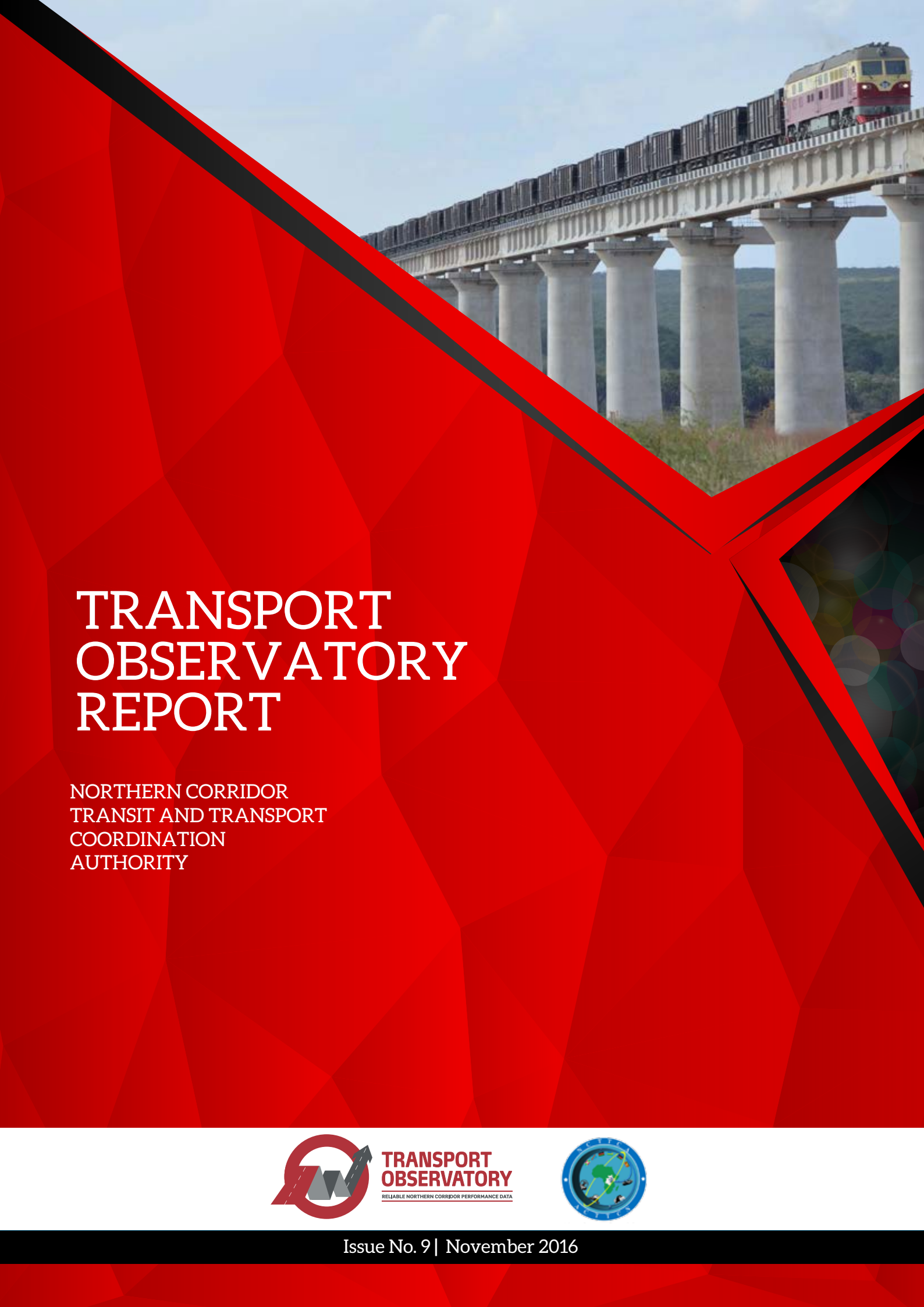




# TRANSPORT OBSERVATORY REPORT

NORTHERN CORRIDOR  
TRANSIT AND TRANSPORT  
COORDINATION  
AUTHORITY



**TRANSPORT  
OBSERVATORY**  
RELIABLE NORTHERN CORRIDOR PERFORMANCE DATA



Issue No. 9 | November 2016



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# ABBREVIATIONS

Rwanda Long Distance Truck Drivers Association  
Automated System for Customs Data  
Burundi  
Direction Générale Des Douanes Et Accises  
Democratic Republic of Congo  
Dead Weight Tonne  
Electronic Cargo Tracking System  
Fédération des Entreprises du Congo  
Global Positioning System  
International Association of Burundi Transporters  
Inland Container Deport  
Information Communication Technology  
International Roughness Index  
Kenya  
Kenya National Highway Authority  
Kenya Ports Authority  
Kenya Pipeline Authority  
Kenya Revenue Authority  
Kenya Transporters Association  
Logistics Performance Index  
Kilindini Waterfront Automated Terminal Operations System  
Magasins Généraux du Rwanda  
Northern Corridor  
Northern Corridor Transit and Transport Agreement  
Northern Corridor Transit and Transport Coordination Authority  
Office Burundais des Recettes  
Office Congolais de Contrôle  
Office Des Routes  
Office de Gestion Du Fret Multimodal  
One Stop Border Post  
Rwanda Revenue Authority  
Rwanda Transport Development Agency  
Rift Valley Railways  
Rwanda  
Statistical Package for Social Science  
South Sudan Federation of Employers and Business Association  
TradeMark East Africa  
Transport Observatory  
Transport Observatory Portal  
Uganda Freight Forwarders Association  
Uganda  
Uganda National Roads Authority  
Uganda Revenue Authority  
Uganda Railways Corporation

ACPLRWA  
ASYCUDA  
BI  
DGDA  
DRC  
DWT  
ECTS  
FEC  
GPS  
IABT  
ICD  
ICT  
IRI  
KE  
KeNHA  
KPA  
KPC  
KRA  
KTA  
LPI  
KWATOS  
MAGERWA  
NC  
NCTTA  
NCTTCA  
OBR  
OCC  
ODR  
OGEFREM  
OSBP  
RRA  
RTDA  
RVR  
RW  
SPSS  
SSFEB  
TMEA  
TO  
TOP  
UFFA  
UG  
UNRA  
URA  
URC

# FOREWORD

The Northern Corridor Transport Observatory Report is a bi-annual publication that provides useful information on trade and transport indicators to both the public and policy makers. The indicators in the observatory report relate to: (i) transit time and delays; (ii) volume and capacity; (iii) transport rates and costs; (iv) productivity and efficiency; and (v) intra-regional trade.

The analysis presented in this publication complements what is provided in the online portal of the Northern Corridor Transport Observatory. The online portal features more than thirty indicators that measure Corridor performance with a view to provide reliable information that guide in policy formulation, decisions making and streamline business processes. The report is also available online at <http://top.ttcanc.org> where disaggregated data on indicators for the period between 2012 to date can be found.

Through the Northern Corridor Transport observatory monitoring framework, targets for various indicators have been set.

Following a regular monitoring, advocacy and stakeholder engagements, a lot of improvements and initiatives have taken place in the Northern Corridor logistics chain in regard to trade and transport facilitation. To highlight some;

- With the implementation of the fixed berthing window, the ship waiting time before berth was 6.45 hours in September 2016 compared to the target of 24 hours and the ship turnaround time was 56.2 hours compared to 72 hours target.
- Port dwell time has shown improvement in performance compared to the same period in 2015 with the cargo dwell time of 3.6 days having been recorded in July 2016 against the 3 days' target. A lot of improvements can still be attained.
- Transit time to various destinations along the Corridor improved during the period under review with Mombasa-Malaba taking an average of 2.3 days in July 2016 compared to the average target of 3 days.
- Average time taken from Mombasa to Kampala during April to September 2016 period was 4.8 days which is an improvement from the 5.9 days that was recorded during the April to September 2015 period.
- Transit time to Kigali also improved significantly up to a period average of 6.3 days compared to the 10.3 days that was averaged from April to September 2015. On the other hand, the transit time from Mombasa to Juba deteriorated to an average of 10.1 days from an average of 6.9 days from April to September 2015.

Generally, there has been an erratic variation in trucking costs on most routes with charges ranging from \$ 0.9/Km to \$ 6.55/Km to key destinations. A rate variations/fluctuations analysis is required to ascertain inherent causes of the variations.

There are indeed still some challenges identified and recommendations have been proposed to ensure that the Corridor performance improves.

Going forward, the NCTTCA Secretariat will broaden the scope of indicators and gather data on all areas affecting trade and transport. This will include improved data collection mechanism and ensuring all the indicators are populated with subsequent information.

The NCTTCA is also finalizing the Geographic Information System (GIS) component of the transport Observatory. This will help to map all the indicators and provide a visual lay out of the corridor performance at various transit nodes and sections.



**Fred TUMWEBAZE,**  
Ag Executive Secretary

# ACKNOWLEDGEMENT

This report has been developed with guidance of the Council of Ministers and the Executive Committee of the NCTTCA. The Report received insights from the various Specialized Technical Committees.

Special recognition goes to TradeMark East Africa (TMEA) for their support and strategic partnership.

The NCTTCA is grateful to all the Stakeholders for their continued provision of the data used to generate the Transport Observatory report, which rely on the raw data ensuring its continuity and reliability. The data providers include Revenue Authorities, Ports Authorities, Authorities in charge of Roads, Rail and Pipeline Corporations, Private Sector Associations and Business Representatives.

We also wish to express our warm gratitude to Kenya Transporters Association for the partnership in undertaking the road transport surveys. Finally, thanks go to all other parties who have directly or indirectly contributed to the development of the 9th Transport Observatory Report.



# PART I: INTRODUCTION

## 1.1 Background

The Northern Corridor is a multi-modal transport network connecting landlocked countries of Burundi, Democratic Republic of Congo (DR Congo), Rwanda, South Sudan and Uganda to the port of Mombasa on the Kenyan Coast. The transport modes include road, rail, inland waterways and oil pipeline network. The Corridor transports largest share of goods to the East African region. In order to improve the logistics chain's reliability and competitiveness of their economies, the reduction in the cost of doing business and transportation; elimination of non-tariff barriers, reduction of delays and associated administrative costs on the transit logistics chain are the major focus areas by the Northern Corridor Member States. Therefore, it is important to diagnose and identify bottlenecks to the flow of traffic and recommend appropriate policy responses to resolve any weakness identified.

Public and private stakeholders are responsible for developing and improving all the transport modes by making infrastructural improvements and collaborating with other parties that play a role in the freight flows to the hinterland. Lower trade costs, improved infrastructure and communication technology will go a long way in fostering economic development.

The Northern Corridor Transport Observatory report is a bi-annual publication that aims to deepen understanding about trends in trade and transport facilitation along the Northern Corridor by measuring and tracking changes in key performance indicators ranging from the time vessels arrives at Mombasa Port up the time goods reach their final destinations. Information is provided by stakeholders from the Member States of Burundi, DR Congo, Kenya, Rwanda, South Sudan and Uganda. Other sources include; Road transport surveys and GPS surveys and interviews with road Transport users and Operators.

The statistical data reported in this report relate to the period April to September 2016 with both quantitative and qualitative analysis. However, prior information for previous periods has also been included for comparison. The Performance indicators discussed in this report relates to the volume of cargo, transit time, efficiency and productivity, intraregional trade and transport cost and rates.

Indicators under these categories are tracked on regular basis through the transport Observatory which is a Corridor monitoring tool with an online platform for tracking performance. The NCTTCA also runs the Northern Corridor Performance Dashboard which features 10 indicators that can be tracked on weekly basis at a glance. See <http://top.ttcanc.org> and [www.kandalakaskazini.or.ke](http://www.kandalakaskazini.or.ke) for more details. The indicators tracked provide a set of tools for the diagnosis of problems affecting the Northern Corridor; thus, contributing to the identification of areas requiring improvement with regard to the reduction of transport costs and to the evaluation of the effectiveness of programs/projects designed to improve the competitiveness of the Corridor. See annex1 for indicators categories and definitions.

## 1.2 Key Economic Indicators and projections for Northern Corridor Member States

Trade is a key means to fight poverty and achieve the Sustainable Development Goals, specifically by improving access to markets, and providing efficient and affordable transport system and predictable trading system

Some key economic and demographic indicators include; Gross Domestic Product (GDP), Population, Logistics performance index (LPI ) trade among others. Interrogating the demographic changes as well as the challenges and opportunities that they present is important to the design and implementation of policies that will facilitate smooth trade and transport. Table 1 below gives a picture of population growth and Real GDP growth among Member States

**Table 1: Statistics on Some Economic Indicators**

|                    | Projected Population (000) |        | WB LPI<br>2016 | Real GDP Growth (%) |       |       |
|--------------------|----------------------------|--------|----------------|---------------------|-------|-------|
|                    | 2016                       | 2030   |                | 2014                | 2015  | 2016  |
| <b>Burundi</b>     | 9.65                       | 17.36  | 2.51           | 4.66                | -4.11 | 3.45  |
| <b>DRC</b>         | 84.13                      | 120.30 | 2.38           | 9.17                | 7.75  | 4.93  |
| <b>Kenya</b>       | 45.48                      | 65.41  | 3.33           | 5.33                | 5.59  | 5.98  |
| <b>Rwanda</b>      | 11.59                      | 15.79  | 2.99           | 6.96                | 6.94  | 6.30  |
| <b>South Sudan</b> | 12.50                      | 17.81  | -              | 2.92                | -0.17 | -7.83 |
| <b>Uganda</b>      | 41.09                      | 61.93  | 3.04           | 4.93                | 5.04  | 5.29  |

Source: World Economic Outlook Database, 2016 and World Bank Logistics Performance Index (WB-LPI) 2016

The current population size of Northern Corridor Member states of about 204 Million people projected to reach around 323 Million in 2030 according to the 2015 UN "World Population Prospects. This growth in population predicts a huge market that will drive trade in the region in the next decade. Fast and efficient movement of people goods will therefore be a key pillar for growth in the region. In 2016, Uganda, Kenya and Rwanda are projected to have positive annual economic growth of between 5 to 7% suggesting a fast expanding economic region that is buoyed by a growing population.

The LPI is an interactive benchmarking tool that allows for comparisons across 160 countries on challenges and opportunities countries face in their performance on trade logistics and what they can do to improve their performance with regard to ease and efficiency of moving good within countries. The LPI is based on a worldwide survey of operators on the ground (global freight forwarders and express carriers), providing feedback on the logistics "friendliness" of the countries in which they operate and those with which they trade. The parameters that measure LPI are customs, infrastructure, international shipments, logistics quality and competence, tracking and tracing and timeliness.

**Table 2: LPI for NC Member States**

| Country        | overall LPI score | overall LPI Global rank | Customs | Infrastructure | International shipments | Logistics quality & competence | Tracking & tracing | Timeliness |
|----------------|-------------------|-------------------------|---------|----------------|-------------------------|--------------------------------|--------------------|------------|
| <b>Kenya</b>   | 3.33              | 42                      | 3.17    | 3.21           | 3.24                    | 3.24                           | 3.42               | 3.70       |
| <b>Uganda</b>  | 3.04              | 58                      | 2.97    | 2.74           | 2.88                    | 2.93                           | 3.01               | 3.70       |
| <b>Rwanda</b>  | 2.99              | 62                      | 2.93    | 2.62           | 3.05                    | 2.87                           | 3.04               | 3.35       |
| <b>Burundi</b> | 2.51              | 107                     | 2.02    | 1.98           | 2.42                    | 2.46                           | 2.68               | 3.45       |
| <b>DRC</b>     | 2.38              | 127                     | 2.22    | 2.01           | 2.33                    | 2.33                           | 2.37               | 2.94       |
| <b>Average</b> | 2.85              |                         | 2.66    | 2.51           | 2.78                    | 2.77                           | 2.90               | 3.43       |

Source: World Bank Logistics Performance Index (WB-LPI) 2016

Note: South Sudan was not included in the 2016 international global survey on LPI by World Bank.

Logistics performance index: Overall (1=low to 5=high).....

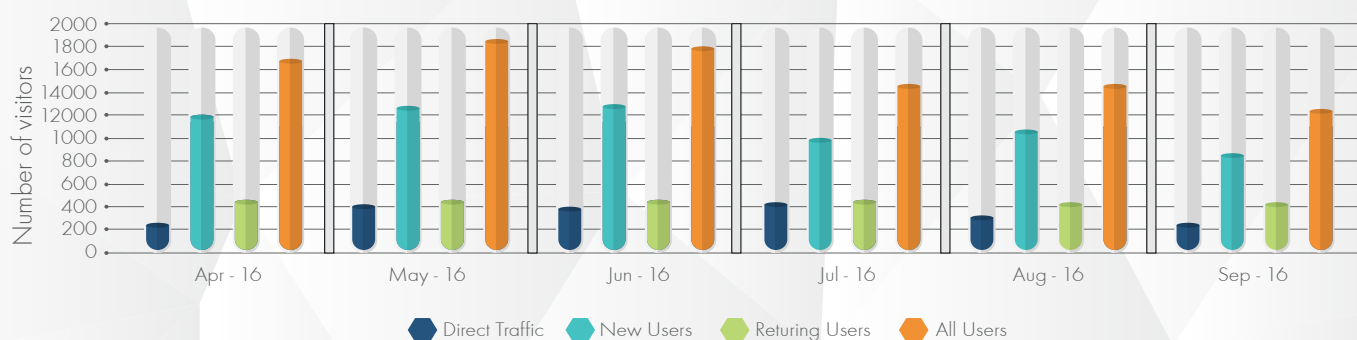
Data shows that except for Burundi which recorded a decline in the LPI, all the other Member States registered improvement in the LPI score suggesting that efficiency had improved notably due to improved infrastructure, predictability of the logistics chain and elimination of barriers along the transport modes in the respective countries. From table two, it is clear that for all the average performance in infrastructure greatly affected the LPI score followed by customs and logistics quality and competence. This analysis indicates that greater efforts need to be directed to these areas so as to improve performance.

### 1.3 Northern Corridor Performance Monitoring

The NCTTCA mandate is to facilitate trade and transport and monitor performance along the Northern Corridor. Through the Transport Observatory, The Northern Corridor Secretariat tracks the performance of the Corridor and disseminates evidence based information for decision making and business processes improvement. Performance is also monitored through the Northern Corridor Dashboard which features key selected indicators that are tracked on a weekly basis. Through feedback, regular engagement with stakeholders and tracking of the online portals usage, the Northern Corridor Secretariat is able to understand stakeholders needs and reasons for visiting the portal..

Having all stakeholders on the same page is essential to a highly efficient policy formulation and systematic response to the implementation of initiatives aimed at enhancing efficiency of the Corridor. Figure 1 gives trends in the number of traffic to the observatory from April 2016 to September 2016.

**Figure 1: Number of visitors to the Transport Observatory**



|       | Direct Traffic |       | New Users |       | Returning Users |       | All Users |        |
|-------|----------------|-------|-----------|-------|-----------------|-------|-----------|--------|
|       | 2015           | 2016  | 2015      | 2016  | 2015            | 2016  | 2015      | 2016   |
| Apr   | 336            | 358   | 1,139     | 1,235 | 502             | 521   | 1,641     | 1,756  |
| May   | 649            | 487   | 1,125     | 1,359 | 767             | 535   | 1,892     | 1,894  |
| Jun   | 478            | 411   | 1,100     | 1,336 | 691             | 516   | 1,791     | 1,852  |
| Jul   | 359            | 455   | 962       | 1,015 | 570             | 515   | 1,532     | 1,530  |
| Aug   | 364            | 361   | 954       | 1,090 | 448             | 469   | 1,402     | 1,559  |
| Sep   | 405            | 340   | 875       | 899   | 471             | 440   | 1,346     | 1,339  |
| Total | 4,606          | 4,428 | 8,170     | 8,950 | 5,464           | 5,012 | 11,619    | 11,946 |

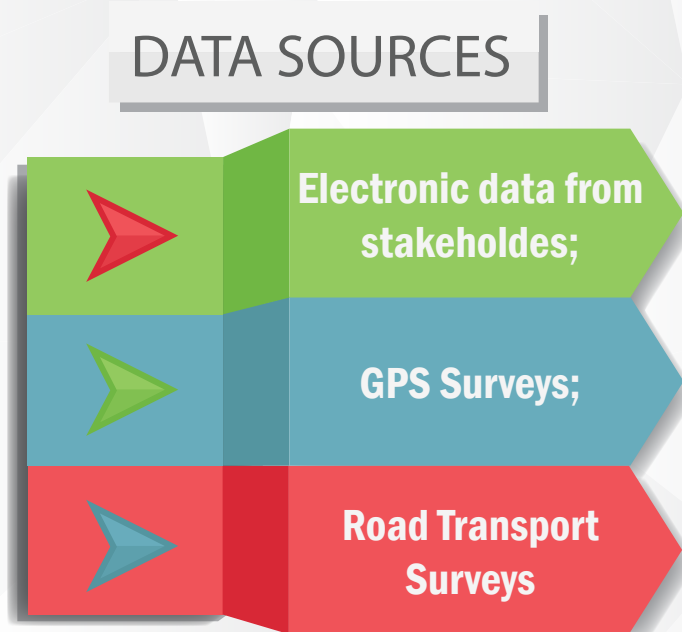
Source: Northern- Corridor Transport Observatory September, 2016

The total number of users of the online transport observatory portal has increased slightly from 11,619 in 2015 to 11,946 in 2016 during the same period. The observatory has now been enhanced with the GIS component to graphically map the indicators to the map thereby improving user experience and access to information and data.

The NC Secretariat is also spearheading data collection on the green freight program that will see the indicators expand from the current 31 indicators.

## 1.4 Methodology

Data for the Northern Corridor Transport Observatory is collected from stakeholders using various methods including surveys along the Corridor and electronic data from computerized stakeholder's business systems. The data is then processed, analyzed and reports generated. Validated information is uploaded to the Northern Corridor online transport portal and reports disseminated.



Data for the 9th transport Observatory report was gathered for the period April to September, 2016. Through the Road transport survey qualitative data from transporters and drivers on challenges and delays along the Corridor was captured. The questions range from making observations on physical transport infrastructure and facilities in place, and procedures for handling and clearance of goods along the Corridor, cargo origin and destination, type of vehicle, type of cargo and duration and reasons for stoppages. GPS kits were also issued to track the stop locations and duration during the survey period.

Analysis of trends is based on indicators where sufficient data is available to describe changes over the period specified. Information is triangulated and presented in graphs and tables to come up with the final report.

GPS Kits normally are provided to truck drivers when they are about to start their journey from Mombasa to different destinations. The analysis involves both qualitative and quantitative using various statistical tools to generate indicators for the Corridor.

# CHAPTER 1: VOLUME & CAPACITY INDICATORS

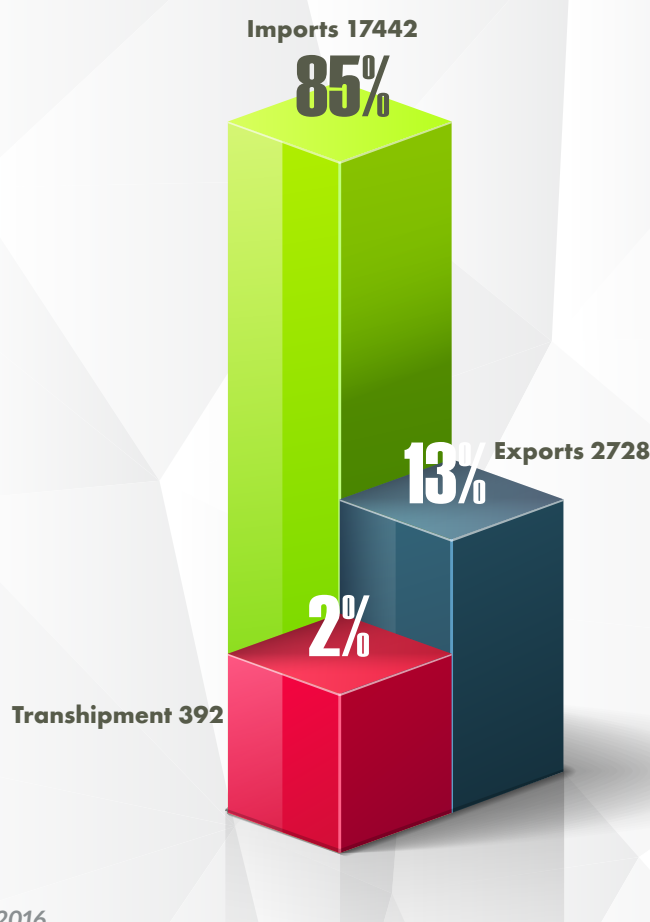
## PART II: RESULTS, FINDINGS & DISCUSSION

This section provides discussion on performance of various indicators from April to September 2016 and where possible, a comparison is made with previous months/years.

### 2.1.1 Cargo throughput at the port of Mombasa

Cargo throughput is defined as the average quantity of cargo that passes through the port. Figure 2, shows the imports, exports and transshipment cargo handled at the port of Mombasa during the period January to September 2016.

