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Analogy of Glass and Straw: Understanding the Structure and Functions of Mombasa Port in East Africa's Transportation Networks'

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Abstract

Ports significantly influence the socio-economic development of any nation or region that depends on them. However, this is usually affected by many factors that render inefficiencies at the ports and along the corridors to the hinterland. This paper is an improved extract from a policy influencing assessment report on the socio-economic impact of operationalizing the standard gauge railway in the Port City of Mombasa to appreciate the ports' role. The study presents a concise analysis and a sneak preview of what may be considered a rare analysis of this topical issue. The study relied on secondary reports and information on the efficient and effective transport corridors in Eastern Africa. The East Africa region transport corridors consist of two major international corridors, the Northern Corridor and the Central Corridor, which traverse the sub-region, forming a CBTI network, each linking seaports with land-locked countries. A growing enhancement inland connectivity provides land-locked countries with adequate access to ports. The study delves into the ownership structure and development of the Port of Mombasa to address the objective. The study found that the degree of

ownership naturally depends on national ideology. Thus, the management by Kenya Ports Authority depicts a public ownership structure. Evidenced also was the role of the Port of Mombasa in cargo movement within the corridors to rail and road networks for inter-land transportation. Mombasa Port Community Charter (the “Charter”) seeks to optimize the full trade potential of the Port of Mombasa, in essence, helping a great deal in making the Port a competitive enabler of the northern transport corridor. Indeed, for a straw to draw well and judge its functionality, the content in the glass must be well prepared for drawing. One cannot blame a water pipe for not piping water efficiently, and the dam must also be functional.

Keywords: Port management, Transport Corridor, Port Ownership

1.0 Introduction

A country's supply chain and most logistics corridors play integral roles in national defense. Privatizing these areas to improve efficiency can be likened to outsourcing military tasksto mercenary forces for resource optimization. Niccolò Machiavelli, in his political treatise "The Prince," advised against using mercenaries. He believed mercenaries were unreliable, disloyal, and self-interested. They fought only for money and lacked the incentive to fight honorably or risk theirlives for the State. He thought a prince who relied on mercenaries was not secure, as such forcescould turn against him in critical situations. Thus, Machiavelli fervently believed a state's defenseshould rely on its citizens.Organizational behavior is a field of study investigating how individuals, groups, andstructures affect and are affected by organizational behavior. It's an interdisciplinary field thatdraws on insight from various areas, including psychology, sociology, communication, and management. The focus often lies on leadership, organizational culture, and performance. Studyingorganizational behavior aims to build better relationships and enhance organizational performanceby understanding and managing human behavior. Public and private sector members of the Mombasa Port Community - defined as having clearly defined membership and joint responsibility for a product or service share implicit beliefs about how to respond to mistakes, problems, and conflicts and that these beliefs affect an organization's ability to learn from failure (Cannon' and Edmondson^). The Africa Development Bank's 2010 report titled "Ports logistics and trade in Africa" described the African continent as a typical example of logistics under-capacity and inefficiency, prohibitive production and distribution costs, and economic under-development.

Among the many factors that led to these descriptions was that the entire continent is servicedby only 21 key ports, most of which are inefficient, underfunded, and of low infrastructurecapacity (African Development Bank, 2010). Furthermore, the ports cannot handle largefreight volumes and large vessels. The continent also has the most significant number oflandlocked countries in any given continent, standing at sixteen (16), which depend entirelyon the transit of neighboring countries for their international trade. Ntamutumba (2010)pointed out a further sad situation. Despite Africa having many navigable rivers and lakes, itsinfrastructure is outdated and primarily characterized by a fragmented rail system and a non-existent inland water transport system. This perspective is supported by AfDB, which reportedthat Africa's inland connectivity is mainly limited to its urban centers, and the rest enjoys alow-capacity road network.There is a growing need to adopt a holistic trans-border management approach toenhance inland connectivity and provide land-locked countries with adequate access to ports.No wonder, as early as 2010, Ntamutumba (2010) posited that a corridor managementapproach is necessary for developing, regulating, and managing Eastern African trade andtransportation channels between key regional gateway ports and their hinterlands. There wasan indication that this would be managed through regional bodies, government-sanctioned,and representatives of countries involved. The effectiveness of this approach in encouraginginter-government collaboration, improving port-hinterland connectivity, and facilitating aseamless flow of freight along the transportation remains indeterminate, thus creating theanalogy of the glass and the straw, thus needing evaluation.

2.0 Methodology

The study adopted a mixed method approach by relying on secondary data from a cross-sectional survey on the socio-economic impact of operationalizing the standard gauge railway in the Port City of Mombasa. Further, a fusion of dominant quantitative and qualitative approaches was also engaged, resulting in an evaluation framework for reporting. Finally, the study relied on secondary reports and information on the role of the Port of Mombasa in creating and promoting efficient and effective transport corridors in Eastern Africa.

