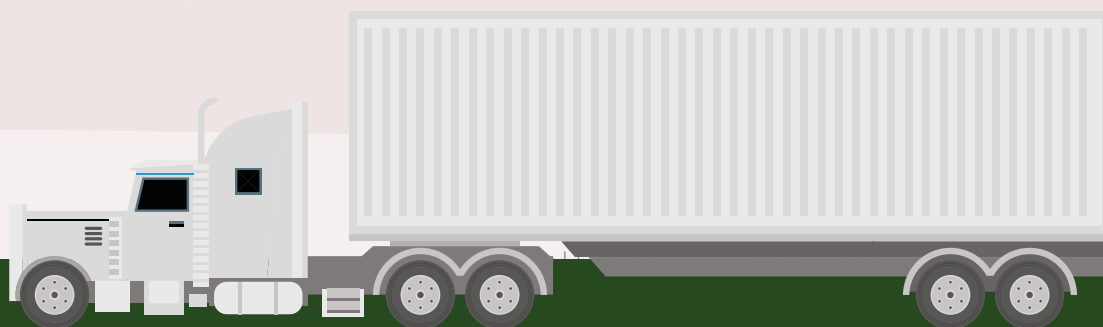




Examining Road  
Transport Services in Kenya:  
A Case Study for the  
Tea Value Chain





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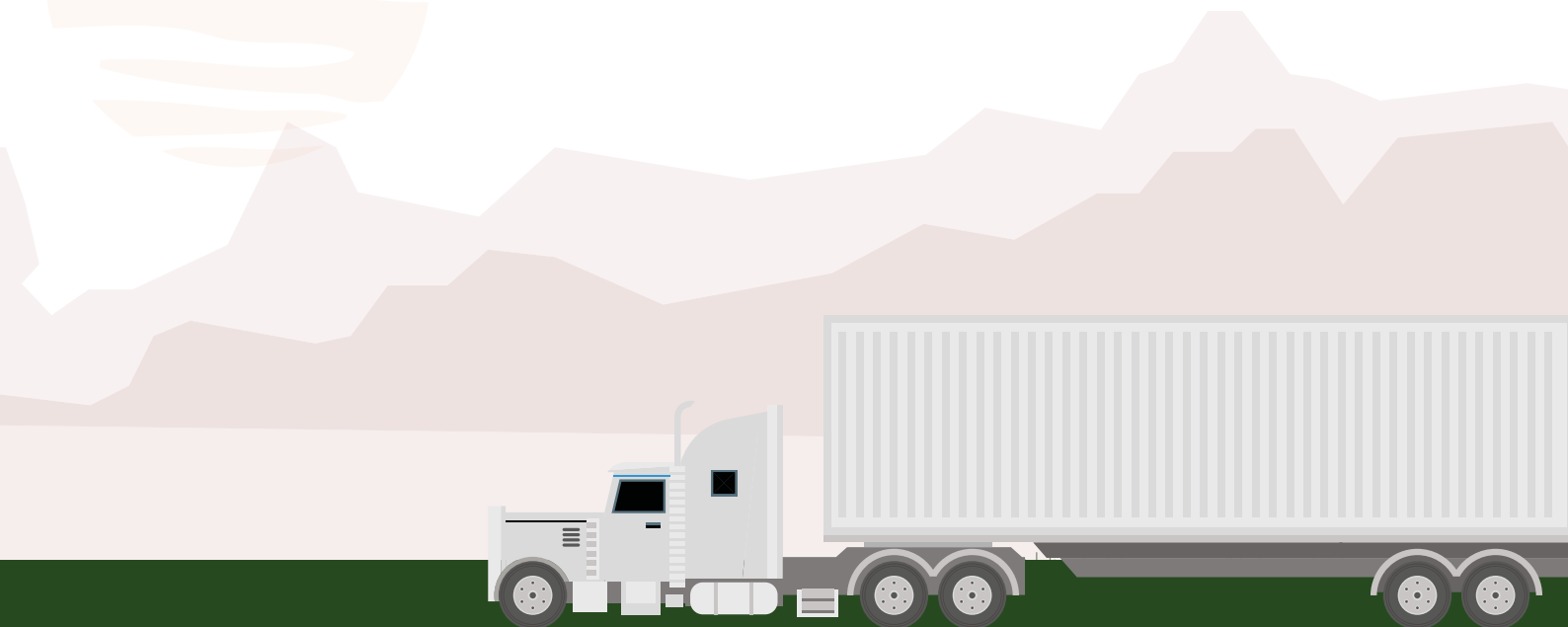
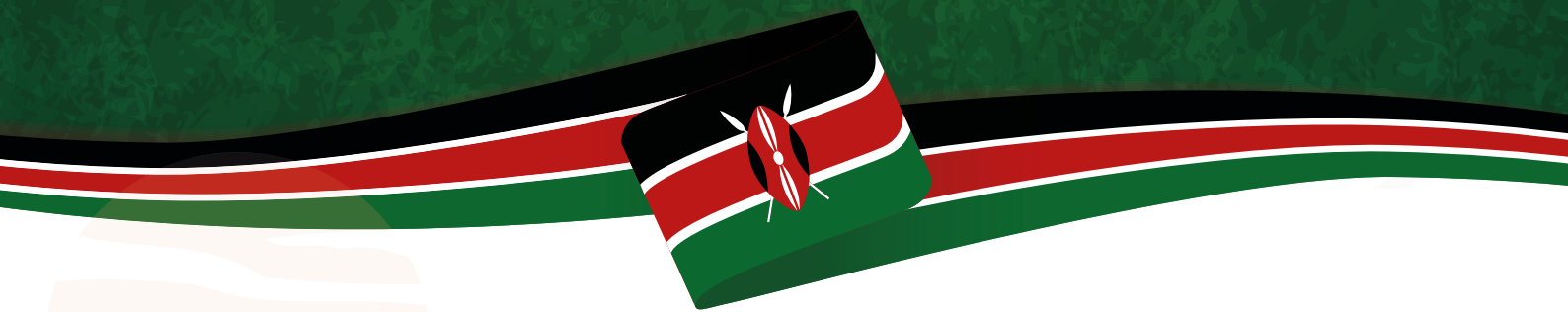
## ABBREVIATIONS

|               |   |
|---------------|---|
| <b>AFFA</b>   | Agriculture Fisheries and Food Authority      |
| <b>ARICS</b>  | Annual Road Inventory Survey                  |
| <b>CoK</b>    | Constitution of Kenya                         |
| <b>COMESA</b> | Common Market for Eastern and Southern Africa |
| <b>EAC</b>    | East Africa Community                         |
| <b>EARNP</b>  | East Africa Road Network Project              |
| <b>GDP</b>    | Gross Domestic Product                        |
| <b>GoK</b>    | Government of Kenya                           |
| <b>GVC</b>    | Global Value Chain                            |
| <b>ICT</b>    | Information Communication and Technology      |
| <b>KeNHA</b>  | Kenya National Highways Authority             |
| <b>KeRRA</b>  | Kenya Rural Roads Authority                   |
| <b>KRB</b>    | Kenya Roads Board                             |
| <b>KRBFA</b>  | Kenya Roads Board Fund Account                |
| <b>KTDA</b>   | Kenya Tea Development Authority               |
| <b>KTGA</b>   | Kenya Tea Growers Association                 |
| <b>KURA</b>   | Kenya Urban Roads Authority                   |
| <b>KWS</b>    | Kenya Wildlife Service                        |
| <b>LTA</b>    | Long-term Agreement                           |
| <b>MoH</b>    | Ministry of Health                            |
| <b>NCTIP</b>  | Northern Corridor Improvement Programme       |
| <b>NTSA</b>   | National Transport and Safety Authority       |
| <b>PSVs</b>   | Public Service Vehicles                       |
| <b>RMLF</b>   | Road Maintenance Levy Fund                    |
| <b>RVC</b>    | Regional Value Chain                          |
| <b>SSA</b>    | Sub-Saharan Africa                            |
| <b>WTO</b>    | World Trade Organization                      |

## CONTENTS

|  |    |
|--|----|
| ABBREVIATIONS  | 2  |
| 1. 1. INTRODUCTION   | 5  |
| 1.1. Background  | 5  |
| 1.2. Study Objectives  | 6  |
| 1.3. Conceptual and Policy Considerations                              | 6  |
| 2. TRANSPORT AND LOGISTICS SYSTEMS IN KENYA                            | 7  |
| 2.1. Scope and Dimensions of Transport and Logistics Systems           | 7  |
| 2.2. Overview of Kenya’s Transport Logistics System                    | 8  |
| 2.2.1. Market Structure and Components                                 | 8  |
| 2.2.2. Transport Infrastructure and Logistics Services                 | 9  |
| 2.2.3. Policy, Institutional and Regulatory Framework                  | 12 |
| 2.3. Assessment of Transport Logistics Performance                     | 14 |
| 2.3.1. Firms’ perspective of freight performance                       | 15 |
| 2.3.2. Levels of Income and Logistics Performance                      | 15 |
| 2.3.3. Quality of Infrastructure and Logistics Connectivity            | 17 |
| 2.3.4. Logistics Performance and Procedural Efficiency                 | 18 |
| 3. CASE STUDY OF ROAD TRANSPORT IN TEA VALUE CHAIN                     | 19 |
| 3.1. Tea Value Chain   | 19 |
| 3.1.1. Overview of Tea Sector  | 19 |
| 3.1.2. Importance of Tea in Kenya’s Economy                            | 20 |
| 3.2. Transport Services in the Tea Value Chain                         | 21 |
| 3.2.1. Cost and Components   | 21 |
| 3.2.2. Policies affecting Transport Operations in the Tea Value Chain  | 23 |
| 3.3. Lessons Learnt and Best Practices                                 | 24 |
| 3.3.1. Technological advancements                                      | 24 |
| 3.3.2. Out-Sourcing Transport Services                                 | 24 |
| 3.4. Major Constraints and Challenges                                  | 25 |
| 3.4.1. Poor state of roads   | 25 |
| 3.4.2. Multiple layers of authority, and predictability of regulations | 26 |
| 3.4.3. High fuel and vehicle maintenance costs                         | 27 |
| 3.4.4. Transit Transport   | 27 |
| 3.4.5. Poor data collection and information management                 | 27 |
| 3.4.6. Implications of the Standard Gauge Railway                      | 27 |
| 4. CONCLUSIONS AND RECOMMENDATIONS                                     | 28 |
| REFERENCES   | 31 |

# I. INTRODUCTION



### 1.1. Background

Transport and logistics infrastructures and services are an essential component of a country's socio-economic, spatial and trade development. An efficient transport system reduces a country's logistics and trade costs, promotes competitiveness and integration, and generates socio-economic growth and spatial development.