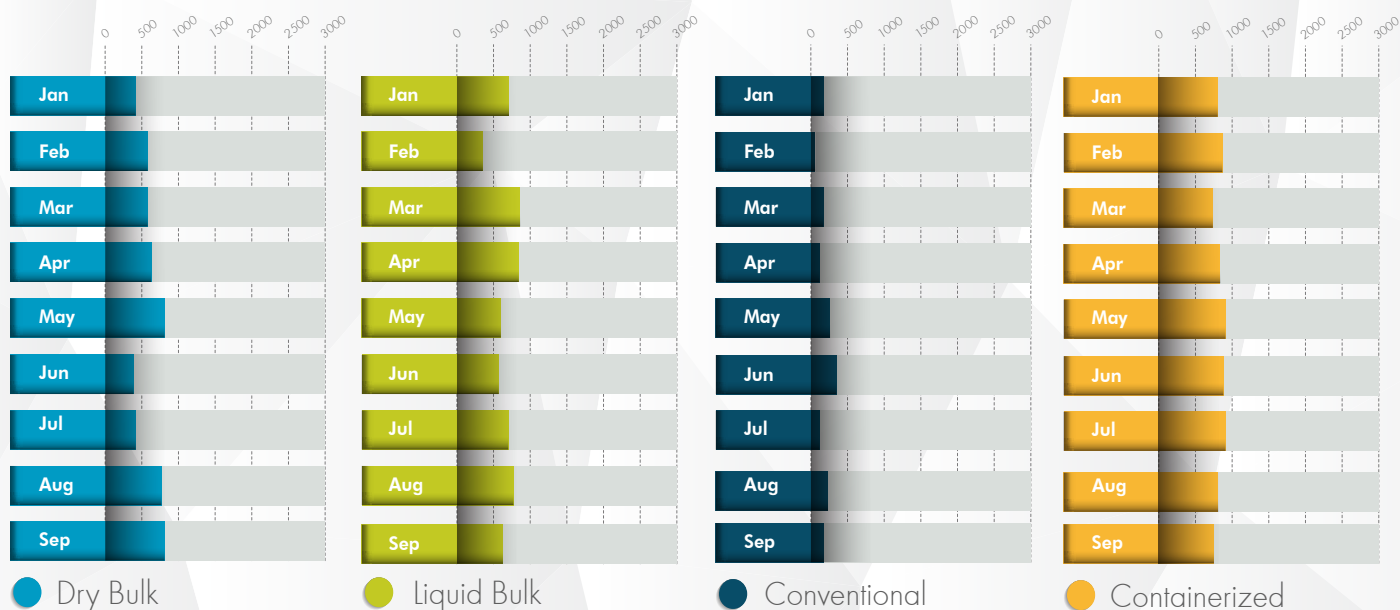
**Figure 2: Cargo Throughput ('000' DWT)**



*Source: KPA, September, 2016*

Total volume of cargo handled during January to September 2016 for imports, exports and transshipment reached 20,562,000 DWT, with an average of 2,284,667 DWT per month. It is evident that the region continues to import substantially more goods at 85 percent than it exports at 13 percent.

**Figure 3: Cargo profile Throughput ('000'DWT)**



| Month | Dry Bulk | Liquid Bulk | Conventional | Containerized | Total  | Rate of Containerization |
|-------|----------|-------------|--------------|---------------|--------|--------------------------|
| Jan   | 448      | 704         | 189          | 857           | 2,198  | 38.99%                   |
| Feb   | 554      | 445         | 103          | 871           | 1,973  | 44.15%                   |
| Mar   | 553      | 808         | 157          | 760           | 2,278  | 33.36%                   |
| Apr   | 576      | 807         | 111          | 823           | 2,317  | 35.52%                   |
| May   | 817      | 628         | 199          | 927           | 2,571  | 36.06%                   |
| Jun   | 475      | 525         | 153          | 917           | 2,070  | 44.30%                   |
| Jul   | 485      | 621         | 215          | 928           | 2,249  | 41.26%                   |
| Aug   | 736      | 704         | 174          | 884           | 2,498  | 35.39%                   |
| Sep   | 764      | 622         | 161          | 863           | 2,410  | 35.81%                   |
| Total | 5,408    | 5,864       | 1,462        | 7,830         | 20,564 |                          |

Source: KPA, January to September, 2016

The month of May recorded the highest volume of 2,571,000 DWT while February registered the lowest handled volume of 1,973,000 DWT. Total volume of containerized import cargo was 7.830 million tons with an approximately percentage of 38% of the total cargo throughput of 20.564 for the 9 months' period. The port of Mombasa handled roughly the same volume of cargo in the same period in the year 2015. The rate of containerization ranged between 35% and 45% on a monthly basis.

## 2.1.2 Volume per Country of Destination

This indicator is obtained by summation of all cargo's weight handled within the Port per Country of destination. From the data, total weight for transit imports amounted to 5,563,819 DWT with 97% for Northern Corridor Member States, 2 percent for Tanzania and 1 percent to other destinations.

**Table 3: Transit Traffic: January to September 2016 (DWT)**

| Country     | Cargo Type   | Jan            | Feb            | Mar            | Apr            | May            | Jun            | Jul            | Aug            | Sep            |
|-------------|--------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| BURUNDI     | Imports      | 2,984          | 12,737         | 983            | 847            | 16,052         | 585            | 528            | 448            | 61             |
|             | Exports      | -              | 39             | -              | -              | -              | -              | -              | -              | -              |
|             | <b>TOTAL</b> | <b>2,984</b>   | <b>12,776</b>  | <b>983</b>     | <b>847</b>     | <b>16,052</b>  | <b>585</b>     | <b>528</b>     | <b>448</b>     | <b>61</b>      |
| D.R.C.      | Imports      | 33,740         | 23,253         | 31,849         | 34,274         | 26,623         | 31,047         | 26,361         | 28,541         | 29,787         |
|             | Exports      | 2,771          | 4,617          | 3,010          | 2,889          | 4,570          | 2,970          | 2,492          | 3,150          | 2,285          |
|             | <b>TOTAL</b> | <b>36,510</b>  | <b>27,870</b>  | <b>34,860</b>  | <b>37,162</b>  | <b>31,193</b>  | <b>34,017</b>  | <b>28,853</b>  | <b>31,691</b>  | <b>32,072</b>  |
| RWANDA      | Imports      | 25,474         | 14,736         | 26,504         | 12,756         | 11,933         | 10,268         | 15,195         | 17,963         | 9,881          |
|             | Exports      | 1,331          | 875            | 1,101          | 726            | 1,032          | 671            | 853            | 1,242          | 1,332          |
|             | <b>TOTAL</b> | <b>26,805</b>  | <b>15,611</b>  | <b>27,605</b>  | <b>13,482</b>  | <b>12,966</b>  | <b>10,938</b>  | <b>16,048</b>  | <b>19,204</b>  | <b>11,213</b>  |
| SOUTH SUDAN | Imports      | 48,152         | 87,621         | 63,955         | 48,623         | 44,446         | 51,882         | 34,986         | 33,948         | 29,420         |
|             | Exports      | 3,995          | 2,374          | 3,983          | 3,941          | 3,912          | 3,940          | 6,436          | 3,648          | 3,537          |
|             | <b>TOTAL</b> | <b>52,148</b>  | <b>89,995</b>  | <b>67,938</b>  | <b>52,564</b>  | <b>48,358</b>  | <b>55,822</b>  | <b>41,421</b>  | <b>37,596</b>  | <b>32,957</b>  |
| UGANDA      | Imports      | 486,105        | 460,282        |                | 439,111        | 621,254        | 441,388        | 445,753        | 583,504        |                |
|             | Exports      | 37,865         | 34,859         | 35,694         | 35,909         | 35,565         | 28,212         | 34,585         | 36,152         | 29,667         |
|             | <b>TOTAL</b> | <b>523,970</b> | <b>495,141</b> | <b>507,742</b> | <b>475,020</b> | <b>656,818</b> | <b>469,599</b> | <b>480,337</b> | <b>619,656</b> | <b>614,861</b> |

Source: KPA, January to September, 2016

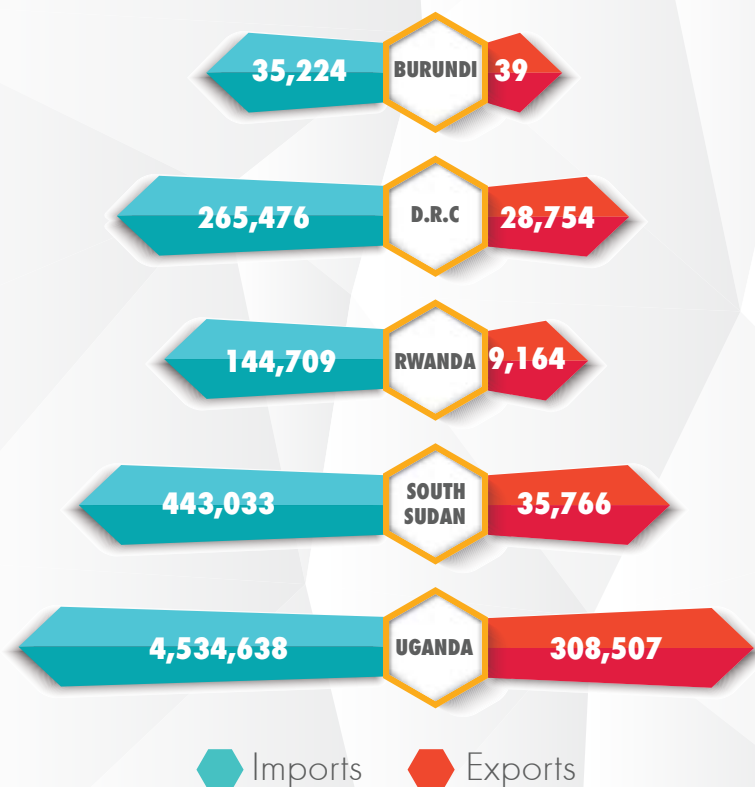
From the analysis, total volume of imported transit cargo was 5,423,080 DWT, representing 93% of total traffic, compared to the volume of exported cargo from the five Northern Corridor transit countries of Burundi, DRC, Rwanda, South Sudan and Uganda which amounted to 382,230 DWT with a percentage of 7%. During the reporting period, there were no exports from Burundi except in February 2016.

There is need for sensitization on the use of the alternative route through Tanzania to Taita Taveta-Voi and Mombasa which reduces the distance travelled by about 400 KM and will boost the use of the Port of Mombasa for goods to and from Burundi.

*In order to increase exports in the region, there is need to boost investments in local manufacturing and value addition for exports through provision of cheaper energy and supportive regulatory environment to spur production of competitive good for exports.*

*Capacity building especially in the emerging oil and gas industry which is posed to boost exports from the region will also enhance the regions exports competitiveness*

**Figure 4: Total Transit Traffic from January to September 2016 (DWT)**



Source: KPA, January to September, 2016

Results show that Uganda has the highest import transit traffic of about 83 percent for imports and 81 percent for exports whereas Burundi has the least transit traffic with one percent when compared with other Member States.

*It is important that all goods destined to transit countries are cleared at the source to reduce delays and avoid multiple documentation along the way.*

### 2.1.3 Transport Capacity by Rail

*This indicator analyses the modal split by covering the total number of locomotives and wagons against the proportion of total cargo carried by rail.*

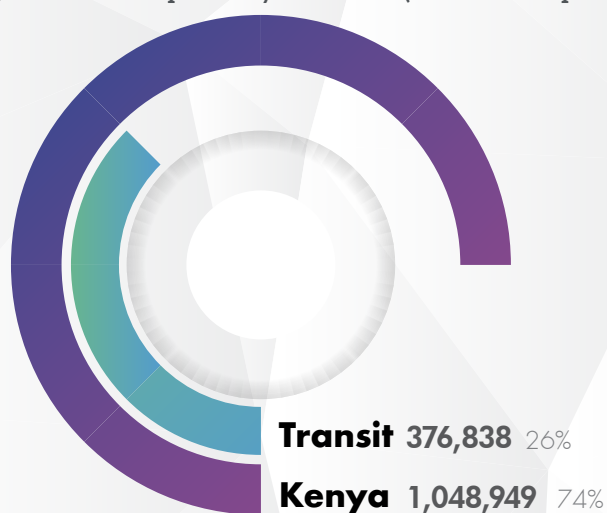
Rail transport can have an advantage over road transport as it offers potential benefits in form of lower transport costs, shorter transit times and greener mode of transport. Therefore, investing in rail transportation is an effective and sustainable way to meet future transportation challenges while at the same time providing significant public benefits such as reductions in road congestion, fuel consumption, logistics costs, highway fatalities and public infrastructure maintenance costs among others.

Rail transport is in principle ideal for countries which are long distances from the sea and in fostering intra-regional trade. Along the northern Corridor, shipment by rail is not as flexible as by highway since rail network essentially comprises a single line, overland rail track from Mombasa through Nairobi, Nakuru, Kisumu/ Eldoret, Jinja, and Kampala to Kasese in western Uganda (1650 km).

This has resulted in much freight being hauled by truck, even over long distance. Nevertheless, construction of standard gauge rail is ongoing and it is expected to be operational by 2017 for the section between Mombasa and Nairobi. This will shift movement of cargo to rail which will become more competitive and absorb the projected increases in freight movement caused by population growth and the growth of the intermodal movement of goods into the future.

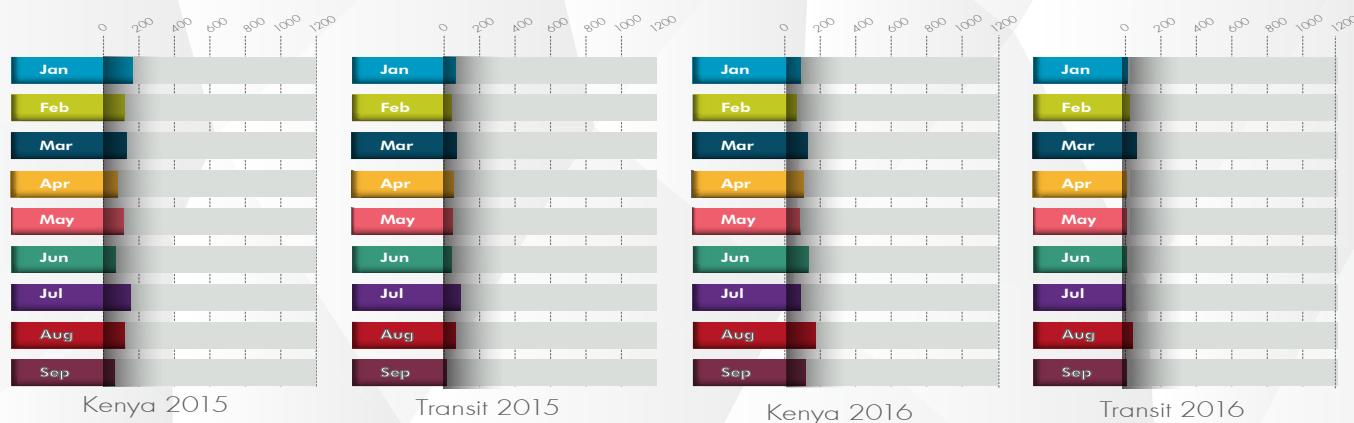
Traffic volume of cargo moved by rail for the period of January 2016 to September 2016 was 1,425,787 tons with a monthly average of 158,421 tons. The rail cargo for Kenya was 1,048,949 tons which is 74 percent of the total rail cargo. Transit cargo destined to Uganda was 376,838 representing 26 percent of the total cargo as indicated in the figure below.

**Figure 5: Proportion of Cargo Volume transported by rail in tons (Jan 2015 to Sept 2016)**



Source: RVR, January to September 2016

**Figure 6: Total Net tons in '000' carried by rail**



| Month | Kenya 2015 | Transit 2015 | Kenya 2016 | Transit 2016 |
|-------|------------|--------------|------------|--------------|
| Jan   | 148.25     | 35.80        | 106.87     | 32.14        |
| Feb   | 121.04     | 67.59        | 99.83      | 35.45        |
| Mar   | 135.26     | 68.81        | 125.39     | 47.64        |
| Apr   | 129.67     | 56.00        | 112.32     | 35.41        |
| May   | 134.15     | 59.24        | 107.33     | 42.56        |
| Jun   | 122.00     | 56.04        | 126.14     | 43.52        |
| Jul   | 138.30     | 60.63        | 113.12     | 30.14        |
| Aug   | 134.13     | 51.46        | 132.00     | 66.24        |
| Sep   | 109.11     | 64.73        | 125.97     | 43.74        |

Source: KRC, April to September 2016

From the figure, above, the volume carried by rail has decreased from the total registered in 2015 for the same reporting period for both local and transit cargo. While the container traffic in Mombasa has been increasing in the previous years, the number of containers transported by rail for local and transit has dropped.

The Design Capacity at average commercial speed of 55 kph is 6 million tons per locomotive which cannot be achieved due to poor infrastructure conditions resulting to Temporary Speed Restrictions (TSRs)

**Table 4: Average Locos Operating**

| Average Locos Operating | Conceded | Operational/Sept 2016 |
|-------------------------|----------|-----------------------|
| 96 (2600hp)             | -        | 17                    |
| 94 (2910hp)             | 10       | 7.6                   |
| 93 (2610hp)             | 25       | 19.5                  |
| 92 (2550hp)             | 12       | 1.6                   |
| 87 (1840hp)             | 11       | 0.3                   |
| 72 (1240hp)             | 3        | 1                     |
| 71 (1240hp)             | 4        | 4                     |
| 62 (740hp)              | 31       | 3.9                   |
| 47 (345hp)              | 27       | 10                    |

Source: RVR April to September 2016

The average locomotives operating have drastically reduced hence hampering efforts to increase the rail share in freight transport. The table below gives number of wagons available for service as at September, 2016.

**Table 5: Number of wagons available for service**

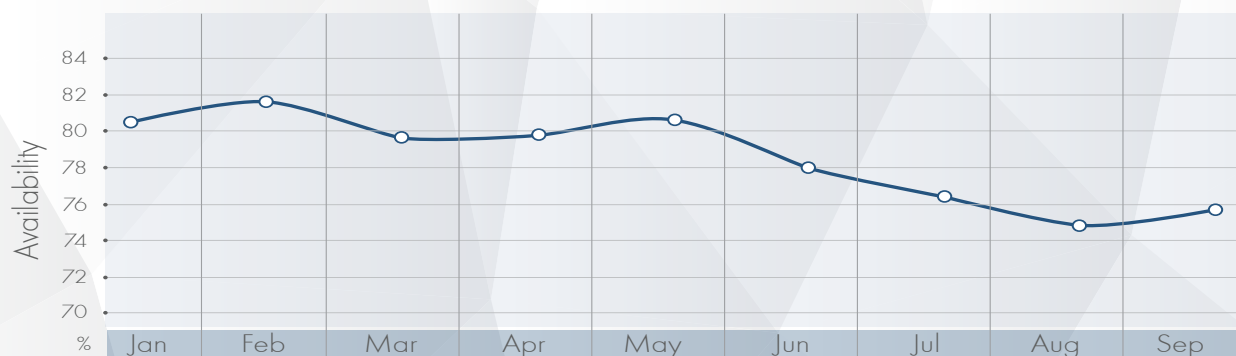
| Type of Wagon                         | Number of Wagons |          |
|---------------------------------------|------------------|----------|
|                                       | Sep-2015         | Sep-2016 |
| Container Flat                        | 718              | 878      |
| Tanks Oil, Fuel, Gas                  | 111              | 112      |
| Tanks Other                           | 13               | 10       |
| Covered                               | 617              | 562      |
| High Sided                            | 28               | 20       |
| Drop Sided                            | 27               | 25       |
| Other                                 | 3                | 3        |
| <b>Total RVR Kenya Revenue Wagons</b> | 1,517            | 1,610    |
| Ballast                               | 12               | 12       |

Source: RVR April to September 2016

The container flat Wagons with Carrying Capacity of 42 tons increased to 878 in September, 2016 from 718 the same month in 2015. The average net tons per load for containerized wagons ranged between 22.12 to and 28.4 tons while containerized wagon turnaround time was between 0.5 days to 13.2 days between January and September, 2016.

However, an in-depth analysis is needed to determine the reasons for erratic turnaround time and address them with appropriate policy recommendations. A detailed planning is needed in every yard to ensure that all activities in the run up to train departure are executed on time. Locomotive/Wagon reliability is also low and is coupled with a high rate of locomotive failure and low availability of wagons due to long turnaround times. Wagon availability ranged between 75% and 83% as shown in the figure below.

**Figure 7 : Container Wagon Availability**

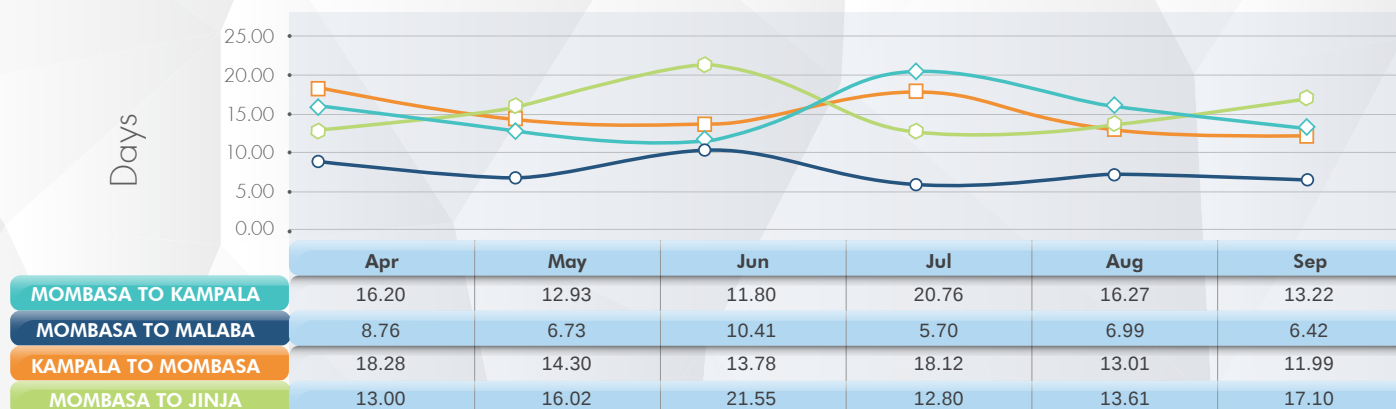


Source: RVR April to September 2016

## 2.1.4 Transit Time by rail

The figure below gives transit time by rail from Mombasa for imports and exports.

**Figure 8: Transit time by rail**



Source: RVR April to September 2016

From the graph in figure 8, rail transit time from Mombasa to Kampala increased significantly to 21 days in July compared to 12 days in June 2016. The quality of railway services for both Uganda and Kenya, have been plummeting in the recent past. Currently, the transit times are excessive and unpredictable as shown by figure above. Other factors attributed to long transit time by rail include; availability of cargo, availability of locomotive rolling stock, infrastructure and railway yard operating hours.

The table below provides the ton-kilometers for both exports and imports showing that the railway is mostly used for imports.

**Table 6: Gross Ton- Km (1,000,000) by Month**

|                    | Apr   | May   | Jun   | Jul   | Aug   | Sep   |
|--------------------|-------|-------|-------|-------|-------|-------|
| Mombasa to Nairobi | 25.36 | 20.61 | 22.17 | 27.27 | 21.95 | 24.10 |
| Mombasa to Uganda  | 44.62 | 55.32 | 62.68 | 39.10 | 67.90 | 56.40 |
| Nairobi to Mombasa | 7.30  | 3.78  | 4.31  | 4.58  | 4.24  | 10.93 |
| Uganda to Mombasa  | 15.13 | 9.89  | 10.44 | 11.94 | 12.54 | 12.22 |

Source: RVR, April to September 2016

The meter gauge rail is mostly used for imports to Uganda and Kenya from the port of Mombasa with Ton -km ranging from 39 Million ton-km -68 Million ton-kms

Among the challenges experienced by railways are aging tracks and rolling stock, insufficient resources for maintenance and poor tracking of the wagons and cargo. Inadequate number of locomotives and wagons, poor rail infrastructure for the meter gauge has slowed down development within the Northern Corridor rail freight transport sector.

*Increasing rail competitiveness will evidently benefit transport users primarily through; reducing transit times, improving connections, and improving quality of services and infrastructure and affordability.*

## 2.1.5 Volume of Containerized Cargo handled per month at the Port of Mombasa

Container transportation allows considerable improvement in the efficiency of transportation through reduction of handling time, labor costs, and packaging costs.

**Table 7: Container Traffic (TEU's) Handled**

| TYPE    |       | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    | TOTAL   |
|---------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| IMPORTS | Full  | 41,417 | 41,761 | 37,153 | 40,660 | 46,005 | 45,737 | 45,968 | 44,420 | 44,488 | 387,609 |
|         | Empty | 201    | 576    | 267    | 1,053  | 2,042  | 2,075  | 1,218  | 56     | 198    | 7,686   |
| EXPORTS | Full  | 9,743  | 12,547 | 10,677 | 11,065 | 11,715 | 12,489 | 12,028 | 10,776 | 8,690  | 99,730  |
|         | Empty | 32,427 | 27,427 | 25,997 | 28,547 | 31,849 | 31,606 | 32,840 | 33,690 | 32,135 | 276,518 |
| T/MENT  | Full  | 5,074  | 3,415  | 2,324  | 2,443  | 3,295  | 2,015  | 3,098  | 2,839  | 3,759  | 28,262  |
|         | Empty | 578    | 1,195  | 667    | 482    | 530    | 469    | 112    | 88     | 110    | 4,231   |
| TOTAL   | Full  | 56,234 | 57,723 | 50,154 | 54,168 | 61,015 | 60,241 | 61,094 | 58,035 | 56,937 | 515,601 |
|         | Empty | 33,206 | 29,198 | 26,931 | 30,082 | 34,421 | 34,150 | 34,170 | 33,834 | 32,443 | 288,435 |
|         | Total | 89,440 | 86,921 | 77,085 | 84,250 | 95,436 | 94,391 | 95,264 | 91,869 | 89,380 | 804,036 |

Source: KPA, January to September, 2016

From January to September 2016, a total of 804,036 TEUs of both containerized cargo and empty containers were handled. Out of this, there were 387,609 TEUs of containerized cargo and 7686 empties for import. On the other hand, Exports accounted for 99,703 TEUs of containerized cargo and 276,519 empty containers. The highest movement was recorded in the month of May at 95,264 containers. This substantial increase could imply that use of the container as a support for freight transportation is being adopted positively. Most of the exports are empty containers

## 2.1.6 Pipeline Transport Capacity

The main objective of the Kenya Pipeline Company (KPC) is to provide efficient, reliable, safe and cost effective means of transporting petroleum products from Mombasa to the hinterland.

In pursuit of this objective, KPC constructed pipeline network, storage and loading facilities for transportation, storage and distribution of petroleum products. The pipeline is about 1,221 km of and goes from the Port, Kipevu oil storage facility and refinery in Mombasa to Nairobi, Eldoret and Kisumu.

