



Technical Report:

Study on Development and Establishment of a Corridor Performance Monitoring System for the Trans Kalahari Corridor

Conducted by:

Godwin Punungwe – Transport Advisor

Ranga Munyaradzi – Customs Advisor

Bevan Simataa – TKCMC Secretariat, Programme Coordinator

Submitted by:

AECOM International Development

Submitted to:

USAID/Southern Africa

Gaborone, Botswana

June 2009

USAID Contract No: 690-M-00-04-00309-00 (GS 10F-0277P)



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List of Acronyms and Abbreviations

ADB	Asian Development Bank
CAREC	Central Asia Regional Economic Cooperation
CPMS	Corridor Performance Monitoring System
DRC	Democratic Republic of Congo
FESARTA	Federation of East and Southern Africa Road Transport Association
ICD	Inland Container Depot
IT	Information Technology
LGI	Logistics Performance Index
MOU	Memorandum of Understanding
NC	Northern Corridor
NCTA	Northern Corridor Transit Agreement
NCTTCA	Northern Corridor Transit Transport Coordinating Authority
NJC	National Joint Committees
PMAESA	Ports and Maritime Association of East and Southern Africa
SAGC	Southern Africa Global Competitiveness
SSATP	Sub-Saharan Africa Transport Policy Program
TCC	Trans Caprivi Corridor
TEU	Twenty Foot Equivalent Units
TIS	Transit Information System
TKC	Trans Kalahari Corridor
TKCMC	Trans Kalahari Corridor Management Committee
TT	Task Team
UNCTAD	United Nations Conference of Trade and Development
UNSECAP	United Nations Economic and Social Commission for Asia and the Pacific
USAID	United States Agency for International Development
WBCG	Walvis Bay Corridor Group
WCO	World Customs Organization

Executive Summary

1. Although the Trans Kalahari Corridor (TKC) Secretariat is charged by the Memorandum of Understanding (MoU) establishing the TKC with the responsibility to monitor the corridor performance, it does not yet have a Corridor Performance Monitoring System (CPMS) in place to enable it to discharge this responsibility. After the Southern Africa Global Competitiveness (SAGC) Hub (Trade Hub) presentation on the need for a CPMS for the TKC to enable the Secretariat to monitor and report on corridor inefficiencies and corrective measures to address them at a TKC meeting in October 2008, the meeting decided that the Secretariat, Trade Hub and Federation of East and Southern African Road Transport Associations (FESARTA) should pursue the development of a TKC CPMS.
2. In pursuance of this decision the three institutions met in March 2009 and decided to embark on a study whose purpose was to recommend the development and establishment of cost-effective and sustainable CPMS for TKC using existing information collected by the various stakeholders.
3. In addition, the CPMS had to be guided by experience elsewhere on performance initiatives and its primary source of information would be the Port Authorities, Customs Administrations and Ministries of Transport. The primary focus of the CPMS would be time taken to transit the corridor and traffic volumes moved along the corridor.
4. The study was undertaken by the Trade Hub and Secretariat staff with support from FESARTA and entailed desktop research, interviews and letters of inquiry.
5. The study recommendations are that:
 - a. The CPMS for TKC shall comprise the submission of information on transit times and delays as well as volumes of traffic to the TKCMC Secretariat on a monthly basis by all the key stakeholders mentioned above and the analysis on this information and dissemination of the results of the analysis to key stakeholders by the TKCMC Secretariat shall be done on a quarterly basis.
 - b. The main sources of information for the CPMS shall be the Customs Administrations, Nampont and Weighbridges (Ministries of Transport). The information from the other stakeholders will be used to check the reliability and validity of the information supplied by these two main sources of information for the TKC CPMS.
 - c. As part of the CPMS the Time Release Studies (TRS) of choke monitoring will be undertaken as and when necessary at the borders, port or any other node in the transport chain at which the CPMS would be indicating there are inordinate delays.
 - d. Periodic surveys on an annual or bi-annual basis will be undertaken to validate information supplied to the CPMS.

6. After the presentation of the first draft report of the study, the TKC Working Groups Plenary meeting held on May 29, 2009 agreed on the following, inter alia, as a way forward:
 - a. A Task Team (TT) of Customs Information Technology (IT) Specialist from the three Customs administrations be established as soon as possible to work on the Customs cargo tracking systems and ensure that these systems can generate the information required for the TKC CPMS.
 - b. This TT would have to ensure, through their administrations that all fields in the Customs cargo tracking systems are correctly filled or completed to facilitate the generation of information required by the CPMS.
 - c. The TT shall supply information on transit traffic first for the CPMS to start operating on that basis. For simplicity and as a start, the team could commence with container transit traffic only as a proxy for all traffic on TKC. Thereafter they will include information on transit times of container imports and exports information in the information supplied to the Secretariat.
 - d. Lastly the TT would include general cargo transit traffic as well as exports and imports.

INTRODUCTION

Background

From an economic perspective the function of a corridor is to promote both internal and external trade by providing more efficient transport and logistic services. Corridor focus is not only in improving routes that comprises it but also quality of transport and other logistics services aimed at reducing transit times and cost of shipment of goods and persons along the corridor.¹

According to the memorandum, signed by the Governments of Botswana, Namibia and South Africa establishing the TKC, "TKC" means the Trans-Kalahari Corridor that stretches from: (a) Pretoria in the Gauteng Province of South Africa through Rustenburg and Zeerust in the Northwest Province of South Africa; (b) through Lobatse, Kanye and Mamuno in Botswana; and (c) through Gobabis and Windhoek to Walvis Bay including the Port of Walvis Bay in Namibia.