Transport logistics also plays a key role in the performance and competitiveness of industries, firms and businesses. Not only transport logistics is an intermediate input into many other industrial and service sectors of the economy, but the quality of transport and logistics services is a key enabler of a firm's competitiveness, its transaction and trade costs and its supply chain resilience and time efficiency.

The importance of transport logistics systems is particularly accentuated in developing and least developed countries, many of which suffer from poor transport infrastructure and inefficient logistics services. This often translates into excessive logistics and trade costs and places a significant barrier against the participation of developing countries in Regional and Global Value Chains (RVCs / GVCs).

In Kenya, agriculture contributes around 25% of the country's Gross Domestic Product (GDP), 65% of exports and 60% of the domestic labour force. Chief among Kenya's agricultural crops is tea; the country is the 3rd largest producer of tea in the world and the biggest seller of black tea. Much of tea production is oriented towards export markets, contributing around 20% of total export earnings. Tea production and its associated supply chain employs over 1 million people from smaller farmers, leaf collectors and factory workers to traders and auction brokers, freight forwarders and transport logistics providers. Even though, value addition for Kenyan tea export has been estimated to be around 14% (GoK, 2016/18) which is very low and yields low earnings per volume of export compared to other tea exporting countries.

Over the past decade or so, several studies have been carried out to assess and enhance Kenya's participation in GVCs including for tea production and export. While much of the analysis has focused on specific aspects of the tea's value chain such as processing effectiveness (Kaburu and Theuri, 2017), market incentives (Monroy et al. 2012), institutional and capacity needs (KIPPRA, 2017), ethical supply chains (Bedford et al., 2002), digital control and connectivity (Foster et al., 2017), and climate resilience and sustainability (Mwangi et al., 2021); scant research was carried out to assess the interplay between transport and logistics systems and the tea value chain in Kenya.

### 1.2. Study Objectives

The overall objective of this study is to examine the role of transport and logistics services in Kenya's economic and trade development through value chain participation and integration. Specifically, this study aims at assessing the current state of play of transport infrastructure and logistics services in Kenya with a view to enabling and enhancing trade integration and GVC participation for Kenya's key agro-business export namely the tea value chain.

By assessing the structure and performance of Kenya's transport and logistics sector, it is possible to identify structural obstacles and sectoral pitfalls against tea and agri-business GVC participation and global supply chain integration. Similarly, by mapping the tea value chain and the needs of its supply chain agents, it is possible to assess the current level of the tea's GVC participation and recommend solutions where in transport services in value-added terms.

### 1.3. Conceptual and Policy Considerations

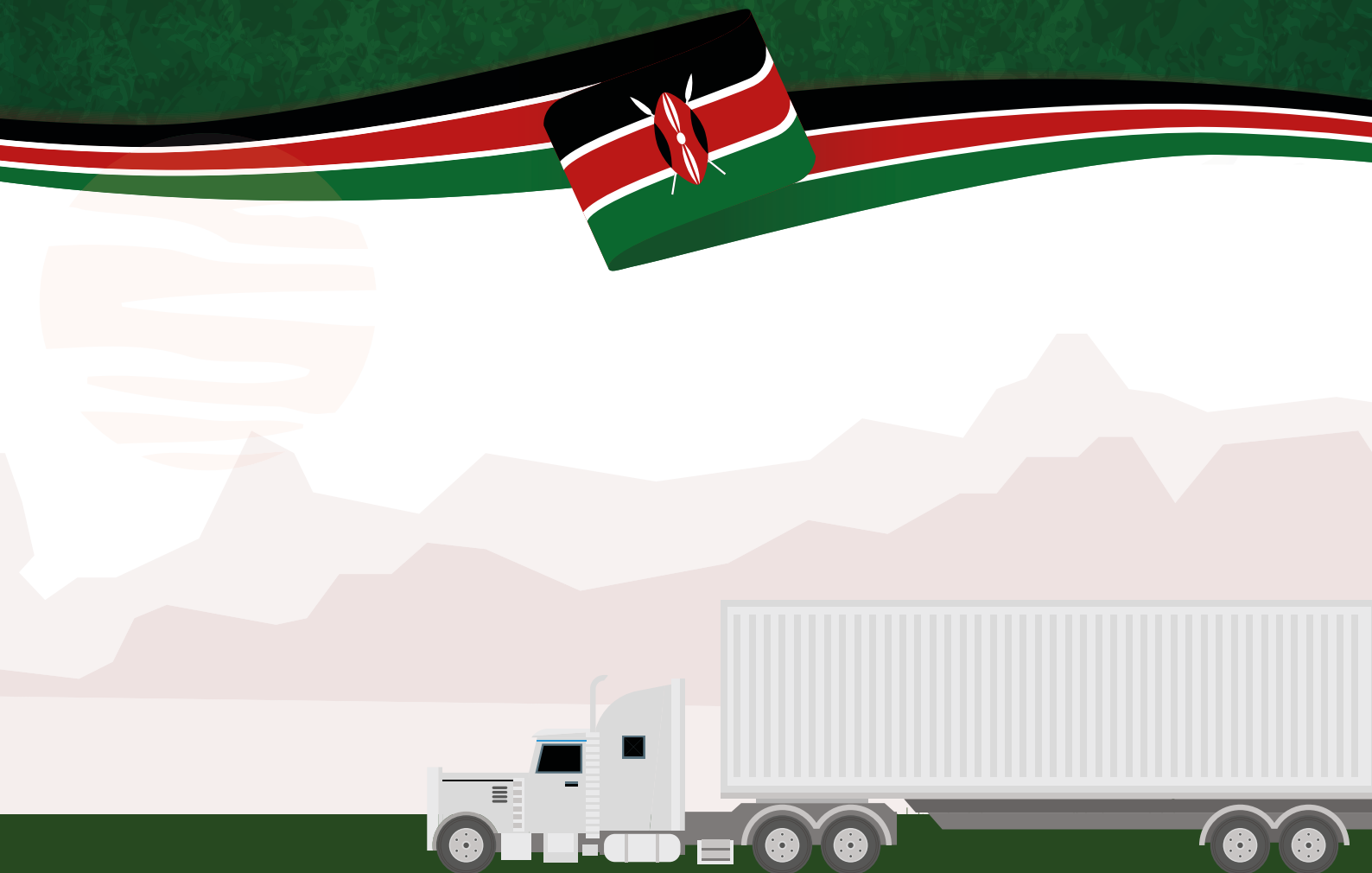
Traditionally, the GVC literature has focused on the broad measurement and analysis of a country's GVC trade, both for backward (upstream) and forward (downstream) GVC participation. Most recently, the emphasis has shifted towards the analysis of inter and intra-firm GVC transactions

through the analysis of supply chain and contractual relationships between and within firms. This adds an interesting dimension to the analysis of the relationship between transport services and GVCs whereby specific intra and inter firm supply chain relationships usually require specific sets of transport infrastructure and logistics' services capabilities. Therefore, the analysis of the industrial structure and supply chain organisation of the tea value chain

in Kenya is a key element for assessing the needs of tea supply chain members, representing the demand side of transport and logistics. On the supply side, a structured assessment of Kenya's transport infrastructure and logistics services offerings is crucially important for identifying potential gaps and barriers against the accessibility, reliability, timeliness and predictability for Kenya's tea value chain and similar agri-business GVCs.



## 2. TRANSPORT AND LOGISTICS SYSTEMS IN KENYA



## 2.1. Scope and Dimensions of Transport and Logistics Systems

A transport and logistics system may be structured and designed either from a top-down approach reflecting a country's broad policies and strategic orientations, and from a bottom-up approach reflecting firms' operational and management decisions.

From a policy perspective, transport and logistics systems are the manifestation of countries' economic and trade policies, sectoral strategies, spatial and land use plans. Therefore, it would not be possible to develop national logistics strategies and transport sector policies, including for promoting and supporting GVC participation, without a comprehensive mapping and assessment of broad policies and sectoral strategies that intersect with transport logistics. These may be sector-specific strategies, such as for trade, agri-business and rural development, or broad national plans and policies such as for economic growth and social and labour reform.

From an operations and management perspective, transport and logistics systems are the reflection of supply chain and trade decisions of economic agents and freight stakeholders. On the one hand, firm's supply chain strategies for their products and services drive the structure, stages and location of the production-consumption process from origin till destination. On the other hand, many operational transport and logistics functions are often outsourced to transport and logistics services providers, be they asset-based 3rd Party Logistics (3PLs) such as transport carriers, warehouse operators, and ports and terminals; non-asset based 3PLs such as freight forwarders and ship and port agents; or integrators (sometimes referred to as 4th Party Logistics or 4PLs) who provide both asset-based and non-asset-based services.

A deep understanding of both policy and supply chain drivers is required in order to examine the role of transport and logistics services in trade integration and GVC participation, especially in the context of specific country-export GVC activities such as the tea value chain in Kenya.

## 2.2. Overview of Kenya's Transport Logistics System

### 2.2.1. Market Structure and Components

Kenya has the largest economy in East and Central Africa and enjoys a strategic location with large economic hinterlands spanning the neighbouring landlocked countries of Ethiopia, Uganda and South Sudan and the farther forelands of Burundi and the Democratic Republic of Congo (DRC). Several trading corridors link the port of Mombasa, and the newly established port of Lamu, with domestic and foreign hinterlands, predominantly via road corridors but increasingly through rail transport.

Transport services in Kenya account for over 36% of total services exports and around 8% of the country's GDP (Republic of Kenya, 2019). This contribution is likely to reach 15% or more of GDP when the broader logistics and associated services are included. Domestic freight transport has been and is still being dominated by road, the latter accounted in 2019 for 76% of freight movements in value terms. Kenya's road network of around 180,000 km, of which 63,000 are classified roads and 117,000 are unclassified roads, is heavily used by haulage vehicles. Only a quarter of freight in Kenya uses rail, water, air and pipelines modes of transport and associated infrastructure.