The refined products are trucked from depots in Mombasa, Nairobi, Nakuru, Eldoret and Kisumu. KPC has enhanced infrastructure which has led to improved petroleum product and availability in Western Kenya with the second pipeline to Kisumu. This has made access to the northern corridor Member States and Tanzania market easier. The laying of a second line from Mombasa to Nairobi which is almost complete will boost the performance of this mode of transport.

**Table 8: Monthly fuel dispatch to various destinations (M3)**

| 2016  | Kenya   | Uganda | Dem. Rep. Congo | Burundi | Rwanda | South Sudan | Tanzania |
|-------|---------|--------|-----------------|---------|--------|-------------|----------|
| April | 76,978  | 45,171 | 16,714          | 478     | 197    | 25,475      | 1,387    |
| May   | 95,256  | 71,407 | 17,506          | 274     | 1,636  | 35,272      | 2,790    |
| June  | 102,868 | 93,703 | 16,272          | 163     | 900    | 25,689      | 2,306    |
| July  | 99,544  | 89,674 | 17,782          | 262     | 1,092  | 17,195      | 2,787    |
| Aug   | 73,610  | 50,561 | 19,288          | 257     | 2,960  | 21,236      | 1,981    |
| Sept  | 97,012  | 92,339 | 20,159          | 318     | 3,009  | 28,800      | 93       |

*Source: KPC, April to September, 2016*

Table 8 provides a summary of monthly average volume of fuel dispatched to various Northern Corridor Member States and Tanzania. The products include; Motor Spirit Premium (MSP), Motor Spirit Regular (MSR), Automotive Gas Oil (AGO), Jet A-1 and Illuminating Kerosene (IK).

Apart from the domestic market, the pipeline system serves the neighboring countries of Uganda, Rwanda, Eastern Democratic Republic of Congo, Northern Tanzania, Burundi and South Sudan. Kenya received the highest amount of fuel dispatched at 43 percent, followed by Uganda at 35 percent while South Sudan and Rwanda received the least net volume of fuel dispatched at one percent. In the reporting period, the month of September 2016 witnessed the highest volume of fuel dispatched compared to the rest.

KPC has the following depots; Embakasi Aviation, Nairobi Terminal, Moi Airport, Kipevu Oil Storage Facility, Nakuru, Eldoret, Kisumu and Konza. The Nairobi terminal has the second largest storage of 100,528 cubic meters, Kenya Petroleum Refineries Limited's white fuel storage has a capacity of 140 million litres, Konza Petrocity depot has a 38.5 million litre capacity and Kipevu oil storage facility that holds 326,333 cubic meters. Construction of additional storage capacity tanks in Nairobi is planned.

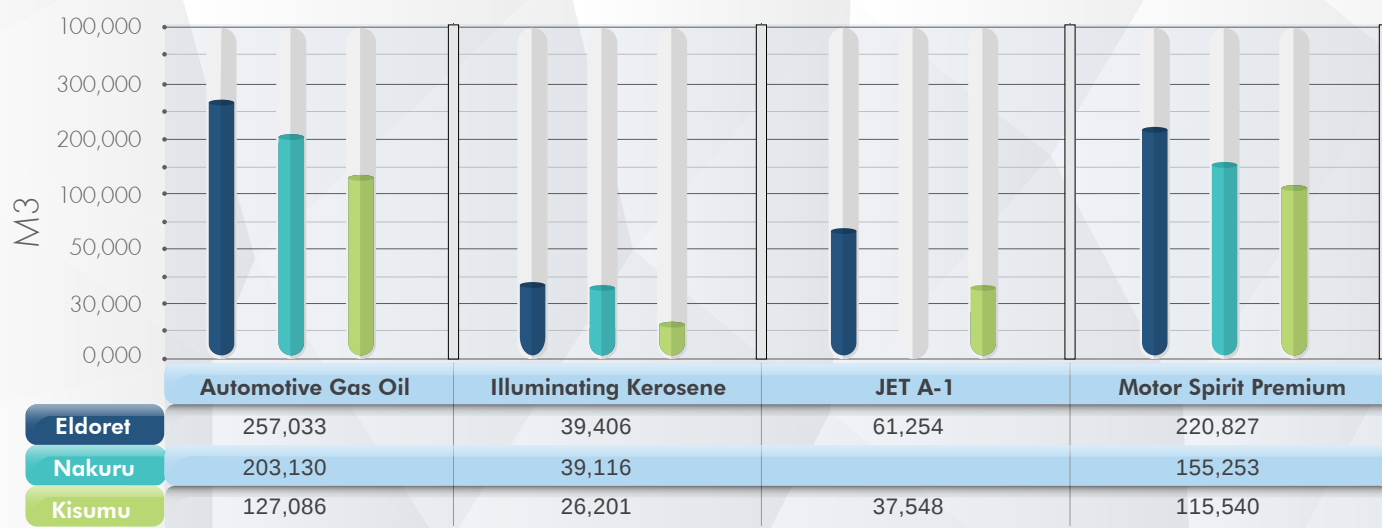
The volume of particular fuel product transported through the pipeline system between April and September 2016 was recorded as 1,282,395.73 cubic meters for Motor Spirit Premium, Automotive Gas Oil, Illuminating Kerosene and Jet A-1 as shown below for three out of 8 depots.

**Table 9: Total volume per type of fuel dispatched by terminal station (M3)**

| DEPOT        | AUTOMOTIVE GASOIL | ILLUMINATING KEROSENE | JET A-1       | MOTOR SPIRIT PREMIUM | TOTAL VOLUME     |
|--------------|-------------------|-----------------------|---------------|----------------------|------------------|
| Nakuru       | 203,130           | 39,116                | 0             | 155,253              | 397,499          |
| Eldoret      | 257,033           | 39,406                | 61,254        | 220,827              | 578,520          |
| Kisumu       | 127,086           | 26,201                | 37,548        | 115,540              | 306,376          |
| <b>Total</b> | <b>587,250</b>    | <b>104,723</b>        | <b>98,802</b> | <b>491,621</b>       | <b>1,282,396</b> |

Source: KPC April to September, 2016

**Figure 9: Transit volume dispatched per terminal station (m3), April to September 2016**



Source: KPC April to September, 2016

Figure 9 gives a comparison of fuel dispatch from Eldoret, Kisumu and Nakuru depots from April to September 2016. It is evident that Eldoret depot delivered the highest volume of fuel products compared to Kisumu. KPC plays a critical role in fostering development and growth in the region by ensuring sufficient and reliable supply of petroleum products. However, there are various challenges encountered by KPC in delivery this mandate, among them; infrastructure, power outages which cause delays and unpredictability of the market.

**KPC to Fast Track improvement of loading facilities to improve truck turnaround and efficiency**

*In order to support the self-regulatory axle load Charter on vehicle load control objectives, KPC should ensure correct calibrations and loadings of tanker trucks at its loading points.*

## CHAPTER II: TRANSPORT RATES & COSTS

While this report estimates the potential, isolated effects of changes in transport costs and rates, it is worth noting that other factors also affect trade flows and the estimated effects here may be amplified or offset by these other factors.

An increasingly important source of costs, rates and delays faced in trade facilitation are Non-tariff barriers (NTBs). Adequate cost recovery based as far as possible on market- determined economic costs should ensure a fair price of transport services and avoid misallocation of resources and structural distortions in national economies.

In the road and rail sub-sectors which are the main transport modes along the Corridor, trade facilitation is critical to reducing trade costs, which remain high despite the steep decline in the cost of transportation, improvements in information and communication technology, and the reduction of trade barriers in many countries.

### 2.2.1 Road Freight Charges along the Northern Corridor

**Table 10: Transport tariff in USD to various destinations**

| FROM      | TO      |         |         |         |           |       |       |
|-----------|---------|---------|---------|---------|-----------|-------|-------|
|           | Mombasa | Nairobi | Kampala | Kigali  | Bujumbura | Goma  | Juba  |
| Mombasa   |         | 856     | 2,170   | 3,625   | 5,000     | 6,133 | 4,750 |
| Nairobi   | 408     |         | 1,650   | 2,900   | 4,000     | 5,000 | 4,000 |
| Kampala   | 800     | 700     |         | 1,600   | 3,500     | 3,000 | 2,200 |
| Kigali    | 3,000   | 2,000   | 1,600   |         | 50*       | 1,000 | 7,000 |
| Bujumbura | 160*    | 130*    | 60*     | 275*    |           | 80*   | -     |
| Goma      | 3,640   | 3,360   | 2,240   | 2,000** | 2,240**   |       | -     |
| Juba      | 3,000** | 3,000** | 1,500** | -       | -         | -     |       |

Source: Northern Corridor Transport Observatory Analysis from transporters, September, 2016

\*Rates per ton, \*\* Rates for April, 2016

Table 10 summarizes transport charges per for 20/40 foot containers to and from various locations in September, 2016. Subsequent section will provide the changes from April, 2016

## 2.2.2 Road Freight Charges in Burundi

Table 11 summarizes transport charges per container to and from Bujumbura in USD per ton per kilometer for 20 foot containers for exports. It also shows the number of Round-Trips achieved for the different destinations.

The reported data shows that freight charges to Kampala reduced from \$0.10 to \$0.08 per ton per Kilometer. Other destinations showed slight increase in freight charges between September, 2015 and 2016.

**Table 11: Tariff and of Round-Trips in Burundi**

| From      | To      | September, 2015 |                   |             | September, 2016   |             |
|-----------|---------|-----------------|-------------------|-------------|-------------------|-------------|
|           |         | Distance        | Tariff Per Ton/Km | Round-Trips | Tariff Per Ton/Km | Round-Trips |
| Bujumbura | Goma    | 431             | 0.12              | 2           | 0.19              | 2           |
| Bujumbura | Kampala | 788             | 0.10              | 2           | 0.08              | 2           |
| Bujumbura | Kigali  | 275             | 0.15              | 3           | 0.15              | 3           |
| Bujumbura | Juba    | 1,441           | -                 | -           | -                 | 0           |
| Bujumbura | Nairobi | 1,476           | 0.07              | 2           | 0.09              | 1           |
| Bujumbura | Mombasa | 1,957           | 0.09              | 1           | 0.08              | 1           |

Source : « Association des Transporteurs Internationaux du Burundi », September 2016

The number of round-trips have remained fairly constant except to Nairobi which is now at one trip per month.

*Rate could be much lower to Mombasa and Nairobi, given the reduction in distance through Tanzania and the roads being in fair condition. Use of the Taita-Taveta road and Namanga road through Tanzania could be a cheaper and faster route to access Mombasa and Nairobi respectively.*

## 2.2.3 Road Freight Charges in DR Congo

Table 12 summarizes transport charges per 40' container from Goma to various destinations along the Northern Corridor.

The reported data shows transport rates to Kampala, Nairobi and Mombasa.

**Table 12: Tariff and Round-Trips in DRC**

| From | To        | Distance | September, 2015   |             | September, 2016   |             |
|------|-----------|----------|-------------------|-------------|-------------------|-------------|
|      |           |          | Tariff Per Ton/Km | Round-Trips | Tariff Per Ton/Km | Round-Trips |
| Goma | Bujumbura | 431      | -                 | 7           | -                 | -           |
| Goma | Kampala   | 669      | 2.99              | 6           | 3.35              | 2           |
| Goma | Kigali    | 156      | -                 | 5           | -                 | -           |
| Goma | Juba      | 1,322    | -                 | 1           | -                 | -           |
| Goma | Nairobi   | 1,360    | 2.21              | 3           | 2.47              | 1           |
| Goma | Mombasa   | 1,840    | 1.77              | 2           | 1.98              | 1           |

Source: FEC, September 2016

The number of round-trips have reduced significantly and the rates per kilometer increased. Goma Kampala has seen the Round-trips reduce from 6 to 2 per month between September 2015 and 2016.

## 2.2.4 Road Freight Charges in Kenya

Table 13 shows the transport tariffs from the Kenyan cities of Nairobi and Mombasa to other towns in the Northern Corridor Member States in US dollars. It gives the average transport tariff per container per km for moving a container from Mombasa to main destinations along the northern Corridor.

The transport tariff from Mombasa to Goma and Juba increased from \$1.98 and \$2.45 to \$3.33 and \$2.86 per container per kilometer respectively. Number of Round-Trips to Juba halved to 2 trips per month.

It is critical to note that the cost for long distances remains high. This indicates that cross border logistics and other concerns including security have an impact on the cost of cargo transportation to different destination. It is also clear that the differences on the average cost are influenced by factors that vary depending on the destination route.

**Table 13: Tariff and Number of Round-Trips in Kenya**

| From    | To        | Distance (KM) | September, 2015         |             | September, 2016         |             |
|---------|-----------|---------------|-------------------------|-------------|-------------------------|-------------|
|         |           |               | Tariff Per Container/Km | Round-Trips | Tariff Per Container/Km | Round-Trips |
| Mombasa | Nairobi   | 481           | 2.24                    | 10          | 1.78                    | 10          |
| Mombasa | Kampala   | 1,169         | 2.61                    | 4           | 1.86                    | 4           |
| Mombasa | Kigali    | 1,682         | 2.11                    | 2           | 2.16                    | 3           |
| Mombasa | Bujumbura | 1,957         | 1.74                    | 3           | 2.55                    | 2           |
| Mombasa | Goma      | 1,840         | 1.98                    | 2           | 3.33                    | 2           |
| Mombasa | Juba      | 1,662         | 2.45                    | 4           | 2.86                    | 2           |

Source: Road Transport Survey April to September 2016

The average number of Round-Trips made by trucks is largely determined by the distance to destination towns along the Corridor. The Mombasa – Nairobi trip recorded the highest number of road trips due to the short distance covered. Bujumbura, Goma and Juba recorded the lowest number of 2 monthly trips. Increased efficiency and elimination of bottlenecks along the Corridor could lead to increased roundtrips, truck turnaround and hence operational efficiency for transporters.

## 2.2.5 Road Freight Charges in Rwanda

The table 14 presents the tariffs for transporting a 20-foot container either from Kigali. Transport rates are higher except to Mombasa and Nairobi which lies between \$1.67 and \$1.78 per container per km. Transport rates to Goma drastically dropped from a high of \$20.51 to \$6.41 per container per kilometer.

**Table 14: Tariff and Number of Round-Trips in Rwanda**

| From   | To        | Distance(KM) | Sep, 2015               |             | September, 2016         |             |
|--------|-----------|--------------|-------------------------|-------------|-------------------------|-------------|
|        |           |              | Tariff Per Container/Km | Round-Trips | Tariff Per Container/Km | Round-Trips |
| Kigali | Goma      | 156          | 20.51*                  | 7           | 6.41                    | 10          |
| Kigali | Kampala   | 513          | 3.12                    | 6           | 3.12                    | 7           |
| Kigali | Bujumbura | 275          | 8.00*                   | 5           | 6.55                    | -           |
| Kigali | Juba      | 1,166        | 6.00                    | 1           | 6                       | 1 to 1.5    |
| Kigali | Nairobi   | 1,201        | 1.67                    | 3           | 1.67                    | 4           |
| Kigali | Mombasa   | 1,682        | 1.78                    | 2           | 1.78                    | 2 to 2.5    |

\*March, 2015

Source: ACPLRWA September 2016

The Kigali – Goma registered the highest number of roundtrips with an average of 10 Round-Trips albeit the high cost of transport compared to 7 for Kigali- Kampala, 4 for Nairobi and an upper limit of 2.5 for Mombasa. It is evident that in spite of the higher freight costs alluded to earlier, Goma remains a key cargo destination for Kigali. The average distance (km) covered per truck per year for truck plying Kigali - Goma is 37,440km while Kigali- Mombasa is 72,060 km per year.

*High transports are an impediment to trade, it incumbent upon policy makers on routes that return high costs to work on eliminating the logistical and infrastructural bottlenecks that may exist.*

## 2.2.6 Road Freight Charges in Uganda

Table 15 shows the road freight charges for 20 or 40 foot containers for destinations along the Corridor from Kampala. It shows that freight charges for exports to Nairobi and Mombasa were the cheapest while Exports from Kampala to Goma and Bujumbura attract higher freight charges. Goma and Bujumbura has the highest freight charges of up to \$4.48 and \$4.4 per kilometer respectively.

Data for the month of September for 2015 and 2016 shows that the Kampala- Nairobi showed both an increase in round-trips from 4 to 5 and a reduction in freight charges

**Table 15: Tariff and Number of Round-Trips in Uganda**

| From    | To        | Distance(KM) | April, 2016             |              | September, 2016         |             |
|---------|-----------|--------------|-------------------------|--------------|-------------------------|-------------|
|         |           |              | Tariff Per Container/Km | Round- Trips | Tariff Per Container/Km | Round-Trips |
| Kampala | Kigali    | 513          | 3.22                    | 7            | 3.12                    | 5           |
| Kampala | Bujumbura | 788          | 4.82                    | 5            | 4.44                    | 4           |
| Kampala | Juba      | 653          | 2.76                    | 5            | 3.37                    | 5           |
| Kampala | Nairobi   | 688          | 1.16                    | 4            | 1.02                    | 5           |
| Kampala | Mombasa   | 1,169        | 0.68                    | 5            | 0.68                    | 4           |
| Kampala | Goma      | 669          | 3.59                    | 4            | 4.48                    | 4           |

Source: UNTA, September 2016

Table 16 below summarises Freight charges per destination per km,

**Table 16: Road Freight Charges per destination per Kilometer**

| FROM      | TO      |         |         |        |           |       |      |
|-----------|---------|---------|---------|--------|-----------|-------|------|
|           | Mombasa | Nairobi | Kampala | Kigali | Bujumbura | Goma  | Juba |
| Mombasa   |         | 1.78    | 1.86    | 2.16   | 2.55      | 3.33  | 2.86 |
| Nairobi   | 0.93    |         | 2.40    | 2.40   | 2.71      | 3.68  | 3.49 |
| Kampala   | 0.68    | 1.02    |         | 3.12   | 4.44      | 4.48  | 3.37 |
| Kigali    | 1.78    | 1.67    | 3.12    |        | 6.55      | 6.41  | 6    |
| Bujumbura | 2.24*   | 2.52*   | 2.24*   | 4.2*   |           | 5.32* | -    |
| Goma      | 1.98    | 2.47    | 3.35    | -      | -         |       | -    |

\*28-ton Container

Source: Transport Observatory Analysis/NCTTCA

*Generally, data shows variations in freight charges on the different sections of the Corridors with variation being significant for cross border destinations. This suggests that there exist factors in the different countries that drive freight charges. This calls for further studies to pinpoint factors that escalate freight charges on certain routes and propose mitigation measures.*

# CHAPTER III: PRODUCTIVITY & EFFICIENCY

Easy accessibility to the port of Mombasa is vital for integrating economies into an increasingly globalized production system, rather than being left on the margins of world trade.

Together with its partners, the Port of Mombasa is steadily committed to ensuring that the port remains accessible and sustainable by all transport modes to customers and other users.

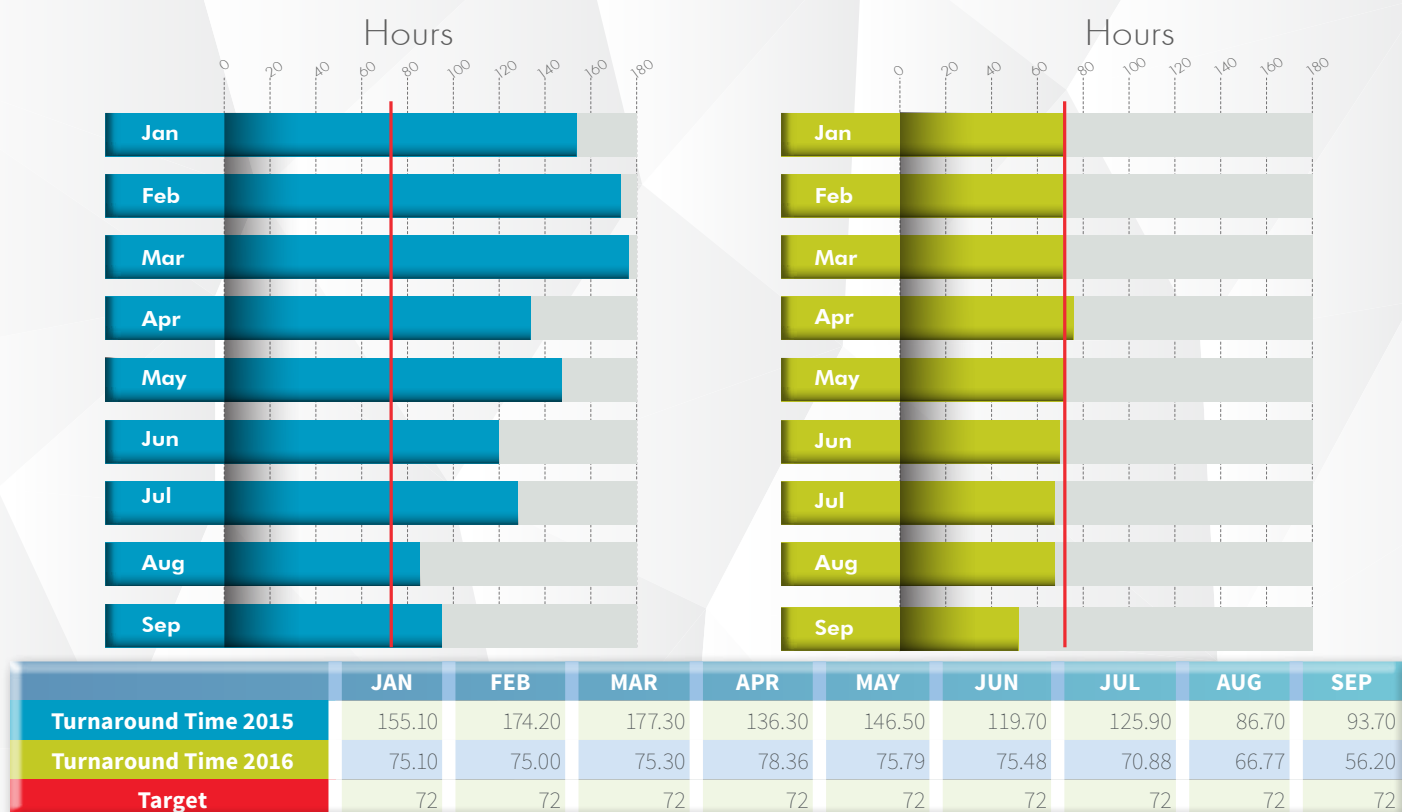
The following indicators give the snapshot of the efficiency at the Port of Mombasa and along the Corridor.

## 2.3.1 Ship Turnaround Time

This indicator is measured from the time the vessel arrives at the Port area to the time it leaves the Port.

Figure 10 shows comparison in performance in ship turnaround time for the 2015 and 2016.

**Figure 10: Containerized Ship turnaround time**



*Source: KPA, January to September 2016*

The Performance in ship turnaround time has been improving with target of 3 days (72 hours) being realized from July 2016. The performance continued to improve to stand at 56.2 hours in September 2016.

This sustained positive performance is partly attributed to availability of equipment, improved productivity of the gangs and the implementation of Fixed Berthing Window by KPA from August 2015 to date. The table below shows trend in specific ship turnaround time from January to September 2016.

**Table 17: Ship Turnaround Time (Days) for Jan - Sep 2016**

| TYPE                 | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP  |
|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Barge                | 5.0 | 3.5 | 5.0 | 1.7 | 2.8 | 3.6 | 0.5 | -   | 10.2 |
| Bulk                 | 3.8 | 4.4 | 4.6 | 4.9 | 4.7 | 4.8 | 3.5 | 5.6 | 4.8  |
| Car Carrier          | 0.7 | 0.6 | 0.8 | 0.9 | 1.0 | 0.7 | 1.0 | 1.0 | 0.9  |
| Container            | 2.4 | 2.5 | 2.7 | 2.5 | 2.9 | 2.5 | 2.5 | 2.3 | 2.4  |
| Fishing              | -   | -   | 1.9 | -   | 2.7 | 2.2 | 2.8 | 2.2 | 3.3  |
| Gen Cargo            | 3.7 | 4.1 | 3.1 | 3.3 | 2.8 | 2.3 | 2.2 | 2.1 | 2.9  |
| Roro                 | 1.1 | 1.9 | 1.5 | 1.5 | 1.5 | 2.0 | 1.5 | 1.8 | 1.5  |
| Tanker               | 3.4 | 4.8 | 4.2 | 4.0 | 3.6 | 3.6 | 2.6 | 4.5 | 4.5  |
| Tug                  | 1.5 | 2.1 | 2.8 | 1.8 | 1.6 | 2.1 | 1.5 | 2.6 | 2.1  |
| Others               | 1.5 | 2.8 | 1.5 | 4.3 | 2.3 | 1.9 | 2.2 | 2.6 | 3.0  |
| AVG. Turnaround time | 2.7 | 3.1 | 2.8 | 3.2 | 3.1 | 2.8 | 2.4 | 3.0 | 3.2  |

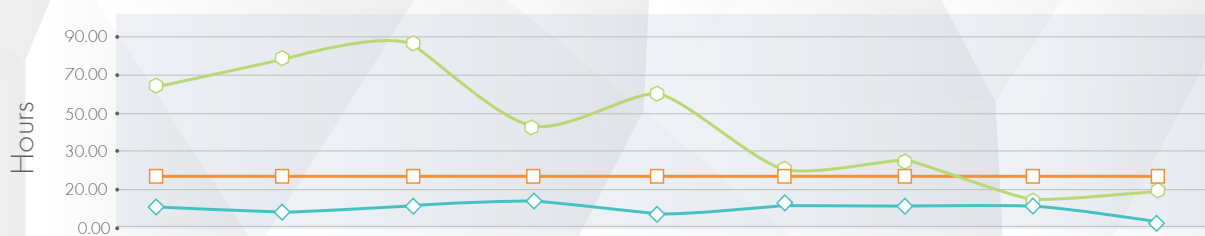
Source: KPA, Jan to Sept 2016

## 2.3.2 Vessels Waiting Time before Berth

*This indicator is measured from the time the vessel arrives at the Port area (Fairway Buoy) to the time of its first berth.*

Figure 11 shows the trend performance for the vessel waiting time for 2016 and 2015. The target is 24 hours.