3.0 The Port City of Mombasa and the Port of Mombasa

With its strategic placement between South Africa and the Gulf of Aden and itsbustling port activity, the Port City of Mombasa has become recognized around the worldas the "Gateway to East and Central Africa" or "the city of merchants" (K.P.A., 2022). It wasformerly the Mombasa district and has existed for many centuries. It was a prosperoustrading town in the 12th century and a vital node in the complex Indian Ocean tradingnetworks. In the 16th century, some European powers recognized its significance in theworld trade, hence

constructing Fort Jesus by the Portuguese. The historical profile of thePort City of Mombasa shows that, as a Port City, Mombasa has played an essential part indeveloping Kenya and the East Africa region, operating as a gateway (MPCC, 2014; K.P.A.,2019).Owing to its unique geographical, historical, social, economic, and politicalsituation, it has several strategic advantages and opportunities. These includedevelopment corridors and initiatives by the National Government and neighboringcounties within and through the country. The County also has opportunities presented bythe seaport, a vast economically growing hinterland, diverse ecosystems, and a richancient history. All these contribute towards giving it the potential to become an attractiveplace to invest, work, and live. It also creates a critical mass that supports various health,educational, and retail facilities. The County also enjoys proximity to an expansive watermass as it borders the Exclusive Economic Zone of the Indian Ocean on the eastern border(Hoyle, 1989; Notteboom & Rodrigue, 2005; KNBS, 2013; MPCC, 2014; HabitatConsultants & K.R.C., 2016).The history of The Port of Mombasa dates back many centuries from the existence ofthe Old Port. The Port served dhows from India, the Arabian Gulf, and the Far East. Much of thePort of Mombasa's history is captured from the 18th century when the Portuguese and theArabs came to the East African Indian Ocean shore for spice and slave trade. It is located nearFort Jesus in Mombasa Old Town. In 1890, Kenya and Uganda became a British Protectorateunder the Imperial British East Africa (IBEA). The colonial government saw a need to createinfrastructure inland to open up the area for effective administration, hence the constructionof the Kenya- Uganda Railway (1895-1902). Coupled with increased activities at the Port, therewas a need for a more spacious and convenient place to meet the demand and to construct arail network. Then, the Port of Mombasa was relocated to the Kilindini Harbor West of Mombasa Island. The development of the present Port of Mombasa commenced in 1896 whenthe first Jetty, used for discharging materials for the construction of the railway line, was built at

Kilindini, and since then, the development has been routine (C.G.M., 2019; Habitat Consultants& K.R.C., 2016).In 2011, with a view of deepening the Likoni channel to facilitate the usage of the Portby more significant post-panamax vessels, the port channel was dredged to minus 15 meters,and its turning basin widened to 300 meters with alongside berths now being 12 meters deep.In the same year, a new berth no. 19 was built and completed in 2013, followed by berth 20(9.9m draft, 240m long), then berth 21 with a 14m and 350m draft. These berths are generallycapable of handling all cargo ships, including Panama and post-panamax vessels. A new Berth22 was launched in 2022 with a draft of 15m and 320m long, with the port capacity increasingto handle 2.1 million TEUs. This addition effectively increased the Mombasa Container Terminalwith more than a quayside length of more than 1600 meters. (K.P.A., 2022; World Port Source,2022).

Figure 1. Cargo Operations at the Port of Mombasa

The Port of Mombasa is a primary resource for Kenya and provides enormous social and economic opportunities for the entire country and the coast region in particular. It is a significant source of revenue, employment, and livelihood support for a large country's coastal region population. The Port of Mombasa is a gateway to the East and Central African region, serving the entire region's Export and import needs. As a Port City, Mombasa is a crucial trading center in the East African region operating as a gateway linking the Indian Ocean trading networks and to the hinterland countries of Uganda, Rwanda, Burundi, Tanzania, Eastern Democratic Republic of Congo (D.R.C.), Somalia, Ethiopia, and South Sudan (Irandu, 2000; KIPPRA, 2018; K.P.A., 2019; World Port Source, 2022).

It is important to note that port operations largely depend on the infrastructuraldevelopment and support the Port City of Mombasa provides that bonds to the rest of theeconomy. The mutuality and interdependence of the two sister institutions provide the synergythat drives the local economy. Their relationship, therefore, may be described as mutuallyexclusive. Like many port cities, the City of Mombasa originates from the Port of Mombasa; thereis no city without the Port. Invariably, all the industrial and commercial developments within andaround Mombasa revolve around the presence of the Port. Ports and harbors conduct fouressential functions: administrative (ensuring that the legal, socio-political, and economic interestsof the State and international maritime authorities are protected), development (ports are majorpromoters and instigators of a country/broader regional economy), industrial (major industriesprocess the goods imported or exported in a port), and commercial (ports are international tradejunction points where various modes of transport interchange; loading, discharging, transit of goods). First, the Port attracts the population from the surrounding and visitors from distantplaces. On the one hand, there are those

whose cargoes are in the Port as exports or imports,while on the other hand, there are tourists who come to see the Port, ships, and the marineenvironment (Irandu, 2000; KIPPRA, 2018; K.P.A., 2019; World Port Source, 2022).

4.0 Port Infrastructure Development

The quality of East Africa's transport infrastructure has always been an issue. Still, with the economic growth surge of the past ten years it is now threatening the capacity to handle the influx of people and goods and may slow the region's economic growth. Infrastructure is a fundamental pillar for global competitiveness and a foundational enabler towards making the Port City of Mombasa a vibrant modern regional commercial hub with a high standard of living for its residents. The current road system around the Port was initially designed for relative speed traffic for heavy commercial vehicles, with a considerable road network upgrade in the last five years. Previously, the status of road networks was a challenge in promoting investment due to the direct effect on the cost of doing business. It is estimated that more than 1 million people ordinarily enter and leave Mombasa Island daily. The situation has changed with the introduction of the S.G.R. transport, lowering the number of businesses and tracks plying the hinterland route.