For international freight the country's seaports play a significant role in international trade and logistics. The port of Mombasa is the main trade port in Kenya but also serves through the Northern Corridor as a key transit gateway to the large hinterland of the Great Lakes Region (Uganda, Rwanda, and Burundi, eastern parts of the Democratic Republic of Congo-DRC). The newly constructed port of Lamu aims at capturing further hinterlands through the LAPSETT corridor linking Kenya with South Sudan and Ethiopia.

Kenya is also a major air transport hub in East Africa and the sector contributed about 5% of the country's GDP pre-pandemic. Airfreight, though significantly smaller than passenger air transport, plays a vital role in high-value and time sensitive goods such as flowers and horticultural products.

To further develop the transport and logistics sector and consolidate Kenya's transit hub position in East Africa, several large-scale investments in transport infrastructure have been carried out over the past decade including the Lamu port and LAPSET corridor project, the Mombasa and Kisumu ports' expansion, the Mombasa-Nairobi Standard Gauge Railway project, and various road construction and rehabilitation projects.

Nonetheless, many segments of the transport and logistics sector in Kenya remain underdeveloped and inefficient. Several sections of the national road network are in poor condition, while the performance of Kenya's ports and maritime sector remains below that of regional and international peers. The logistics sector in Kenya also suffers from procedural and structural anomalies, with logistics service providers often complaining about cases of inefficiencies, procedural delays and excessive costs.

On the plus side, the wide use of ITC and digital technology has revolutionized Kenya's transportation sector, making it a global benchmark for developing countries in the region and beyond. Institutionally and organizationally, the multiplicity of transport agencies along the fragmentation of supply chains and distribution process is being addressed through the establishment of the Kenya Transport and Logistics Network (KTLN) and the close coordination between supply chain stakeholders.

For the tea's export value chain, its transport logistics network relies heavily on the road and rail corridors linking Eastern and Central tea growing and production regions to the tea auction trading and export hub of Mombasa and its ports. Road has been and still is the most dominant transport mode from plant and factory to Mombasa, but many tea buyers and packers using the direct sales channel have embraced the usage of the newly built Standard Gauge Railway (SGR) which runs from Nairobi to Mombasa. The tea value chain also relies on the myriad of logistics suppliers and services providers encompassing inland and seaports,

public and private warehouses, freight forwarding and agency, and many other support services.

An analysis of the transport and logistics systems servicing the tea sector is therefore required to assess the extent of their contribution to the tea production, distribution and export value chain, and identify the opportunities for and challenges against further GVC participation and integration.

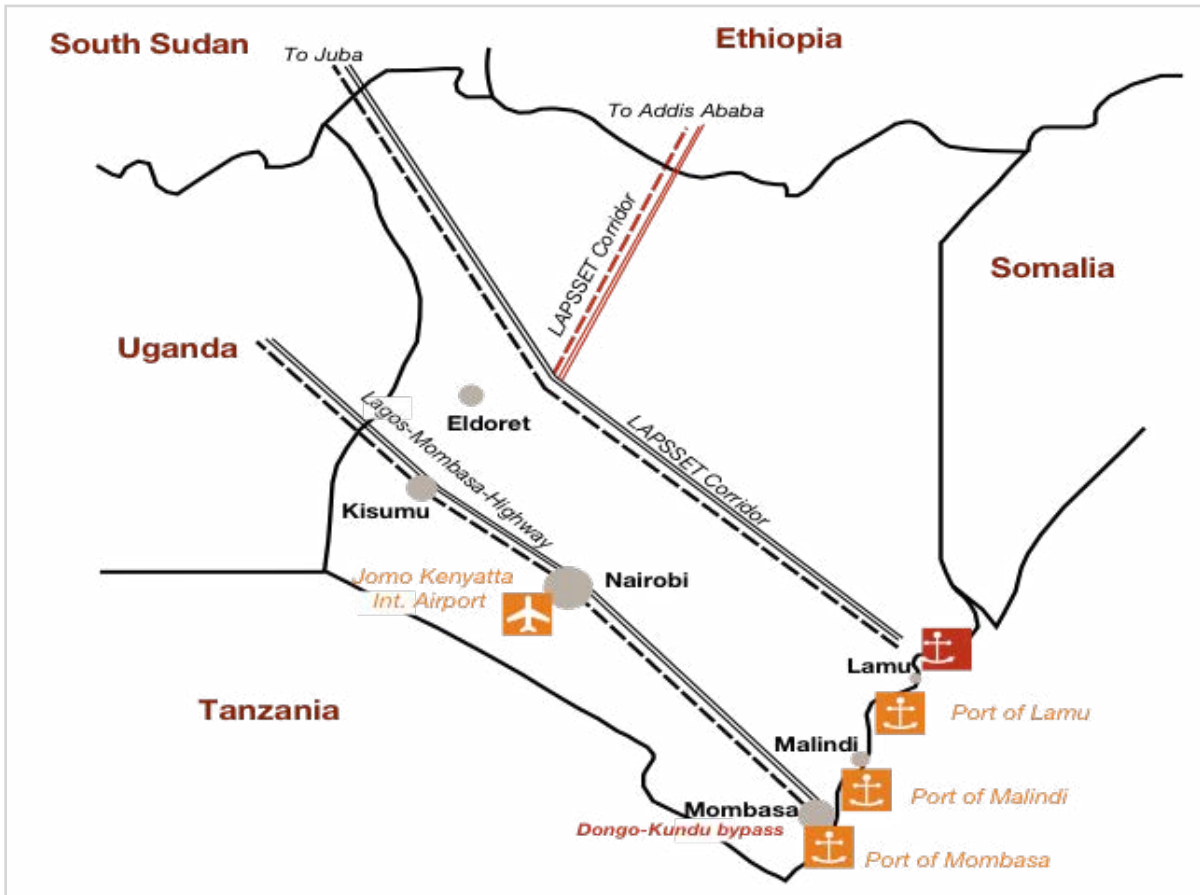
## 2.2.2. Transport Infrastructure and Logistics Services

The freight transport sector servicing GVCs in Kenya and its neighbouring countries relies on several corridors and infrastructure offerings given the country's economic geography and hinterland connections. The two main multimodal trade corridors are the Northern Corridor and the LAPSET corridor.

The Northern Corridor links the landlocked countries of the Great Lakes region with the port of Mombasa. Domestically, the corridor spans the three major city and industrial centres of Mombasa, Kilifi and Malindi on the coast with Nairobi and Thika in the Centre then Kisumu, Eldoret, Nakuru and Kericho in the West all the way till Malaba in Uganda. The Northern corridor is well served by road and air transport, while rail carried only a small proportion of domestic and international freight. With the construction and operations of the initial sections of the SGR, a significant amount of cargo has shifted from road to rail and this trend is expected to continue with the extension of the SGR towards Uganda. The alternative corridor serving the Great Lakes Region is via Tanzania's Central corridor linked to the port of Dar es Salaam.

The other major corridor is the LAPSET corridor connecting the newly established port of Lamu with both Ethiopia and South Sudan. This is a relatively new corridor with the 1st berth of the Lamu port starting operation only a year ago, while other phases of this megaproject, including road, rail and pipeline connections, being currently constructed or in the planning stage.

Figure 1: The two most important freight corridors in Kenya



Source: Autor

In terms of modal split, road has been the most dominant mode for freight transport, but the new SGR rail connection has already made a difference in adding transport capacity to, and bringing new competition within, the Northern corridor. It is expected that rail will play an even bigger role once the connection to the Ugandan border is complete. Both rail and road networks are supported by a several dry ports and inland terminals scattered around the main transport nodes around Mombasa, Nairobi and the borders with neighbouring countries. For the LAPSSET corridor, it is too early to speculate on its modal split though intense competition between rail and road is likely to take place for dry cargo once both infrastructure modes are operational.

As for air freight, it only covers a small proportion of overall freight volumes in Kenya, yet in value terms it represents around 19% of the total value of exports destined to international markets (KNBS, 2020)

servicing primarily the high-value markets of floriculture, green beans and Lake Victoria’s freshwater fish.

In terms of service offerings, variations exist between and within modes:

- Road freight is liberalised and operates through various private trucking companies, equally split between small truckers with less than 4 trucks each and large family-based businesses with a company fleet of 200 trucks or more. Despite the lack of updated statistics, the domestic trucking fleet is estimated to be around 20,000 vehicles of which around 1,500 are new registrations. The average age of Kenya’s fleet is 8 years, half Tanzania’s and third of Ethiopia’s.

- Rail freight is exclusively operated by Kenya’s Railways Corporation, also known as Kenya Railways. The Madaraka Express Freight Service is the freight division on the SGR operating shuttle services

between Mombasa, Nairobi and Naivasha. Kenya Railways also operates several ICDs in these cities as well as a new transit shed in Nairobi operating as a temporary customs storage facility. The company also operates a freight ferry service in Lake Victoria.

- Elsewhere, seaports in Kenya are managed by the Kenya's Port Authority (KPA) except for Lake Victoria ports. Maritime freight to-from Mombasa and Lamu is mostly operated by international carriers and Kenya does not have a national shipping fleet. In a similar vein, Kenya's Airport Authority (KAA) manages the main airports in the country, but air freight is liberalised and serviced by both domestic and international carriers.

### 2.2.3. Policy, Institutional and Regulatory Framework

The Freight sector in Kenya broadly follows a market-oriented economy. Traffic is distributed between enterprises by the market based on freight rates, availability, and service rather than queuing or administrative allocation.

Kenya has partially liberalized transport services sector in modes 1 and 2 under the WTO framework. However, modes 3 and 4 remain unbound implying it still maintains policy and regulatory discretion. Under the EAC, Kenya has only liberalized four sub-sectors out of nine namely air transport (only aircraft repair and maintenance, supporting services for air transport – Selling and marketing of air transport services and computer reservation system services); Road transport (only passenger transportation, freight transportation,

maintenance and repair of road transport equipment, and supporting services for road transport services); maritime transport (only maintenance and repair of vessels) and other transport services (only metrological data information).

Under COMESA, Kenya has liberalized three sub-sectors out of nine namely air transport (supporting services for air transport – Selling and marketing of air transport services and computer reservation system services); Road transport ( only passenger transportation, freight transportation, rental of commercial vehicles with operator, maintenance and repair of road transport equipment, and supporting services for road transport services); and maritime transport (only maintenance and repair of vessels).