**Figure 11: Vessel waiting before berth**



|                                | JAN  | FEB  | MAR  | APR   | MAY  | JUN   | JUL  | AUG   | SEP  |
|--------------------------------|------|------|------|-------|------|-------|------|-------|------|
| Waiting before Berth Time 2015 | 68.6 | 79.5 | 86.5 | 46.9  | 62.8 | 27.7  | 31.5 | 13.5  | 17.9 |
| Waiting before Berth Time 2016 | 12   | 10.8 | 11.6 | 13.97 | 8.3  | 10.94 | 10.4 | 10.31 | 6.45 |
| Target                         | 24   | 24   | 24   | 24    | 24   | 24    | 24   | 24    | 24   |

Source: KPA, Jan to Sept 2016

Vessel waiting time improved from 13.5 hours in August 2015 to stand at 6.45 hours in September 2016 far surpassing the 24-hour target.

*In general, there is consistently positive trend on most indicators with maritime indicators performing particularly well. Physical infrastructure of the port is one of the most important requirements in creating and supporting a business environment that facilitates trade, economic growth and job creation.*

*The ongoing roads infrastructure upgrading around the Port are expected to bring more improvements. These initiatives in place should be sustained for continuous improvement in efficiency. Engagement is underway with KPA for downward revision of the target for the vessel waiting time to ensure that this momentum is uninterrupted and to contribute further to its productivity.*

### 2.3.3 Quality of transport infrastructure within the Northern Corridor Road Network

The entire Northern Corridor road network covers approximately 14,108 km across Kenya, Uganda, Rwanda, Burundi, South Sudan and the DR Congo. Road transport is fully liberalised and accounts for more than 96% per cent of the total transit traffic flow within the Northern Corridor. It is critical to estimate the efficiency and capacity of transport modes since they have direct impact on transport costs. Poor infrastructure translates to higher transport costs, delays and negative economic consequences.

In April 2016, through the northern corridor transport observatory, it was determined that only 28% of the total corridor road length was in bad shape, requiring urgent rehabilitation/reconstruction works. Furthermore, majority of the road sections were established to be in good or fair condition (64 % or 9 %). Major sections were reported to be under construction or rehabilitation.

This report focuses on September 2016 data which gives the overall picture of the status of the roads in the Northern Corridor Member States. Where data exists, IRI is provided. IRI not only helps in terms of determining road user costs but also provides road pavement performance. Roads are designed to cater for both structural and functional requirements of traffic and the entire travelling public. Essentially the quality of service determines the level of condition to which a road is allowed to fall before a certain treatment is triggered.



a) **Road conditions in Burundi**

The majority of the Northern Corridor road network in Burundi is paved. Therefore this condition status relates to paved roads particularly the National highways are in fair to good condition with a few exceptions.

**Table 18: Road conditions in Burundi**

| Road Section           | Length (km) | AADT                  | Roughness Index IRI | Planned / Current Project on this link | Current Status of project | Cost of project (Mill US\$) | General Comments      |
|------------------------|-------------|-----------------------|---------------------|----------------------------------------|---------------------------|-----------------------------|-----------------------|
| Gasenyi - Gashoho      | 68.379      | Bitumen concrete      | 2                   | N/A                                    | N/A                       | N/A                         | N/A                   |
| Gashoho - Ngozi        | 40.357      | Double surface course | 5                   | N/A                                    | N/A                       | N/A                         | N/A                   |
| Ngozi - Kanyanza       | 32          | Double surface course | 5                   | N/A                                    | N/A                       | N/A                         | N/A                   |
| Kanyaru Haut -Kanyanza | 22.105      | Bitumen concrete      | 7                   | Additional 1 m                         | N/A                       | N/A                         | N/A                   |
| Kanyanza-Bugarama      | 59.169      | Bitumen concrete      | 3                   | additional 1 m                         | N/A                       | N/A                         | N/A                   |
| Bugarama-Bujumbura     | 35.005      | Bitumen concrete      | 3                   | Additional 1 m                         | N/A                       | N/A                         | N/A                   |
| Bujumbura-Gatumba      | 23          | Bitumen concrete      | 2                   | In progress                            | 100% Complete             | 600000 euro                 |                       |
| Ruhwa-Nyamitanga       | 50.712      | Bitumen concrete      | 2                   | N/A                                    | N/A                       | 72 million UC               | 51Km Phase 1 finished |
| Nyamitaanga-Gihanga    | 10.1        | laterite              | 8                   | N/A                                    | N/A                       | 40Mill USD                  | phase 2               |
| Gihanga-Bujumbura20    | 20          | Double surface course | 4                   | N/A                                    | N/A                       | 40Mill USD                  | N/A                   |
| Kanyaru Bas -          |             |                       |                     |                                        |                           |                             |                       |
| Ngozi                  | 24.7        | laterite              | 8                   | N/A                                    | N/A                       | N/A                         | N/A                   |
| Ngozi-                 |             |                       |                     |                                        |                           |                             |                       |
| Gitega                 | 80          | Bitumen concrete      | 2                   | N/A                                    | N/A                       | N/A                         | N/A                   |
| Gitega-                |             |                       |                     |                                        |                           |                             |                       |
| Bujumbura              | 102         | Bitumen concrete      | 3                   | N/A                                    | N/A                       | N/A                         | N/A                   |

Source : Office des Routes, September 2016

## b) Road conditions DRC

| Road Section                                | Route Classification | Type of the road | Length (km) | Work done or in Progress         | Work planned   | Current Status (Km) |      |     |
|---------------------------------------------|----------------------|------------------|-------------|----------------------------------|----------------|---------------------|------|-----|
|                                             |                      |                  |             |                                  |                | Good                | Fair | Bad |
| 1. ROAD BUKAVU-KINDU-KISANGANI              |                      |                  |             |                                  |                |                     |      |     |
| BUKAVU - BURHALE                            | RN2                  | RT               | 55          | Maintenance                      | Rehabilitation | 55                  | 0    | 0   |
| BURHALE - SHABUNDA - LUBILE                 | RP503                | RT               | 363         | Maintenance                      | Rehabilitation | 38                  | 188  | 137 |
| LUBILE - KALIMA - MALI                      | RN32                 | RR               | 117         | Maintenance                      | Rehabilitation | 28                  | 89   | 0   |
| MALI - KINDU                                | RN31                 | RR               | 36          | Maintenance                      | Rehabilitation | 36                  |      |     |
| MALI - LUBUTU                               | RN31                 | RT               | 318         | Rehabilitation and MaintenaAnce  | Rehabilitation | 176                 | 93   | 49  |
| LUBUTU - KISANGANI                          | RN3                  | RR               | 297         | Maintenance                      | Rehabilitation | 93                  | 103  | 101 |
| LUBUTU - OSOKARI - WALIKALE                 | RN3                  | RR               | 221         | Maintenance                      | Rehabilitation | 189                 | 32   |     |
| WALIKALE - HOMBO                            | RN3                  | RT               | 107         | Maintenance                      | Modernization  | 0                   | 107  | 0   |
| HOMBO - MITI                                | RN3                  | RR               | 93          | Maintenance                      | Rehabilitation | 0                   | 40   | 53  |
| MITI - BUKAVU (included in Kavumu - Bukavu) | RN2                  | RR               | PM          |                                  |                |                     |      |     |
| 2. ROAD BUKAVU-UVIRA                        |                      |                  |             |                                  |                |                     |      |     |
| BUKAVU - KAMANYOLA                          | RN5                  | RT               | 55          | Tarmaking/ Maintenance           | Modernization  | 53                  | 2    | 0   |
| KAMANYOLA - UVIRA                           | RN5                  | RR               | 86          | Maintenance                      | Rehabilitation | 66                  | 15   | 5   |
| UVIRA - KAMVIVIRA - FRONT BURUNDI           | RN30                 | RR               | 10          | Maintenance                      | Rehabilitation | 0                   | 10   | 0   |
| 3.ROAD KISANGANI - BENI -KASINDI            |                      |                  |             |                                  |                |                     |      |     |
| KISANGANI - NIANIA - KOMANDA                | RN4                  | RT               | 650         | Maintenance GENIS                | Modernization  | 650                 | 0    | 0   |
| KOMANDA - LUNA                              | RN4                  | RT               | 65          | Maintenance                      | Modernization  | 65                  | 0    | 0   |
| LUNA - BENI                                 | RN4                  | RR               | 60          | Maintenance                      |                | 60                  |      |     |
| BENI - KASINDI                              | RN4                  | RT               | 80          | Maintenance                      | Modernization  | 38                  | 18   | 24  |
| 4.ROAD KOMANDA - BUNIA - MAHAGI             |                      |                  |             |                                  |                |                     |      |     |
| KOMANDA - BUNIA                             | RN27                 | RT               | 71          |                                  | Rehabilitation | 0                   | 69   | 2   |
| BUNIA - MAHAGI - GOLI - FR OUGANDA          | RN27                 | RT               | 190         |                                  | Rehabilitation | 0                   | 62   | 128 |
| 5.ROAD KISANGANI - ISIRO - ARU              |                      |                  |             |                                  |                |                     |      |     |
| KISANGANI - NIANIA                          | RN4                  | RT               | PM          |                                  |                |                     |      |     |
| NIANIA - ISIRO                              | RN25                 | RT               | 232         | Maintenance                      | Rehabilitation | 38                  | 108  | 86  |
| ISIRO - WATSA - ARU                         | RN26                 | RT               | 511         |                                  | Rehabilitation | 20                  | 40   | 451 |
| 6. ROAD BENI - BUTEMBO - GOMA - BUKAVU      |                      |                  |             |                                  |                |                     |      |     |
| BENI - NDOLUMA                              | RN2                  | RT               | 132         | Maintenance                      | Modernization  | 48                  | 44   | 40  |
| NDOLUMA - RUTSHURU - GOMA                   | RN2                  | RR               | 199         | Maintenance                      | Rehabilitation |                     | 194  | 5   |
| GOMA -SAKE- MINOVA                          | RN2                  | RR/RT            | 58          | Rehabilitation/ Maintenance      | Rehabilitation | 22                  | 26   | 10  |
| MINOVA - KAVUMU - BUKAVU                    | RN2                  | RR/RT            | 152         | Strengthening RR and Maintenance | Rehabilitation | 49                  | 32   | 71  |
| RUTSHURU - BUNAGANA                         | RN28                 | RT               | 27          | Maintenance                      | Rehabilitation | 0                   | 27   | 0   |
| RUTSHURU - ISHASHA                          | RP1035               | RT               | 63          | Maintenance                      | Rehabilitation | 42                  | 21   | 0   |

Source: Office De Routes, DR Congo, September, 2016

The majority of the Northern Corridor road network in DR Congo is in fair condition.

### c) Road condition in Kenya

Table below provides status on road conditions in Kenya measured by international roughness index. Kenya roads are crucial because they which form a link to other member states.

**Table 20: Road condition in Kenya**

| Section From | Section To | Distance (km) | Average IRI | Remarks |
|--------------|------------|---------------|-------------|---------|
| Nairobi      | Mombasa    | 481.35        | 2.26        | Good    |
| Mombasa      | Nairobi    | 370.48        | 3.16        | Good    |
| Nairobi      | Eldoret    | 312.17        | 3.2         | Good    |
| Eldoret      | Malaba     | 125.68        | 3.73        | Good    |
| Busia        | Kisumu     | 116.16        | 3.67        | Good    |
| Kisumu       | Nakuru     | 186.29        | 3.84        | Good    |
| Nakuru       | Nairobi    | 157.67        | 2.96        | Good    |

Source: KeNHA September, 2016

Generally, most of the roads in Kenya are in good condition and some sections which are considered bad are under rehabilitation and maintenance and the road condition will be better when the upgrade is completed. For example, some sections between Voi – Mombasa which had deteriorated are under rehabilitation.



d) **Roads condition in Rwanda**

Most of the Northern Corridor road network in Rwanda is paved and in good condition.

**Table 21: Road conditions in Rwanda**

| Sections as per NCTTCA         | Route segment             | Route Classification | Length (km) | Surface Type            | IRI1 (m/Km) | Current status                                                                                    | Projection / Upgrade plan                                          |
|--------------------------------|---------------------------|----------------------|-------------|-------------------------|-------------|---------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <b>Kagitumba-Akanyaru Haut</b> |                           |                      |             |                         |             |                                                                                                   |                                                                    |
| <b>Kagitumba-Kigali</b>        | <b>Kagitumba-Kayonza</b>  | NR24                 | 116.00      | Double surface dressing | 4.2         | Procurement for rehabilitation and widening is ongoing                                            | Rehabilitation and widening to 7m                                  |
|                                | <b>Kayonza- Kigali</b>    | NR4                  | 77.00       | Asphalt concrete        | 1.7         | The EAC has commissioned feasibility study and detailed engineering design. This study is ongoing | Rehabilitation and widening to 7m                                  |
| <b>Kigali-Huye</b>             | <b>Kigali-Muhanga</b>     | NR1                  | 47.50       | Asphalt concrete        | 2.3         | The study for rehabilitation and widening is available                                            | Rehabilitation and widening to 7m                                  |
|                                | <b>Muhanga- Huye</b>      | NR1                  | 75.70       | Asphalt concrete        | 1.6         | The study for rehabilitation and widening is available                                            | Rehabilitation and widening to 7m                                  |
| <b>Huye-Akanyaru Haut</b>      | <b>Huye-Akanyaru Haut</b> | NR1                  | 34.60       | Double surface dressing | 2.6         | The study for rehabilitation and widening is available                                            | Rehabilitation and widening to 7m                                  |
| <b>Kagitumba- Cyangugu</b>     |                           |                      |             |                         |             |                                                                                                   |                                                                    |
| <b>Huye-Rusizi</b>             | <b>Huye-Kitabi</b>        | NR10                 | 53.00       | Double surface dressing | 3.5         | Procurement for rehabilitation and widening is ongoing                                            | Rehabilitation and widening to 7m is expected to start by Mid 2017 |
|                                | <b>Kitabi- Buhinga</b>    | NR10                 | 62.60       | Asphalt concrete        | 2.1         | Project is under liability period                                                                 | Recently rehabilitated                                             |
|                                | <b>Buhinga- Rusizi</b>    | NR11                 | 30.60       | Asphalt concrete        | 2.2         | The project is under liability period                                                             | Recently rehabilitated                                             |
| <b>Gatuna - Cyangugu</b>       |                           |                      |             |                         |             |                                                                                                   |                                                                    |
| <b>Gatuna-Kigali</b>           | <b>Gatuna-Rukomo</b>      | NR3                  | 29.00       | Asphalt concrete        | 1.3         | The road was rehabilitated and is in good condition and is under liability period                 | Recently rehabilitated                                             |
|                                | <b>Rukomo- Kigali</b>     | NR3                  | 49.00       | Asphalt concrete        | 1.4         | The road was rehabilitated and is in good condition and is under liability period                 | Recently rehabilitated                                             |

| Kigali - Musanze  |                 |      |       |                         |     |                                                                                                                          |                                   |
|-------------------|-----------------|------|-------|-------------------------|-----|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Kigali-Musanze    | Kigali-Base     | NR2  | 44.00 | Asphalt concrete        | 1.8 | Rehabilitation works completed. The defects are being repaired                                                           | Recently rehabilitated            |
|                   | Base- Musanze   |      | 44.00 | Asphalt concrete        | 1.7 | Rehabilitation works completed. The defects are being repaired                                                           | Recently rehabilitated            |
| Rusizi- Ruhwa     |                 |      |       |                         |     |                                                                                                                          |                                   |
| Rusizi-Bugarama   | Rusizi-Bugarama | NR11 | 38.70 | Asphalt concrete        | 2.4 | Recurrent Maintenance works ongoing Study for rehabilitation is expected to be available by the end 2016                 | Rehabilitation and widening to 7m |
|                   | Bugarama-Ruhwa  | NR11 | 7.50  | Asphalt concrete        | 1.7 | Period maintenance is ongoing                                                                                            | Recently rehabilitated            |
| Cyanika-Rubavu    |                 |      |       |                         |     |                                                                                                                          |                                   |
| Cyanika - Musanze | Cyanika-Musanze | NR17 | 25.00 | Double surface dressing | 4.1 | 1.Emergency works to repair defects are ongoing<br>2.Study for rehabilitation and widening will be available by end 2016 | Rehabilitation and widening to 7m |
| Musanze-Rubavu    | Musanze-Rubavu  | NR2  | 62.00 | Asphalt concrete        | 1.7 | Period maintenance ongoing                                                                                               | Rehabilitation and widening to 7m |

Source: Rwanda Transport Development Agency, September 2016



e) Road Conditions in South Sudan

Table 22: Road conditions South Sudan

| Route / Road                               | Pavement type | Configuration | Length (Km) | Works Status | Planned               | Road condition (Km)/IRI |      |     |
|--------------------------------------------|---------------|---------------|-------------|--------------|-----------------------|-------------------------|------|-----|
|                                            |               |               |             |              |                       | Good                    | Fair | Bad |
| Nimule - Nesitu - Juba                     | Paved         | Two lane      | 192         | Constructed  | Maintenance           |                         | Fair |     |
| Nadapal - Kapoeta - Torit - Nesitu         | Gravel        | Two lane      | 335         | Designed     | Awaiting construction | -                       | -    | Bad |
| Juba - Lainya - Yei - Kaya                 | Gravel        | Two lane      | 225         | N/A          | N/A                   | -                       | -    | Bad |
| Yei - Maridi                               | Gravel        | Two lane      | 180         | N/A          | N/A                   | -                       | -    | Bad |
| Juba - Mundri - Maridi - Yambio - Nabiapai | Gravel        | Two lane      | 427         | N/A          | N/A                   | -                       | -    | Bad |
| Yambio - Tambura - Wau - Aweil             | Gravel        | Two lane      | 591         | N/A          | N/A                   | -                       | -    | Bad |
| Wau - Kwacjok - Agok - Mayom - Bentiu      | Gravel        | Two lane      | 520         | N/A          | N/A                   | -                       | -    | Bad |
| Juba - Bor - Ayod - Malakal                | Gravel        | Two lane      | 614         | N/A          | N/A                   | -                       | -    | Bad |
| Mundri - Rumbek - Wau                      | Gravel        | Two Lane      | 459         | N/A          | N/A                   | -                       | -    | Bad |

Source: South Sudan Roads Condition September 2016

South Sudan has designated a number of routes and their associated borders as part of the Northern Corridor Route as shown in table above. These are Nimule – Nesitu – Juba (192km) which is in fair condition; Nadapal - Kapoeta - Torit - Nesitu (335km) design works have been completed and the road is awaiting construction; Juba – Lainya – Yei - Kaya (225km); Yei – Maridi (180km). Most of the road is gravel and not in good condition.

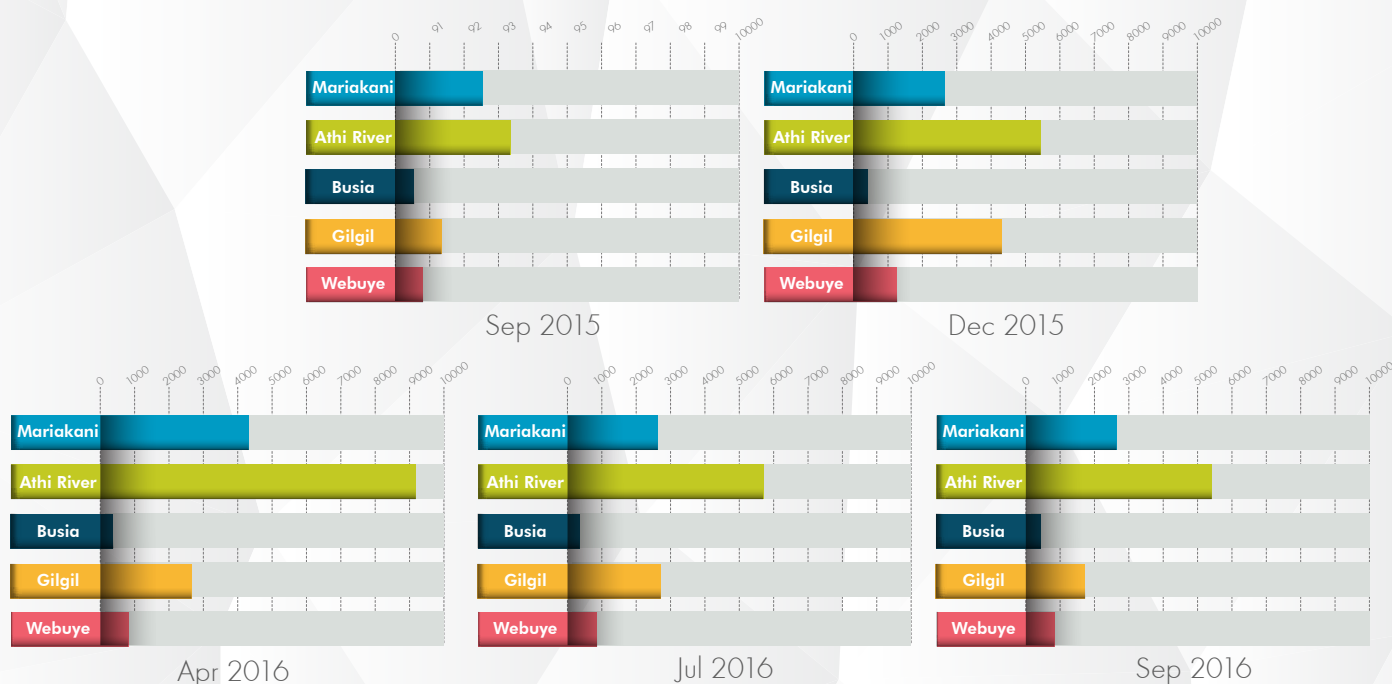
The quality of the infrastructure is a key consideration in the achievement of the regional integration and development goals. Regular monitoring of the conditions at a regional level is required to provide information on the sections for prioritization in improvement. Widening of the Corridor to 7m carriageways & 2m shoulders standards and development of climbing lanes as a result of increased traffic will help improve the transit time hence accelerating trade. Most of Northern Corridor is two-lane road, and speed reduction and necessity of overtaking at uphill paths since large vehicle's speed reduces at uphill paths. In addition, patching potholes, upgrading roads and road improvement. It is commendable to notice the dual carriageways is underway development in several transit sections, were necessary, including Mombasa-Mariakani and Machakos Turn Off.

### 2.3.4 Weighbridge Traffic

*This Indicator measures the average number of trucks weighed per day at a particular weighbridge in Kenya.*

The Northern Corridor Authority monitors the efficient performance of the weighbridges and the level of implementation of the vehicle load control charter that commits users of the Corridor to comply with vehicle load control limits in order to protect the roads from pre-mature damage as a result of overloading. Weighbridges are mainly installed along the Corridor to help in protecting roads from these damages but also serve to measure traffic counts that inform road expansion, planning and decisions making.

**Figure 12: Average daily weighed traffic for Kenya Weighbridges**



|            | Sep 15 | Dec 15 | Apr 16 | Jul 16 | Sep 16 |
|------------|--------|--------|--------|--------|--------|
| Mariakani  | 2636   | 2507   | 4423   | 2739   | 2620   |
| Athi River | 3433   | 5421   | 9179   | 5855   | 5400   |
| Busia      | 501    | 420    | 420    | 454    | 436    |
| Gilgil     | 1576   | 2650   | 4195   | 2625   | 2769   |
| Webuye     | 980    | 958    | 1308   | 958    | 977    |

*KeNHA, Kenya September 2015 to September 2016*

Athi River weighbridge recorded high average daily traffic of (5,400), followed by Gilgil (2,769) and Mariakani weighbridges (2,620) in September 2016 respectively. However, it is important to note that traffic at weighbridges has been fluctuating when compared to the previous year. Since full implementation of High Speed Weigh-in Motion, trucks that are weighed on the fixed scale are those that fail the weigh in motion scale. Athi River has one of the highest average daily traffic flow as trucks and other traffic from Mombasa, Namanga route and Nairobi converge.

On the other hand, Busia Weighbridge registered the least traffic compared to the rest. This could be due to the fact that sections of the route are under construction posing delay to cargo transport. In addition Busia weighbridge is not implementing the high speed weigh-in motion.

Modernization of axle limit control for these weighbridges has resulted in reduced weighing times and reduced delays.

## 2.3.5 Weighbridges Compliance

*The indicator measures the percentage of trucks that comply with the gross vehicle weight and the vehicle axle load limits before and after re-distribution of cargo as stipulated in the EAC Vehicle Load Control Act.*

The regulation gives the maximum allowable single axle load limit of 10 tons and a maximum gross vehicle mass of 56 tons. Conformity involves compliance to both Axle Load and Gross Vehicle Weight (Traffic Act Cap 403). All EAC Governments have undertaken to promote convergence and compatibility with regional trends by adopting a unified approach to issues of common interest in the transport sector, of which overload control is critical. Rwanda, Burundi, DRC and South Sudan do not enforce axle load limits. South Sudan has no weighbridges at the moment. Uganda has its GVW limit at 56 tons. Enforcement is based on both Gross and Axle load limit.

**Figure 13: Weight Compliance Level at weighbridges in Kenya**



*KeNHA, September 2015 to September 2016*

Compliance with vehicle load limits is above 90% from December 2015 except at Busia weighbridge where compliance has been on the decline and is now at 76% in September 2016. Primarily all trucks weighed at the weighbridges should be 100 percent compliant except for a few cases.

The target of 100% compliance has not yet been attained yet rationale of axle load control is to control the negative effects caused by heavy vehicle overloading, which may lead to accelerated deterioration, increased maintenance costs, and the need for early rehabilitation of such roads. As heavy vehicles pass over a road, they cause deflection, stress and strain to the road pavement.

## CHAPTER IV: TRANSIT TIME AND DELAYS

The time it takes to clear goods through borders is one of the major sources of delays to the movement of trade and trade and transport along the Corridor. The delays derive from the need to comply with the formalities associated with the movement of trade, logistics and transport traffic. They include; examination, inspection, approval of documents, customs shipment process as well as handling cargo at the terminals.