The TKC has an established corridor management institution and is therefore better equipped to monitor corridor performance and address non-tariff barriers along the corridor in a proactive manner, through strategies for continued improvements of corridor performance. However, the TKCMC Secretariat, as yet does not have a Corridor Performance Monitoring System (CPMS) to monitor the corridor performance.

The TKC Memorandum of Understanding (MoU) provides for the development and establishment of a CPMS as a tool to quantify successes as well as indicate operational challenges that may exist on the entire corridor. Specifically, Article 6.3 Functions... of the MoU: Requires that the TKCMC (a) shall monitor performance of the TKC and to this end they shall develop an Annex that, among others, deals with:

- (i) Performance indicators to be applied to the TKC such as trade and traffic flows, container volumes, adequacy of facilities, processing times at border posts and average point-to-point transit times;
- (ii) The frequency with which performance monitoring shall take place; and
- (iii) The dissemination of performance monitoring results.

Pursuant to this provision, the CPMS should therefore be viewed as a tool that assists the TKC Secretariat as the operational arm of the TKCMC to monitor the performance of the corridor, quantify successes for marketing the corridor's competitiveness as well as indicate operational challenges that may exist on the entire corridor for remedial actions. The system would also provide a reliable mechanism to the TKCMC for reporting corridor efficiencies and challenges consistent with its MoU mandate to the Ministers and take actions to address the challenges.

¹ SSATP Discussion Paper No. 7 of 2008

At the TKCMC Working Group Plenary meeting held in October 2008 the USAID Trade Hub made a presentation on the need for a CPMS for the TKC in terms of the TKC MoU and to facilitate targeted interventions to remove non-tariff barriers in the corridor. The decision at that meeting was that the TKCMC Secretariat, the Trade Hub and Federation of East and Southern African Road Transport Associations (FESARTA) would pursue the development of the TKC CPMS.

As a follow up to the above decision, the three said institutions held a meeting in Johannesburg March 16 to 17, 2009, to brainstorm and come up with a strategy and action plan for developing a CPMS for TKC. This meeting emphasized the need to start with simple CPMS that is sustainable and that could also be developed with time to meet additional needs of the stakeholders. The purpose of this study or activity is to make a proposal on the establishment of such a CPMS for the TKC. This study is being conducted with technical assistance from the Trade Hub and input from the TKCMC Secretariat, and logistical support from FESARTA with particular truckers and other stakeholders other than the Customs, Nampont and Ministries of Transport.

The March 2009 meeting reviewed the different approaches to corridor performance monitoring system as reflected in the Sub-Saharan Africa Transport Policy Program (SSATP) Discussion Paper No. 7 on *Lessons of Corridor Performance Measurement* of May 2008. On the three methodologies discussed in the paper i.e. corridor-wide monitoring based on driver's trip diaries filled by truck drivers; the bottleneck monitoring based on independent surveys; and corridor-wide monitoring based on cooperation and partnership with Port Authorities, Customs and Ministries of Transport, the meeting decided to pursue the last one because of its cost-effectiveness and sustainability. However, this would be complemented by the second one as and when necessary. The meeting further decided that a fully fledged TKC CPMS would entail:

- a) Monitoring times, tonnages (volumes), commodities, containers, abnormal loads, etc along the full corridor. Monitoring in both directions, by country source and destination including transport by both road and rail.
- b) Monitoring the times from the time the ship arrives at the port outer anchorage, to the time the goods arrive at destination or bonded warehouse in the destination country and/or vice versa i.e. from origin to when cargo is loaded on ship.
- c) Bottleneck/Choke monitoring on borders, the port or other important points along the corridor as and when necessary or before and after a major change to infrastructure or systems (e.g. one-stop border post) along the corridor.
- d) Key stakeholders, in particular, the Customs, Port Authorities and Ministries of Transport submitting the agreed information to the TKC Secretariat on a monthly basis and the Secretariat would analyze this information on TKC performance and disseminate the results of the analysis to key stakeholders with recommended actions to address challenges identified on a quarterly basis.

Study Objectives

In pursuant of Article 6.3 of the MoU, the overall objective of this study was, therefore, to recommend the development and establishment of a CPMS that is cost-effective and sustainable, largely based on existing information already available within the TKC stakeholders that could provide a basis for the corridor performance. The specific objectives of this study were therefore to make a proposal for:

- The design of a CPMS that was cost effective, sustainable and provides stakeholders with good information on the performance of the corridor.
- A CPMS that used as much as possible existing information/data already collected by TKC stakeholders in their normal course of business, perhaps with a little tweaking, as the basis of information for the CPMS for cost-effectiveness and sustainability.
- A CPMS whose core source of data was the information already collected by Customs Administrations along the TKC through their cargo tracking systems, the Port Authority on cargo movement at the port and the Ministries of Transport on weighbridge times. This information would be augmented by information from other stakeholders as and when necessary for improving the reliability of the information on indicators.
- A CPMS that was based on lessons learnt from other corridors such as the Northern Corridor that could start as a simple system that could be developed over time to capture additional indicators as and when this became necessary.