Figure 2. The Container Terminal at the Port of Mombasa

AS over 80% of the volume of international trade in goods is carried by sea, with the percentage even higher for most developing countries, it is essential to appreciate the role of maritime transport as a backbone of international trade and the global economy. Kenya has exponentially continued investing in port infrastructural development for this reason. In 2012, dredging was commenced to deepen the Likoni channel to enable the strait channel to the Port more extensive post-panamax vessels. The port city has ten kilometers of railway line and three

railway stations from the colonial era. The Standard Gauge Railway (S.G.R.) only links the Port directly for the cargo linkage with a passage link further outside the city. The Standard Gauge Railway is the country's largest infrastructure project since independence. Under the East African Railway Master Plan, the Mombasa-Nairobi-Naivasha S.G.R. links up with other standard gauge railways that are being built in East Africa, with the old railway evacuating the cargo from Naivasha onwards to Uganda, Rwanda, and South-Sudan. This gigantic infrastructural project and the development of other road projects have tremendously invigorated the Northern Transport Corridor and beyond (ESPO, 2010; Lee, Lam, Lin & Hu, 2014; Ogollah, Rucha, Aroni & Gichiri, 2019; World Port Source, 2022).

Figure 3. SGR Mombasa Terminus

The Port City of Mombasa has one international airport, the Moi International Airport. The airport is the second largest airport in Kenya and is used by domestic and international flights. The airport is essential in promoting tourism and investment opportunities in the County and the coastal region (Ogollah, Rucha, Aroni & Gichiri, 2019; C.G.H., 2019).

5.0 Governance of Ports

Matters of port ownership and development are close to the hearts of the citizens because of the perceived contribution to the development of their home areas. UNCTAD (2022) underscores that Port management has implications for economic growth, crisis response efforts, environmental protection, and gender equality. This perception has resulted in different approaches to the governance and ownership of ports worldwide. For instance, in most developing countries, ports are under the respective ministries in charge of transport or infrastructure because they are essential for the nation's well-being. Their roles go beyond the town/city boundaries they serve. The planning is integrated with the local governments through the national planning hierarchy. The ownership degree

naturally depends on the national ideology (van Ham, 1998; Tongzon & Heng, 2005; Lee et al., 2014; R.T., 2017; Ogollah, Rucha, Aroni & Gichiri, 2019).

In other countries, ports are managed by Port Authorities (P.S.A.), which are merely in public ownership and can institutionally vary between a department of a governmental body, an autonomous organization subject to governmental control, or a corporate entity acting under private law but with public ownership. Many regional and feeder ports are stuck in state ownership. Complacency, inefficiencies, low productivity, bureaucratic red tape in archaic customs practices, cumbersome documentation flows and port operating inefficiencies, low equipment availability, and long cargo dwell time often characterize them. Contrary to hub ports, where the push for productivity is driven increasingly by the use of technology, I.T., and automation, secondary ports face pretty different kinds of problems, some of which are within their direct control, and others are not (van Ham, 1998; Tongzon & Heng 2005; Lee et al. 2014).

It is important to note that the Port is treated as a department of the Council in some parts of the world. An example is the Port of Long Beach, the second-busiest Port along the west coast of the U.S.A. This Port is a department of the local City Council and is

It is governed by a Board whose five members are appointed by the Mayor of Long Beach and confirmed by the City Council. Similarly, the Port of Yokohama and most other ports in Japan can be rated as "Municipal" Ports because the Municipalities manage them; they are departments of the respective Local Authorities and prefectures. In the Netherlands, the Port of Rotterdam, which used to be a Municipal Port, has changed ownership, but the Municipality holds 75% equity, and the Central Government holds the balance. The Board and management are autonomous. However, the dividends are to the accounts of the Municipal and Central Governments. With a profit margin of 10 to 20%, it is easy to visualize Port's income (van Ham, 1998; Tongzon & Heng, 2005; R.T., 2017; World Port Source, 2022).

Strategically, ports can operate under a landlord model principle. In this case, the Port is primarily responsible for developing and managing the Port's land and infrastructure, whereby private companies dominate the operations. The Port Authority (P.A.) pursues both public and private goals and resembles the nature of a hybrid, shared value organization. Another port management model is Corporatization, where P.A.s are governmentally owned. Still, with the organization and behavior of a corporation (like the Port of Singapore), they show the most extraordinary involvement in activities beyond the landlord. Corporatization seems an appropriate new institutional structure for P.A.S. They aim to develop and manage seaports with operators and service providers to establish an attractive port product. P.A.s, therefore, have a strong focus on resources. P.A. executives are expected to be constrained in exploring new market opportunities by the Port's geographical location and infrastructure assets.

They may focus more on their resources than on new markets for which they can develop new services (Ogollah, Rucha, Aroni & Gichiri, 2019; World Port Source, 2022).