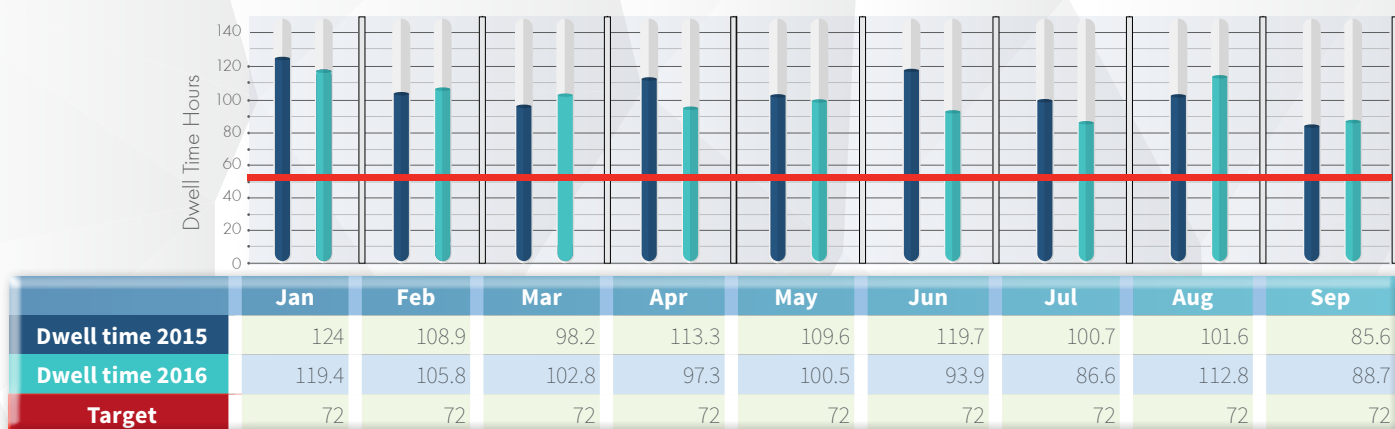
Identification of the main issues that cause delays affecting the movement of goods and proposed measures that can be taken to expedite clearance procedures to reduce costs and time. Success in customs modernization is tied well guidelines that are implemented to the latter.

### 2.4.1 Dwell time at Mombasa port

*Dwell Time is the measure of time that elapses from the time cargo arrives at the Port to the time it leaves the Port premises.*

Figure 14 shows a comparative analysis the cargo dwell time at the port of Mombasa for 2015 and 2016.

**Figure 14: Containerized cargo dwell time at the Port (Hours)**



Source: KPA data January 2015- September 2016

The best cargo dwell time for 2016 was recorded in July with a time of 86.6 hours which was still short of the target of 72 hours (3 days). Comparatively the performance for 2016 shows improvements when gauged against 2015 except for the month of August where a time of 112.8 hours was recorded in 2016 against 101.6 hours recorded in August 2015. Streamlining container nomination and evacuation to various Container Freight Stations are some of the measures being undertaken to reduce the dwell time.

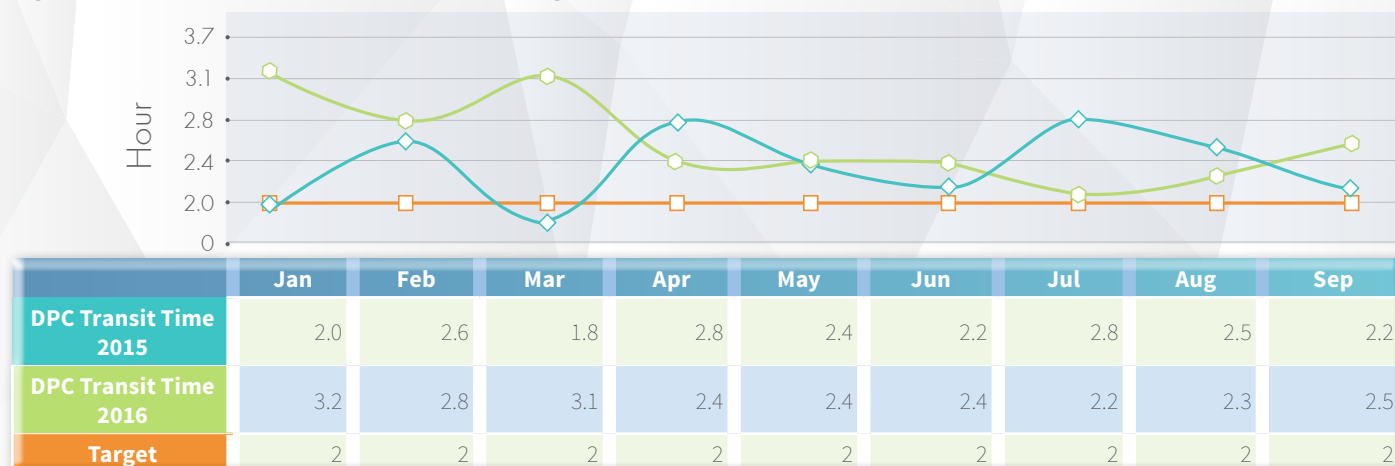
*Dwell time is affected by many players within the port ranging from the Revenue Authority since goods cannot leave without their clearance and other cargo interveners. The free period which is 9 days, has also an impact on timely evacuation of cargo from the Port, an approach informed by analytics on how to balance between free period and the dwell time target is necessary. The target should be reviewed based on in depth analysis and engagement with stakeholders.*

## 2.4.2 Time for customs clearance at the DPC

**Time taken by Customs to pass an entry lodged by a Clearing Agent. This time contributes to the total Port Dwell Time.**

Figure 16 shows the Time taken by Customs to pass an entry lodged by a Clearing Agent for the period January to September for the years 2015 and 2016. This time contributes to the total Port Dwell Time and has a target time of 2 hours.

**Figure 15: Time Taken at the Document Processing Centre (DPC)**



Source: KPA data January 2015- September 2016

Document processing time has oscillated over the time from a high of 3.2 hours in January 2016 to a low of 2.2 in July and settling at 2.5 hours in September 2016. Document processing time involves approval of the Customs Value, Classification of goods and taxes paid/bond security by the Customs office. Timely processing would largely be influenced by prompt submission of the proper documents by the clearing agents.

*Sensitization of clearing agents on proper and timely submission as well as full automation of procedures would be instrumental in lowering time taken to process the documents.*

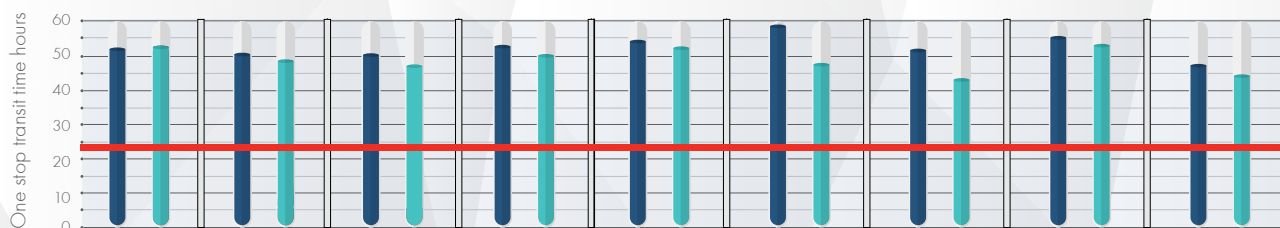


### 2.4.3 Time taken at Mombasa one stop center

*One Stop Centre Clearance Time measures the average time between passing of customs entry registration and issuance of release order.*

This time is tied to a multi- agency processing process and has a target of 24 hours.

**Figure 16: Time taken at one stop center, Transit (Hours)**



|                    | Jan   | Feb   | Mar   | Apr   | May   | Jun   | Jul   | Aug   | Sep   |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| One Stop Time 2015 | 52.66 | 51.12 | 50.82 | 53.21 | 54.86 | 59.54 | 51.92 | 56.58 | 48.37 |
| One Stop Time 2016 | 53.1  | 48.5  | 46.28 | 51.30 | 53.71 | 46.93 | 42.93 | 54.47 | 44.62 |
| Target             | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    | 24    |

Source: KPA, January 2015- September 2016

Reported data for the period January – September 2016 shows that time taken at the one stop center improved when compared to the same period in 2015. However, the time recorded significantly exceeded the 24-hour target with a best time of 42.93 recorded in July 2016. To improve this time, conducting joint verification and verification of transit cargo to be made at the countries of destination are some of the strategies that are proposed in the port charter and need to be firmed up. The Regional Electronic Cargo Tracking (R-ECTS) under deployment will be an enabler to strengthen these strategies if encompassing the entire northern corridor cargo.

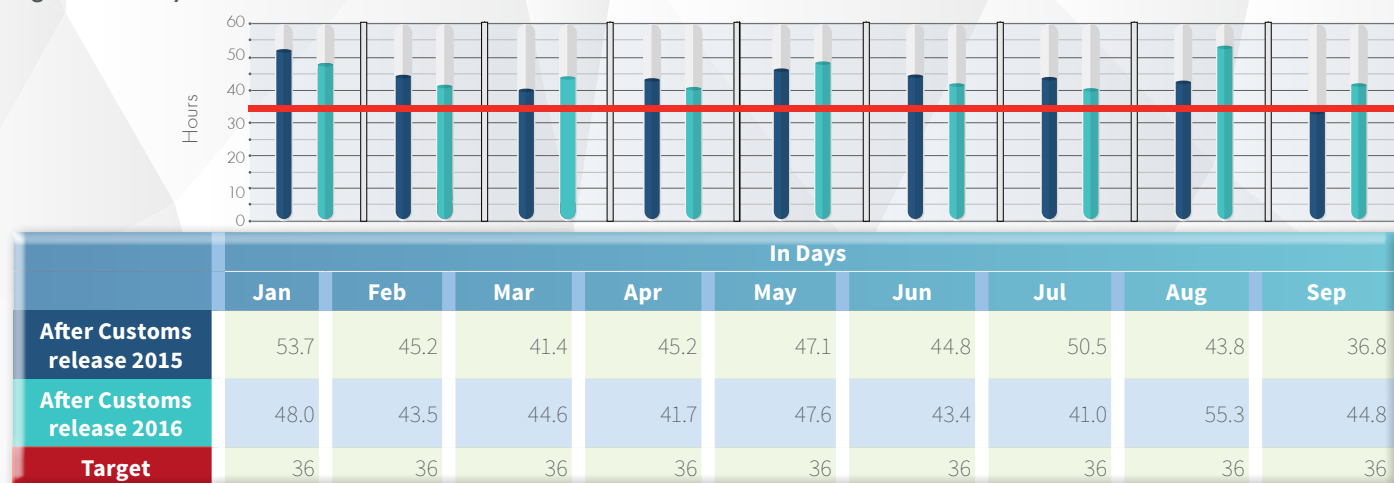


## 2.4.4 Delay after customs release

The indicator refers to the time lapse between release and evacuation of cargo from the port.

Delay after Customs Release refers to the period it takes to evacuate the cargo from the port after it is officially released by Customs. It involves the following processes: The clearing agent creates pick up order in the KWATOS system, payment of port charges, release note issued on KWATOS, endorsement of pick up order by KPA and issuance of port gate pass, truck loading, gate checks and issuance of exit note. The target time is 36 hours. Figure 15 below shows the time taken to evacuate cargo from the port after customs release for the period April, 2016 September, 2016.

Figure 17: Delay after Customs Release



Source: KPA data January 2015- September 2016

Delay after customs release time slightly increased from 41.7 hours in April 2016 to 44.8 hours in September 2016. The performance has worsened in September and showed decline when compared to the 36.8 hours recorded in September 2015.

*Delays after customs release is a significant predictor of port dwell time and therefore contributes to port inefficiency. Unfortunately, this particular indicator has been erratic during the period. Some of the intervening measures include, automated gate clearance, dedicated special gates to CFSs and ensuring 24hr operations.*

## 2.4.5 Transit time from Mombasa to various destinations

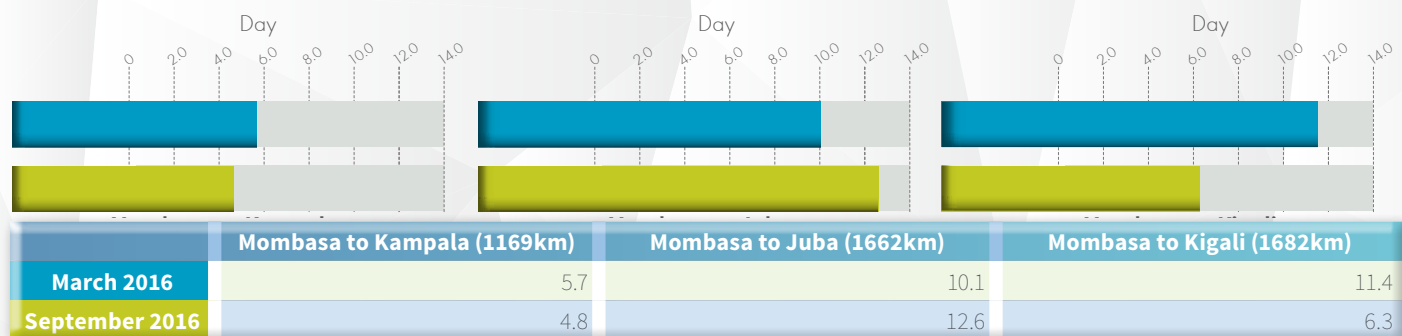
The transit time is measured from the time the cargo is released by Customs in Mombasa to the time it arrives to the various destinations along the Corridor. This transit time includes delays after customs release and stoppages along the Corridor. The data used in analysis of this indicator is from the GPS survey that was carried out from April to September 2016.

Table 23: Average Transit Time from Mombasa to various destinations, Apr-Sept 2016

| Destination                   | Average Transit Time (Days) |     |      |      |      |      |
|-------------------------------|-----------------------------|-----|------|------|------|------|
|                               | April                       | May | June | July | Aug  | Sept |
| Mombasa to Kampala (1,169 Km) | 5.1                         | 5.3 | 5.1  | 3.4  | 4.6  | 5.5  |
| Mombasa to Malaba (933 km)    | 3.2                         | 2.6 | 2.7  | 2.3  | 2.6  | 3.5  |
| Mombasa to Juba (1,662 km)    | 12.3                        | 8.9 | 11.4 | 13.5 | 13.7 | 16.1 |
| Mombasa to Kigali (1,682 km)  | 4.4                         | 9.7 | 4.7  | 4.7  | 7.0  | 7.6  |
| Mombasa to Goma (1,838 km)    | 5.8                         | 7.6 | 4.6  | 4.5  | 5.4  | 7.6  |

Source: GPS survey data Source: April- September 2016

Figure 18: Transit time From Mombasa to Kigali, Juba and Kampala



The average time taken from Mombasa to Kampala during the April – September 2016 period was recorded at 4.8 days which is an improvement from the 5.7 days that was recorded during the October 2015- March 2016 period.

The transit time to Kigali also improved significantly from a period average of 6.34 days compared to the 11.4 days that was averaged from October 2015 to March 2016. On the other hand, the transit time from Mombasa to Juba deteriorated from an average of 10.1 days from 8.4 days over the same period. The transit time to Juba has further worsened in the month of July settling at 11.9 days in September.

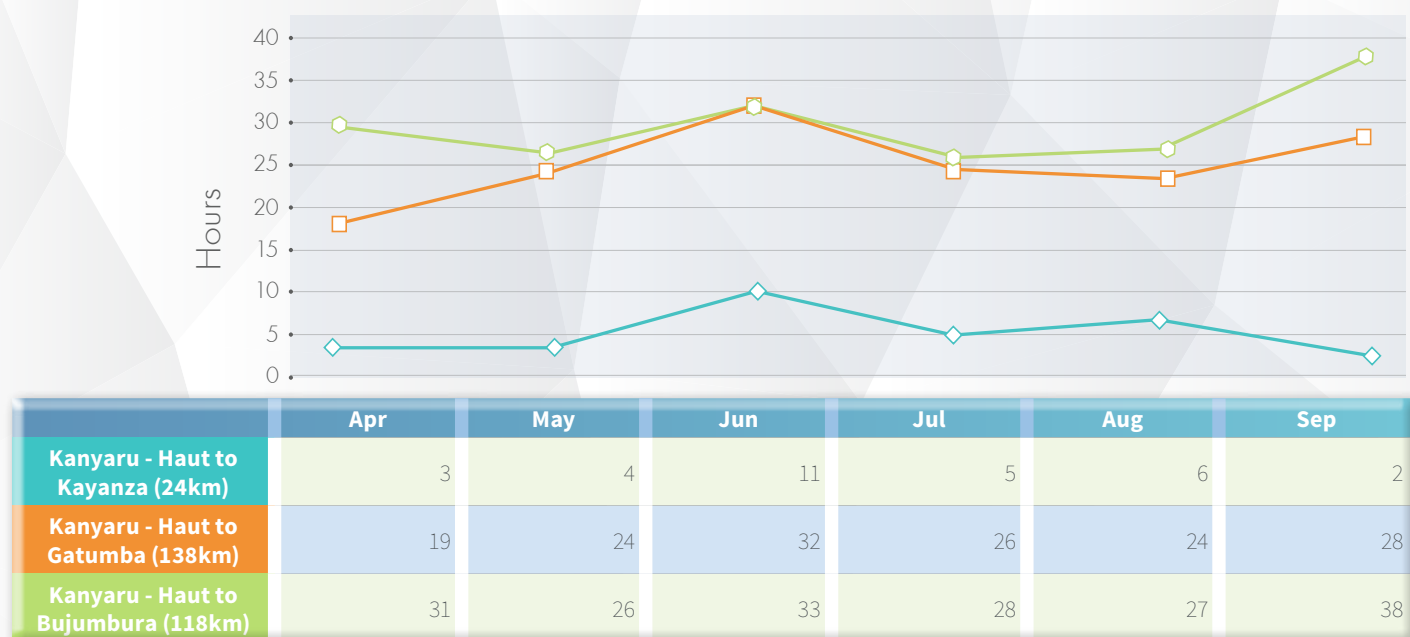
*There is need to improve security along Nimule-Juba highway to guarantee safety for goods and truck drivers.*



## 2.4.6 Transit time in Burundi

Transit time in Burundi was measured from Kanyaru Haut and Gasenyi to the major nodes and customs border points of Bujumbura Port, Kayanza and Gatumba. Figure 20 presents the transit time from Kanyaru Haut for the period April-September 2016.

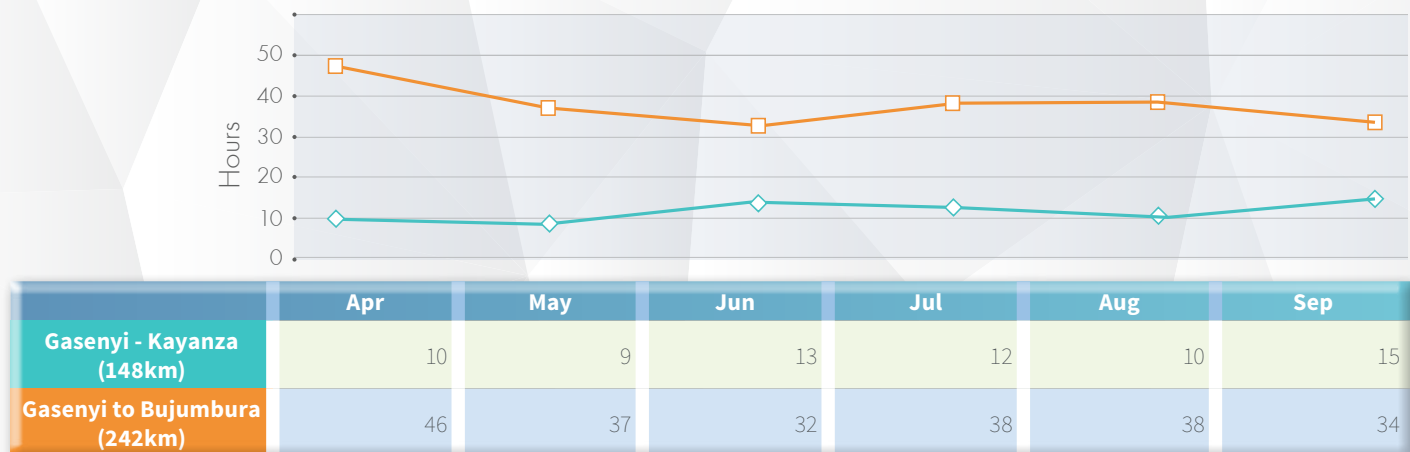
**Figure 19: Transit Time from Kanyaru-Haut to Bujumbura, Kayanza and Gatumba (Hrs)**



Source: OBR, April to September, 2016

The data shows that transit time from Kanyaru Haut to Bujumbura was highest at 38 hours in September 2016 for a distance of 118 KMs compared to 28 hours to Kayanza (138 kms) in the same month. It is evident that there are transit delays on the Kanyaru Haut to Bujumbura route. Figure 21 shows the transit time from Gasenyi to Bujumbura and Kayanza during the period April to September, 2016. The time taken from Gasenyi decreased from 46 hours in April 2016 to 38 hours in September 2016. Over the same period the time taken from Gasenyi to Kayanza increased from 10 to 15 hours.

**Figure 20: Transit Time from Gasenyi to Bujumbura and Kayanza, Apr to Sept, 2016**

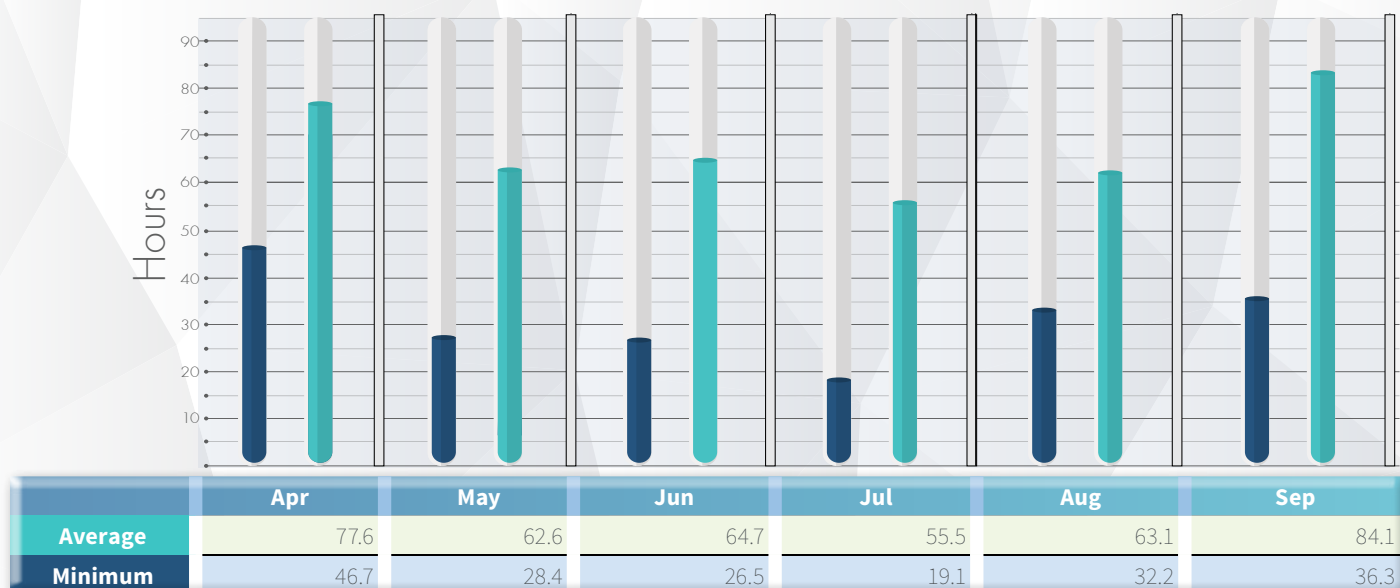


Source: OBR, April to September, 2016

## 2.4.7 Transit time in Kenya

Transit time in Kenya is determined by estimating the difference between the time when the truck leaves Mombasa to the time it reaches the boarder at Malaba or Busia. It can also be estimated from the time release order is issued at the port of Mombasa to the time the export certificate is issued after crossing the border at Malaba or Busia using the Customs data for transit goods.

**Figure 21: Transit Time from Mombasa to Malaba (hrs.)**



Source: GPS, April 2015 to September 2016

From the analysis, average transit time from Mombasa to Malaba, which is 933 km ranged between 55.5 hours and 84.1 hours or between 2.3 days to 3.5 days from April 2015 to September 2016. There has been a significant decrease from 99 hours in April 2015 to 84 hours in September 2016.

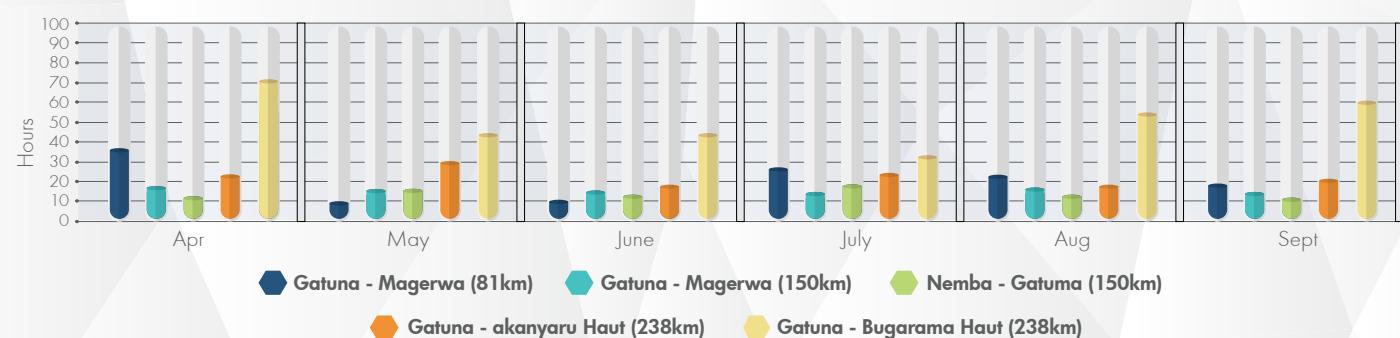
It is worth noting that there are no regulations binding transporters to exit within the target of 3 days however, transports who choose to transit faster are making it within the specified period.