Study Team and Approach

The study was undertaken by the Trade Hub Transport Advisor, Godwin Punungwe, who is leading the study team, the Trade Hub Senior Customs Advisor, Ranga Munyaradzi, and TKC Secretariat, Bevan Simataa, with the support from the FESARTA (Barney Curtis, the Executive Director).

The study entailed desktop research, consultation with all key stakeholders through meetings, questionnaires/letters of enquiry and field visits only where absolutely necessary. The stakeholders consulted include Namport responsible for the Walvis Bay Port, Customs Administrations of the three countries, Truckers, Clearing and Forwarding Agents, Ministry of Transport/Weighbridge staff, and NamRail. The consultation with key stakeholders involved explaining the purpose of the CPMS and need for Customs and other stakeholders to provide a selected set of corridor performance indicators on a monthly basis to the TKC Secretariat. Other institutions with experience in corridor performance initiatives were also consulted as their contribution to an effective CPMS for the TKC.

Structure of the Report

After this introductory chapter the report will proceed with lessons learnt from other institutions on CPMS and/or observatories and corridor monitoring;

corridor performance monitoring indicators and the criteria for selecting performance indicators; and the proposed initial performance indicators for TKC. It further proceeds with discussion on consultations undertaken as part of the study and guidance emerging from these consultations; and finally it discusses the proposed design of a TKC CPMS and way forward as well as feedback from the TKC Working Group meeting on these issues. References and annexes will be at the end of the report.

LESSONS LEARNT ON CPMS FROM OTHER INSTITUTIONS

Performance of a corridor can be evaluated from two perspectives:

- a) **An infrastructure perspective**, which considers the physical capacity of links and nodes in the corridor as well as their use. This approach is often used when deciding on requirements for additional capacity but provides little insight into the effect of corridor performance on trade.
- b) **Quality of service perspective**, which examines the quality of service provided for goods moving on the corridor. Performance is measured in terms of average times and/or cost for transport units moving through the corridor. In terms of trade facilitation, the second perspective is the most appropriate.² The second perspective will be the primary focus of the TKC CPMS in its initial phase.

SSATP Lessons of Corridor Performance Measurement

With respect to the quality of service perspective the SSATP hosted by the World Bank identified three approaches or methodologies to corridor performance monitoring initiatives:

- Corridor-wide monitoring based on drivers' trip diaries filled by truck drivers. In this case selected drivers fill trip sheets in which they are expected to report all stops as well as official payments and bribes.
- Bottleneck monitoring based on independent surveys; the focus is usually on border-crossing time. This entails detailed monitoring of specific locations or choke points within a corridor.
- Corridor-wide monitoring based on questionnaires to or inputs from port authorities and customs. Ports and Customs have their own cargo tracking systems for their own purposes and also to tucking companies and Ministries of Transport, that can be the basis for a CPMS.

The first two approaches mainly consist of producing data while the third approach mainly consists of gathering data. Cost-wise, data production is obviously much more expensive than data gathering from existing sources. Existing computerized data source, already maintained by ports and customs authorities and Ministries of Transport, complemented by data gathered by truckers, should be the first data source target of any performance initiative, as these are the most likely to provide sustainability for data supply.

In conclusion on lessons learnt, the SSATP says that while drivers' trip diaries may be useful, the core of monitoring activities should mostly rely on existing

² SSATP Discussion Paper No. 7 of 2008

consolidated data from customs and ports authorities and limited surveys (freight forwarders, major trucking companies, truckers and transport unions) to especially benchmark corridor performance.³

After reviewing these options discussed by the SSATP, the study team decided to recommend the third approach above for its cost-effectiveness and sustainability. However, it also recommends that this approach be complemented by the second approach as and when necessary i.e. bottleneck monitoring of Time Release Studies (TRS) when bottlenecks are identified at any node in the corridor transport chain.

Northern Corridor Observatory/Performance Initiatives

The Northern Corridor (NC) comprises the port of Mombasa in Kenya and the transport infrastructure, facilities and services connecting the port and Uganda, Rwanda, Eastern Democratic Republic of Congo (DRC), Northern Tanzania and Southern Sudan. It was established through a Northern Corridor Transit Agreement (NCTA) that created the Northern Corridor Transit Transport Coordinating Authority (NCTTCA) with a Secretariat based in Mombasa.

With assistance from SSATP the NC in 2004-2005 undertook a baseline survey on key non-physical barriers aiming to qualify and quantify the reasons for delays through the drivers' trip diaries, i.e. the first approach above, but this was costly, about \$50,000 plus the cost of a dissemination workshop. However, the baseline survey was successful in that the expected result was achieved, with about 140 trips of which only 20% were filled incorrectly.

Again with assistance from the SSATP, the NC launched a second phase of the performance initiative aimed at establishing a full CPMS in 2006 focusing on transit times and traffic volumes. This time round the main focus was on data collection from pre-existing information, such as computerized data from revenue authorities, port authorities and railway operators, and primary data collection complementing computerized data through interviews of a four targeted trucking operators. Pre-existing data were then complemented with data from private operators in order to check for accuracy of official data.⁴ The second phase was successful although it was at a cost of about \$150,000.00.

