2006. This growth is the result primarily of recent improvements in the road link, rehabilitation works at the Port of Maputo, ongoing Spoornet and CFM joint rehabilitation efforts, and general stabilization program of the Ressano-Garcia line. Some commodities, such as bulk coal and container cargo, which are transported by rail, showed a decrease in 2006. This decrease took place as a result of some Ressano-Garcia rehabilitation works that happened during this period. Other planned infrastructure-related projects in the corridor are summarized in Chapter 4. This mix of initiatives will contribute to the corridor’s development and positioning.

Figure 3-2

Maputo Port Export and Import Flows 2000–2006



SOURCE: MPDC tables

POTENTIAL MARKETS

Figure 3-3 presents the short-term potential market for the corridor. This potential has been identified by Spoornet and does not correspond to an exhaustive market study of the other potential commodities that could use the corridor. However, it is a good starting point. Spoornet identified these markets on the basis of the commodities that currently use the corridor. Some of these commodities would normally be transported by rail, but are currently transported by road as a result of Spoornet and CFM's infrastructure and operational problems.

Figure 3-3

Short term Market Potential for the Maputo Corridor

South Africa Exports through Maputo Port		South Africa Imports through Maputo Port	
Product	Location	Product	Location
Granite	Rustenburg	Containers	Maputo
Automotive	Pretoria	Fuel	Maputo
Containers	Gauteng	Fertilizer	Maputo
Coal	Witbank	Cement	Maputo
Steel	Middleburg		
Ferro Chrome	Steelpoort		
Timber	Kaapmuiden		
Magnetite	Phalaborwa		
Sugar	Komatipoort		
Citrus Fruit	Nelspruit		

SOURCE: *Spoornet*

TRAFFIC FORECAST

Rail Freight Transit Flow

The Centre for Supply Chain Management at the University of Stellenbosch in South Africa forecasts that combined road and rail cargo of South African exports to Mozambique and transit cargo using the Maputo Port could grow from 6 million tons to approximately 15 million tons by 2009 and much higher by 2025, if all the conditions in the Corridor were ideal as shown below:

<u>Year</u>	<u>Volume (million tons)</u>
2009	15
2014	24.1
2019	29.8
2025	38.6

However, since conditions will not be ideal at least in the short term, these targets are outer limits of the possibilities for the Corridor. A more realistic short term target could be 11-12 million tons by 2009-2010.

The target for the rail service on the Maputo corridor is more than 9 million tons by 2009 according to CFM. This potential is based on the rehabilitated rail line being brought back into full service enabling 20-ton axle loads, and the running of longer and heavier trains.

The market potential for road along the corridor through Mozambique to and from Maputo is seen by MCLI, as 2.5 million tons per year by 2010, assuming that there would be 24-hour border transit operations and port investment is not constrained.

4. Diagnosis of Corridor Performance

The *FastPath*TM team conducted fieldwork in Mozambique and South Africa to (1) determine the status of the transport logistics system; (2) identify issues, types of documentation, and regulations that constrain the transport/logistics system in the corridor; (3) identify any planned developments in infrastructure or information systems and (4) quantify corridor performance in terms of time, cost, and reliability for each step of the import and export logistics chains for selected industries. This chapter presents (1) a summary of the current status of the transport logistics system in the corridor, (2) critical issues that have been identified by stakeholders at this stage of the project, (3) critical issues related to cost comparison of the Ports of Maputo and Durban, and (4) main impediments to Corridor efficiency.

Issues Identified by Stakeholders

In consultation with the stakeholders and with support from MCLI, the team conducted surveys to collect data from corridor users in nine key industries in both countries (see Diagnostic Report for details).

KEY ISSUES RAISED BY STAKEHOLDERS

In consultation with stakeholders, the *FastPath*TM team identified issues hampering the performance of the corridor through surveys conducted as part of the *FastPath*TM transport logistic system audit. The team refined its initial survey findings with the help of the Maputo Corridor Logistics Initiative (MCLI) staff. The MCLI also helped distribute the findings to corridor stakeholders for determining the level of importance of these problems in their operations and overall corridor efficiency. The following list presents issues that logistics service providers and shippers identified as major issues in using the corridor.

Infrastructure

Border Posts

- Space limitations at Lebombo/Ressano Garcia border post for parking and future development.
- No EDI link between Mozambique and South Africa customs (different systems).
- No one-stop border post (one for commercial freight, one for passengers and one for rail)
- No bonded warehouses near customs zones (Komatipoort) or the Port of Maputo.

Information Systems

- No modern gate information system at Port of Maputo (barcodes, cameras, computer systems).
- Lack of an advanced computerized information system in Port of Maputo to allow port and users to exchange information on cargo status.
- Lack of an advanced computerized information system, throughout the corridor, linking the countries to allow port and users to exchange information on cargo status (related to border EDI issues).

Port of Maputo

- The draft of the Maputo and Matola port channels (12 m) is inadequate for larger vessels.

Rail Connections

- Insufficient railway capacity in link between South Africa and the port, related to line rehabilitation.
- Insufficient and inadequately equipped freight facilities along the Pretoria–Maputo rail corridor.
- Turnaround time of trains is very long—20 to 40 days.