The main policy framework guiding Kenya's transport sector is embedded in Kenya's Vision 2030 which, as outlined above, includes large investments in road, rail and port corridor infrastructure and related services. From a regulatory perspective, Kenya's legislation relative to the transport sector is fragmented by mode and node, leading to a myriad of acts, laws and regulations.

As for international freight transport, Kenya has thus far accessed only one UN transport agreement namely the road traffic agreement of 1968. Although some domestic measures currently in place may cover certain areas of international road freight instruments; such instruments and their legal ramifications are considered by carriers and cargo interests only when formally accessed and/or ratified.

**Table 1: UN transport agreements and Kenya's status of ratification**  
**-shaded agreement shows accession or ratification-**

|                              |                                   |  |  |                                    |  |   |
|------------------------------|-----------------------------------|--|--|------------------------------------|--|---|
| Infrastructure network       | 1                                 | Construction Traffic Arteries, 1950              | Inland Navigation                            | 31                                 | Collision Inland Navigation 1960           |   |
|                              | 2 -3                              | Not applicable to Ethiopia                       |  | 32                                 | Registration of vessels, 1965              |   |
|                              | 4 -5                              |  |  | 33                                 | Measurement of vessels, 1966               |   |
|                              | 6                                 | International Water Network (AGN)                |  | 34                                 | Liability Vessel Owners (CLN), 1973        |   |
| Road traffic and road safety | 7                                 | Road Traffic, 1949                               |  | 35                                 | Protocol to CLN, 1978                      |   |
|                              | 8                                 | Road Traffic, 1968                               |  | 36                                 | Contract Pass. & Lugg. (CVN), 1976         |   |
|                              | 9                                 | Protocol on Road Signs & Signals 1949            |  | 37                                 | Protocol to CVN, 1978                      |   |
|                              | 10                                | Road Signs & Signals, 1968                       |  | Border crossing facilitation       | 38   | Touring Facilities, 1954                  |
|                              | 11                                | Supplement Convention Road Traffic               |  |                                    | 39   | Protocol Touring Facilities, 1954         |
|                              | 12                                | Supplement Convention Road Signs & Signals, 1971 |  |                                    | 40   | Temporary Import of Private Road Vehicles |
|                              | 13                                | Weights and Dimensions, 1950                     | 41   |                                    | TIR Convention, 1959                       |   |
|                              | 14                                | Supplement 1949 Conv. and Protocol, 1950         | 42   |                                    | Temporary Import of Aircraft & Boats, 1956 |   |
|                              | 15                                | Road Markings, 1957                              | 43   |                                    | TIR Convention, 1975                       |   |
| 16                           | Protocol Road Markings, 1973      | 44   | Temporary Import of Commercial Vehicles      |                                    |  |   |
| 17                           | Validity of Driving Permits (APC) | 45   | Cross. Frontier Passenger Baggage Rail, 1952 |                                    |  |   |
| Vehicles                     | 18                                | Vehicles Regulations, 1958                       | 46   |                                    | Cross. Front. Goods Rail, 1952             |   |
|                              | 19                                | Technical Inspection of Vehicles 1997            | 47   |                                    | Spare Parts Europe Wagons, 1958            |   |
|                              | 20                                | Global Vehicles Regulations, 1998                | 48   | Customs Container Convention 1956  |  |   |
| Other legal instruments      | 21                                | Work of Crews Int. Road Tr. (AETR)               | 49   | Customs Container Convention, 1972 |  |   |
|                              | 22                                | Taxation Priv. Road Vehicles, 1956               | 50   | Customs Treatment Pallets, 1960    |  |   |
|                              | 23                                | Taxation Road Goods. Vehicles 1956               | 51   | Harmonized Frontier Controls Goods |  |   |
|                              | 24                                | Taxation Road Passenger Vehicles 1956            | 52   | Customs Pool Containers, 1994      |  |   |
|                              | 25                                | Contract Road Goods Transport (CMR)              |  | SMGS Transit by Rail, 2006         |  |   |
|                              | 26                                | Protocol to CMR, 1978                            | Dangerous Goods & Special cargo              | 53                                 | Dang. Goods by Road (ADR), 1957            |   |
|                              | 27                                | Add. Protocol to CMR, (e-CMR) 2008               |  | 54                                 | Protocol to ADR, 1993                      |   |
|                              | 28                                | Pass. & Lugg. Rd. Transp. (CVR)                  |  | 55                                 | Liabilities Dang. Goods (CRTD), 1989       |   |
|                              | 29                                | Protocol to CVR, 1978                            |  | 56                                 | Dangerous Goods by Inland Waterways (ADN)  |   |
|                              | 30                                | Econ. Reg. Road Transport 1954                   |  | 57                                 | Perishable Foodstuffs (ATP), 1970          |   |

Source: Compiled and summarised by the consultant from UNECE (as of 21/09/2021)

Institutionally, the transport sector in Kenya is highly fragmented along industrial, spatial and functional roles, which creates several instances of institutional gaps and overlaps

and impedes the effectiveness of policy making and implementation. Table 2 epitomises the fragmentation problem in Kenya's road transport sector.

**Table 2: Road Transport Sector Agencies in Kenya**

| Entity   | Role   |
|--|--|
| Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works | Policy formulation and matters pertaining to construction and maintenance of national roads infrastructure.  |
| Kenya Roads Board  | coordinate development, rehabilitation and maintenance of Roads in Kenya and manage the Kenya Roads Board Fund Account (KRBFA) which included the proceeds of the Road Maintenance Levy Fund (RMLF) and other funds that accrue into it. |
| Kenya National Highways Authority  | responsible for the management, development, rehabilitation and maintenance of national roads i.e. Classes A, B and C.   |
| Kenya Urban Roads Authority  | Responsible for the management, development, rehabilitation and maintenance of all public roads in cities and municipalities not under the jurisdiction of Counties  |
| Kenya Rural Roads Authority  | Responsible for the development, rehabilitation, maintenance and management of rural roads (Classes D, E and others).  |
| Kenya Wildlife Service   | Responsible of 8,900 km of unclassified roads in the National Parks and Game Reserves  |
| Traffic Police Department  | A unit of Kenya's Police Service in charge of ensuring free flow of road traffic and enforcing road traffic regulations.   |

### 2.3. Assessment of Transport Logistics Performance

When assessing transport logistics performance, a difference exists between economic operators and policy makers in terms of what they perceive and prioritise as a sector's performance. Policy makers primarily focus on the economic contribution of transport and logistics systems (direct, indirect and induced impacts) versus their external costs stemming from congestion, accidents, noise and pollution. Economic operators, on the other hand, focus on the internal efficiency freight logistics systems in terms of capacity, cost, timeliness, reliability and service quality.

Current efforts on measuring Kenya's freight transport and logistics performance remain sketchy and hardly incorporating of both operator's and policy maker's perspectives. There is no systematic, reliable and updated system for freight surveys and data reporting, which does not align with the Government's policy and plans for transport corridor and economic development.

#### 2.3.1. Firms' perspective of freight performance

From an operator's and firm's perspective, the performance of freight transport is underpinned by a number of indicators on the quality of transport infrastructure, the connectivity to freight and logistics markets, the competency of operators and service providers, and the efficiency of customs and trade

facilitation procedures. Among global KPIs for international freight and logistics performance, worth mentioning the World Bank's Logistics Performance Index (LPI), the WEF's Quality of Port Infrastructure (QPI) and Quality of Road Infrastructure (QRI), the UNCTAD's Liner Shipping Connectivity Index, and the IFC/WB Trading Across Borders. Table 3 below shows the score rankings of Kenya in each of those indices compared with those of selected African countries.

#### 2.3.2. Levels of Income and Logistics Performance

The LPI is the World Bank's benchmarking tool to measure a country's logistics performance. The index takes into account factors such as logistics competence and skills, the quality of trade-related infrastructure, the price of international shipments, and the frequency with which shipments reach their destination on time. LPI reflect perception evaluations of logistics professionals located outside the country, thus providing qualitative information of how a country's trading partners perceive the efficiency and quality of its logistics services.

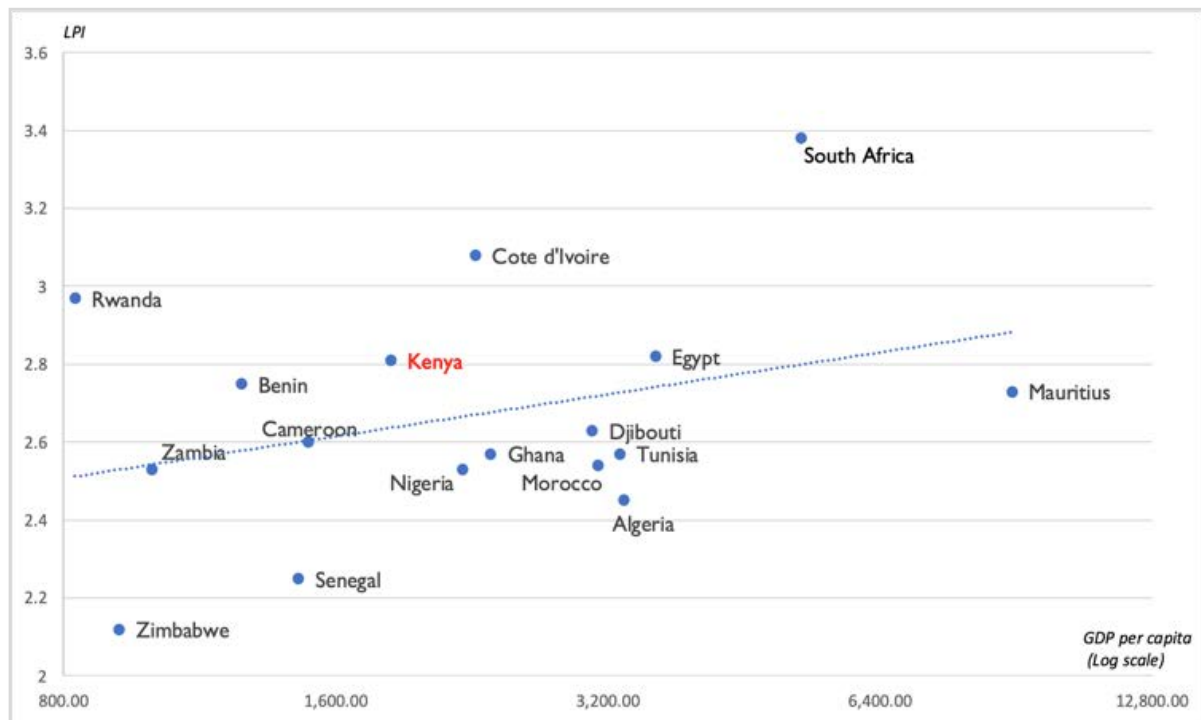
In the African continent, Kenya's LPI is amongst the highest but the gap with other countries has been widening since 2010. Figure 2 shows that a persistent gap exists between low middle-income and lower-income countries, but income alone is not the only determinant of a country's logistics performance.