A classic example of Corporatization is the Port of Wilmington in the State of Delaware, U.S.A. The Port of Wilmington, Delaware, is a full-service deepwater port and marine terminal handling about 400 vessels Annually with an annual import/export cargo tonnage of more than 6 million tons (DSPC, 2023). As of October 2023, Delaware's Port was the busiest terminal on the Delaware River. Located at the Delaware and Christina Rivers confluence, 65 miles from the Atlantic Ocean, the Port is owned by the Diamond State Port Corporation (DSPC), a State of Delaware corporate entity. Since it was founded in 1923, the Port of Wilmington has been a primary Mid-Atlantic import/export gateway for various maritime cargoes and trade.

The ownership of the Port is separated from the operation of the Port by DSPC appointing long-term private, professional operators. In July 2023, The Diamond State Port Corporation (DSPC) announced that Enstructure, L.L.C., had obtained its final approval to become the new operator at the Port of Wilmington (Bailey, 2023). With the concurrence of legislative leaders designated by the State's Joint Capital Improvement Committee, Enstructure took the helm at the Port. The legislative leaders were Delaware House Speaker and Senate President Pro Tempore, Joint Capital Improvement Committee Co-Chairs, and Controller General. G.T. Wilmington L.L.C. is An operating unit of Gulftainer based in the U.A.E., which had in 2018 obtained a 50-year operating agreement with a promise to transform the Port of Wilmington into one of the East Coast's largest gateways and potentially double the number of jobs at the Port.

On the other hand, Enstructure is a leading U.S. marine terminal and logistics company with a network of 21 marine terminals. Enstructure has committed significant capital investment in the current Port of Wilmington. Enstructure estimates that in the next five years, they will invest as much as $65 million at the facility, depending on growth. As part of the approval from DSPC, Enstructure secured an agreement to work closely with the International Longshoremen's Association (ILA) and a project labor agreement with the Delaware Building and Construction Trades Council. Representatives of the ILA and Trades Council supported Enstructure and their proposal at the DSPC Board meeting on July 7. Enstructure is also partnering with the State on the potential expansion at Edgemoor, where the Governor has committed $50 million from American Rescue Plan Act funds (AJOT, 2023).

According to Emiroglu et al. (2016), to increase their market share in a competitive environment, particularly for hubs and gateways, many ports have come up with various strategies, which include diversification of their services, capitalizing on their most vital resources, focusing on their core strengths and on cost-cutting strategies to remain competitive. These ports are specifically

interested in lobbying regional governments to invest in improving hinterland transport systems to increase efficiency and reduce logistics chain costs. This way, they attract more shipping traffic to the ports and associated corridors and maintain and sustain a competitive advantage over rivals (Tongzon & Heng, 2005; ESPO, 2010; R.T., 2017).

In Taiwan, for example, the administration of ports is centralized, while in the U.S.A., they are under the watchful eyes of Congress, even if from an arm's length. At the time the Dubai Port World was to acquire operations of six major U.S.A. ports, one Republican Representative from California observed that "let people buy apartments in Chicago or farmland in Iowa, but they can't own and operate port operations" (National Public Radio, Washington, 2006). Even in the most developed democracy in the world, U.S.A., ports are the property of the local municipal governments. The City of Houston owns The Port of Houston Authority is owned by the City of Houston, and some councilors sit on the Management Board of the Port. No significant project development can be executed without approval from the Municipality. The Port of Los Angeles is a City of Los Angeles department, and the Chief Executive Officer reports to the city Mayor. The Port of Miami, home to the world cruise tourism, is also a department of the City of Miami. In all these instances, port planning is a small component of city planning (Flynn, Lee & Notteboom, 2011; Lee, Lam, Lin & Hu, 2014; Tongzon & Heng, 2005).

5.1 Port of Mombasa Community

Mombasa Port Community Charter (the "Charter") proclaims the desire of the Mombasa Port Community to realize the full trade potential of the Mombasa Port Corridor. It represents the culmination of intense and extensive consultations among all stakeholders: government agencies, businesses, civil society organizations, the Coastal Community, and special interest groups in Kenya. While the parties included in the Mombasa Port Community form the core team tasked with executing the initiatives proposed in the Charter, all stakeholders are obligated to pursue and encourage the realization of the trade potential of the Mombasa Port Corridor (Ogollah, Rucha, Aroni & Gichiri, 2019).

Through the Charter, the Mombasa Port Community has formalized the desire to support and complement the Government of Kenya's (G.O.K.) efforts to translate the Port of Mombasa into a world-class Seaport of Choice. The Charter, developed by the public and private sector members of the community, expressed commitment to discarding the 'silo mentality' is the work culture in which agencies have operated for so long. This desire is manifested by the overall vision of the Charter, which seeks to commit the parties towards significantly improved efficiency and competitiveness of the Northern Corridor. The Charter seeks to provide an innovative monitoring and evaluation framework with a performance dashboard to ease analysis, policy, and