Logistics Facilities

- Lack of true logistics centers in the corridor, outside of Johannesburg, to promote competitiveness of industries.
- Insufficient parking facilities, service areas, and truck stops on the EN4.

Operations

Customs and Border Posts

- No dry port operations near the border between Mozambique and South Africa.
- Delays and long border post clearance times, including congestion caused by combined processing of passengers and freight.
- High level of congestion: separate clearing and immigration system for commercial and passenger/ tourists.
- Customs declaration is done twice, each time requiring different procedures and documentation.
- Expensive customs supervision of trucks crossing the border because of gap between border posts.
- Inefficiency at border because of inadequate staffing and organization.
- Excessive paper documentation required for Mozambique customs.
- Border posts on both sides are not operational 24/7. Border open only 10 hours per day, with commercial clearing closing at 3 p.m.
- Some bribery and corruption related to requests for speedier service.
- No single administrative document or electronic single window for customs clearance in Mozambique, leading to inefficient operations.
- Short working hours of Frigo Customs Area and lengthy processing times.

Information Systems

- No public information regarding standard operating procedures for cargo processing at the border.

Port of Maputo

- High compulsory scanning fee.
- Relatively low frequency and number of container vessels calling at Maputo.
- High cost of coastal shipping from Maputo to and from Durban.
- Transshipment of imports through port constrained by bond requirements.

Rail Transport

- No rail passenger service across the border.
- Lack of locomotives and rolling stock to operate on rehabilitated line, especially CFM. Underpowered CFM locomotives sometimes require trains to be split, causing delays
- Lack of regularly operating trains (although the five-train schedule is sometimes achieved with Spoornet locomotives).
- Inefficient cooperation between CFM and Spoornet and no common train schedule.

Road Transport

- Informal payments required at police checkpoints on EN4.

Logistics Services

- Lack of trained logistics personnel (e.g., e-commerce skills, data management and interface solution, supply chain distribution).
- Few value-added services (cross-docking, customization, manufacturing support, labeling, subassembly, reverse logistics), especially in Mozambique.

Policy

- Lack of clarity and transparency from Government regarding plans for border post, retarding private sector investment in infrastructure.
- No regulations requiring electronic single window or single administrative document.
- Mozambican legislation does not allow for extra-jurisdictional execution of clearing and control functions at border posts.
- Inflexible, nontransparent policy imposed by recent scanning regulations.
- No public pricing schedule from Spoornet.
- Lack of integrated transport strategy between countries (Mozambique and South Africa), although corridor committees are working on common problems and South Africa has a Transport Corridor Development policy.

More detail on these issues is provided in Appendix A.

MAIN IMPEDIMENTS TO CORRIDOR EFFICIENCY

A further elaboration of selected impediments from the list above is provided below.

Compulsory Scanning at Port

A charge for non-intrusive inspection scanning applies to every piece of cargo handled in the Port of Maputo. The measure was adopted in light of international security standards and potential violations of customs rules, but no international requirement for introducing scanning technology for customs or security inspections in Mozambique exists. Furthermore, the fee is mandatory on 100 percent of shipments, including bulk cargo and bagged products—which is normally not scanned—and empty containers, whether the shipment is inspected or not. Scanning fees are high in comparison with fees of other countries and are not scaled to cargo value and volume. The rigidity of these procedures and fees is rarely seen in other ports using non-intrusive cargo scanners and is generating criticism, especially among shippers who are not willing to pay the fees. South African shippers see this regulation as a tax in excess of more than US \$6 million a year on business using the Maputo Corridor at current port throughput level. The consequences are alarming. The Port of Maputo announced last year that \$171 million in investment has been put on hold until scanning charges are removed from transit cargo. MCLI demonstrated that cargo shippers from South Africa and Swaziland are shifting cargo back to Durban, which scans only 10 to 15 percent of containerized cargo. SARS provides the service free of charge. Cargo shippers are also shifting cargo to Richards Bay, which handles predominately bulk cargo (which does not have to be scanned).⁶ The latest information shows that prices have been slightly reduced and all cargo on rail are not charged but this still represents a major surcharge on goods and containers delivered in/out of the port by road.

Lack of One-stop Border Post

Officials in both countries have been discussing a one-stop border post for the past six years. The current configuration and procedures at the borders make the import and export processes more costly and time consuming than necessary. Transporters must present different documents in the two custom areas and endure prolonged procedures to cross the Lebombo-Ressano Garcia border.

Trade in the corridor is growing, as is congestion during peak hours. A one-stop border post would not only facilitate trade between Mozambique and South Africa and benefit other countries in the region, but also boost the attractiveness of the Maputo Corridor versus Durban or Richards Bay. The post would speed clearing processes, enhance security controls, capitalize the corridor, and involve construction of sorely needed high quality infrastructure.

A feasibility study and draft plans for a one-stop border post at Kilometer 4 have been completed. Committees and government bodies in both countries exist to handle negotiations. The groundwork has been laid. Governments and stakeholders in the corridor are eager to execute this project. The latest news indicates that the legal requirements for implementing this facility are close to being finalized and due to be signed off following the Head of States meeting between

⁶ See MCLI Reader Newsflash 289, 17 November 2006.