Table 3: Relevant port and logistics efficiency indicators for Kenya and selected African countries (Compiled by Consultant)

|                     | LPI (WB) 2018       | Burden of customs procedures 2017 | Lead time |           | Documentary compliance |                | LSCI 2020 (UNCT-AD) | QPI 2017 (WEP)  | QRI 2017 (WEP)  |
|---------------------|---------------------|-----------------------------------|-----------|-----------|------------------------|----------------|---------------------|-----------------|-----------------|
|                     |                     |                                   | to export | to import | Cost to export         | Cost to import |                     |                 |                 |
|                     | 1-5 (worst to best) | 1-7 (7 is best)                   | days      | days      | \$/container           | \$/container   | 1-7 (7 is best)     | 1-7 (7 is best) | 1-7 (7 is best) |
| <b>Kenya</b>        | 2.81                | 4.1                               | 3         | 4         | 143                    | 833            | 17                  | 4.08            | 4.3             |
| <b>Ethiopia</b>     | 2.17                | 3.6                               | 60        | 10        | 175                    | 750            | 30                  | 2.81            | 3.3             |
| <b>South Africa</b> | 3.38                | 4.2                               | 3         | 3         | 55                     | 676            | 40.11               | 4.8             | 4.4             |
| <b>Egypt</b>        | 2.82                | 3.9                               | 2         | 3         | 100                    | 554            | 73.28               | 4.7             | 3.9             |
| <b>Mauritius</b>    | 2.73                | 4.6                               | 1         | 2         | 128                    | 372            | 37.03               | 4.2             | 4.5             |
| <b>Cameroon</b>     | 2.6                 | 3.4                               | 5         | 9         | 306                    | 1407           | 25.5                | 3.1             | 2.6             |
| <b>Tunisia</b>      | 2.57                | 3.1                               | 4         | 3         | 200                    | 596            | 6.3                 | 3.3             | 3.7             |
| <b>Ghana</b>        | 2.57                | 3.9                               | 1         | 4         | 155                    | 553            | 18.5                | 3.6             | 3.9             |
| <b>Morocco</b>      | 2.54                | 4.5                               | 2         | 5         | 67                     | 228            | 78.5                | 5.3             | 4.5             |
| <b>Nigeria</b>      | 2.53                | 2.9                               | 3         | 3         | 250                    | 1077           | 18.96               | 2.8             | 2.5             |
| <b>Zambia</b>       | 2.53                | 3.7                               | 9         | 6         | 200                    | 380            | N/A                 | 2.3             | 3.6             |
| <b>Algeria</b>      | 2.45                | 3.4                               | 4.0       | 5         | 374                    | 409            | 10.36               | 3.4             | 3.5             |
| <b>Senegal</b>      | 2.25                | 4.6                               | 1         | 3         | 96                     | 702            | 14.45               | 4.4             | 3.7             |
| <b>Zimbabwe</b>     | 2.12                | 2.9                               | 5         | 10        | 170                    | 562            | N/A                 | 3.1             | 2.8             |



Figure 2: Relationship between income and logistics performance in African countries



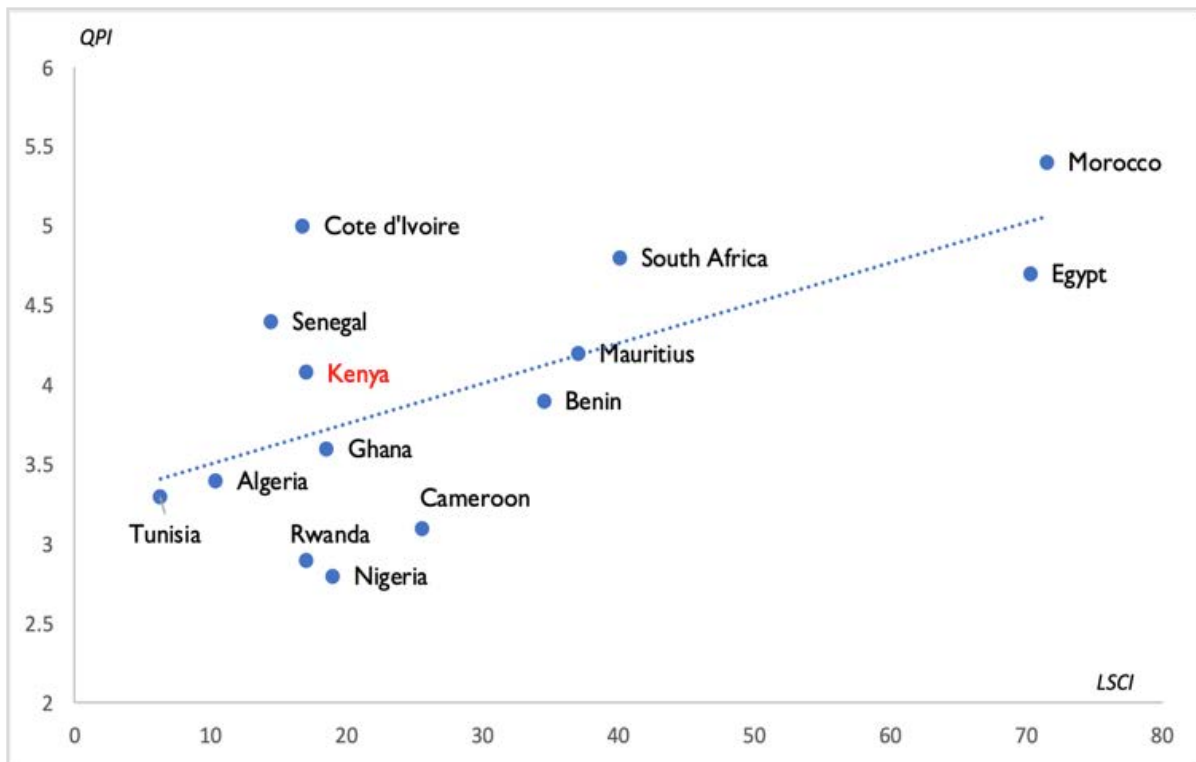
Source: Consultant from WB and UN data

### 2.3.3. Quality of Infrastructure and Logistics Connectivity

From an international perspective, a country's freight and logistics performance depends on its connectivity to international shipping and logistics networks. UNCDAT's LSCI is an index that measures a country's connectivity to the international container shipping network and by extension to global trade markets. In Africa, the countries most connected to the global shipping network are Morocco and Egypt owing to their large transshipment hubs. For Kenya, and despite the presence of two major ports, its liner shipping connectivity is well below average less than half of South Africa's and quarter of Morocco's and Egypt's.

Figure 3 shows the relationship between LSCI and the WEF's quality of port infrastructure. Countries such as Morocco and Egypt have benefited from their large transshipment hubs and connection to a worldwide network of shipping routes and services, which in turn reduces time and cost of trade. For Kenya, the country scores poorly with regards liner connectivity with the lack of shipping connectivity becoming as a key constraint given Kenya's good scores in the quality of port and road infrastructures. This emphasises the need to develop gateway and transshipment services in Mombasa and Lamu in order to attract international shipping services and integrate its global networks with domestic and transit corridors.

Figure 2: Relationship between income and logistics performance in African countries



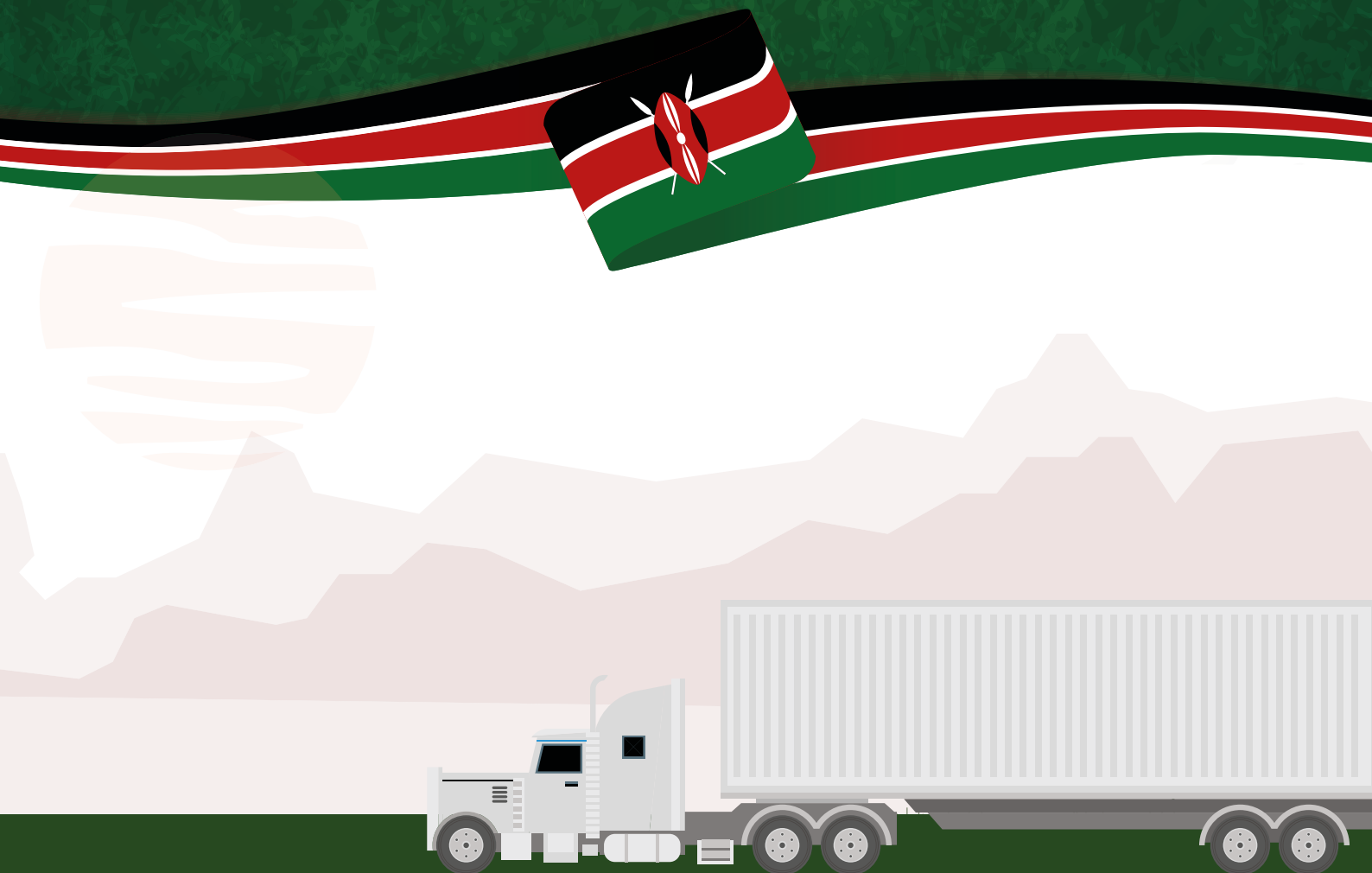
Source: Consultant from WEF and UNCTAD data