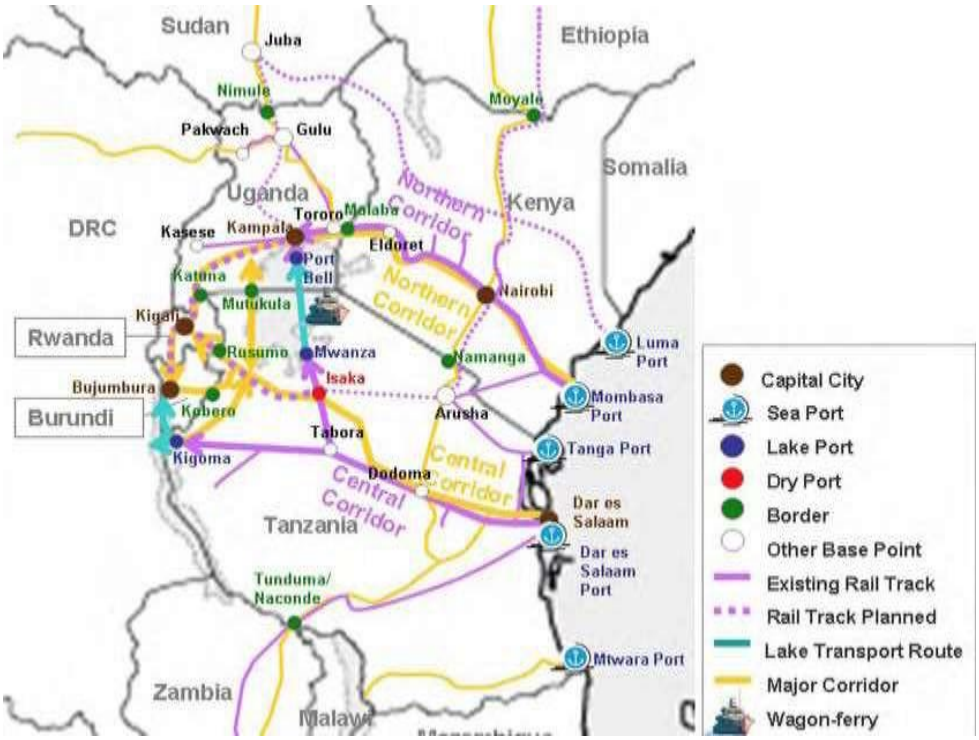
operational decisions and interventions. This process will augment the G.O.K. initiatives to enhance accountability of service delivery in organizations that provide services to the maritime trade along the Northern Corridor. The improvements brought about by implementing the Charter shall provide quality services to our neighboring countries that utilize the Northern Corridor (AfDB, 2018; Ogollah, Rucha, Aroni & Gichiri, 2019; World Port Source, 2022).

6.0 Analysis of the Transport Corridors in Eastern Africa

The East African region has a relatively higher level of trunk road provision. The Society for International Development (S.I.D.), through their East Africa Trend Monitor observatory (2013), reports that the E.A. region's transport corridors consist of two major international corridors: the Northern Corridor and the Central Corridor, which traverse the region, forming a CBTI network, each linking seaports with landlocked countries. They serve nine countries (Tanzania, Kenya, Rwanda, Burundi, Ethiopia, the Democratic Republic of Congo, South Sudan, Sudan, and Djibouti). It covers approximately 5,000km of trunk roads of various grades, 4,500km of rail line, 17 major border crossings, and two significant seaports (Mombasa and Dar es Salaam). The Northern Corridor has the Port of Mombasa in Kenya serving as the lifeline for Uganda, Rwanda, and Burundi; it ends in Bujumbura. The Central Corridor has the Port of Dar es Salaam serving as a lifeline of imports, exports, and trade for Rwanda, Burundi, and the eastern part of the Democratic Republic of Congo (D.R.C.). Another major project is the proposed Lamu Corridor linking Kenya with South Sudan and Ethiopia. It is known as the Lamu Port-Southern Sudan-Ethiopia Transport Corridor (LAPSSET). It seeks to provide South Sudan and Ethiopia an accessible way to the Indian Ocean. This ambitious Corridor will include Port, rail, and road transportation hubs linking Lamu to the interior. In addition, a critical aspect of the Lamu Corridor is the proposed South Sudan-Lamu pipeline, which is expected to provide an alternative crude oil transportation network (AfDB, 2010; Ntamutumba, 2010; AfDB, 2018).

The main reason for the East African corridors is to boost economic growth by lowering the costs of moving goods, thereby increasing trade volume. This low cost and increased volume would imply that the corridors benefit the regional economies and enhance the relationship with international markets. However, a closer look at the corridor map clearly shows that the Corridor has an east-west direction linking the Indian Ocean ports with the population centers that are the markets for imported goods—primarily characterized by agricultural, mineral, and other resources found in the region's interior form the bulk of the region's exports to the rest of the world. Particularly striking, though, is the relegation of intra-regional trade to a seemingly distant second place in the priority list despite the rhetoric and pronouncements made about the importance of the Corridor. Very little is seen of creating or upgrading the routes to link the

food-surplus regions in southern and western Tanzania and the food-deficit regions in northern Kenya, northern Uganda, Somalia, and Ethiopia. These further compound the glass and straw analogy: "The east-west corridors ignore the north-south opportunities (Gekara & Chhetri, 2013; World Port Source, 2022).