The second phase produced reliable performance measurements but it has been difficult to continue effectively with this phase. The NC CPMS was really now set up with staff in place to process data and disseminate corridor performance indicators. However, there was still the challenge of collecting data regularly with the necessary frequency as the suppliers of the data were not complying with the agreement with the NC to supply the data regularly. This is mainly because the port and customs authorities do not always give

³ SSATP Discussion Paper No.7

⁴ SSATP Discussion Paper No.7

priority to supplying data to the CPMS and in addition, some of the fields in their cargo monitoring systems are incorrectly filled.⁵

The bottom-line is that for a CPMS to be functional in a cost-effective and sustainable way, the Customs, Port Authorities and other key stakeholders such as the Ministries of Transport have to commit to supplying reliable information on a regular basis to the CPMS. This commitment could be in the form of a MoU between the TKC Secretariat and these authorities.

It is pertinent to note that the NC CPMS focuses only on imports and on containers only and does not monitor the movement of exports or general cargo. However, data received from stakeholders has both imports and exports.

CAREC Corridors: Performance Measurement and Monitoring⁶

The Central Asia Regional Economic Cooperation (CAREC) Transport and Trade Facilitation Transport and Facilitation Strategy and its Action Plans focus on the development of six CAREC corridors which facilitate transport and trade within and through the CAREC region.

The same strategy and action plan also mandated that performance be measured and monitored periodically to ascertain the current situation along the links and nodes of each CAREC corridor, identify bottlenecks and determine courses of action to take to address such bottlenecks. Three methods that measure and monitor performance has been considered for CAREC, each focused on a particular corridor component. The Time/Cost Distance Methodology gathers time and cost data associated with transit transport processes to identify constraints along a particular route by looking at detailed breakdown of cost and time involved along every section of such route. Based on the data gathered, further work may be sanctioned using the TRS to assess legal and regulatory component and/or the Logistics Performance Index to assess logistics services efficiency.

a) Time/Cost –Distance methodology

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) Time/Cost – Distance Methodology is a graphical representation of cost and time data associated with transport processes. The purpose of the model is to identify inefficiencies and isolate bottlenecks along a particular route by looking at the cost and time characteristics of every section along a route. The methodology allows policy makers to:

- analyze the factors that affect the cost and time required to transport goods using certain routes;
- compare over a period of time the changes in cost and/or time required to transport goods on a certain route;

⁵ Development and Implementation of a Transport Observatory on the Northern Corridor, April 2009; Mombassa Workshop funded by SSSATP.

⁶ CAREC Corridors: Performance Measurement and Monitoring: <http://www.adb.org/Documents>.

- compare and evaluate competing modes of transport operating on the same route; and
- consider alternative transit routes.

The methodology comprises two parts: two detailed questionnaires to be completed by drivers and an analysis which consists of graphs that are automatically generated as the questionnaires are filled in. The entire methodology is in one Excel file.

b) Time Release Method

At border crossing stops, the World Customs Organization (WCO) Time Release Method was to be used. The method measures the average time taken between the arrival of goods at the border post and their release to the importer/broker. The aim is to determine where problems exist in the process, the reasons for these problems, and possible solutions. It recognizes that the international movement of goods involves customs and other national authorities such as port, health, veterinary, agriculture, standards as well as trading community of importers, exporters, brokers, forwarders, carriers, banks, and others.

It is recommended that the Time Release Method or Study is used as and when necessary as part of the TKC CPMS for monitoring border posts or port performance or time each agent takes in the overall time taken at these points on the corridor. This is really a method for choke/bottleneck monitoring that will be part of the TKC CPMS.

c) Logistics Performance Index (LPI)

The World Bank's Logistics Performance Index uses a comprehensive approach in measuring critical factors of trade logistics performance such as the quality of infrastructure and logistics services, security of property from theft and looting, transparency of government procedures, macroeconomic conditions, and the underlying strength of institutions. The LPI is based on a web-based questionnaire completed by logistics professionals, i.e. operators or agents of the world's largest logistics services providers. Respondents rate country performance using a 5-point scale on the following seven areas:

- Efficiency of clearance by customs and border agencies;
- Quality of transport and information technology infrastructure for logistics;
- Ease and affordability of arranging international shipments;
- Competence of the local logistics industry;
- Ability to trace and track international shipments;
- Domestic logistics cost; and
- Timeliness of shipments in reaching destination.

Each respondent also provides time and cost data, including the following:

- Rate of physical inspection (%);
- Customs clearance (days);

- Lead time for export and import (days);
- Number of border agencies for exports, for imports;
- Possibility of a review procedure; and
- Typical charge for a 40-foot container (export and import US\$).

The data gathered through the surveys are synthesized or aggregated as weighted average on the seven areas in a composite index to allow for comparisons across about 150 countries.

Strong institutional arrangements at both national and regional levels in implementing the CAREC CPMS would be necessary and would require strong financial backing to succeed. National Joint Committees (NJC) would need to be established to collect the data required for the time/cost-distance analysis of sub-corridors on a quarterly basis. Using the collected data required for the time/cost-distance analysis of these sub-corridors on a quarterly basis.

Using the collected data and with Asian Development Bank (ADB) assistance, the NJC would undertake the time/cost-distance analysis, review the results, evaluate the constraints, and take corrective actions. Based on the results of the time/cost-distance analysis, the NJC would periodically authorize time-release assessments and/or logistics performance assessments. ADB was to finance performance monitoring activities and would help strengthen the capacity of the NJC (or a similar organization) in each CAREC country.