### 2.3.4. Logistics Performance and Procedural Efficiency

The performance of freight logistics systems also relates to the cost, efficiency and timeliness of trade facilitation procedures. Parallel to reliable transport infrastructure and network links, a country should also streamline its customs and trade procedures to reduce transactions' time and cost. A country such

as Cote d'Ivoire and Djibouti may even cancel out the benefits of connectivity by imposing long import lead times and high transaction costs. Kenya scores poorly in procedural and documentary compliance with one of the highest costs in the region. This mirrors reported problems in procedural controls and delays and is particularly prohibitive for time-sensitive and seasonal value chains such as tea exports.

# 3. CASE STUDY OF ROAD TRANSPORT IN TEA VALUE CHAIN



### 3.1. Tea Value Chain

#### 3.1.1. Overview of Tea Sector

Tea was introduced to Kenya in 1903 by G.W.L. Canine and in the 1930's commercial planting began. Today one of the most important cash crops and one of the most important drinks domestically. Kenyan tea is grown along the equator, in areas of altitude between 1500-2700 metres above sea level. Thus, the tea bushes receive 12 hours of sunlight throughout the year and 1200-1400mm of rainfall annually. This makes the supply of Kenya tea consistent throughout the year both in quantity and quality. Kenya is the largest producers of tea in Africa, and it has quadrupled its exports over the last decade.

The Agriculture Fisheries and Food Authority (AFFA) is charged with the regulation of all the crops listed under First Schedule of the Crops Act, 2013. The Authority regulates the scheduled crops by administering the Crops Act, 2013. Section 40 of the Crops Act, 2013 read together with Section 46 of the Agriculture Fisheries and Food Authority Act, 2013 (AFFA Act) gives power to the Cabinet Secretary in consultation with the Authority and County governments to make regulations for the better carrying into effect of the provisions of the Act. The Act provides for the formulation of various Regulations, Rules and Guidelines to operationalize the AFFA and Crops Act. Specifically, the Tea Directorate, under the AFFA is mandated to promote Kenyan tea in both local and international markets, license tea manufacturing factories, register tea buyers (exporters), tea brokers, tea packers, management agents, and any other person dealing in tea.

Tea growing is carried out by small, medium and large-scale farmers. Small scale farmers constitute 71 per cent of all tea growers and have a land holding of 0.2 hectares and below. Large scale farmers comprise of those with landholding of more than 10 hectares. Small-scale farmers sell their produce to 65 factories across the country managed by the Kenya Tea Development Agency (KTDA), which they collectively own. The large scale and industrial estates are represented by the Kenya Tea Growers Association (KTGA) which mainly comprises of large-scale producers who process their own tea. KTGA promotes the common interests of its members in the cultivation and manufacture of tea and to promote good industrial relations and sound

wage policies for workers. They have approximately 45 members with the main players being James Finlay Company Limited, Eastern Produce Company Limited, Williamson Tea Company Limited, Sasini Tea and Coffee among others. KTGA members own 39 factories which operate as independent entities. Moreover, there exists an independent group of growers who do not belong to either KTDA or KTGA. They contribute about 8 per cent of the tea production in the country.

In addition, tea is grown as buffer belts surrounding the forests under the Nyayo Tea Zones Development Corporation Limited. This is a public institution, which promotes environmental conservation by guarding against human encroachment into the water catchment areas. The corporation operates 3,488 hectares with 2 factories. The tea zones protect the forests while, at the same time, contribute towards the rehabilitation of fragile ecological areas.

#### 3.1.2. Importance of Tea in Kenya's Economy

In 2019, Kenya exported \$1.13B in Tea, making it the 2nd largest exporter of Tea in the world. At the same year, Tea was the 1st most exported product in Kenya. The main destination of Tea exports from Kenya are: Pakistan (\$429M), Egypt (\$169M), United Kingdom (\$121M), United Arab Emirates (\$55.7M), and Yemen (\$49M). The fastest growing export markets for Tea of Kenya between 2018 and 2019 were Japan (\$2.45M), Qatar (\$2.37M), and Yemen (\$2.14M).

In 2018, tea accounted for 25.6 per cent of the marketed agricultural production and contributed 25% of total export earnings amounting to USD 1.27 billion (KNBS, 2019). In addition, tea provides livelihoods to approximately over 600,000 smallholders who contribute approximately 60 per cent of total tea production. This notwithstanding, only 14 per cent of tea exported is value added and the remaining is sold in bulk form (GoK, 2016). The low level of value addition results to an estimated loss of USD 12 per kilogram of tea. Despite Kenya being the leading exporter of tea in terms of volumes, the country receives less earnings compared to other exporting countries due to low value addition. For instance, in 2013, Kenya's exported 131 metric tonnes more than Sri Lanka but it earned USD 0.3 billion less (Tsalwa and Theuri, 2016). This is largely attributed to market access constraints associated with value

added products in export markets; over-reliance on production on black CTC tea which is largely used for blending low quality tea from other countries; limited diversification to production of specialty teas e.g., flavoured tea, green tea and others and limited diversification of export markets or over-dependence on traditional markets Pakistan, UK, Egypt, Sudan, and Afghanistan. Besides, lack of investments in new technologies, targeted incentives and interventions including tax exemptions on packaging materials, and marketing inhibit the capability of industry to effectively engage in value addition.

The input use varies across small scale and large-scale tea farms and this together with crop management practices results in variations in tea productivity. The productivity of the small-scale farmers is between 2.127-2.291 tonnes/Ha and between 2.834 - 3.412

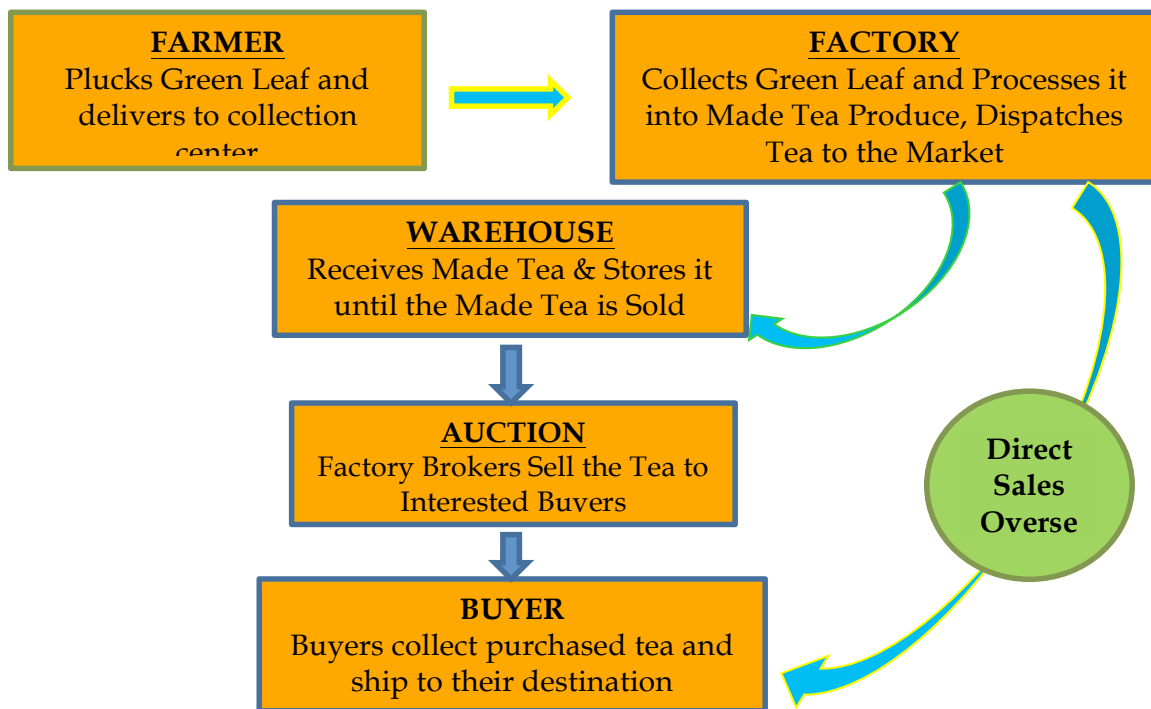
tonnes/Ha for large scale. The key inputs in the tea sector include land, labour, capital, seedlings, pesticides, fertilizer and services (transport – road, freight, storage/warehousing). In this study, we focus on the use of road transport services in the tea value chain.

### 3.2. Transport Services in the Tea Value Chain

#### 3.2.1. Cost and Components

Kenya's tea value chain comprises production, processing and markets as indicated in the Figure 4. Within the chain, transport services are generally provided at two main levels of the value chain: first the transportation of green tea leaves from farms to factories; and second the transportation of processed tea from factories to warehouses and markets.