## 2.4.8 Transit time in Rwanda

Transit time is measured by the difference between the time when cargo enters Rwanda to the time when it reaches final destination (ICD for local cargo) or exits the Country.

The Northern Corridor major transit sections in Rwanda include: Gatuna to Akanyaru Haut, Gatuna to MAGERWA, Gatuna to Nemba, and Gatuna to Bugarama. 98% of transit traffic originates from Gatuna Border.

**Figure 22: Transit Time in Rwanda**



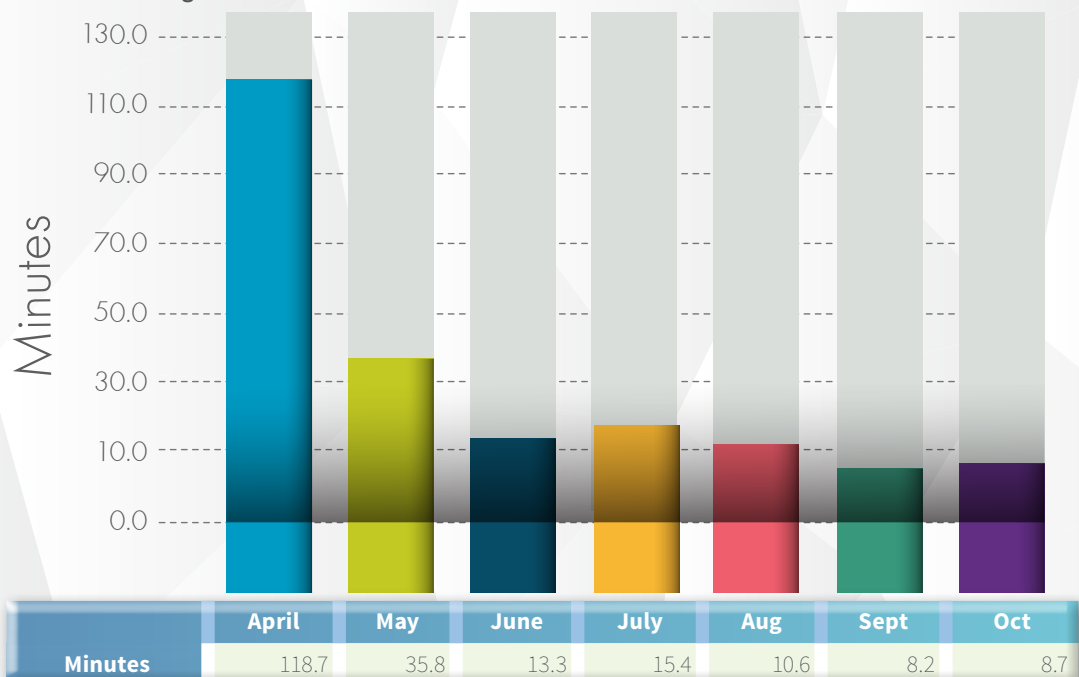
Source: (RRA, April - September 2016)

Figure 22 indicates that average time taken from Gatuna to Nemba was fairly constant (about 14 hours). Time to Bugarama has been increasing slightly from July to September 2016.

## 2.4.9 Truck Dwell Time within MAGERWA in Rwanda

Truck Dwell Time within MAGERWA is measured from the time the driver of the vehicle receives authorization to enter the MAGERWA gate to departure of the truck from the terminal exit gate.

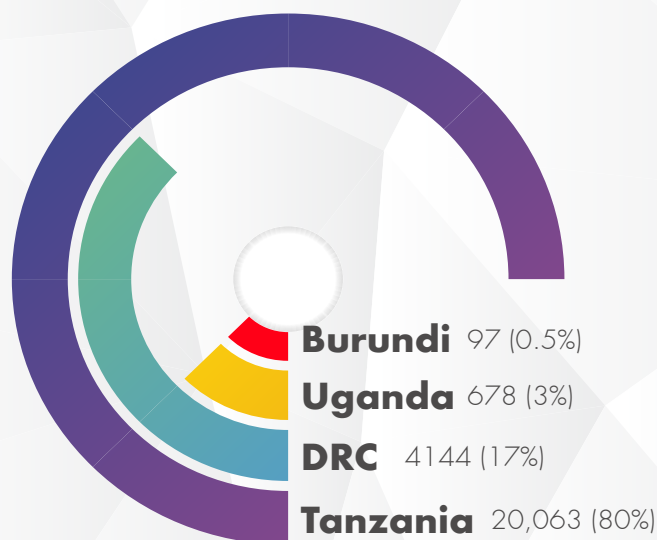
**Figure 23: Dwell time within Magerwa in minutes from NC - Gatuna**



Source: (RRA, April - September 2016)

The figure 23 above shows that the trend for truck dwell time within MAGERWA is positive during the reporting period. The dwell time has been decreasing from around 2 hours in April to 8 minutes in September 2016. The proportion of origin of goods cleared at Magerwa are as shown below.

**Figure 24: Distribution of Cargo from Rwanda**



Source: RRA, September 2016

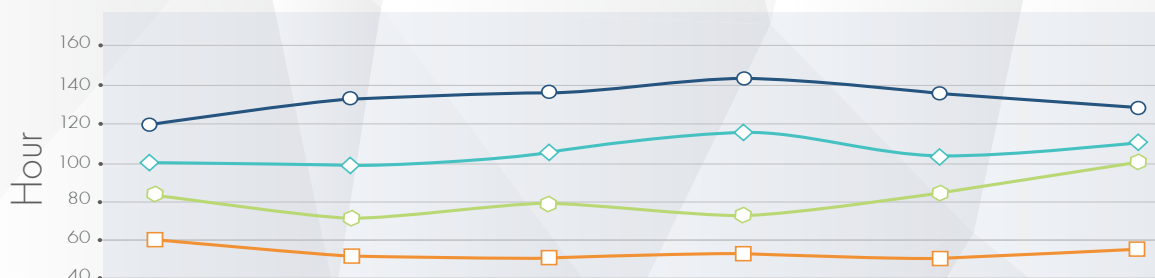
Figure 24 shows that 80 percent of cargo to MAGERWA originates from Tanzania (Central Corridor) followed by 17% from DRC and 3 percent from Uganda. Since most good to Rwanda are cleared at the Port under the SCT, MAGERWA is mostly used for cargo consolidation.

## 2.4.10 Transit time in Uganda

### Transit Time in UGANDA - From ECTS DATA

The full implementation of the common ECTS platform in the region will also enable us collecting better and accurate data in tracking transit time and identifying sections which contributes the biggest share of transit time for appropriate action. Figure 25 and 26 provide transit times from Malaba and Busia in Uganda.

Figure 25 Transit time from Malaba in Uganda

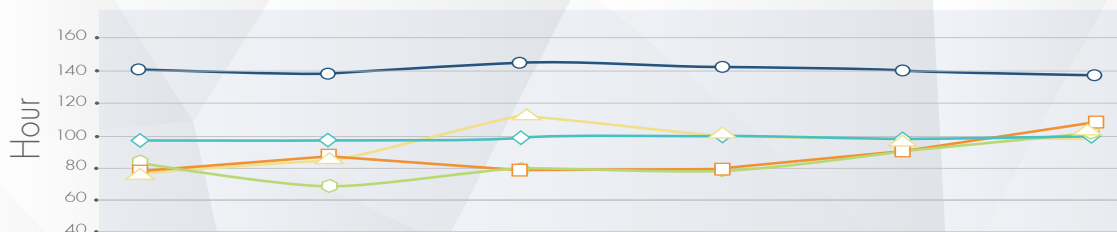


|                           | April - 16 | May - 16 | June - 16 | July - 16 | Aug - 16 | Sept - 16 |
|---------------------------|------------|----------|-----------|-----------|----------|-----------|
| Malaba - Goli (543 km)    | 117.80     | 132.27   | 135.56    | 143.23    | 136.28   | 127.68    |
| Malaba - Elegu (497 km)   | 101.47     | 99.80    | 106.94    | 118.46    | 105.66   | 113.16    |
| Malaba - Mpondwe (678 km) | 85.64      | 72.28    | 80.39     | 74.23     | 87.22    | 104.91    |
| Malaba - Kampala (236 km) | 58.65      | 49.89    | 48.32     | 51.02     | 48.33    | 52.76     |

Source: URA ECTS, April to October 2016

From the data analysis, Malaba- Goli shows higher transit time despite the shorter distance compared to Malaba -Mpondwe. Malaba-Mpondwe has the shortest transit time per kilometer ranging between 6 to 10 minutes per kilometer.

Figure 26: Transit time from Busia in Uganda



|                          | April - 16 | May - 16 | June - 16 | July - 16 | Aug - 16 | Sept - 16 |
|--------------------------|------------|----------|-----------|-----------|----------|-----------|
| Busia - Goli (570 km)    | 142.08     | 138.36   | 144.48    | 142.92    | 139.97   | 137.75    |
| Busia - Vura (621 km)    | 96.33      | 96.32    | 96.37     | 98.53     | 96.39    | 96.44     |
| Busia - Mpondwe (640 km) | 84.22      | 71.55    | 80.05     | 75.19     | 91.22    | 103.27    |
| Busia - Bunagana         | 77.59      | 87.02    | 83.05     | 75.36     | 93.21    | 113.80    |
| Busia - Katuna (630 km)  | 78.26      | 86.50    | 109.31    | 96.34     | 96.38    | 96.42     |

Source: URA ECTS, April to October 2016

Busia-Goli has higher transit time registering up to 5.7 days in September, 2016. Busia -Mpondwe and Busia -Katuna which have comparable distances, have their transit time range between 3 and 4.6 days.

### 2.4.11 Clearance time at the border in Democratic Republic of Congo (DRC)

The indicator is measured by taking the difference between the time of arrival and the time of departure of truck at a particular clearance border station. Customs data for DRC is not adequate for us to make objective analysis due to very small and varying sample.

**Table 24: Number of Records registered between April and September 2016**

| PROCESSING OFFICE | Average Delay at the Border (Hours) | Month  | Number of Records |
|-------------------|-------------------------------------|--------|-------------------|
| MAHAGI            | -                                   | June   | 4                 |
| KAROMBO           | -                                   | -      | 1                 |
| BUNAGANA          | 167.83                              | April  | 3                 |
| BUNAGANA          | 30.41                               | May    | 3                 |
| BUNAGANA          | 19.21                               | June   | 4                 |
| BUNAGANA          | 17.90                               | July   | 1                 |
| BUNAGANA          | 2.69                                | August | 2                 |
| KASINDI           | 18.34                               | July   | 19                |

Source: DGDA data 2016, DRC

From table 24 Karombo border registered the least only one record from April to September 2016 while Kasindi registered the highest records of 19. In the month of July 2016 the custom delay at Kasindi was 18.34 hours. During the period April – September 2016, Mahagi border registered only 4 records followed by Bunagana with 13 records. There is need to enhance the number of records reported to have maximum entries for further analysis.

During the validation workshop, it was reported that most of the cargo destined to DRC terminates in the last Country of transit (Uganda or Rwanda) and their after transhipped to DRC. This calls for a survey to be done so as to establish clearance times at those border posts and reasons explaining the trends.



# CHAPTER V: INTRA-REGIONAL TRADE

The objective of this section is both to showcase the level of trade between Northern Corridor Member States and provide policy recommendations to realize more gains and maximize the full potential of northern trade route in the area of boosting the intraregional trade, fostering the business opportunities in the region and strengthening the integration cooperation.

## 2.5.1 Trade between Burundi and Other NC Member States

Table 25 shows a summary of the imports and exports between Burundi and other Members States of the Northern Corridor. The total value of imports for the review period was \$65 Million while exports were valued at \$25.8 Million with the main exports being coffee, Gold, tea, soap, plastic lids, sugar, cotton and hides. The major imports were refined petroleum construction materials and food. It is also evident that trade volumes for both exports and imports dipped to all-time lows, in the month of June 2016 and decreased further by September 2016. Data for the months of July to September 2016 was obtained from intra-regional trade data with other Member states.

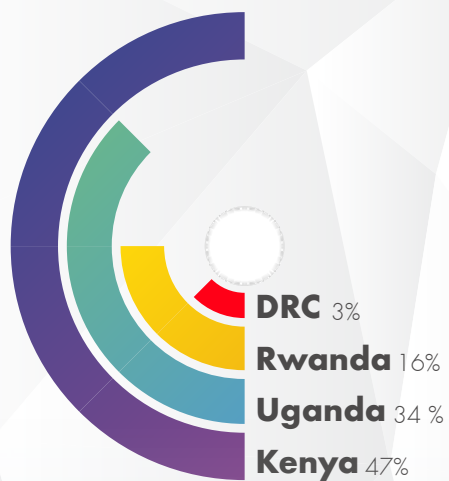
**Table 25: Summary of formal imports and exports**

| Burundi Imports from (USD) |                   |                   |                   |                   |                   |
|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Month                      | DRC               | Kenya             | Rwanda            | Uganda            | Monthly Total     |
| Jan                        | 163,631           | 3,066,362         | 380,774           | 1,721,161         | 5,331,928         |
| Feb                        | 170,498           | 3,416,226         | 448,638           | 2,955,720         | 6,991,082         |
| Mar                        | 242,590           | 2,844,153         | 1,518,347         | 1,487,966         | 6,093,056         |
| Apr                        | 192,830           | 2,517,931         | 731,397           | 1,791,081         | 5,233,239         |
| May                        | 336,514           | 3,045,918         | 1,048,505         | 2,708,076         | 7,139,013         |
| June                       | 155,453           | 1,452,316         | 1,520,225         | 1,116,875         | 4,244,869         |
| July                       | 0                 | 8,645,719         | 2,196,150         | 4,517,339         | 15,359,208        |
| Aug                        | 0                 | 5,368,798         | 1,990,951         | 5,558,621         | 12,918,370        |
| Sept                       | 0                 | 0                 | 1,720,015         | 0                 | 1,720,015         |
| <b>Total Imports</b>       | <b>1,261,516</b>  | <b>30,357,423</b> | <b>11,555,002</b> | <b>21,856,839</b> | <b>65,030,780</b> |
| Burundi Exports to (USD)   |                   |                   |                   |                   |                   |
| Month                      | DRC               | Kenya             | Rwanda            | Uganda            | Monthly Total     |
| Jan                        | 2,488,678         | 1,484,404         | 344,207           | 77,365            | 4,394,654         |
| Feb                        | 2,572,659         | 1,372,167         | 429,667           | 124,993           | 4,499,486         |
| Mar                        | 2,350,933         | 1,239,930         | 296,267           | 182,320           | 4,069,450         |
| Apr                        | 2,746,845         | 1,880,723         | 290,134           | 210,352           | 5,128,054         |
| May                        | 1,987,644         | 1,369,530         | 271,657           | 479,320           | 4,108,151         |
| June                       | 1,375,473         | 606,890           | 147,388           | 0                 | 2,129,751         |
| July                       | 0                 | 71,658            | 761,074           | 59,060            | 891,792           |
| Aug                        | 0                 | 81,412            | 230,650           | 115,936           | 427,998           |
| Sept                       | 0                 | 0                 | 174,706           | 0                 | 174,706           |
| <b>Total Exports</b>       | <b>13,522,232</b> | <b>8,106,714</b>  | <b>2,945,750</b>  | <b>1,249,346</b>  | <b>25,824,042</b> |

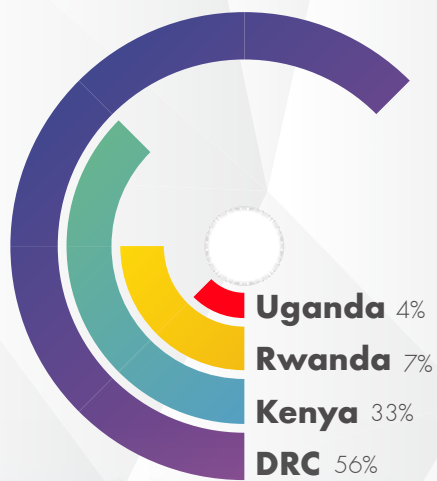
Source: Burundi Bureau of Statistics. Jan-June 2016: Transport Observatory Analysis/NCTTCA

Figure 27 shows that Kenya and Uganda are the largest source of the intra-regional imports by Burundi accounting for 47 % and 34% respectively. On the other hand, DRC was the largest export destination for Burundi taking up 56% of all exports followed by Kenya with 34%.

Figure 27: Share of imports and exports  
Burundi Imports



Burundi Exports



## 2.5.2 Trade between DRC and Other NC Member States

Table below provides trade statistics between DRC and other Northern Corridor Member States for the period January to September 2016. Between January and September 2016, DRC formal exports to the region was valued at approximately 344 Million USD whereas formal imports were valued at slightly above 8 Million USD during the same period.

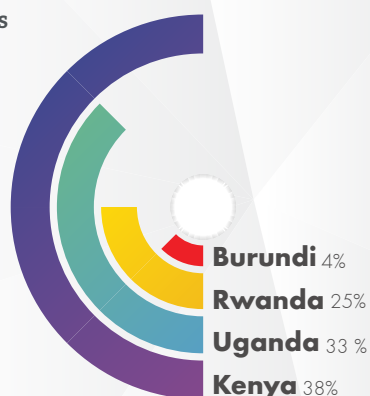
**Table 26: Summary of formal imports and exports**

| DRC Imports (USD)    |                   |                    |                   |                    |                    |
|----------------------|-------------------|--------------------|-------------------|--------------------|--------------------|
| Country              | BURUNDI           | KENYA              | RWANDA            | UGANDA             | TOTAL              |
| January              | 2,488,678         | 15,384,261         | 12,663,153        | 15,349,666         | 33,222,605         |
| February             | 2,572,659         | 15,339,939         | 14,071,379        | 14,583,405         | 32,496,003         |
| March                | 2,350,933         | 15,848,636         | 16,808,002        | 15,266,626         | 33,466,195         |
| April                | 2,746,845         | 16,969,665         | 14,660,099        | 10,497,390         | 44,873,999         |
| May                  | 1,987,644         | 14,986,754         | 15,792,464        | 13,232,885         | 45,999,747         |
| June                 | 1,375,473         | 17,161,016         | 1,028,974         | 13,146,409         | 32,711,872         |
| July                 | 0                 | 14,790,359         | 18,223,926        | 15,109,777         | 48,124,062         |
| August               | 0                 | 20,050,826         | 18,231,084        | 17,701,027         | 55,982,937         |
| Sept                 | 0                 | 0                  | 17,197,102        | 0                  | 17,197,102         |
| <b>Total Imports</b> | <b>13,522,232</b> | <b>130,531,456</b> | <b>85,133,649</b> | <b>114,887,185</b> | <b>344,074,522</b> |
| DRC Exports (USD)    |                   |                    |                   |                    |                    |
| January              | 163,631           | 154,962            | 449,376           | 318,538            | 637,131            |
| February             | 170,498           | 122,905            | 457,465           | 220,537            | 513,940            |
| March                | 242,590           | 44,319             | 507,971           | 182,195            | 469,104            |
| April                | 192,830           | 60,122             | 751,510           | 95,693             | 1,100,155          |
| May                  | 336,514           | 119,137            | 818,897           | 142,128            | 1,416,676          |
| June                 | 155,453           | 101,674            | 868,244           | 183,952            | 1,309,323          |
| July                 | 0                 | 180,743            | 551,107           | 254,313            | 986,163            |
| August               | 0                 | 254,521            | 676,212           | 144,356            | 1,075,089          |
| Sept                 | 0                 | 0                  | 737,118           | 0                  | 737,118            |
| <b>Total Exports</b> | <b>1,261,516</b>  | <b>1,038,384</b>   | <b>4,403,088</b>  | <b>1,541,712</b>   | <b>8,244,700</b>   |

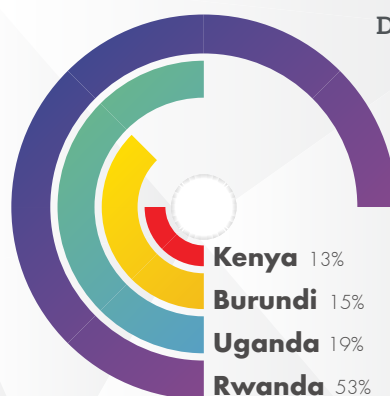
Source: Transport Observatory Analysis/NCTTCA

**Figure 28: Share of imports and exports**

DRC Imports



DRC Exports



Kenya and Uganda are the largest source of the regions imports to DRC accounting for 38 % and 33% respectively. On the other hand, Rwanda was the largest export destination for DRC taking up over half of all the exports at 53% as shown in figure 28 above.

### 2.5.3 Trade between Kenya and Other NC Member States

Table 27 provides trade statistics between Kenya and other Northern Corridor Member States for the period January to August 2016. Between January and August 2016, Kenya formal exports to the region was valued at USD 830 Million (Ksh 83 billion) making it the single largest exporter in the region. The table also shows that the total value for imports to Member States amounted to USD 108 Million (Ksh 10.84 billion). Kenya was a net exporter during the period under review.

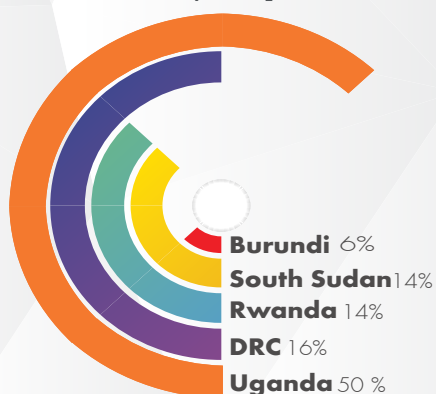
**Table 27 : Summary of formal imports and Exports(USD), Jan-Aug 2016**

| Formal Exports to (USD)***   |                   |                    |                    |                    |                    |                    |
|------------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Month                        | BURUNDI           | DRC                | RWANDA             | SOUTH SUDAN        | UGANDA             | MONTHLY TOTAL      |
| Jan                          | 6,804,623         | 15,384,261         | 13,532,109         | 12,151,999         | 46,435,583         | <b>94,308,575</b>  |
| Feb                          | 7,412,488         | 15,339,939         | 12,894,234         | 11,969,930         | 47,069,478         | <b>94,686,069</b>  |
| Mar                          | 6,218,746         | 15,848,636         | 15,105,507         | 31,726,665         | 62,682,603         | <b>131,582,157</b> |
| Apr                          | 5,166,762         | 16,969,665         | 15,927,912         | 11,358,110         | 63,429,749         | <b>112,852,198</b> |
| May                          | 5,093,835         | 14,986,754         | 12,213,938         | 16,882,164         | 42,205,833         | <b>91,382,524</b>  |
| June                         | 5,495,387         | 17,161,016         | 15,993,842         | 13,662,979         | 46,635,001         | <b>98,948,225</b>  |
| July                         | 8,645,719         | 14,790,359         | 14,219,372         | 6,529,852          | 61,751,756         | <b>105,937,059</b> |
| Aug                          | 5,368,798         | 20,050,826         | 17,050,929         | 8,658,087          | 49,725,532         | <b>100,854,171</b> |
| <b>Total Exports</b>         | <b>50,206,358</b> | <b>130,531,456</b> | <b>116,937,843</b> | <b>112,939,786</b> | <b>419,935,535</b> | <b>830,550,978</b> |
| Formal Imports from (USD)*** |                   |                    |                    |                    |                    |                    |
|                              | BURUNDI           | DRC                | RWANDA             | SOUTH SUDAN        | UGANDA             | MONTHLY TOTAL      |
| Jan                          | 163,488           | 154,962            | 529,358            | 7,619              | 17,693,393         | <b>18,548,820</b>  |
| Feb                          | 230,253           | 122,905            | 273,863            | 0                  | 11,786,934         | <b>12,413,955</b>  |
| Mar                          | 200               | 44,319             | 1,027,084          | 20,680             | 10,333,651         | <b>11,425,934</b>  |
| Apr                          | 19,747            | 60,122             | 914,448            | 0                  | 8,140,224          | <b>9,134,542</b>   |
| May                          | 1,323             | 119,137            | 513,239            | 1,762              | 12,689,191         | <b>13,324,651</b>  |
| June                         | 6,906             | 101,674            | 524,970            | 4,501              | 16,967,492         | <b>17,605,544</b>  |
| July                         | 71,658            | 180,743            | 561,354            | 2,293              | 9,537,468          | <b>10,353,515</b>  |
| Aug                          | 81,412            | 254,521            | 872,718            | 3,105              | 14,389,895         | <b>15,601,650</b>  |
| <b>Total imports</b>         | <b>574,986</b>    | <b>1,038,384</b>   | <b>5,217,034</b>   | <b>39,959</b>      | <b>101,538,247</b> | <b>108,408,611</b> |

Source: Kenya National Bureau of Statistics, September 2016

\*\*\*Note: The currency has been converted from Kenya shilling to USD using 100 as the exchange rate.

**Figure 29: Share of Kenyan exports**



Kenya top exports include Tea, Coffee, Sisal and sisal products, fish and fish products, fresh fruits and vegetables. The largest destination for Kenya's exports is Uganda accounting for 50% of all Kenyan imports to the northern corridor region at a value of Kshs 42 billion (\$420 Million). Kenya exported goods worth Kshs 13 billion to the DRC amounting to 16% of exports to the region. In addition, Uganda is also Kenya's largest importer accounting for 94% of all imports to the region.

## 2.5.4 Trade between Rwanda and Other NC Member States

### 1. Rwanda Formal Intra-regional trade

Formal intra-regional trade comprises of imports and exports between Member States, Table 28 shows imports and exports between Rwanda and other Northern Corridor Members States in USD. The total export volume for the period January to September was valued at approximately \$236 Million while imports stood at \$ 237 Million. This implies that there was a small margin between net imports and exports for Rwanda during the period under review. It is also notable that while trade between member states has been stable there was remarkable decline in trade between Burundi and South Sudan over the period under review. Rwanda main exports include petroleum oil, tea, rice, coffee, and minerals like tin and “coltan”. Food products, machinery and equipment, construction materials, petroleum products and fertilizers constituted the main imports for the country.