In conclusion on this section, critical lessons can be drawn from the above experiences. One of them is that regular and sustainable data collection to feed into the CPMS is crucial for the success of a CPMS. And data generation for the CPMS, especially if it involves production of data rather than collection of existing data, can be very expensive. Even when the CPMS relies on submission of existing data, regular submission of this data is critical and this can only be achieved if a win-win situation is created and written commitment is made by those who agree to supply the data through instruments such as an MoU. A win-win scenario for all stakeholders could be partly created by actions taken to address bottlenecks identified through the CPMS. The positive impact of a CPMS is achieved only when information generated by the system is used by a corridor management institution to improve competitiveness through removal of bottlenecks to corridor operational efficiency.

UNCTAD Study on the Transit Information System for TCC

In 2007, UNCTAD undertook a study on a Transit Information System (TIS) for the Trans Caprivi Corridor (TCC) at the request of the Walvis Bay Corridor Group (WGCG). TCC begins at the port of Walvis Bay in Namibia, and goes through Zambia and ends in Lubumbashi with a link to Harare. The Trans Caprivi Highway links landlocked Zambia, Zimbabwe and Southern DRC to the port of Walvis Bay.

The study proposed a TIS for the TCC that had the following providers of accurate data that could be utilized as data sources for the TIS: Namport Port System, Namibian and Zambian Customs Computer Systems. Transporters were considered as a possible source of data but were discarded as it was viewed that their input would impair the data integrity of the system. Namibian and Zambian Customs were considered the primary source of data for the TIS. The study acknowledged that TIS would not be able to show where along the corridor transporters were experiencing delays such as at weighbridges.

The TIS entailed the population of the TIS database with data from the three key institutions (Namport, Namibian and Zambian Customs) using automated methods without the need for any intervention. However, TIS has not been implemented yet primarily because of the high system development costs that were estimated then at N\$463,450.00 or US\$66,207.00.⁷

However, the study team thinks there are a lot of useful lessons from this study that can and shall be incorporated in the proposed TKC CPMS.

CORRIDOR PERFORMANCE INDICATORS

Development of Indicators

In developing performance indicators and monitoring mechanisms, it is noted that the operation or functioning of a corridor involves: (i) physical infrastructure, (ii) legal framework that governs trade and the provision of trade services as well as inter-government agreements or international treaties, and (iii) logistics services which operationalize policies and programs that manage and control the flow and storage of goods from points of origin to points of consumption.

Performance indicators are quantitative and periodic assessment of a process (in this case the movement of goods) that helps define and measure progress toward a specific goal. They reflect the efficiency or quality of the corridor's components individually or in combination. It is important for indicators to be comparable across routes, modes of transport, and stops or border posts and links or segments between stops.

Performance can be measured through outcome indicators of time and cost. Time is the amount of time taken to complete movement of the goods from the beginning to the end of the route, including the delays due to congestion or checks along the corridor or quality of service. Costs are those payments related to the movement of the goods and transport vehicles.

Two additional parameters are reliability and flexibility. Reliability refers to the variation in transit time for a specific combination of services and origin-destination pair. The greater the variability, the harder it is to predict actual transit time and in turn, to coordinate sequential activities in the supply chain, which affects average order cycle time and leads to bunching of arrivals and

⁷ Study on A Transit Information System for the Trans Caprivi Corridor, UNCTAD.

departures. Flexibility refers to different combinations of cost, time, and reliability that allow suppliers to meet varying demands of consumers.

Performance measurement and the choice of indicators must be relevant to the requirements of each corridor. To ensure this, objectives must be clearly identified, the strategy for using the results agreed upon, and the entire process understood and accepted by those involved. Comprehensive performance indicators must include information on the quality of service and reliability, efficiency, assets utilization, financing, and regulatory practices.

A more comprehensive performance measure would take into account in addition to the steps under the time/cost distance methodology, time release method, and the logistics performance index those requirements and procedures that are undertaken even before the goods or transport vehicles are en route, e.g. drivers' visas, import licenses, vehicle registration, technical standards certification, etc.

Performance targets may use either benchmarks or baseline indicators. A benchmark is usually obtained from ideal conditions where the movement of goods is smooth, i.e. the quality of infrastructure is high, there are no regulatory bottlenecks or arbitrary procedures, and logistics services are efficient. The target in this case is to move towards the benchmark. In contrast, baseline indicators reflect current conditions and therefore existing inefficiencies, low capacities, or poor quality of services, in which case the target is to move away from the baseline. Since benchmarks are difficult to set, baseline indicators are used for practical purposes.⁸

Indicators and Criteria for Choosing Appropriate Performance Indicators

a) Indicators

There are many indicators that can be used to measure corridor performance and these may cover volume and capacity; rates and cost factors; safety and security; and transit times and delays; and productivity aspects. Transit times and delays indicators usually cover:

- Transit time per route per mode of transport;
- Transit time origin to destination by country;
- Average dwell time at port;
- Time of customs clearance at port;
- Transit time within port;
- Border post crossing time;
- Time for customs procedures at destination;
- Transit times within an Inland Container Depot (ICD)/Inland Port; and
- Weighbridge crossing time.