Figure 4: Tea Logistic Chain



Source: KTDA

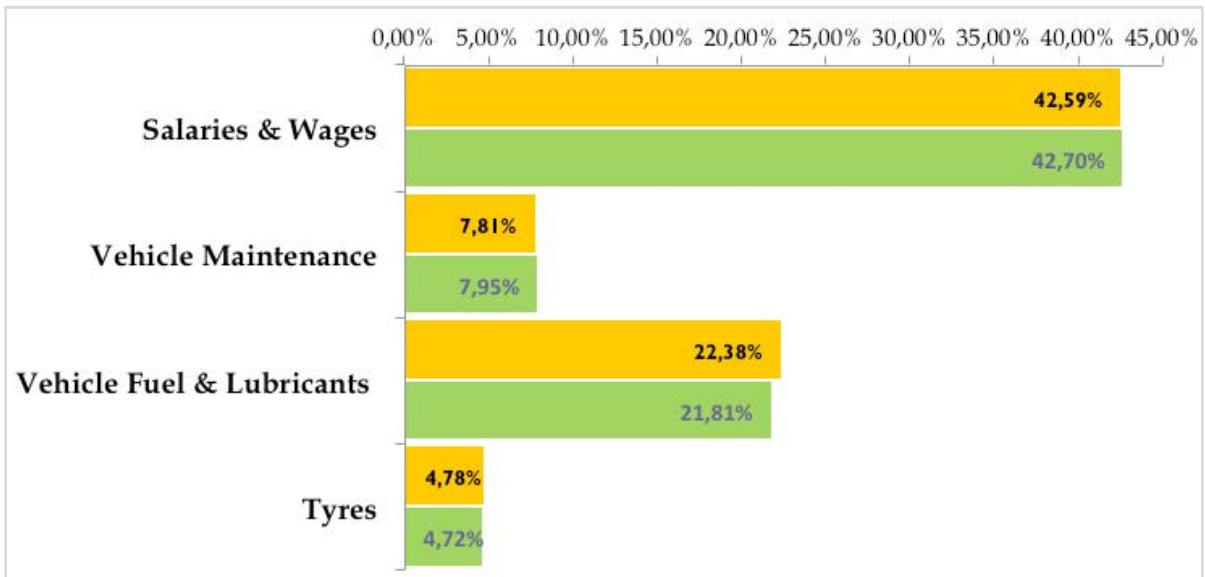
In the first component, tea companies use in-house fleets of vehicles to collect and ferry green tea to factories for processing. The main inputs tea transportation include:

a. Fleet - Tea companies have long term agreements (LTAs) with the suppliers for the models used.

b. Fuel and Tyres – Similarly, the companies have LTAs with the major suppliers of fuel and tyres, which usually run for two years then its retendered.

c. Labour - The factories employ their staffs (drivers, mechanics, loaders) guided by the company's staff compliments. Long term plans are to outsource non-core areas.

Figure 5: Cost rate contribution to the leaf transportation

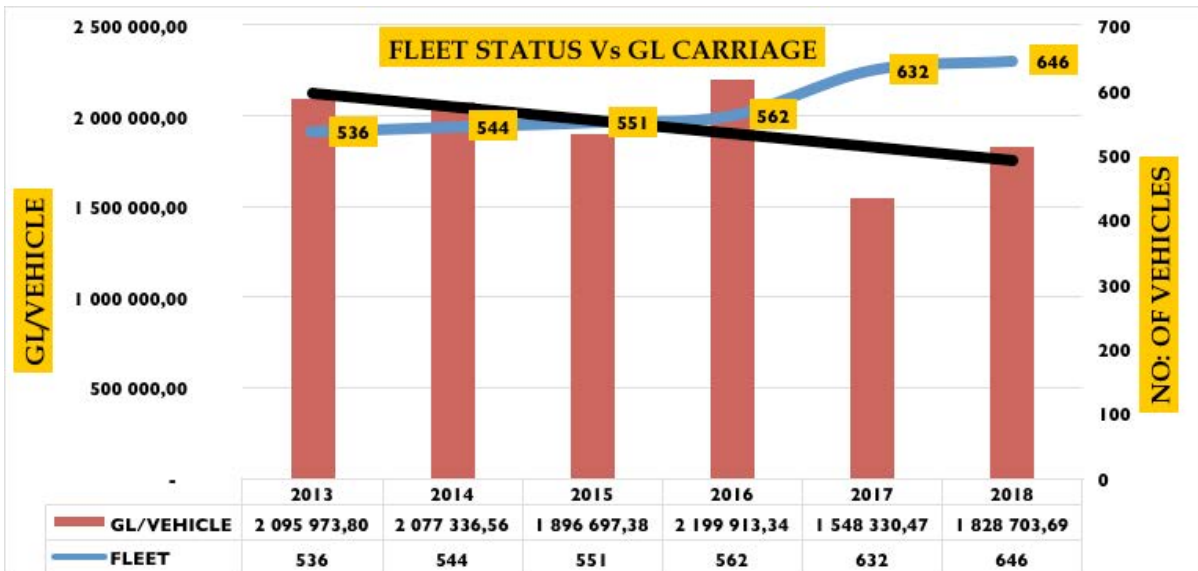


Source: KTDA, 2019

In terms of share of costs for leaf transportation, salaries and wages constitute the greatest share of costs followed by vehicle fuel and lubricants. According to KTDA, each factory employs one (1) mechanic, one (1) Motor Electrician, eight (8) Logistic assistants,

one (1) Tipper driver, one (1) High sided driver and one (1) Personnel driver. Thus, approximately 900 professionals are gainfully employed in all its factories within the transport-related, let alone the casual workers like loaders.

Figure 6: Fleet status and growth over the years



Source: KTDA, 2019

3.2.2. Policies affecting Transport Operations in the Tea Value Chain

There exist several transport-related policy measures affecting the tea sector. The main policies include:

- The licensing regime of motor vehicles which require inspections, fitting trucks with speed gargets are all costly and directly borne by the tea factories.
- Unpredictable and poorly coordinated enforcement

of traffic rules and regulations affect efficient delivery of transport services in the tea sector. NTSA fines and penalties for petty traffic offences range from ksh 1,000 to ksh 20,000 depending on the nature of offences – driving undesignated vehicles, causing obstruction, failure to carry lifesavers, use of mobile phones while driving, failure to fasten seatbelts, among others. The relatively heavy fines promote bribes to enforcement officials, raising the cost of delivery of services.

- Trade policies also affect operations of the sector. For instance, imposition of full import duties (25%), VAT (16%) and related taxes on tyres and motor vehicle spare parts have direct effects on domestic prices. Besides, weak surveillance and enforcement of unfair trading practices including smuggling, counterfeits, especially for tyres and dumping all affect domestic prices of these goods.

### 3.3. Lessons Learnt and Best Practices

#### 3.3.1. Technological advancements

A key lesson is that tea factories have in the past been investing in modern fleets following adoption of a seven-year replacement plan (see Figure 7). According to KTDA, modernization of fleets has brought about several benefits. First, there is increased efficiency in leaf collections. For instance, it has improved haulage rate for instance 200 to 240 bags by truck. Besides, vehicle turn-about time has also improved from 3 hours to 2.5 hours. Second, there has been improvements in cost effectiveness, particularly in terms of reductions on maintenance costs, less fuel consumptions and improved quality of green leaf as the result of improved vehicle turn-about. Third, is overall improvements in service delivery as far as in-house transport is concerned.

Figure 7: Fleet modernization in Tea Factories



Source: KTDA, 2019

### 3.3.2. Out-Sourcing Transport Services

The transportation of tea from the factories to warehouses and markets is carried by out-sourced service providers. Respondents gave three reasons for out-sourcing freight transport services. First, the initial investment and fixed costs for owning and operating the services in-house would be too high for the tea companies compared to the rather fixed costs incurred by out-sourcing the services from third parties. In addition, the companies save the operational costs including salaries, maintenance & repairs, fuel & lubricants, tyres as well as the demanding compliance regulatory requirements within the sub-sector. Second, is due to the benefits associated with external economies of scale that out-sourced service providers enjoy. Besides, the out-sourced transport firms are located within the proximity of lead firms and operate regionally in Uganda, Rwanda, South Sudan and Tanzania thereby making them more efficient and cost effective. The third and most important is the bundling of transport services by third party firms. Many a time, out-sourced companies combine both transport and other logistics including warehousing and insurance services. This makes the costs of providing the additional freight logistical services much cheaper to the tea companies compared to the tea when they be provided separately. The bundling of services is an important source of innovation and promotes competitiveness and profitability.

### 3.4. Major Constraints and Challenges

Several constraints and challenges face road transport services with respect to tea value chain.

#### 3.4.1. Poor state of roads

Despite the strong policy and regulatory framework, the poor status and lack of good maintenance of existing road network affects exports. According to the Kenya Economic Report 2019, only 18,655 km of roads or 11.6% of total road network was paved compared to 142,796.5 km unpaved roads in 2018. The poorest conditions are evident in unclassified, minor and special purpose roads in the rural agricultural producing areas of which only a paltry 3.5% or 3,843

km of 110,333 km had been paved during the year. This compared to 29% of classified roads.

The poor state of roads around KTDA farms, especially during rainy seasons, directly affects operational costs in terms of vehicle turn-arounds and the vehicle maintenance. The tea factories are compelled to undertake minimal grading of selected feeder roads to motorable levels whenever there are delays from the relevant authorities and investing in new fleets. For the out-sourced services, it results in extended durations of travel and freight transportation as well all high costs of vehicle maintenances. At the same time heavy traffic jams, especially in Mombasa, which is the location of the tea auction market, lead to massive losses by service providers.

#### 3.4.2. Multiple layers of authority, and predictability of regulations

Road transport is controlled and managed by multiple government agencies and institutions in national and county governments. Although the CoK 2010 clearly spells out the roles of national and county governments as far as construction and maintenance are concerned, there still exist misunderstandings between the two levels of governments, especially regarding resource allocations. This affects the class E, F and G roads which provide important links between industries/farmlands and markets.