**Table 28: Summary of formal imports and exports, January to September 2016**

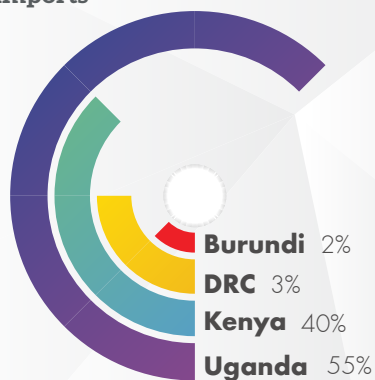
| Formal Exports to (USD)   |                   |                    |                   |                  |                    |                    |
|---------------------------|-------------------|--------------------|-------------------|------------------|--------------------|--------------------|
| Month                     | BURUNDI           | DRC                | KENYA             | SOUTH SUDAN      | UGANDA             | TOTAL EXPORTS      |
| Jan                       | 1,116,882         | 12,663,153         | 9,603,399         | 23,469           | 3,048,552          | <b>26,455,455</b>  |
| Feb                       | 2,820,750         | 14,071,379         | 9,278,766         | 110,377          | 738,279            | <b>27,019,551</b>  |
| Mar                       | 4,379,658         | 16,808,002         | 10,854,424        | 0                | 851,915            | <b>32,893,999</b>  |
| Apr                       | 2,439,555         | 14,660,099         | 9,993,354         | 1,015,457        | 1,065,310          | <b>29,173,775</b>  |
| May                       | 5,658,736         | 15,792,464         | 9,212,458         | 996,971          | 792,011            | <b>32,452,638</b>  |
| June                      | 513,394           | 1,028,974          | 2,743,374         | 10,056           | 2,484,690          | <b>6,780,487</b>   |
| July                      | 2,196,150         | 18,223,926         | 6,956,058         | 77,268           | 1,186,860          | <b>28,640,262</b>  |
| Aug                       | 1,990,951         | 18,231,084         | 5,593,952         | 40,548           | 2,262,826          | <b>28,119,362</b>  |
| Sept                      | 1,720,015         | 17,197,102         | 4,167,816         | 42,884           | 1,756,752          | <b>24,884,569</b>  |
| <b>Total</b>              | <b>22,836,091</b> | <b>128,676,183</b> | <b>68,403,601</b> | <b>2,317,030</b> | <b>14,187,195</b>  | <b>236,420,098</b> |
| Formal Imports from (USD) |                   |                    |                   |                  |                    |                    |
| Month                     | BURUNDI           | DRC                | KENYA             | SOUTH SUDAN      | UGANDA             | TOTAL IMPORTS      |
| Jan                       | 623,374           | 449,376            | 9,828,094         | 0                | 11,995,835         | <b>22,896,679</b>  |
| Feb                       | 445,282           | 457,465            | 10,805,431        | 0                | 12,077,591         | <b>23,785,769</b>  |
| Mar                       | 487,072           | 507,971            | 12,647,254        | 0                | 16,335,968         | <b>29,978,265</b>  |
| Apr                       | 561,563           | 751,510            | 10,779,526        | 0                | 13,029,240         | <b>25,121,839</b>  |
| May                       | 468,782           | 818,897            | 10,481,931        | 0                | 15,125,012         | <b>26,894,622</b>  |
| June                      | 624,847           | 868,244            | 11,049,827        | 0                | 14,300,618         | <b>26,845,126</b>  |
| July                      | 761,074           | 551,107            | 11,269,859        | 1,590            | 14,201,343         | <b>26,783,383</b>  |
| Aug                       | 230,650           | 676,212            | 11,737,069        | 0                | 16,147,017         | <b>28,790,948</b>  |
| Sept                      | 174,706           | 737,118            | 9,385,914         | 0                | 15,333,384         | <b>25,631,122</b>  |
| <b>Total</b>              | <b>445,282</b>    | <b>457,465</b>     | <b>10,805,431</b> | <b>0</b>         | <b>128,546,008</b> | <b>236,727,753</b> |

Source: National Bank of Rwanda, January to September, 2016

Figure 30 shows share of trade between Rwanda and the Member States in USD. Uganda (55%) took largest share of imports followed by Kenya (40%) at the rest of the Member States sharing the remaining 5%. On the other hand, DRC is the largest export partner taking up 57% of Rwandan exports followed by Kenya at 26%. Burundi and Uganda respectively account for 10% and 6% of Rwanda's exports.

Figure 30: Share of Rwanda Imports and Exports

Rwanda Imports



Rwanda Exports

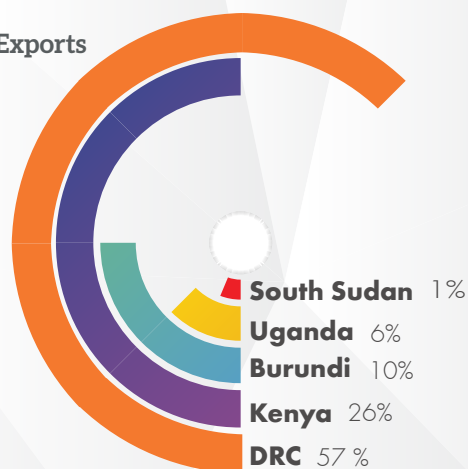


Table 29: Informal trade in Rwanda

| Imports From |           |           |           |           |           |           |           |
|--------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| COUNTRY      | Jan       | Feb       | Mar       | Apr       | May       | Jun       | Jul       |
| BURUNDI      | 1,198,008 | 1,100,863 | 1,487,156 | 1,950,028 | 2,129,673 | 1,135,812 | 1,198,008 |
| DRC          | 314,737   | 335,327   | 361,771   | 329,108   | 624,849   | 317,878   | 314,737   |
| UGANDA       | 5,564,014 | 3,206,882 | 2,648,234 | 3,032,921 | 4,239,499 | 2,341,403 | 5,564,014 |
| Exports to   |           |           |           |           |           |           |           |
| BURUNDI      | 366,034   | 447,397   | 609,366   | 940,994   | 1,121,798 | 683,397   | 366,034   |
| DRC          | 7,886,688 | 9,167,791 | 7,792,621 | 8,090,940 | 8,519,737 | 6,003,531 | 7,886,688 |
| UGANDA       | 1,465,349 | 1,570,583 | 1,435,195 | 4,211,717 | 3,670,318 | 2,151,196 | 1,465,349 |

Source: National Bank of Rwanda, September, 2016

Most imports are from Uganda while exports are mostly to DRC followed by Uganda. Informal crossborder trade in Rwanda involves food stuff and animal products.

## 2.5.5 Trade between South Sudan and Other NC Member States

Table 30 below shows imports and exports in USD between South Sudan and other Northern Corridor Member States. The total export volume for the period January to September was valued at \$1.7 Million while imports stood at \$ 265 Million. This implies that South Sudan was a net importer during this period. It is also notable that while trade with Uganda has been stable, there was remarkable decline in trade with Rwanda over the period under review.

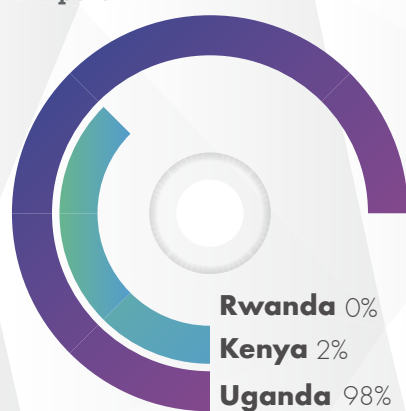
**Table 30: Formal Imports and Exports**

| South Sudan Formal Exports to (USD) |                  |                    |                    |                    |
|-------------------------------------|------------------|--------------------|--------------------|--------------------|
| Month                               | RWANDA           | KENYA              | UGANDA             | Monthly Total      |
| Jan                                 | 0                | 7,619              | 92,801             | 100,420            |
| Feb                                 | 0                | 0                  | 82,836             | 82,836             |
| Mar                                 | 0                | 20,680             | 213,296            | 233,976            |
| Apr                                 | 0                | 0                  | 282,038            | 282,038            |
| May                                 | 0                | 1,762              | 318,496            | 320,258            |
| June                                | 1,590            | 4,501              | 264,662            | 270,753            |
| July                                | 0                | 2,293              | 101,779            | 104,072            |
| Aug                                 | 0                | 3,105              | 301,074            | 304,179            |
| Sep                                 | 0                | 0                  | 0                  | 0                  |
| <b>Total Exports</b>                | <b>1,590</b>     | <b>39,959</b>      | <b>1,656,982</b>   | <b>1,698,531</b>   |
| Formal Imports from (USD)           |                  |                    |                    |                    |
| Jan                                 | 23,469           | 12,151,999         | 18,445,140         | 30,597,139         |
| Feb                                 | 110,377          | 11,969,930         | 24,409,557         | 36,379,487         |
| Mar                                 | 0                | 31,726,665         | 7,020,929          | 38,747,594         |
| Apr                                 | 1,015,457        | 11,358,110         | 19,428,576         | 31,802,143         |
| May                                 | 996,971          | 16,882,164         | 17,889,159         | 35,768,294         |
| June                                | 10,056           | 13,662,979         | 25,614,845         | 39,287,880         |
| July                                | 77,268           | 6,529,852          | 26,360,889         | 32,968,009         |
| Aug                                 | 40,548           | 8,658,087          | 10,723,196         | 19,421,831         |
| Sep                                 | 42,884           | 0                  | 0                  | 42,884             |
| <b>Total imports</b>                | <b>2,183,184</b> | <b>112,939,786</b> | <b>149,892,291</b> | <b>265,015,261</b> |

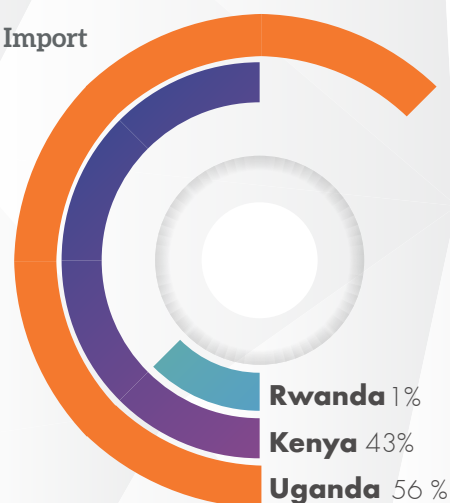
Source: Transport Observatory Analysis/NCTTCA

**Figure 31: Share of South Sudan Imports and exports**

**South Sudan Export**



**South Sudan Import**



The figure above shows the share of trade between South Sudan and the rest of NC Member States. Uganda took largest share of both exports and imports at 98% and 56% respectively followed by Kenya (2%) exports and (43%) imports.

## 2.5.6 Trade between Uganda and Other NC Member States

Table 31 below shows imports and exports in USD between Uganda and other Northern Corridor Member States

**Table 31: Trade between Uganda and Other NC Member States**

| Formal Imports from (USD) |                   |                    |                    |                    |                    |                    |
|---------------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Month/ 2016               | BURUNDI           | D.R. CONGO         | KENYA              | RWANDA             | SOUTH SUDAN        | Total              |
| Jan                       | 141,341           | 318,538            | 37,220,069         | 839,025            | 92,801             | 38,611,774         |
| Feb                       | 91,288            | 220,537            | 35,343,613         | 889,673            | 82,836             | 36,627,947         |
| Mar                       | 79,027            | 182,195            | 49,360,583         | 897,354            | 213,296            | 50,732,455         |
| Apr                       | 106,243           | 95,693             | 43,086,322         | 834,210            | 282,038            | 44,404,506         |
| May                       | 164,192           | 142,128            | 34,503,266         | 1,223,679          | 318,496            | 36,351,761         |
| Jun                       | 86,131            | 183,952            | 37,575,969         | 963,962            | 264,662            | 39,074,676         |
| July                      | 59,060            | 254,313            | 31,825,827         | 899,328            | 101,779            | 33,140,307         |
| Aug                       | 115,936           | 144,356            | 38,527,928         | 714,253            | 301,074            | 39,803,547         |
| <b>Total Import</b>       | <b>843,218</b>    | <b>1,541,712</b>   | <b>307,443,577</b> | <b>7,261,484</b>   | <b>1,656,982</b>   | <b>318,746,973</b> |
| Formal Exports to (USD)   |                   |                    |                    |                    |                    |                    |
| Month/ 2016               | BURUNDI           | D.R. CONGO         | KENYA              | RWANDA             | SOUTH SUDAN        | Total              |
| Jan                       | 3,221,539         | 15,349,666         | 40,713,168         | 13,355,911         | 18,445,140         | 91,085,424         |
| Feb                       | 3,310,449         | 14,583,405         | 38,186,917         | 13,940,226         | 24,409,557         | 94,430,554         |
| Mar                       | 3,841,841         | 15,266,626         | 31,025,284         | 15,006,270         | 7,020,929          | 72,160,950         |
| Apr                       | 2,687,826         | 10,497,390         | 30,728,190         | 13,754,089         | 19,428,576         | 77,096,071         |
| May                       | 4,462,034         | 13,232,885         | 25,541,226         | 18,197,446         | 17,889,159         | 79,322,750         |
| Jun                       | 3,091,205         | 13,146,409         | 22,642,946         | 13,507,618         | 25,614,845         | 78,003,023         |
| July                      | 4,517,339         | 15,109,777         | 33,657,526         | 15,565,355         | 26,360,889         | 95,210,886         |
| Aug                       | 5,558,621         | 17,701,027         | 29,789,820         | 15,582,823         | 10,723,196         | 79,355,487         |
| <b>Total Export</b>       | <b>30,690,854</b> | <b>114,887,185</b> | <b>252,285,077</b> | <b>118,909,738</b> | <b>149,892,291</b> | <b>666,665,145</b> |

Source: Uganda Bureau of Statistics, September 2016.

The total formal export volume for the period January to August was valued at approximately \$667 Million while imports stood at \$319 Million. This implies that Uganda is a net exporter. Data shows that Kenya took largest share of both formal imports and exports at 96 percent and 38 percent respectively followed by South Sudan (22%) exports and Rwanda (18%) exports. Uganda mainly exported coffee, tea, cotton, copper, oil and fish during the period under review.

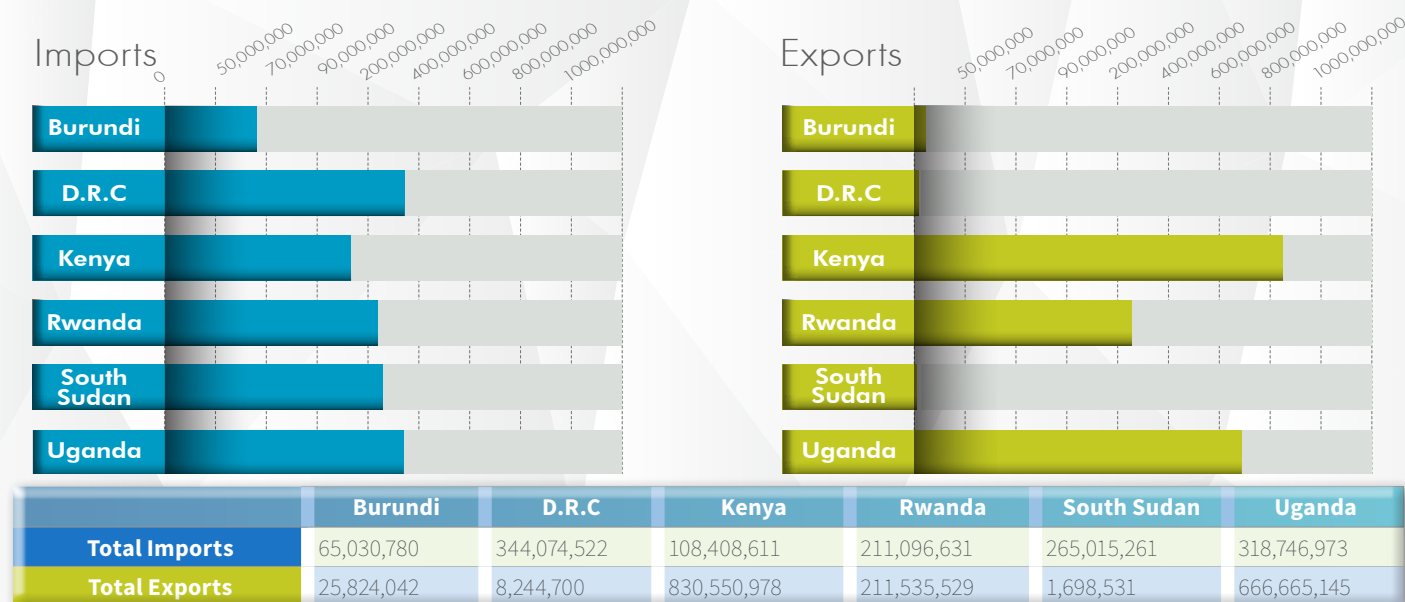
Uganda exports more to the region with a sizable amount being attributed to informal trade. Total informal trade in Uganda summed to around \$305 million excluding Burundi from January to September 2016 from which 86 percent represents exports and 14 percent represents imports. For the informal trade, Kenya and DRC were the leading net importer whereas DRC, Kenya and South Sudan were the leading exporter as shown in table 32.

**Table 32: Informal trade in Uganda**

| Exports to (USD)     |                    |                   |                   |                   |                   |
|----------------------|--------------------|-------------------|-------------------|-------------------|-------------------|
| Month                | DR CONGO           | KENYA             | RWANDA            | SOUTH SUDAN       | TANZANIA          |
| Jan                  | 16,363,962         | 7,302,032         | 2,329,742         | 4,664,859         | 4,828,758         |
| Feb                  | 16,236,648         | 6,857,402         | 2,094,943         | 4,770,157         | 5,194,550         |
| Mar                  | 15,310,054         | 6,587,696         | 1,916,014         | 4,389,654         | 4,663,357         |
| Apr                  | 16,261,448         | 5,939,335         | 1,844,706         | 4,583,574         | 2,891,481         |
| May                  | 17,034,597         | 5,290,974         | 1,951,642         | 4,777,495         | 1,119,604         |
| Jun                  | 21,519,890         | 4,822,107         | 2,508,758         | 5,047,677         | 1,583,667         |
| July                 | 18,644,936         | 5,597,384         | 4,027,476         | 829,851           | 2,548,858         |
| Aug                  | 18,582,194         | 5,808,520         | 3,120,122         | 1,194,020         | 2,344,734         |
| Sep                  | 18,027,741         | 6,019,657         | 2,704,480         | 1,558,190         | 2,140,610         |
| <b>Total Exports</b> | <b>157,981,469</b> | <b>54,225,107</b> | <b>22,497,882</b> | <b>31,815,476</b> | <b>27,315,620</b> |
| Imports from (USD)   |                    |                   |                   |                   |                   |
| COUNTRIES            | DR CONGO           | KENYA             | RWANDA            | SOUTH SUDAN       | TANZANIA          |
| Jan                  | 1,844,810          | 2,120,636         | 218,735           | 182,747           | 1,031,711         |
| Feb                  | 1,683,831          | 2,248,656         | 291,585           | 279,671           | 413,177           |
| Mar                  | 1,611,482          | 1,995,396         | 233,056           | 211,180           | 659,861           |
| Apr                  | 1,524,349          | 2,519,913         | 347,124           | 166,816           | 992,279           |
| May                  | 1,437,217          | 3,044,431         | 461,192           | 122,453           | 1,324,698         |
| Jun                  | 1,320,024          | 1,977,566         | 167,652           | 141,785           | 1,073,061         |
| July                 | 1,147,098          | 2,392,330         | 264,012           | 307,411           | 637,678           |
| Aug                  | 1,245,856          | 2,454,154         | 212,720           | 233,776           | 839,171           |
| Sep                  | 1,345,480          | 2,517,078         | 161,428           | 160,577           | 1,038,261         |
| <b>Total Imports</b> | <b>13,160,148</b>  | <b>21,270,159</b> | <b>2,357,504</b>  | <b>1,806,418</b>  | <b>8,009,898</b>  |

Source: Uganda Bureau of Statistics, September 2016.

Figure 32: Proportion of Imports and Exports among Northern Corridor Members (USD)



Source: Transport Observatory Analysis/NCTTCA

Figure 32 gives the summary of the proportions of import and exports in the region for the formal trade. From the figure, total trade along the corridor summed to around \$ 3 trillion from January to August 2016 from which 57 percent represents exports and 43 percent represents imports. DRC and Uganda were the leading net importers whereas Kenya was the leading exporter followed by Uganda for the formal trade.

# CHAPTER VI: GPS AND ROAD SURVEY FINDINGS

The Northern Corridor Secretariat uses the Road transport survey to gather information relating the operations and efficiency of the transit route from transporters and truck drivers. Data is collected using questionnaires which are administered by the Northern Corridor field supervisor. The questions range from cargo origin and destination, vehicle registration and type, type of cargo and duration and reasons for stoppages. Different indicators including weighbridges crossing time, border posts crossing time, delays and transit time were monitored as explained below.

GPS Kits normally are provided to truck drivers when they are about to start their journey from Mombasa to different destinations and are collected on return. Where a GPS kit has not been issued, data is also obtained from transporters fleet management system. Different indicators including weighbridges crossing time, border posts crossing time, delays and transit time are generated as show in the section below.

## 2.6.1 Sampling

A total of 673 questionnaires were filled out of the 693 issued to truck drivers on transit as shown in table 33 below from April to September 2016.

**Table 33: Achieved Sample per destination**

| Destination  | Frequency  | Percent     |
|--------------|------------|-------------|
| DRC          | 39         | 5.8         |
| Kenya        | 13         | 1.9         |
| Rwanda       | 29         | 4.3         |
| South Sudan  | 22         | 3.3         |
| Uganda       | 570        | 84.5        |
| <b>Total</b> | <b>673</b> | <b>99.8</b> |

**Table 34: Distribution of the sampled cargo type per destination**

| Type of Cargo | Kenya     | Uganda     | Rwanda    | DRC       | South Sudan |
|---------------|-----------|------------|-----------|-----------|-------------|
| Container     | 13        | 366        | 23        | 36        | 22          |
| Loose cargo   | 0         | 155        | 3         | 0         | 0           |
| Tanker        | 0         | 11         | 0         | 0         | 0           |
| <b>Total</b>  | <b>13</b> | <b>532</b> | <b>26</b> | <b>36</b> | <b>22</b>   |

Source: Road survey data April to September 2016

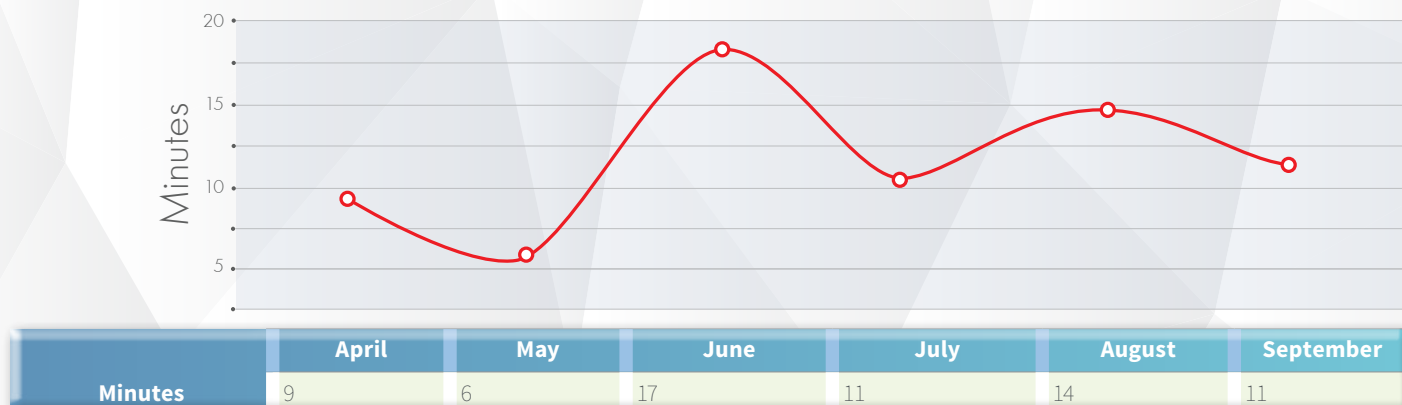
Table 34 above gives distribution of the type of cargo carrying trucks sampled. Approximately around 64 percent of cargo was containerized, 30 percent is loose cargo and 6 percent in Tanker form.

During the survey exercise, the response rate was recorded to be significantly high in some destination compared to others as a result of multiple reasons. Some of the notable reasons for this include the limited volume of cargo, security concerns, language barrier among some respondents and battery life for the GPS kits used. Various measures are being implemented to improve on the sample size and response rate.

## 2.6.2 Weighbridge and Border crossing time

The indicator is measured by taking departure time from the weighbridge minus arrival time at the weighbridge based on Road/GPS Surveys data.

Figure 33: Average crossing time Mariakani weighbridge in minutes



Source: GPS, April to September 2016

Mariakani is the first weighbridge along the northern corridor for all trucks carrying goods imported through the Port of Mombasa. The weighbridge is fully automated and installed with HSWM. Once a truck is weighed in motion it is then given a green light signal indicating compliance to the allowed weight. The truck proceeds with the journey without being stopped. On the other hand, if the truck is found to be non-compliant, it is instantly shown a red light then diverted to the static weighbridge for further re-weighing. The static weighbridge measures axle load of every axle on the truck to see if it complies with the allowed axle load.

From the figure, above, the weighbridge crossing time for trucks that have been flagged to the static scale stood at 11 minutes in September 2016. This time will be further reduced if the ongoing development of weighing scale on either side of the road is completed.