South Africa, Swaziland and Mozambique that will take place soon. The infrastructure for the one stop border post will be created – one for road freight, one for road passengers and one for rail by 2010. However, infrastructure is only one element of the complex project.

No Single Administrative Document to Clear Customs or Related EDI System

Freight forwarders and clearing agents must prepare two documents in Komatipoort Customs Zone, the Single Administrative Document (SAD) 500 for South Africa, and DA 500, and Memorandum for Mozambique customs. Customs in Mozambique uses the UN's Automated System for Customs Data (ASYCUDA) to process import and export data, while South Africa uses CAPE for import documents and Export System for export documents. South Africa implemented the SAD 500, which has been expanded to major corridors in the region to lower the cost of moving goods across the borders. Mozambique is considering implementing the SAD 500. The ASYCUDA customs document collects the same information as the SAD 500, but in a different format. The use of different platforms prolongs the clearing process and prevents integrated border processing and management. An efficient system would consist of a single set of documents, data transfer by EDI, and a single border post.

Lack of CFM Locomotives and Railway Infrastructure

Proper freight service from the Komatipoort railway node to the Port of Maputo requires more CFM locomotives. At present, some cargo is delayed more than a day at the border until locomotives from Mozambique arrive. For sugar and general cargo exports, the dispatcher at Komatipoort telephones CFM to send a locomotive. Depending on the availability of locomotives, the wait can be a matter of hours or days. If the locomotive is underpowered and the train split up, the second half of the cargo may not be picked up for another three days. The transit time from Nelspruit to Durban is approximately eight days, and from Nelspruit to Maputo, four days. According to stakeholders, this could be cut to two days if the situation in Komatipoort improved. An expected delivery of locomotives⁷ will alleviate this problem, but coordination and cooperation between CFM and Spoornet also needs to be enhanced to ensure reliable and competitive service.

Inadequate Frequency of Vessels Calling Maputo and Connections

Shippers and logistics service providers, including freight forwarders, point out that attracting more business will require increasing service frequency and connections. On the other hand, shipping lines do not offer sufficient service frequency at the port because of relative small cargo volumes. Increasing service frequency can help break this impasse. MIPS had been losing approximately 1,000 TEUs per year from MMC because of a lack of direct calls to the Far East, but this service has now been added to Maputo. Mitsui Osk lines recently added a ninth vessel to its service, which arrived in Maputo in the late May. Although the situation has improved with

⁷ It was confirmed in the last Mpumalanga Freight Logistics Forum (MFLF) that CFM received 10 imported locos from India and is turning out 10 rehabilitated wagons every 10 days.

the support of MOL and Delmas, shipping lines are not sure about the ability of the port to service their vessels.

Issues Highlighted by Cost Comparison of Maputo and Durban Ports

The port of Maputo is the strategic node for sustainable development of the corridor and Mozambique. It has been in ongoing development to fulfill the requirements of the new shipping industry and global economy, but as in many other developing countries, basic economic factors and market conditions constrain the needed pace of change. The MIPS container terminal has access by rail and road to warehouses inside the terminal and is connected to a new two-lane access road, linking it to the EN4 (see the map in Figure 1-1). These links have allowed the terminal to improve its service to shippers and consignees, which is a key factor of preference for some customers of the port, according to previous studies.

Other studies also consider port and transport costs as factors in selecting a seaport gateway. MCLI has carried out a cost comparison of Maputo and Durban ports, which share the same hinterland—Pretoria, Middleburg, Witbank, Nelspruit, and vicinities in South Africa; and Mbabane and vicinities in Swaziland—which could be attracted to the Maputo Corridor for exporting cargo.

This comparison shows that for all these locations except Pretoria, the total cost to transport cargo by road and export it via Maputo is lower than via Durban. And for all locations, transporting cargo by rail through Maputo costs less than transporting it through Durban. Furthermore, shippers and logistics service providers (including freight forwarders) can save one to two days when they transport cargo by road and two to five days when they transported cargo by rail and export it via Maputo.

However, shipping costs to Europe, EAF, the Far East, the United States, and the Middle East are in some cases higher via Maputo than via Durban. In these cases, shippers must make a trade-off of time vs cost when comparing shipment through Maputo with shipment via Durban.

PLANNED PROJECTS AND INITIATIVES

To address some of the above mentioned issues, stakeholders in the corridor are planning to implement different projects. These will provide a partial solution to the problems facing the rail, road, and port sectors. Appendix B summarizes these future projects.

5. Summary of Results by Logistics Chain and Component

COST, TIME, AND RELIABILITY

Figures 5-1 and 5-2 generated by *FastPath*TM, summarize the cost, time, and reliability of the Maputo Corridor’s transport/logistics chain from a shipper’s point of view. The table presents summary data on the total logistics chain (including road, rail, border crossing, and port) and a weighted average price for transit time and variability of transit time (which is a measure of reliability). The variability indicator is in terms of the percent of average transit time that includes 90 percent of the variation in transit times for different shipments. The logistics score summarizes performance relative to norms for developing countries.