Most of the corridor indicators include measures of time and cost, but which time and cost vary from one corridor to another. Likewise, cost could be

⁸ CAREC Corridors: Performance Measurement and Monitoring: <http://www.adb.org/Documents>.

measured per ton, consignment, truck, container or TEU. There is an increasing focus on costs and times per TEU, but on many corridors the measure used by customs administrations, or often by transporters to price their offers is still per ton per consignment. The unit of cost should be in Twenty foot Equivalent Unit or truckload, whichever is the most relevant to the corridor. As a minimum, any package of measure monitoring corridor performance should also take transport time and reliability into account.⁹

b) Criteria to choose appropriate performance indicators¹⁰

The selection of indicators depends on the purpose of the corridor performance measurement exercise: for advocacy and benchmarking purposes, comprehensive measures such as total transport time, costs and their variance need to be sought, whereas for donors' project monitoring, more detailed indicators to highlight the impact of donors' investments can be developed such as border-crossing time or port dwell time. For corridor management institutions such as the TKCMC, they can be interested both in the global corridor monitoring, and on the detailed segments, disaggregating the supply chain.

For regional trade and transport projects, the selected indicators for data collection should, for the sake of sustainability:

- Be easy to measure and collect;
- Be based on consistent and defined parameters readily understood;
- Capture excessive transport costs and/or time; and
- Be as much as possible already measured regularly by the main logistics stakeholders.

The study team believes the selected performance indicators for the TKC CPMS meet the above criteria.

Initial TKC CPMS and Recommended Indicators

The study team recommends that the TKC CPMS would entail:

- Monitoring times, tonnages (volumes), commodities, containers, abnormal loads etc along the full corridor. Monitoring in both directions, by country source and destination, including transport by both road and rail.
- Monitoring the times from the time the ship arrives at the port outer anchorage, to the time the goods arrive at destination or bonded warehouse in the destination country and/or vice versa i.e. from origin to when cargo is loaded on ship.
- Bottleneck/Choke monitoring on borders, the port or other important points along the corridor as and when necessary or before and after a major change to infrastructure or systems (e.g. one-stop border post) along the corridor.

⁹ SSATP Discussion Paper No. 7 of 2008

¹⁰ SSATP Discussion Paper No. 7 of 2008

- Key stakeholders, in particular, the Customs and Port Authorities submitting the agreed information to the TKC Secretariat on a monthly basis and the Secretariat would analyze this information on TKC performance and disseminate the results of the analysis to key stakeholders with recommended actions to address challenges identified on a quarterly basis.

However, for simplicity and sustainability the study team has limited the performance indicators for the TKC CPMS, to start with transit times and delay indicators mentioned in 2 (a) above and limited volume indicators. Time here is taken as a proxy of costs in that the shorter the transit times the lower the transport costs and the better the quality of service, to some extent. With further development of the CPMS over time, transport cost will need to be monitored separately, among other indicators.

Consequently, the study team has recommended the indicators and sources of these indicators discussed below.

a) Walvis Bay Port

Namport shall provide the following information/indicators on cargo destined to use the TKC:

- Ship port dwell time i.e. the time from the arrival of the ship at the port to the time it complete discharging cargo at the port.
- Port dwell time i.e. time from the discharge of the cargo to the time the cargo leaves the port by rail or road. The dwell time for containers and bulk cargo should be shown separately.
- Types and volumes/tonnages of cargo moved through the port every month.
- Cargo transported from and to the port to and from the TKC by rail and road in tonnage and types.

However, Customs shall provide information on how long it was taking to clear goods at the port and based on this information, time other agencies are taking to handle the goods could be determined from the port dwell time. Port Management Association of East and Southern Africa (PMAESA) shall be requested to help benchmarking performance of the port relative to other ports in the region and worldwide. If the Walvis Bay port is not performing to benchmarks set as per information provided by PMAESA then bottleneck/choke monitoring will be undertaken at the port as necessary.

b) Land Transport – Port to Destination

Here, a number of stakeholders are involved that shall provide the necessary information from their current operations monitoring systems:

Truckers:

Based on their vehicle control systems and/or driver trip sheets shall provide the following information:

- Time taken by trucks/drivers from port to the first border;

- Time taken by trucks/driver at the border;
- Time taken by driver/driver from the first border to the second border;
- Time taken at the second border;
- Time taken at any other official stop e.g. police checks;
- Time taken from the second border to the destination (if cleared or bonded customer premises) or the bonded warehouse (if not customs cleared at border);
- Time taken at each weighbridge;
- Number of trips per month per truck plying the TKC or truck turnaround times;
- Number of loaded, empty and partly loaded trips;
- Any node in the corridor where working hours are not synchronized e.g. weighbridge, border opening hours, clearing and forwarding agents; and
- Clearing and Forwarding Agents the Truck Operators use.

Clearing and Forwarding Agents

These Agents shall provide similar information as provided by Truck Operators above (obviously not all of it) from their cargo monitoring systems. In addition; they will be asked to:

- Rank TKC performance to date compared to other corridors; and
- Advise TKC Secretariat the criteria they use for choosing corridor to use.