Figure 34: Average crossing time at Webuye weighbridge in minutes

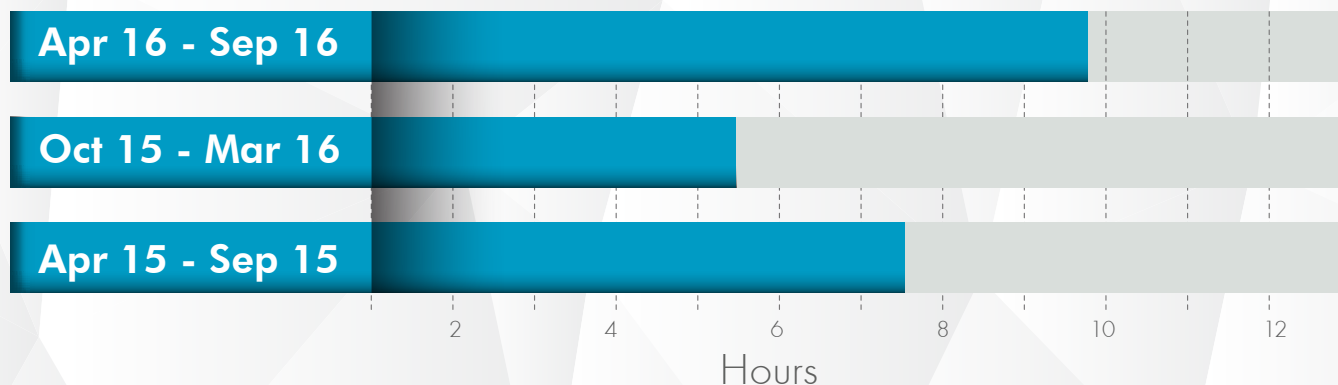


Source: GPS, April to September 2016

There have been very high variations for the crossing time at Webuye weighbridge. The best recorded average crossing time was of 2 minutes in August 2016 as shown in the figure above. However, this time increased significantly to 19 minutes in the month of September 2016 showing poor performance. This period is for the trucks diverted to the static scale.

The Northern Corridor member states should strive to ensure, as per NCIP Summit directive, that all weighbridges are HSWIM and install the static scales on either side of the road at busy weighbridge stations.

Figure 35: Average crossing time at Malaba Border in hours



Source: GPS, April to September 2016

Border crossing time at Malaba border has increased from 5.48 hours to an average of 9.74 hours during the period from April to September, 2016.

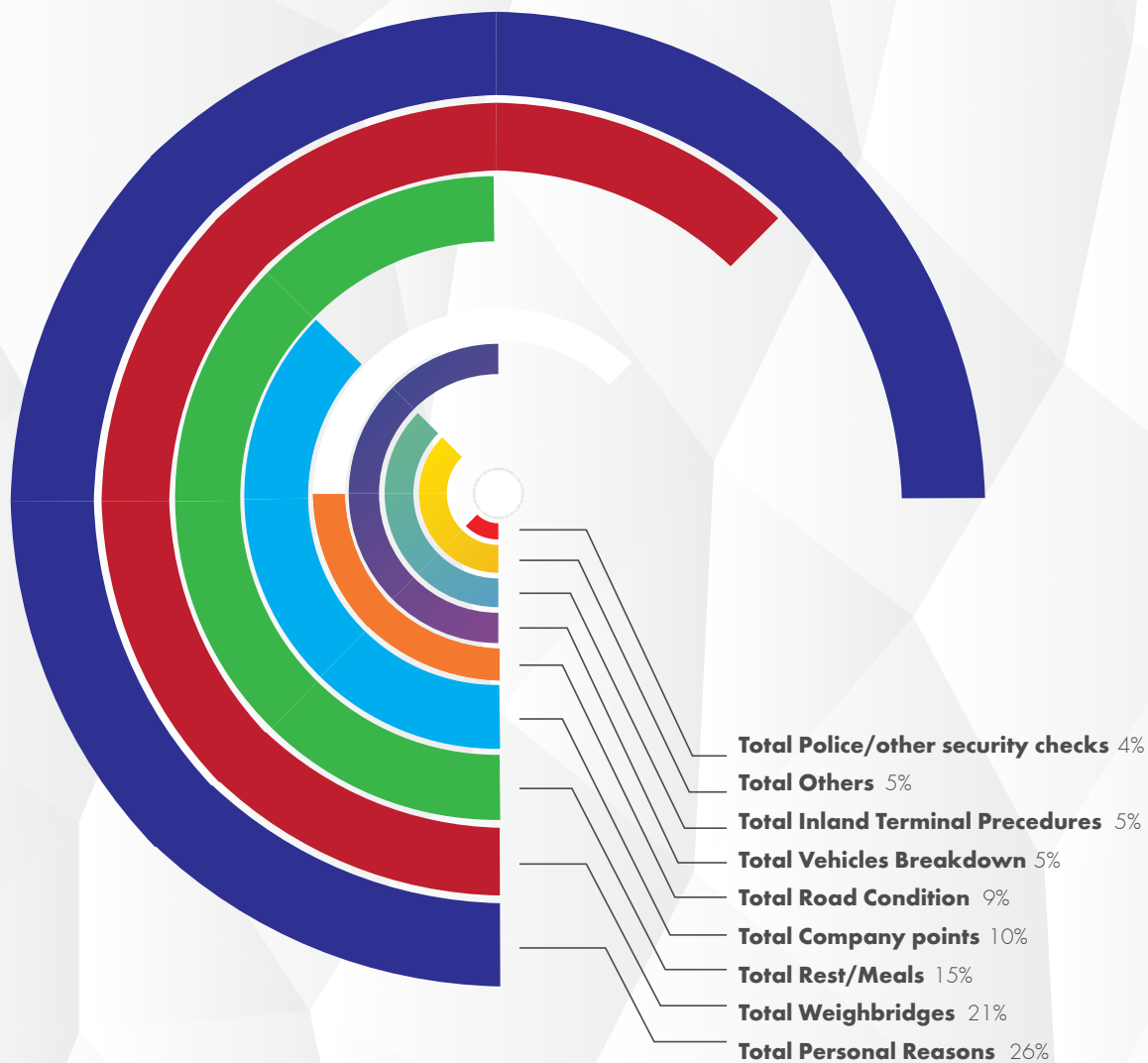
*This is higher than the average crossing time between October and March, 2016 which was at 5.58 hours.*

*All efforts should be geared towards full implementation of the SCT to ensure minimal delays at the border.*

### 2.6.3 Number of Stops and Reasons

The figure below shows the reasons for trucks stoppages for the period under review.

Figure 36: Reasons for Stops



Source: Road survey data April to September 2016

Most of the stops occur due to personal reasons at 26 percent followed by stops at weighbridges approximately 21 percent then rest/ meals and company check points at around 15% and 10% respectively. In the previous survey, most of the stops were due to personal reasons (23%) followed by weighbridges (16%) for both inbound and outbound. Police and other security check point's stops recorded the least at 4 percent.

*Speeding up the implementation of RSS initiatives will assist in improving the monitoring and control of stoppages along the corridor.*

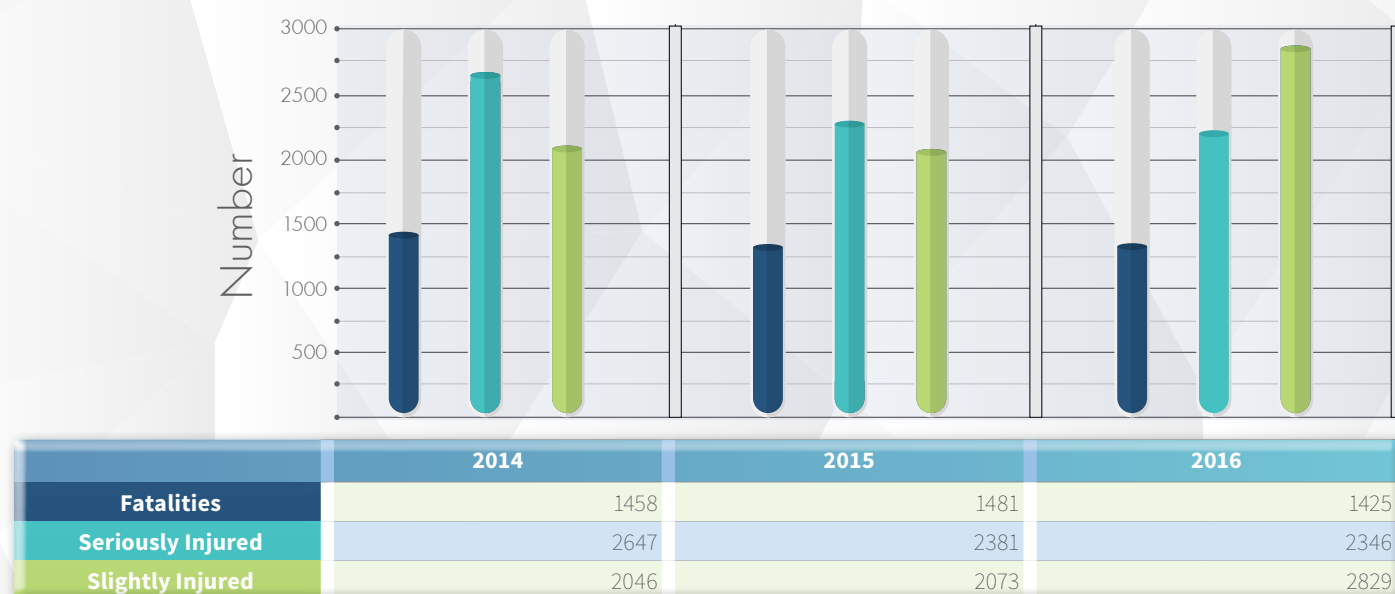
# CHAPTER VII: ROAD SAFETY

## 2.7.1 Road Safety in Kenya

Kenya road transport accounts for about 95% of the cargo and passenger transport services. This may be seen to as a result of the convenience of transport mode of service renders to its users. However, this service has its adverse share to the economy of the country, as a result of the high costs of road traffic accidents. For instance, it places a heavy burden, not only on national economies but also household finances. Many families are driven deeply into poverty by the loss of breadwinners and the added burden of caring for members disabled by road traffic injuries.

Against this background the government has invested by implementing traffic laws that will see reduced road accidents. Though, there are still cases of road accidents. Figure below gives a breakdown for the categories of victims involved in road accidents using data from NTSA. The data applies to the whole country; systems are being put in place to disaggregate and obtain data specifically along the corridor.

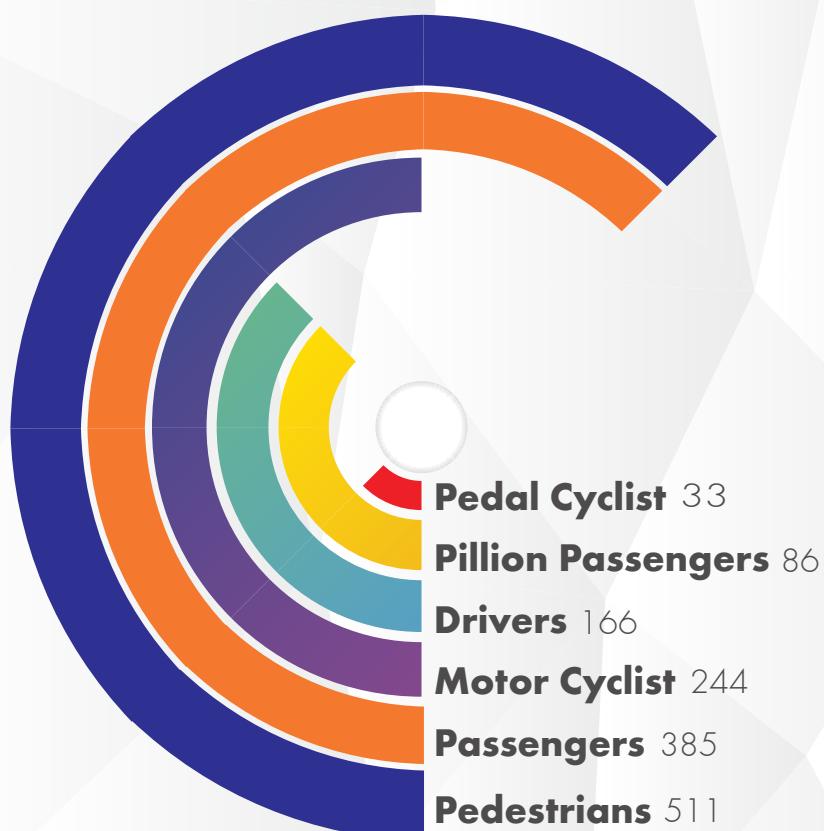
**Figure 37: Categories of Victims 2014-2016 from April to September**



*Source: NTSA, September, 2016*

From the analysis, the number of road accidents reported between April-September 2014 to 2016 was 18,686 of which 40 percent comprised of those who were seriously injured, 37 percent for slightly injured and 23 percent for fatalities. While the number of reported accidents has been consistently high, the year 2016 reported significantly lower number of fatalities but higher number of slightly injured.

Figure 38: Categories of victims: April to September 2016



The main resulting causes of accidents in particular fatalities were highly attributable to losing control, hit and run cases, overtaking improperly and misjudging clearance. While pedestrians and passengers did not significantly cause accidents, they were however, amongst the major victims of road accidents as shown in figure above. Pedestrians were the leading victims (511), followed by passengers (385) and motorcyclists (244). This, therefore, implies that remedial measures must focus on the main causes of accidents as this will have a high impact in accident reduction.

*Among the remedies to be implemented include; education programmes to increase an individual's ability to cope with traffic environments and so reduce pedestrian injuries; Driver education programmes aiming to increase the safety behaviors of drivers and reduce driver errors among others.*

## PART III: RECOMMENDATIONS

The performance of the Northern Corridor has improved in many areas except for some challenges which can be solved following some policy recommendations and actions from stakeholders. Through the Transport Observatory monitoring framework, the Northern Corridor Secretariat will broaden the scope of indicators and gather data on all areas affecting trade and transport. This will include collection of data on the green freight program. From the report, it has been observed that:

1. Border crossing time at Malaba has significantly increased during the last six month even with the implementation of the single customs territory.  
It is important that all goods destined to transit countries are cleared under SCT to reduce delays and avoid multiple documentation along the way. Focus should also be put to minimize system outages at the border and ensure proper mechanism for exchange of information across customs in the Member states for faster clearance.
2. The regional countries are facing trade deficit whilst imports are increasing with minimal exports. The member states are to prioritize boosting investments and value addition for exports and capacity building especially in agro processing, mining, oil and gas industry which is posed to boost exports from the region.
3. Among the challenges experienced by railways are aging tracks and rolling stock, insufficient resources for maintenance and poor tracking of the wagons and cargo. Inadequate number of locomotives and wagons, poor rail infrastructure for the meter gauge has slowed down development within the northern corridor rail freight transport sector. With the advent of the SGR, incentives policies on pricing, regulations and standards should be developed to attract modal shift. Increasing rail competitiveness will evidently benefit transport users primarily through; reducing transit times, improving connections, and improving quality and affordability, and therefore contributing to greening the Corridor.
4. Though the northern corridor pipeline is only up to Eldoret and Kisumu. It is evident that this reduces the trucking distance for transit countries if they pick the products from the nearest depots. There is need to fast track improvement of loading facilities to improve track turnaround and efficiency and sensitization on the cost savings as a result of the expanded capacity of the pipeline to cushion on the unpredictability of the market.
5. High transports are an impediment to trade, it incumbent upon policy makers on routes that return high costs to work on eliminating the logistical and infrastructural bottlenecks that may exist. Transport rates have increased to some destinations including Bujumbura. This could be attributed to various factors among them the longer route that has been in use in comparison to another shorter route through the central corridor. Sensitization on the use of the alternative route through Tanzania via Voi-Taita Taveta which reduces the distance travelled from Mombasa is underway. This will boost the use of the Port of Mombasa for goods to and from Burundi.
6. Maritime indicators have shown exemplary results. Physical infrastructure of the port is one of the most important requirements in creating and supporting a business environment that facilitates trade, economic growth and job creation. The ongoing access roads and infrastructure upgrading around the Port are expected to bring more improvements. Revision of the targets based on the international standard is therefore necessary by all stakeholders
7. The quality of the infrastructure is a key consideration in the achievement of the regions development goals. Regular monitoring of the conditions at a regional level to provide information on the sections for prioritization in improvement. Widening of the Corridor and development of climbing lanes, were necessary, as a result of increased traffic will help improvement in the transit times hence accelerating trade. Most of Northern Corridor is two-lane road, and speed reduction and necessity of overtaking at uphill paths since large vehicle's

speed reduces at uphill paths. All the Member states should work towards improving the Northern Corridor and should also focus on the development of the road side stations with all the amenities. These will also be important in improving road safety, reducing driver fatigue thereby reducing accidents.

8. In as much as improvement has been registered, the target for the dwell time has not been achieved. Dwell time is affected by many players within the port ranging from the Revenue authority since goods cannot leave without their clearance and other cargo interveners. The free period which is 9 days, has also an impact on faster cargo is evacuated from the Port. An approach informed by analytics, should show how to balance between free period and the dwell time target to inform the review process.
9. Delay at document process center calls for sensitization of clearing agents on proper and timely submission and automated documents processing would be instrument in lowering time taken to process the documents.
10. The Northern Corridor member states should strive to ensure that all weighbridges are HSWIM and install the static scales on either side of the road at busy weighbridge stations.
11. High transports rates and hidden cost: involvement of other stakeholders like police and County Governments to address issues of the hidden costs. It is incumbent upon policy makers on routes that return high costs to work on eliminating the logistical and infrastructural bottlenecks that may exist. Members States should address the issues that lead to higher transport costs for journeys which are shorter than the others.
12. Stoppage Reasons: In depth analysis for the personal reasons stoppage by truckers is needed. This includes knowing exact personal reasons as well as specific points where stoppages do occur along the Corridor. Therefore the report recommends a survey to be conducted to inform policy on addressing these delays.



## Annex I Classification of indicators

| CATEGORIES                  | INDICATORS                                                                            |
|-----------------------------|---------------------------------------------------------------------------------------|
| Volume and Capacity         | Mombasa Port Cargo Throughput                                                         |
|                             | Volume Per Country of Destination                                                     |
|                             | Rate of Containerization of Transit Traffic in Percentage                             |
|                             | Transport Capacity by Rail                                                            |
|                             | Licensed Fleet of Transit Trucks Per Country                                          |
|                             | Volume of Containerized and Non-Containerized Handled Per Year at The Port of Mombasa |
| Rate and Cost               | Road Freight Charges in Kenya                                                         |
|                             | Road Freight Charges in Uganda                                                        |
|                             | Road Freight Charges in Burundi                                                       |
|                             | Road Freight Charges in Rwanda                                                        |
|                             | Road Freight Charges in DR Congo                                                      |
| Efficiency and productivity | Number of Check Points Per Country Per Route                                          |
|                             | Rate of Fraud or Declared Damage for Goods in Transit (Percentage of Total Transit)   |
|                             | Quality of the Transport Infrastructure                                               |
|                             | Ship Turnaround Time                                                                  |
|                             | Vessels Waiting Time Before Berth                                                     |
|                             | Weighbridge Traffic                                                                   |
|                             | Weighbridges Compliance                                                               |
| Transit time and Delays     | Cargo Dwell Time                                                                      |
|                             | Customs Clearance at The Document Processing Center (DPC)                             |
|                             | One Stop Center before Customs Release                                                |
|                             | Transit Time within the Port after Customs Release                                    |
|                             | Transit Time in Kenya (Road - Mombasa Through Malaba)                                 |
|                             | Transit Time in Kenya (Mombasa through Busia)                                         |
|                             | Transit Time in Rwanda (Road - Gatuna through Akanyaru Haut                           |
|                             | Transit Time in Burundi TT                                                            |
|                             | Transit Time in Uganda (Malaba To Kampala)                                            |
|                             | Transit Time in Uganda (MALABA to KATUNA)                                             |
|                             | Transit Time in Uganda (Malaba To Elegu)                                              |
|                             | Transit Time in Uganda (Malaba To Mpondwe)                                            |
|                             | Transit Time in Uganda (Busia to Kampala)                                             |
|                             | Transit Time in Uganda (Busia To Katuna)                                              |
|                             | Transit Time in Uganda (Busia To Elegu)                                               |
|                             | Transit Time in Uganda (Busia To Mpondwe)                                             |
|                             | Transit Time in Uganda - From ECTS Data                                               |

### Intra-regional trade

Trade between Kenya and Other NC Member States

Trade between Uganda and Other NC Member States

Trade between Rwanda and Other NC Member States

Trade between Burundi and Other NC Member States

Trade between South Sudan And Other NC Member States



## Corridor Performance Indicators



### VESSEL WAITING TIME BEFORE BERTH

#### Description:

The average time taken by the ship before Berthing. It is measured from the time the vessel arrives at the fairway buoy to the time at its first berth.

#### Formula:

Time at Berthing minus Time of Arrival at Port Area.

### SHIP TURNAROUND TIME

#### Description:

The average time spent by the ship in the port area. It is measured from the time the vessel arrives at the fairway buoy to the time it is piloted off when departing the port.

#### Formula:

Time at Exit minus Time at Entry in the Port Area.

### TIME FOR CUSTOMS CLEARANCE AT THE DOCUMENT PROCESSING CENTER(DPC)

#### Description:

This is the time it takes to have an entry lodged by a clearing agent passed by customs.

#### Formula:

Time of Passing of Entry Minus Time of Registration of Entry.

### TIME TAKEN AT MOMBASA ONE STOP CENTER

#### Description:

Average time of document processing at One Stop Center.

#### Formula:

Time at Entry Release Order generation minus Time at Passing Entry.

### AVERAGE CARGO DWELL TIME AT THE PORT

#### Description:

It is the measure of time that elapse from the time cargo is offloaded from the vessel at the port to the time it leaves the port premises after all permits and clearances have been obtained.

#### Formula:

Exit Date Time from the port Minus Arrival Date Time from the port.

### TRANSIT TIME WITHIN THE INLAND CONTAINER DEPOT(ICD)/ INLAND PORT

#### Formula:

Departure Date Time from the ICD minus Arrival Date Time at the ICD

### TRANSIT TIME PER ROUTE PER MODE OF TRANSPORT

#### Description:

Time taken by transit cargo to move from one node to another e.g. from Mombasa to Malaba

Nodes are points along the corridors like weighbridges, border-posts, ports.

#### Formula:

Time of arrival (Destination Node) minus time of departure (Node of Origin).



### DELAY AFTER CUSTOMS RELEASE AT THE PORT OF MOMBASA

#### Description:

Refers to the period it takes to evacuate cargo from the port after it is officially released.

#### Formula:

Time at exit of cargo at the Port gate minus Time of Entry Release Order generation.



### WEIGHBRIDGE CROSSING TIME

#### Formula:

Departure Date Time from the weighbridge minus Arrival Date Time at the weighbridge.

### BORDER POST CROSSING TIME

#### Description:

Time taken by transit cargo to cross the Border

#### Formula:

Departure Date Time from the border minus Arrival Date Time at the border.



### TIME FOR CUSTOM PROCEDURE AT DESTINATION

#### Description:

It's the average time taken to complete custom process at the destination after cargo arrival.

#### Formula:

End Date Time of the last process minus start Date Time of the first process.

### TRANSIT TIME

#### Description:

Time taken by transit cargo to move from origin (Port) to destination country e.g Uganda, Rwanda etc.

#### Formula:

Time of arrival minus time of departure (Based on Road/GPS based Surveys data)





## RATES AND COST

### TRANSPORT COST PER ROUTE AND PER MOON

#### Description:

Summation of charges by transporter and other charges including charges incurred in transportation per route and per month.

### PORT TRAMPT CHARGES

#### Description:

Published tariffs by Mombasa Port.

### ROAD FREIGHT CHARGES

#### Description:

This indicator captures the different toll charges by transporters per road and per vehicle.

### RETURN OF EMPTY CONTAINERS (DROCK PRINCE, PRINCE, AND DEPORT)

#### Description:

Published tariffs by Mombasa Port.

### RAIL FREIGHT CHARGES

#### Description:

Toll charges by railway operator per route and per month.



## VOLUME AND CAPACITY

### MOMBASA PORT TOTAL CARGO THROUGHPUT IN TRAMPT TRAFFIC

#### Description:

Mombasa Port Total Cargo Throughput = Summation of weights of all cargo transported through the Port.

Trade Traffic = Summation of weights of cargo transported through the Port destined to other countries. It includes imports and exports from other countries. Trade Traffic is part of the total cargo throughput of the Mombasa port.

### VOLUME PER COUNTRY OF DESTINATION

#### Description:

Summation of weights of all cargo transported through the Port per country of destination.

### WGT OF COUNTERPARTION OF TRAMPT TRAFFIC AT THE PORT OF MOMBASA

#### Description:

Total weight of containerized trade cargo cleared by TMS weight of all trade cargo.

### REGISTRATION OF LICENSED FLEET OF TRUCKS PER COUNTRY

#### Description:

Registration of registered (licensed) vehicles used for international cargo transportation per year and per country.

### AVERAGE ANNUAL PRODUCTION PER TRUCK IN PER YEAR

#### Description:

Average distance traveled per truck per year.

### TRANSPORT CAPACITY BY RAIL LOCOMOTIVE AND VEHICLE

#### Description:

Total number of operational locomotives and transport vehicles used by railway.



## PRODUCTIVITY AND EFFICIENCY

### NUMBER OF CHECK POINTS PER COUNTRY PER ROUTE

#### Description:

Summation of checkpoints (border, police, customs, road toll, etc.) per country per route.

### VOLUME OF CONTAINERIZED AND GENERAL CARGO HANDLED PER DESTINATION COUNTRY AT THE PORT OF MOMBASA

#### Description:

Summation of volume of containerized cargo handled per destination country of origin of container cargo handled and shipped from.

### WGT OF TRAMPT OR DECLARED CARGO PER TRUCK IN TRAMPT

#### Description:

Number of WGT of declared cargo cleared from by TMS. WGT of declared cargo cleared by TMS.

#### Formula:

Number of TMS of declared cargo cleared  
Total weight of declared cargo cleared by TMS

### TRAMPT COMPLIANCE

#### Description:

The percentage of trucks that comply with the toll road traffic rules and other regulations.

#### Formula:

Total compliance trucks in a neighborhood / 3,000  
Total trucks in a neighborhood



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