Figure 5-1

*Summary of Export Logistics Performance for the Maputo Corridor for Containers*⁸

Component	Performance Measure			
	Av. Price	Av. Time	Variability of Time	Logistics Score
Maputo Port	419	77 hours	268%	57
Border Posts	100	10 hours	30%	40
Surface Transport	466	38 hours	171%	45
Total Chain	\$985US/TEU	125 hours	170%	44

SOURCE: *Corridor Performance Report* *Maximum 80

For exports the Port is the best performing part of the chain with a logistics score of 56 (out of 80), which is in the “fair” range for international ports. The border posts are the lowest scorers with a “poor” rating which reflects the current delays and inefficiencies in border crossing. Surface transport has an intermediate rating with road performance times rated as “good”, but price rated “poor” (e.g., high unit costs per tonne-km) and reliability rated “fair”. Rail transport is

⁸ This performance table focuses on containers, but the levels of performance are indicative of performance for other types of freight traffic. The numbers in this table are based on interviews with selected stakeholders and freight forwarders operating in the Corridor and may not represent performance for a specific shipper.

still in the poor category, due to the present intermittent service and low quality track, but there is a major improvement program proceeding with the rehabilitation of the Ressano Garcia line

Figure 5-2

Summary of Import Logistics Performance for the Maputo Corridor for Containers⁹

Component	Performance Measure			
	Av. Price	Av. Time	Variability of Time	Logistics Score*
Maputo Port	\$558US/TEU	59 hours	268%	51
Border Posts	\$100US/TEU	6 hours	58%	40
Surface Transport	\$632US/TEU	41 hours	220%	46
Total Chain	\$1,290US/TEU	106 hours	240%	46

SOURCE: Corridor Performance Report *Maximum 80

For imports the Port is still the best performing part of the chain but with a weak logistics score of 51, which is barely in the “fair” range for international ports. As for exports, the border posts are the lowest scorers with a “poor” rating. Surface transport has an intermediate rating with road performance times rated as “good”, but price rated “poor” and reliability rated “fair”. Rail transport is still in the poor category, but it has little influence as it handles very little of the the corridor import traffic (this may change with improved rail service).

Overall we can see that road transport and parts of the logistics system, such as the MIP terminal are competitive on time and service but that overall customs and logistics operational efficiency per aggregated *FastPath*™ results could be significantly improved.¹⁰ Durban, the main competitor port has similar performance characteristics, but with better rail service and more direct shipping destinations. Nevertheless, the Port of Maputo logistics costs and time are competitive along most of the Maputo Corridor.

⁹ This performance table focuses on containers, but the levels of performance are indicative of performance for other types of freight traffic. The numbers in this table are based on interviews with selected stakeholders and freight forwarders operating in the Corridor and may not represent performance for a specific shipper.

¹⁰ It is important to note that, for benchmarking purposes, the Port of Maputo is analyzed as a whole and not as separate terminals.

Rail Transport

Rail logistics performance in terms of transport time is very poor for the Ressano Garcia line and fair to poor for other rail lines; performance is better for non-containerized goods. Rail costs are relatively high per kilometer, partly due to the relatively short distances involved. Rail is more competitive for the longer hauls and bulk commodities.

Road Transport

Road transport logistics performance in the corridor is good as measured by transport time, but costs are relatively high per kilometer. Reliability is fair with significant variability of transit times, but still substantially better than rail. Road transport is more expensive than rail (US\$0.13 compared with \$0.10 per tonne-km), but is used extensively because it is more reliable.

Border Crossing Post

The border crossings at Komatipoort and Ressano Garcia are not too inefficient for most of the year, but congestion is increasing and the variability of transit time is only fair because of high congestion at certain times of the year and of the day. There is substantial room for improvement in the processing of import and export information and coordination between customs agencies.

Figure 5-3

Efficiency of Border Crossing Logistics Performance

Indicator	Value
Transport Costs (\$US/TEU)	100
Average Transit Time (hours)	6-10
Maximum Transit Time (hours)	12
Minimum Transit Time (hours)	6
Variability of Time (percent of av time)	56-75%

SOURCE: Corridor Performance Report.

CONCLUSIONS ABOUT PERFORMANCE

The unbalanced flow of goods in the corridor between Gauteng and Maputo raises logistics costs and causes some operational difficulties for Maputo Corridor logistics. Exports from South Africa to Maputo are 120 times more in quantity than the imports from Maputo, the repositioning cost for empty containers is reducing the port’s competitive advantage. The average price of transport and logistics services is very similar for imports and exports. They are competitive with Durban, but still high compared with international norms of competitive regions, Only the Port of Maputo scores in the “fair” range with logistics scores over 50 (out of 80).

Price is the main issue when compared with international norms; the port and rail systems, especially, need to adjust their price policies to be more competitive, and adding on significant costs for cargo scanning would decrease the competitiveness of the Corridor. Transit times are close to good international norms, especially in the port, which is a plus for the corridor. But

variation in times, particularly for rail, is a major concern. The operations of border posts are a main issue in the corridor.

Maputo Corridor performance results should improve with projects such as the one-stop border post, the presence of DP World as the container terminal operator, modifications in scanning policies, and improved vessel frequency to the Far East. The corridor should be monitored steadily to analyze the effects of these projects and to measure the effect of policy and process modifications.