Weighbridges/Ministry of Transport

Staff operating these bridges shall provide this information through their Ministries:

- Number of trucks overloaded per month;
- Time taken to weigh trucks;
- Time drivers are waiting before they are weighed (currently not captured but could be captured with a little more effort by staff); and
- Report of any linkage of weighbridge certificate with customs clearance i.e. no clearance at border without weighbridge certificate.

NamRail

Rail operator would be requested to provide the following information:

- Rail tonnage clearance from the port to TKC;
- Rail tonnage from TKC to the port;
- Transit times from port to a point on TKC; and
- Transit times from point on TKC to port.

c) Borders

Customs although not the only players at the border, they are key players and shall provide information on time taken to clear goods at the border. If

there are excessive delays at any border then bottleneck/choke monitoring or TRS shall be instituted to identify the main contributors to the delay and corrective action taken.

d) Customs Computer Information Systems to be the Core of the TKC CPMS

With cooperation among the Customs of the three countries, most of the time corridor performance indicators above could be provided by their cargo tracking systems. The only indicators the Customs Monitoring systems would be unable to provide are:

- Ship dwell time (to be provided by the Port Authorities);
- Weighbridge times (to be provided by the Ministries of Transport); and
- Time taken from the last border to destination if the goods are cleared at the last border or pre-cleared.

Indeed most of the traffic into South Africa from the Walvis Bay Port is cleared at the South African border and thus only little transit traffic to Johannesburg Airport or other countries such as Swaziland is monitored by South African Customs officials.

Customs shall provide the following information:

- Transit times throughout the TKC and for each of the sections of the TKC, i.e. Walvis Bay to Trans Kalahari Border Post and from Mamuno to Pioneer Gate Border Posts;
- Clearance time at Trans Kalahari and Mamuno Border Posts;
- Clearance times at Pioneer Gate and Skilpadshek Border Posts;
- Transit times of from the Skilpadshek border post to inland destination bonded premise/warehouse if transit traffic;
- Number of trucks through TKC every month crossing border/s; and
- Type of commodities conveyed on TKC and their volumes/tonnages.

The information provided by the Customs Administration from their cargo tracking systems shall be the Core of the TKC CPMS complemented by information from the Port Authority on port activities and Ministries of Transport on weighbridges. This core will also be complemented by choke-monitoring and other surveys as and when necessary. Customs systems are the core of the TKC CPMS because they will provide most of the performance indicators for the CPMS.

In essence, most of the indicators mentioned above could be provided by Customs, Namport and Weighbridges, and information from other stakeholders, that shall be submitted periodically, shall be used to verify and improve reliability of information provided by these three sources. Thus information obtained from trucking companies, clearing and forwarding agents and NamRail will be mainly for validation of information obtained from these three main sources.

In an ideal world all the stakeholders mentioned above would submit the requested information to the TKCMC Secretariat monthly and the Secretariat

would on a quarterly basis prepare a TKC Performance Report and circulate it to all stakeholders for any necessary action. The TKCMC and all its stakeholders would then make the necessary interventions to remove bottlenecks to the efficiency operations of the corridor resulting in improved competitiveness of the corridor. Unfortunately, the real world is far from ideal as some stakeholders such as truckers cannot provide this information on a monthly basis from their current cargo monitoring system on the corridor.

ACTIONS TAKEN DURING THE STUDY OF THE DEVELOPMENT OF THE TKC CPMS

Actions/Activities

A number of actions have been taken since the March 2009 meeting on the development and establishment of a TKC CPMS.

- a. Terms of Reference (ToR) or Statement of Work of this activity was designed by the Trade Hub and shared among the study team.
- b. An introductory letter informing key stakeholders of the commencement of this study was prepared and sent out to all key stakeholders by the TKCMC Secretariat.
- c. The support role of FESARTA during the study was defined and communicated to FESARTA and financial support provided to facilitate the support role.
- d. The three Customs Administrations have been written to by TKCMC Secretariat requesting them to confirm that they can provide most of the information required for the CPMS.
- e. The three Ministries responsible for transport have been written to by the TKCMC requesting them to provide information required with respect to weighbridges.
- f. TKCMC Secretariat has also written to Namport requesting that it supplies the information required on a monthly basis.
- g. A letter of inquiry/questionnaire was designed and sent to FESARTA for distribution and follow up to all key stakeholders (except Customs and Ministries) requesting them to confirm the ability to submit the information requested to the TKCMC on a monthly basis.
- h. Desk top research has been undertaken on CPMS used by other institutions.
- i. A visit was undertaken by two members of the study team to the Botswana/Republic of South Africa (RSA) border to establish the percentage of Customs un-cleared goods proceeding into RSA from the borders. This was important in determining what information Customs could provide on this section of the TKC.
- j. A member of the study team and FESARTA participated in the workshop at which lessons learnt from the NC Observatory/CPMS in Mombasa.
- k. A member of the study team had further discussions with the NC Observatory Team for more lessons learnt from their experience.

- l. A meeting with Namibian Truckers was held in Windhoek on May 13, 2009 by FESARTA at which the purpose of the study and the role of Truckers in setting up the CPMS were explained.
- m. The study team made a visit to BURS (Botswana United Revenue Services).
- n. The study team made a presentation of the First Draft Report of the study on Development and Establishment of a CPMS for TKC to the TKC Working Groups Plenary meeting on May 29, 2009 in Swakopmund, Namibia.