Source: Ogollah, Rucha, Aroni & Gichiri (2019)
Figure 4. Major Corridors in East Africa

Each of the international corridors consists of two modes, namely, the road and railway. Of the two transport modes, the condition of the road corridor is mostly excellent or fair except for several sections, which are either under development or rehabilitation. In contrast, the railway corridor suffers from reduced capacity attributable to a lack of investment and maintenance in track and rolling stock. Because of the competitive prices for railway freight transport relative to road transport, railway transport volumes exceed carrying capacity, resulting in as long as two months in waiting time for shipments on particular lines. Also to be addressed is an urgent solution for the severe congestion at the ports of Mombasa and Dar es Salaam, the two critical nodes of the above-mentioned international corridors, due to the region's rapid economic and trade growth. Moreover, facilities and systems for transit cargo, such as border posts, tend to require excessive transit time due to insufficient complex infrastructure and underdeveloped institutions and regulations (soft infrastructure). All these

elements of

Underdeveloped "CBTI Systems" lead to higher freight costs relative to the road services provided, posing bottlenecks to trade and economic activities (TTCA-NC, 2011; TTCA-NC, 2013; LAPSSET-CDA, 2017).

The Northern Corridor: Lakes Region with the Kenyan maritime seaport of Mombasa

The Northern Corridor Transit and Transport Agreement (NCTTA) is a comprehensive agreement with defined 11 Protocols on strategic areas for regional cooperation relating to Maritime Port Facilities, Routes and Facilities, Customs Controls and Operations, Documentation and Procedures, Transport of Goods by Rail, Transport of Goods by Road, Inland Waterways Transport of Goods, Transport by Pipeline, Multimodal Transport of Goods, Handling of Dangerous Goods and Measures of Facilitation for Transit Agencies, Traders and Employees. It was signed in 1985 and revised in 2007 for regional cooperation to facilitate interstate and transit trade between the Member States of Burundi, the Democratic Republic of Congo, Kenya, Rwanda, and Uganda. South Sudan acceded to the Agreement in 2012. The objectives of the Agreement are based on three pillars of sustainable transport: the economic pillar aiming at promoting efficient and competitive transport, the social pillar aiming to foster inclusive transport, and the environmental pillar for green freight transport. The NCTTCA was established and mandated by the Member States to oversee the Agreement's implementation, monitor its performance, transform the Northern trade route into an economic development corridor, and make the Corridor a seamless, efficient, innovative, and green Corridor. Below is the map of the Northern Corridor Member States (TTCA-NC (2011), G.O.K., 2013; LAPSSET-CDA, 2017).

The Northern Corridor links originate from Mombasa Port and transport traffic to/through Nairobi, Kampala, Rwanda, and Burundi. It also carries a significant portion of cargo outbound from Uganda and Rwanda. It is a transit route for freight bound for Ethiopia and southern Sudan, originating from Mombasa Port. In particular, due to recent rapid economic growth in Uganda, freight traffic is heavy on the Mombasa Port– Nairobi–Kampala route, most of which transits the Malaba border crossing. However, some are diverted through the border crossing at Busia. Concerning pipeline transport, the existing pipeline serves only the Mombasa–Eldoret section, with further inland transport of fuels undertaken along the Northern Corridor. The road section between Mombasa and Kampala is in relatively better condition than other sections, except for the section undergoing rehabilitation/reconstruction with assistance from the World Bank and the E.U. As it passes through the urbanized areas of Mombasa, Nairobi, and Kampala, traffic congestion poses a bottleneck for the smooth transit of passengers and freight. In response, E.U.- assisted bypass development is underway in northern Kampala. Also, the World Bank will assist bypass

development in the Nairobi and Mombasa areas, with a feasibility study underway (TTCA-NC, 2011; LAPSSET-CDA, 2017)

The Central Corridor: The Central Corridor originates from the Port of Dar es Salaam and provides access to/from the landlocked countries of Burundi, Rwanda, and Uganda. Although rehabilitation/ reconstruction of the Central Corridor roads was commenced a little later than in the Northern Corridor, road conditions in the Tanzanian section are relatively better than before. This section carries a majority of outbound freight from Burundi. While it serves inland-bound imported freight from Tanzanian ports, it also serves seaport-bound export freight (predominantly coffee and tea) originating from Rwanda and Burundi and Export of cotton produced in western Tanzania. All this freight transits the Dar es Salaam central business district but does not cause significant traffic congestion problems as the roads serving the Dar es Salaam urbanized area are sufficiently broad (TTCA-NC,2011; G.O.K., 2013; LAPSSET-CDA, 2017).

6.1 Mombasa Port Corridor Reform Programme Goals

To accelerate the realization of the potential of the Mombasa Corridor and spur the region's economic growth, the Port Community has set ambitious goals that MUST be achieved to create the requisite momentum. These cut across the entire logistics continuum. The Anchor Members of the Port Community who have signed this founding Charter shall undertake their specific obligations within it. Where applicable, the obligations shall appear under each member's name. It is noted, for the avoidance of doubt, that each member or entity continues its allegiance to its legal instruments and structures, through which each member shall procure to provide legitimacy to this (AfDB, 2018; (AfDB, 2010; Mombasa Port Community Charter, 2014). Table 1 is a listing of all the partners/members of the Port Community Charter.