6. Recommendations and Illustrative Actions

The following recommendations for the logistics sector and policymakers focus on customs service improvement, transport system development, logistics service provider implementation, and policy reevaluation. In addition we have provided some illustrative actions. These actions are not comprehensive, but do deal with the most important priorities as we see them.

LOGISTICS SYSTEM AND CUSTOMS DEVELOPMENT

The analyses in the preceding chapters highlight the fact that current inefficiencies in the Maputo Corridor logistics system and border crossing problems are holding back the development of the Corridor for import and export trade. Given the competition with Durban port as an alternative, these should be addressed as soon as possible to keep the momentum going for Corridor development.

There a number of improvements that should be made in the system, by both the public and private sectors, in order to reduce inefficiencies. These include:

- Developing an electronic linkage between South African and Mozambique Customs that can automate the process for custom clearance procedures and significantly speed up the freight flows at the border crossing. According to the World Bank's, Doing Business publication, in Mozambique takes approximately 38 days to complete an export process and 39 days for an import, while in South Africa it takes 31 and 34 respectively. In other countries in Sub-Saharan Africa with similar conditions, such as Senegal, Gabon and Gambia, the period to export has been brought down to 19-22 days for exports and 23-26 days for imports. Mozambique should be able to reach those standards and go even lower in the future toward the OECD average of 10-12 days.
- Completing the development of a single administrative document in electronic form in Mozambique.
- Implementing a monitoring system using Bar codes or RFID and electronic seals to track and secure cargo that goes from the Komatipoort customs area to the Port of Maputo port on transit status. Such a monitoring system will also be useful in developing a secured South Africa–Mozambique transport and logistics system that meets increasing international demand for secure shipments.

- Improving the information system available to importers, exporters and freight forwarders, so that data interchange is facilitated, particularly with customs, and that shipments can be easily tracked.¹¹
- Promoting the use of containers in the Corridor. This can be done through the development of bonded warehouses and container yards outside the port and identifying other issues with container movements that discourage container shipments in the Corridor. This requires agreement with Customs and a clear policy to encourage private investment in these warehouses and container yards. Also some private sector focus on this issue is needed, possibly through MCLI.
- Establishing the one-stop border post for freight and passengers between Mozambique and South Africa. This has been under discussion for some time, but needs to be implemented. The new operating areas should be in operation in 2010 before the World Cup event starts.
- Providing an organizational structure to facilitate improving customs and border post operations and setting up the new one-stop area including:
 - A bilateral regulatory and institutional committee (regulatory): To draft policy and regulations for border operations, taking into consideration and harmonizing the internal rules of the two countries.
 - An implementation committee (operational): To put into service border post functions after site construction is finalized and to be in charge of initial training of personnel hired to work at the post, conceiving operation manuals and standards, etc.
- Improving the peak hour operations at the border crossing between Mozambique and South Africa, particularly when tourist and public buses arrive. At these hours all the staff should be prepared to receive people with an organized queue in a covered area. Mozambique customs should organize special lines for the different administrative procedures. South Africa should provide more personnel during rush hours.
- Authorization of rail passenger service across the borders to avoid the border crosses by foot. Controls inside the train and in the stations must be implemented with security personnel.
- Controlling of bribery in the border premises. Police officers in the area need to more effectively enforce the law. Also, an ID should be required for all personnel that work in the border area.
- A close working relationship established between MIPS with shippers, agents and forwarders to create synergies that will reduce the overall freight cost and encourage two-way traffic that now is very un-balanced

¹¹ This could be similar to the tradeXchange system in Singapore. This platform provides seamless inter-connectivity among commercial and regulatory systems for the Singapore trade and logistics community. In addition, it will offer a single electronic window for integrated workflow, submissions and enquiries to the Sea Ports, Airports, Maritime Authorities, Customs and Controlling Agencies. Other applications of the logistics information system in the well known logistics hub of Singapore include port-net and marine-net

- Promote training of logistics services providers' personnel to improve their responsiveness to client needs and scope of services

Illustrative Action Plan

Short-Term Actions

- Finalize the agreement with South Africa to create one-stop border posts for freight and for passengers. The two governments need to agree on the location, controlling process and policies. (SARS, Alfândegas);
- Set up an implementation committee to monitor the progress of the one-stop border posts (SARS, Alfândegas);
- Align the customs forms between South African and Mozambiquan customs (e.g., Complete implementation of the SAD 500 by the Mozambican Customs Administration). (SARS, Government of Mozambique and Alfândegas);
- Set up a bi-lateral committee with public and private sector participation to plan and monitor the improvement of EDI between South Africa and Mozambique, and in particular the automatic electronic conversion of customs data from South African standards to Mozambican standards, and vice versa. Develop the Terms of Reference for a call for bids on system improvements. (SARS, Alfândegas , MCLI, Immigration);
- Develop a security plan for the transport and logistics system between South Africa, Mozambique and Swaziland, to meet the increasing international demand for secure shipments (Ministries of Transport, MPDC, SARS, Alfândegas , MCLI);
- Identify peak hours at the border posts and set up more efficient staffing policies for immigration and customs officials to speed up the passport and documentation control process (SARS, Alfândegas , MCLI, Immigration);
- Develop a policy to encourage private-public and local-foreign partnerships for investment in logistics infrastructure and service development. (Ministries of Commerce, MCLI);
- Continue special consultation sessions to highlight logistics issues between logistics service providers, national logistics gateway managers and MCLI as has been taking place during the MFLF sessions in Nelspruit.