In addition, compliance for operations by service providers (for tea and other freights) are cumbersome and expensive considering the flurry of agencies involved in regulating given activities. For instance, the roles of the NTSA and Traffic Police in enforcement of road safety rules and regulations are duplicated in some cases or even conflicting. Yet the service providers value for money is hardly taken into when implementing road transport related rules and regulations. Moreover, information regarding new regulations are not readily available to service providers, either due to limited transparency in some agencies or the requisite regulations applicable to their business involve multiple government agencies posing coordination and enforcement challenges.



### BOX 1: Implications of new regulations of petroleum tanker drivers

The most recent is a requirement by the Energy and Petroleum Regulatory Authority (EPRA) section 74(1)(d) of the Petroleum Act 2019 which states that “any person wishing to drive a petroleum road tanker or engage a driver for the purpose of transporting petroleum in bulk by road should ensure that such a driver is certified by EPRA”. Although the intent of the new regulation is to maximize safety, it is nonetheless burdensome to transporters, adding to already existing piles of compliance requirements. The directive for instance implies that oil tanker drivers using Kenyan roads but ferrying fuel to neighbouring countries of Uganda, Rwanda, Congo DR and Northern Tanzania must also have to acquire the “special permits”.

#### 3.4.3. High fuel and vehicle maintenance costs

Persistent rise in oil prices is affecting the transport sector as most of the modes of transports depend on fuel thereby undermining trade. The cost of transport and high freight rates is also an export deterrent as it also indirectly limits room for value addition of tea thereby constraining competitiveness and export earnings.

#### 3.4.4. Transit Transport

With regard regional or transit transport, the main challenges to transporters are the multiple fees and user charges along transit routes. These range from parking fees charged at the border in the absence of parking areas, cess fees charged across various counties along the northern corridor from Mombasa to Malaba/Busia as well as road user charges. Besides, trucks operating regionally are restricted from carrying cargo different from the ones they are assigned to. The transporters also decry the high transit time between Mombasa and Malaba, taking approximately three days, due to traffic snarls, police road blocks which are between 18 to 20, segments of dilapidated roads. Road destructions are further worsened by Overloaded Heavy Goods Vehicles (HGVs), partly attributed to lack of uniform axle-load limits. Attempts

are however being made to control axle-loads on the major corridors in order to safeguard and maintain road conditions.

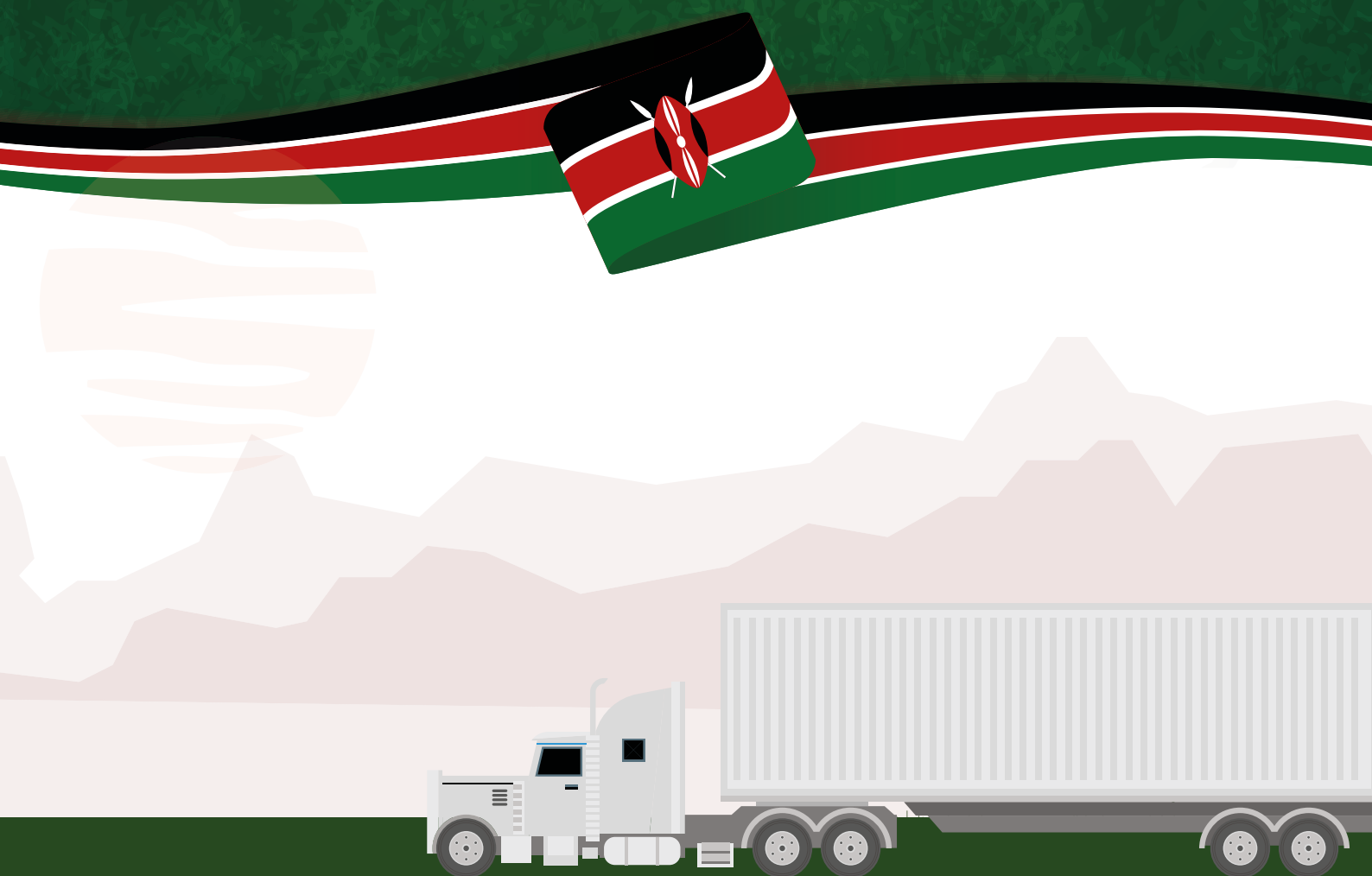
#### 3.4.5. Poor data collection and information management

There exist information gaps on transport and related services. Industry players do not keep and in some cases are reluctant to share full information needed making it difficult to quantify accurate contributions of road transport services in the tea value chain.

#### 3.4.6. Implications of the Standard Gauge Railway

Although the government retracted on its earlier plans to have all cargo cleared at the Mombasa Port transported by railway, there are fears among tea transporters (and others) that this will eventually be implemented thereby rendering road transporters out of business. The tea companies and other transporters successfully lobbied the government by arguing that the decision would further add to additional transport costs considering that the rail lines are located far off warehouses. If implemented, they will have no alternative but relocate or construct new storage facilities closer to the new railway line.

# 4. CONCLUSIONS AND RECOMMENDATIONS



This paper seeks to understand the importance of road transport services in facilitating economic growth and development through linkages with other sectors. It investigated the role of road transport in supporting the growth of Kenya's tea industry. Through review of existing literature and face-to-face interviews, the study collected various experiences relating to road transport services in the tea value chain, as well as some policy restrictions that affect these services and service providers in general. The study finds that transport services constitute a key component in the tea value chain. Tea companies use both in-house and outsourced transport services. In-house transport services are exclusively used to transport green leaf tea from farms to factories for initial treatment and processing. Out-sourcing of transport services to third parties is based on investment and fixed costs, external economies of scale and benefits derived from bundling of transport and logistics services.

Policy issues discussed with firms included bureaucracies related to licensing and a range of other regulatory issues, poor status of roads, high costs of fuel and vehicle maintenance, police roadblocks, rent seeking and implications of the Standard Rail Gauge railway as a complementor to road transport. Suffice is to say that the policy issues were not merely about road transport services, but also highly relevant to tea value chain. This attests to the need to think about policies in terms of their overall impact on economies in a world where manufacturing and the supply of various services are increasingly co-dependent.

The policy discussions in this report are also relevant to institutional and infrastructural development. In order to improve government services and to promote competitiveness of the tea sector following contribution of transport services, it is imperative to build and maintain constructive stakeholder relationships with industry stakeholders. Finally, the study illustrates the potentials of road transport services in supporting can support inclusive and sustainable development in Kenya through its linkages with the agriculture, manufacturing and other services sectors of the economy.

Arising from the study findings, the following recommendations are made:

### 1. Resource mobilization to improve maintenance and standards of unclassified roads

There is need to consolidate national resources to sustain financing of road transport with focus on proper maintenance of standards and upgrading feeder roads, especially in tea growing areas. Besides, county governments should consider maintenance of feeder roads within tea plantations for small scale growers in order enhance efficiency in collections and reduce cost of repairs of collection. Improved road conditions have potentials to reduce the operational costs of in-house and out-sourced transport services for tea factories.

### 2. Effective coordination and management of road transport policies and regulations

The multiple layers of institutions and rules and regulations governing the road sector are enormous. Besides, compliance requirements for road transport operators appear burdensome and lower the competitiveness of service provision. This would facilitate faster and efficient delivery of local and transit cargo, including tea from neighbouring countries.

### 3. Sensitization and stakeholder engagements

Sustained stakeholder sensitization and consultations are imperative to build and maintain constructive stakeholder relationships and improvement of government services. For instance, whereas the decision to compel freight (including tea) transporters to use the rail mode to the main port of Mombasa may have been well-intentioned, the cost implications have far reaching implications on the competitiveness of the tea industry.

### 4. Incentives to ease burdens and boost investor confidence

Tea companies cited the high costs of vehicle maintenances and spare parts as a key constraint in in-house transport. There is need to consider tax reductions for bulk importation of spare-parts and related accessories for firms that invest in in-house transport in order to facilitate enhancement of their competitiveness in production. trucks.

### 5. Reduction of NTBs in transit transport

There should efforts to eradicate NTBs, especially police road blocks and rent-seeking phenomenon associated with them. Besides, truck owners and drivers should be sensitized on the need to comply with laid down rules and regulations and their rights to enjoy providing transport services and to desist from issuing bribes to curb the menace.

### 6. Information gathering and establishment of data

Despite the important role of services and road transport services in particular, very little data is available across board to facilitate analysis of its contributions and performances in general. It is incumbent upon service providers and beneficiaries to invest in keeping good records and data bases using modern technology in order facilitate identification and measurement of value added in services.

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