Table 1. Port of Mombasa Community Charter

Category and Name of Partner A: Public Sector	Designation
1. Kenya Revenue Authority	Commissioner General
2. Kenya Ports Authority	Managing Director
3. Kenya Railways Corporation	Managing Director
4. Kenya National Highways Authority	Director General
5. Kenya Pipeline Company Limited	Managing Director
6. Kenya Trade Network Agency	Chief Executive Officer (CEO)
7. Kenya Maritime Authority	Director General
8. Kenya National Police Service	Inspector General
9. Kenya Bureau of Standards	Managing Director
10. National Transport and Safety Authority	Director General
11. Kenya Plant Health Inspectorate Service	Managing Director
12. Port Health Services	Director, Public Health
13. Radiation Protection Board	Secretary/Chief Radiation Protection Officer

B: Special Interest Partners	Designation
1. The Northern Corridor Transit	Transport Co-ordination Authority Executive Secretary
2. Trade Mark	East Africa CEO
3. The Intergovernmental Standing Committee on Shipping	Secretary General
C: The Private Sector Players	Designation
Core Cargo Owners	
1. The Kenya Private Sector Alliance	CEO
2. Kenya Association of Manufacturers	CEO
3. East African Tea Trade Association	CEO
4. The Kenya National Chamber of Commerce	Chairman
5. Shippers Council of Eastern Africa	CEO
Service Providers	
1. Container Freight Stations Association	Chairman
2. Kenya Ships Agents Association	Chairman
3. KIFWA	Chairman
4. Kenya Transport Association	CEO

Source: Mombasa Port Community Charter (2014)

The Port of Mombasa Community has identified four distinct but interdependent pillars and eight overlapping Key Result Areas (KRA) as critical to achieving the defined goals. Pillar One: Fit for Purpose Logistical and Transport Infrastructure. This pillar is based on the fact that physical infrastructure and capacity to handle maritime operations, terminal operations, and hinterland operations must be developed in concert to facilitate a smooth freight flow. Without this end-to-end perspective, partial infrastructural developments will not yield good results. This pillar identified two KRAs: Transform Mombasa Port into a high-performance landlord port and proportionately grow the capacity of hinterland channels. The second pillar is Operational Efficiency. This pillar is based on the fact that many inefficiencies are occasioned by lengthy and largely manual processes, an inefficient I.T. platform, and a sedentary work culture. These result in high transaction costs, long lead times and incorrect processing for enterprises, complex regulations, difficulty monitoring cargo movements, and loss of revenue due to official corruption. The need to go digital on a 24-hour basis cannot be overemphasized. This pillar identified two KRA action points: Actualize paperless trading through the single window system and Reduce cycle times through speed and a 24/7 work economy (Mombasa Port Community Charter, 2014).

The third pillar is the Synergistic and Collaborative Port Community. This pillar is based on the premise that, ultimately, the people make the system work or fail. It considers the demonstration of leadership within the larger Port Community structure, work culture, teamwork, and expected alignment. Unless all strategy-formulating heads within the community see and pursue the same big picture, the Mombasa Corridor and all those working within its ambit will

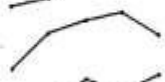
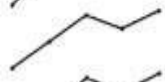
continue to operate under par. This pillar also identifies two KRAs: Drive planned initiatives through stakeholders' executive leadership and ethical and professional business practice. The fourth and last pillar identified in the Port of Mombasa community is Facilitative Regulation and Oversight Engagement. This pillar is based on the fact that several statutory bodies are mandated to carry out regulatory, oversight, and monitoring functions at different stages of the trade process. Some of these agencies' roles overlap, reverse, or disregard one another. Apart from creating confusion and slowing down trade, this situation also erodes the very purpose for which these agencies were established. The gaps witnessed in governance aspects can only be closed through appropriate legislation. This pillar identifies two KRAs: Streamline the regulatory and oversight roles throughout the Corridor and review and enact enabling legislation (Mombasa Port Community Charter, 2014; Ogollah, Rucha, Aroni & Gichiri, 2019).

7.0 Traffic through the Port of Mombasa

The port traffic is more often a barometer of the economic activities of the Port's hinterland. A strong correlation exists between Gross National Income/Gross Domestic Product (G.D.P.) and port traffic. The Port of Mombasa serves a hinterland beyond Kenya, including Uganda, Rwanda, South Sudan, DR Congo, Tanzania, and Burundi. Therefore, the port traffic in Mombasa is expected to significantly impact the G.D.P.s of all these hinterland countries. Port traffic through the Port of Mombasa can be categorized broadly into four conventional classes: dry general, dry bulk, containerized, and liquid bulk cargoes. The cargo handled through the Port and consequently through the transport corridor connecting the Port of Mombasa has continued to grow. The development and flagging of S.G.R. operations has been the game changer. 2011 Kenya signed a memorandum of understanding with the China Road and Bridge Corporation to build the Mombasa–Nairobi Standard Gauge Railway (S.G.R.). Financing for the US$3.8 billion project was finalized in May 2014 through the Exim Bank of China, extending a loan for 90% of the project cost and the remaining 10% from the Kenyan government (R.T., 2017). The passenger service on the S.G.R. was inaugurated on May 31, 2017, and Cargo Freight operations started in January 2018 (GoK, 2017). Work is underway to extend the S.G.R. to Naivasha and later to the border town of Malaba. The first Phase of the S.G.R. project is directed towards moving freight and passengers between Mombasa and Nairobi, emphasizing cargo freight. There, however, is a dominance of imports over exports by a factor of almost 4.5, leading to a severe imbalance that certainly affects the cost of transporting goods in either direction. Between the five years, 2013 and 2017, the share of exports vis a vis total traffic ranged between 12 and 14 percentage points (K.P.A., 2018; Ogollah, Rucha, Aroni & Gichiri, 2019; K.P.A., 2022). In five years from the onset of operationalization of the Standard Gauge Railway through to the year 2021, the Port of Mombasa's

performance improved tremendously, as depicted in Table 2.