Medium-Term Actions

- Call for bids on one or more contracts for the development of an electronic linkage between South Africa and Mozambique. The goal to complete implementation should be 2010. (SARS, Alfândegas);
- Develop a policy to encourage international 3PL/4PL companies to develop alliances with national freight forwarders in Mozambique, to increase the range of logistics services available. (Ministries of Commerce, MCLI);
- Develop an E-market service to cluster all entities which are related to the port of Maputo and provide ship owners or operators a one-stop shop service. (MPDC, MCLI, Port Operators, Shipping lines);

- Promote the training of logistics personnel within universities or specialized institutes in Mozambique and/or South Africa. (Ministries of Commerce, MCLI);

Many other actions suggested by the analysis in this report could be considered in a workshop environment, possibly coordinated by MCLI.

TRANSPORT SYSTEM DEVELOPMENT

Maputo Port

The Port of Maputo has taken significant steps to become more efficient by working with private concessions to develop and manage its terminals. One of the biggest challenges of the Port is to become the first option for importers and exporters along the Maputo Corridor and to take advantage of its lower costs compared with Durban and Richards Bay. The Port of Maputo should continue with its current actions, including:

- Expanding its terminal facilities, including new granite, coal/magnetite/car/iron ore and heavy sands, ferrochrome terminals
- Upgrading Maputo Port Access for post-Panamax type vessels.
- Improving its information system
- Improving connectivity with the rail system
- Enhance work cooperation with shippers, consignee and agents to decrease imbalance in trade flow.

Some recommendations for the sector include:

- Providing more container services for Europe and the Far East, which should be encouraged with initiatives and promotion to containerize cargo moved through the Corridor. (MIPS);
- Promoting the use of container services in the Corridor;
- Encouraging competition with feeder services to Durban to keep Maputo Port costs down;
- Completing the computerization of port operations and linking them to a freight track and trace system. This would involve the integration of port systems to substantially reduce paperwork and data re-entry, and the development of a portal for controlled access by a range of stakeholders;

Illustrative Action Plan

Short-Term Actions

- Develop plans to connect IT systems at the port with customs and freight forwarders (MPDC, Customs, Private Sector);
- Develop a plan for specific rail connections to the berth areas or to a staging area for containers (MPDC, CFM);

- Publicize an official port tariff to clearly inform exporters and importers about port charges. (MPDC).

Medium-Term Actions

- Prioritize investments in the port to meet shipper needs (MPDC, MCLI, Shipping companies);
- Implement the plan to connect the port IT system to a range of stakeholders (MPDC);
- Install automated gates to container yards (MPDC, MIPS);
- Implement the plan for specific rail connections to berth areas or to a staging area for containers (MPDC, CFM).

Road Transport System

- The TRAC concession was a major improvement in corridor highway capacity. This is serving now as the main mode connecting Maputo to its hinterland. The tolls affect road transport costs but they are reasonable given the level of service. Increasing road transport competition in the corridor could also reduce transport costs. A service area along the Ressano Garcia–Maputo link could be established for trucks and drivers

Illustrative Action Plan

Short-Term Actions

- Support ongoing reforms, especially the initiative to build the one-stop border post that will help with road border congestion (SARS, Alfândegas, Private Sector);
- Develop a policy to encourage container transport in the Corridor, including the appropriate number of axles for large container trucks (Ministries of Transport, National Road Agency and TRAC).

Medium Term

- Move toward signing a TIR type agreement to facilitate freight movement (Ministries of Transport, SARS, Alfândegas);
- Develop a service area for truckers between Ressano Garcia and Maputo (TRAC, MCLI, trucking companies);

Railway System

Road transport has become the dominant mode of transport despite the corridor's historical dependence on rail. This imbalance has raised costs for freight and made rail connections unreliable. CFM and Spoornet have embarked on a major stabilization program to improve rail services and make rail transport more competitive. This includes

- Rehabilitating the rail line from Komatipoort to Maputo;
- Rehabilitating the signaling system;

- Managing through trains for selected commodities;
- Purchasing locomotives, container flats, and freight wagons; and
- Improving and modernizing the means of coordination between CFM and Spoornet.

Illustrative Action Plan

Short-Term Actions

- Authorize rail passenger service across border between South Africa and Mozambique in order to take the pressure off of the road border post (Ministries of Transport, CFM, Spoornet);
- Support and encourage procurement of more locomotives and equipment by CFM (Private Sector, Spoornet);
- Identify gaps in human resources available for rail operations and fill the gaps (Spoornet, CFM);
- Develop a regular and common schedule of train services across the border (CFM, Spoornet, Ministries of Transport, SARS, Alfândegas);
- Improve communication channels between the two railways to coordinate improvement activities (Spoornet, CFM, MCLI).

Medium-Term Actions

- Develop and implement infrastructure, facility and rolling stock maintenance policies to preserve the rehabilitated and new infrastructure (CFM, Spoornet).