Findings of the Study

- a. In principle the three Customs Administrations of Botswana, Namibia and South Africa have agreed to provide the requested information from their cargo tracking systems.
- b. However, some of the information required for the CPMS was currently incorrectly filled in the customs cargo tracking systems and this would need to be corrected before useful information can be extracted from the systems and submitted to the CPMS from these systems.
- c. Moreover, some tweaking of the query system in the Customs cargo tracking system may be necessary to enable these systems to readily provide electronically the required information for the CPMS.
- d. What seemed to be readily available information from these systems are the transit times with respect to transit traffic but not for exports and imports that are conveyed on the TKC.
- e. Namport confirmed at the TKC meeting held on May 29, 2009 that it would provide the required information.
- f. Truckers cannot provide much useful information from their drivers' trip sheets as no further processing of this information is done in the normal course of managing the tracking business. However, truckers could provide the information from their vehicle tracking systems.
- g. Lessons learnt from other institutions on CPMS are that it's best to start with a simple CPMS that is sustainable and develop it further to meet additional needs over time.
- h. The TKCMC Working Groups Plenary meeting of May 29, 2009 reviewed the presentation of the first draft report of the TKC CPM the actions taken so far to develop and establish a TKC CPMS and accepted its recommendations.

RECOMMENDED CPMS FOR TKC

- a. The CPMS for TKC shall comprise the submission of information on transit times and delays as well as volumes of traffic to the TKCMC Secretariat on a monthly basis by all the key stakeholders mentioned above. The analysis on this information and dissemination of the results of the analysis to key stakeholders by the TKCMC Secretariat shall be done on a quarterly basis.
- b. The main sources of information for the CPMS shall be the Customs Administrations, Namport and Weighbridges (Ministries of Transport). The information from the other stakeholders will be used to check the

reliability and validity of the information supplied by these two main sources of information for the TKC CPMS.

- c. As part of the CPMS, the TRS of Choke monitoring will be undertaken as and when necessary at the borders, port or any other node in the transport chain at which the CPMS would be indicating inordinate delays.
- d. Periodic surveys on an annual or bi-annual basis will be undertaken to validate information supplied to the CPMS.

WAY FORWARD

At the TKC Working Groups Plenary meeting held on May 29, 2009, the following was agreed:

- a. A Task Team (TT) of Customs Information Technology (IT) Specialist from the three Customs Administrations be established as soon as possible/immediately to work on the Customs cargo tracking systems and ensure that these systems can generate the information required for the TKC CPMS. The current Customs IT Committee would consist of this TT. The names of the individual members of the TT would be advised to the TKC Secretariat by Customs Administrations by June 5, 2009.
- b. This TT would have to ensure, through their administrations that all fields in the Customs cargo tracking systems are correctly filled or completed to facilitate the generation of information required by the CPMS.
- c. This task team would have to get further guidance from the study team with respect to their work and interact with the latter team. This TT should complete its work within a month and supply the information required to the TKCMC Secretariat thereafter.
- d. The TT shall supply information on transit traffic first for the CPMS to start operating on that basis. For simplicity and as a start, the team could commence with container transit traffic only as a proxy for all traffic on TKC. Thereafter they will include information on transit times of container imports and exports information in the information supplied to the Secretariat.
- e. Lastly, the TT would include general cargo transit traffic as well as exports and imports. It was agreed that once the system has been set up the TT will meet as and when necessary to resolve any problems experienced.
- f. Nampont and Ministries of Transport/Weighbridges agreed to supply the information required for the CPMS starting from July 1, 2009.
- g. The Customs Administrations, Nampont, Ministries of Transport as well as other stakeholders would appoint the contact person for information requested for the CPMS.
- h. The CPMS should be operational from July 1 2009, i.e. all key stakeholders, in particular Customs, Port and Weighbridges, should provide information to it on monthly basis starting from the end of June.
- i. The study team would continue to follow up with support of FESARTA on information requested from other stakeholders. However, the CPMS

- should be operational on the basis of information from Nampont, the Customs Administrations and Ministries of Transport/Weighbridges.
- j. The TKC Secretariat shall analyze information submitted in July, August and September and prepare a quarterly review of the TKC performance.
 - k. The TKC CPMS Study Final Draft Report to be circulated for comments and finalized before the end of June 2009.
 - l. The TKC CPMS would start with a simple that will be developed over time to meet additional needs.
 - m. The TKC Secretariat, assisted by the CPMS IT TT, shall be responsible for operationalizing the TKC CPMS. It is necessary for the TKCMC or the TKC Secretariat to sign a MoU or other instrument with the main suppliers of information i.e. the three Customs Administrations, Nampont and the three Ministries of Transport to ensure regular supply of information to the CPMS.

ANNEX 2: REFERENCES

1. Lessons of Corridor Performance Measurement, Sub-Saharan Africa Transport Policy Program Discussion Paper No.7, 2008
2. Study on A Transit Information System for the Trans Caprivi Corridor, UNCTAD, 2007.
3. CAREC Corridors: Performance Measurement and Monitoring: <http://www.adb.org/Documents>.
4. Development and Implementation of a Transport Observatory on the Northern Corridor, April 2009; Mombassa Workshop funded by SSSATP.
5. Memorandum of Understanding between the Governments of the Republics of Botswana, Namibia and South Africa on the Development and Management of the Trans Kalahari Corridor.