INSTITUTIONAL, LEGAL, AND POLICY CHANGE

It should be noted that many of the recommendations and actions listed above involve changes to institutions, laws and policies of the governments involved. These are actions that require sustained effort and the involvement of multiple parties in planning and implementation.

Appendix A. Issues Identified by Stakeholders in Each Sector

Table A-1

Summary of Issues Identified by Stakeholders and Their Importance

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
CUSTOMS / BORDER						
Infrastructure	+	+	++	++	++	++
Space limitations at current Lebombo/Ressano Garcia border post for parking and future development	++	++	++	++	++	++
No EDI link between Mozambique and South Africa customs	+	++	++	++	++	++
No one-stop border post	-					++
No bonded warehouses near customs zones (Koomatiport), or Maputo Sea port	-	-	-	-	-	++
FRIGO INFRASTRUCTURE						
Operations	-	-				++
No dry port operations near the border between Mozambique and South Africa	+	++	++	++	++	++
Delays and long time needed for clearing goods through border post, including congestion caused by combined passenger and freight processing	-	-	++	++	++	++
High level of congestion: No separate clearing and immigration system for commercial and passenger/ tourists.	+	++	++	++	++	++
Customs declaration is done twice and requiring different procedures and documentation.	+	-	+	++	+	++
Expensive supervision by customs of trucks crossing the border, due to gap between border posts	+	+	+	+	+	++
Staff inefficiency at the border premises due to inadequate staffing and organization	+	+	-	+	+	++

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
Some bribery and corruption related to requests for more speedy service from officials.	+	+	++	++	++	++
No single administrative document or electronic single window for customs clearance on Mozambique side, leading to inefficient operations	+	+	++	+	+	++
Excessive size of paper documentation required for Mozambique customs.	-	-	-	-	-	++
Short working hours of Frigo Customs Area and lengthy processing times	+	++	+	+	+	++
Lack of good operational communications between customs of two countries (see EDI infrastructure)						
Border Posts on both sides not operational 24/7. Border only open for 10 hours per day with commercial clearing closing at 15:00 daily.	-	+				++
No public information regarding standard operating procedures for cargo processing at the border?	++	++	+	+	+	++
No rail passenger service across the border	NA	NA	++	++	++	++
Policy						
Lack of clarity and transparency from Government regarding plans for border post retarding private sector investment in infrastructure.	++	+	+	+	+	++
No Mozambican legislation to allow for extra-jurisdictional execution of clearing and control functions at border posts.	+	+				++
Regulations allow seven days for import freight from Mozambique by rail to clear customs, leading to delays and security problems?	-	-	-	-	-	+

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
No regulations requiring electronic single window or single administrative document	++	++	++	++	++	++
MAPUTO AND MATOLA PORTS AND COASTAL SHIPPING						
Infrastructure						
Draft of Maputo and Matola port channel (12m) inadequate for larger vessels	+	+	+	+	+	++
No modern gate information system at the port (barcodes, cameras, computer systems)	++	+	+	+	+	++
Lack of an advanced computerized information system to allow port and users to exchange information on the status of cargo	++	++	+	++	++	++
Operations						
Underutilization of Maputo and Matola ports	-	++	-	-	-	++
High compulsory scanning fee	++	++	++	++	++	++
Relatively low frequency and number of vessels calling at Maputo port	++	++				++
High cost of coastal shipping from Maputo to and from Durban	++	-				++
Transshipment of imports through port constrained by bond requirements.	++	++				++
Policy						
Inflexible, non-transparent policy imposed by recent scanning regulations	++	++	++	++	++	++

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
ROAD TRANSPORT						
Infrastructure						
Poor conditions of alternative roads other than the EN4 that connects South Africa with Mozambique	+	+	+	+	+	++
Insufficient parking facilities, service areas and truck-stops on the EN4 road	-	-	+	+	+	++
Operations						++
Informal payments required at police checkpoints on EN4	+	++	+	++	++	++
High toll fees adds to transport costs along corridor.	-	+				++
RAIL TRANSPORT						
Infrastructure						
Insufficient railway capacity in the link between South Africa and the port, related to line rehabilitation.	++	++	+	+	+	++
Insufficient and inadequately equipped freight facilities along Pretoria - Maputo rail corridor.	++	++	+	+	+	++
Turnaround time of trains very long - 20 to 40 days.	++	++	+	+	+	++
Operations						
Inefficient cooperation between CFM and Spoornet and no common train schedule.	++		+	+	+	++
Lack of locomotives and rolling stock to operate on rehabilitated line especially CFM, qne underpowered CFM locomotives sometimes require trains to be split, causing delays	++	++	+	+	+	++

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
Lack of regularly operating trains in the corridor, (although five train schedule is target which is sometimes achieved with Spoornet locomotives.)	++	++	+	+	+	++
Policy						
No public pricing schedule from Spoornet.	++	++	++	++	++	++
OTHER LOGISTICS SERVICES						
Infrastructure						
Lack of true Logistics Centers in the corridor, outside of Johannesburg, to promote competitiveness of the industries	-					++
Lack of an advanced computerized information system, throughout the corridor, linking the countries to allow port and users to exchange information on the status of cargo (related to border EDI issues-see above)	++	++	+	+	+	++
Policy & Operations						
Most agents in Komatipoort were not using the EDI system, and could not see the benefit, because Mozambique requires paper documents and the EDI paperwork goes in same pile as manual paperwork	+					++
Lack of trained logistics personnel (e-commerce skills, data management and interface solution, supply chain distribution, etc.)	++	++	++	++	++	++
Few added-value services (cross-docking, customization, manufacturing support, labeling, subassembly, reverse logistics), especially in Mozambique.	+	-				++

Transport & Logistics Issue	Sugar (South Africa to Mozambique by Rail)	Chrome Ore (South Africa to Mozambique by Rail)	Manganese (South Africa to Mozambique by Road)	Fertilizer (Mozambique to South Africa by Road)	Ferro Chrome (Mozambique to South Africa by Road)	Logistics and Freight Forwarders (Import and Export)
INTERMODAL TRANSPORT POLICY						
Lack of integrated transport strategy between countries (Mozambique and South Africa), although corridor committees are working on common problems and South Africa has a Transport Corridor Development policy	++	+	++	++	++	++

Notes: "N/A"—not applicable; "—"—No particular problem; "+"— Minor problem; "++"— Major problem

SOURCE: Stakeholder Input via MCLI

Appendix B. Planned Improvement Projects in Maputo Corridor

Table B-1
Planned Projects in Maputo Corridor

Improvement	Description	Entity	Expected Completion Date
One-stop border post	<p>The proposed border facility to be located 4 km from the border post on the highway to Maputo would provide a one-stop service to the trade and travelers passing through the border post. The proposed one-stop, 24-hour border post would be managed by a bilateral authority with officials from both governments.</p> <p>The facility is to be used for clearing trucks during peak seasons when traffic is heavy. A draft design includes facilities for (1) commercial traffic, (2) light vehicular traffic, (3) pedestrians, taxis and buses, and (4) trains. The facility would comprise several buildings in one perimeter straddling the border. The target year for completion, 2010, is contingent on funds being available.</p>	South Africa Customs and Mozambique Customs	Before 2010
Modernization of the fresh produce terminal	A US\$16 million redevelopment of the fresh produce terminal is expected to be operational for the 2007 export season, and further modernization completed for the 2008 season, when new steri-facilities will be available for Far East citrus exports. By 2008, an additional 5,000 pallet slots will have been created and the terminal's capacity will be approx 260,000 tons per annum.	MPDC	Operating in 2007 and modernized in 2008
Rehabilitation and improvement project	<p>MPDC will continue with its substantial US\$70 million rehabilitation and improvement project that includes</p> <ul style="list-style-type: none"> • Upgrade Maputo Port access for post Panamax-type vessels • Expansion container, coal/magnetite terminal • Construction of a new granite terminal • Multipurpose new bulk terminal • New car terminal • New iron ore and heavy sands terminal • New ferrochrome terminal • New crude oil terminal at Ponta Dobela • New oil pipeline Dobela to Matola refinery 	MPDC	N/A
Stabilization program	<p>CFM and Spoornet are engaged in a task group to develop the rail corridor. The initiative is twofold: Deal with current problems and, in the future, double the capacity of the rail and changing the equipment to increase capacity.</p> <p>Short-term projects: the rehabilitation of Ressano Garcia Line following an infrastructure investment of US\$20 million will ensure 20-ton axle capacity on bridges. CFM will also modernize the concrete sleeper factory, open procurement of new 54 kg/m rail, re-sleeper and re-ballast the track, inspect the bridges, and procure for new turnouts at yards and stations. Immediate actions:</p> <ul style="list-style-type: none"> • Increase wagon fleet from 600 to 690 • Infrastructure upgrade 	CFM and Spoornet	July 2007 for the short term and immediate projects and 2009 for the rehabilitation of the rolling stock

Improvement	Description	Entity	Expected Completion Date
	<ul style="list-style-type: none"> • Service design for 6 locos • Service design for 21 trains of coal service per week to TCM <p>Other project: CFM will rehabilitate 48 locos and 640 wagons with a rolling stock investment of US\$50 million.</p>		
Rolling stock maintenance and line expansion	Spoornet plans to expand the coal and ore lines, and implement a program for locomotive renewal (110 AC/DC for the coal line, 212 diesel-electric and 163 AC/DC for general freight). For general freight, Spoornet plans to invest in rolling stock renewal and modernization, infrastructure electrical systems, and train authorization systems (Rand 34 billion investment.)	Spoornet	2012
N4 upgrades	Trans African Concessions (TRAC) announced a \$24 million upgrade of the N4 between Wonderfontein and Belfast. The upgrade will provide users with a 4-lane double carriageway road between Pretoria and Belfast. The Belfast interchange bridge will also be widened to accommodate the new road profile	TRAC	June 2009
Nelspruit Ring Road	TRAC is working on a preliminary design for the proposed Nelspruit Northern Ring Road. The proposed road is intended to provide an alternative east-west route for motorists now using the N4 through Nelspruit central business district. TRAC and the South African National Roads Agency Limited will construct the new road. If the project proceeds, implementation is expected to start at the end of 2007.	TRAC	2010