Table 2. Kenya Ports Authority (K.P.A.) Performance: 2017 - 2021

Key Performance Indicators	Trend 2017 - 2021	% Change 2020-2021	Five Years Compound Annual Growth (%)	2017	2018	2019	2020	2021
Throughput ('M'MT)		1.3%	3.3%	30.35	30.92	34.44	34.12	34.55
Transit Traffic ('M'MT)		-6.2%	2.5%	8.64	9.60	9.95	10.17	9.54
Container Throughput ('M'TEUs)		5.6%	4.8%	1.19	1.30	1.42	1.36	1.44
Transhipment Traffic ('000'TEUs)		25.4%	28.4%	81.20	121.58	211.60	175.83	220.49

	Trend 2017 - 2021	2017	2018	2019	2020	2021
Service Indicators (Days)						
Average Port days for All vessel		3.8	3.4	3.0	3.7	3.9
Container Ship Turnaround Time		2.6	2.7	2.8	2.9	3.0
Ship Waiting Time : Gross		1.48	0.47	0.47	0.57	1.34
Ship Waiting Time: Net		5.00	4.33	1.13	1.25	1.42

Source: K.P.A. Bulletin Statistics (2022)

As indicated by the day in Table 2, there has been a year-by-year improvement in the port efficiency and performance sanctioned by the operationalization of S.G.R. about Throughput, Transit Traffic Container Throughput, and Transhipment Traffic represented overall percentage changes of 1.3%, -6.2%, 5.6%, and 25.4%, respectively.

Table 3 and Table 4 present a year-by-year account, a period before the infrastructure development (2013-2017) and after the S.G.R. development, and five years of usage of S.G.R. after operationalization (2017-2021).

Table 3. *Traffic through the Port of Mombasa in "000" Tons (2013-2017)*

Cargo Category (``000MT)	**2013**	**2014**	**2015**	**2016**	**2017**
Containerized Cargo	8838	10047	10276	10615	15405
Conventional Cargo	1854	1938	2256	1968	5037
Dry Bulk	4978	5638	6928	7053	8053
Liquid Bulk	6637	5638	7272	7728	8726
TOTAL	22307	23261	26732	27364	37221

Source: K.P.A. Bulletin Statistics (2018)

Looking at the two sets of data keenly, you will see an improvement in cargo handled and or evacuated through the transport corridors through S.G.R. and the improvement of the Road transport corridor (Northern Corridor).

Table 4. Traffic through the Port of Mombasa in "000" Tons (2017-2021)

Cargo Category (``000MT)	2017	2018	2019	2020	2021
Containerized Cargo	15405	16884	18446	18539	17729
Conventional Cargo	5037	5074	5579	5738	6429
Dry Bulk	8053	7965	7821	8291	7219
Liquid Bulk	8726	8497	9178	8793	9190
TOTAL	**37221**	**38420**	**41024**	**41361**	**40567**

Source: K.P.A. Bulletin Statistics (2022)

The growth rate between 2007 and 2016 averaged 6.33%, which is a relatively high growth rate. At that point, this growth rate tended to dwarf the overall growth rate of global port traffic, which stood at about 3.5%. The increases in cargo volumes indicate investment opportunities for the private sector to complement port infrastructure that will be overstretched over time. This growth maintained a marginal trajectory after further improvement of the port infrastructure after heavy investment in the transport corridor/infrastructure through the construction of S.G.R. starting at the onset of S.G.R. operations in 2017. The infrastructural development at the Port (Berths 19, 20, 21, and 22) required a corresponding improvement of the transport corridor for synched cargo uptake from the Port. Table 5 captures year-by-year cargo throughput growth from 2017-2021.

Table 5. Port Performance (Aggregates) – Different Types of Cargo: 2017-2021

Total Imports & Exports (`000MT)	2017	2018	2019	2020	2021
Total Imports	25,604	25,475	27,558	27,770	27,332
Total Exports	3,794	4,125	4,277	4,205	4,612
Total Transshipment	874	1,247	2,495	2,031	2,489
Restows	73	76	110	109	118
TOTAL Throughput	**30,345**	**30,923**	**34,440**	**34,115**	**34,551**
TOTAL Container TEUs	**1,189,957**	**1,303,862**	**1,416,654**	**1,359,579**	**1,435,250**

Source: K.P.A. Bulletin Statistics (2022)

Regarding cargo categorization, containerized cargo constitutes about 40 percent of the total cargo handled through the Port, followed by liquid bulk and dry bulk cargo, constituting 28% of the total cargo. One important feature is, however, the near-constant shares of both dry general and containerized cargoes. Containerized cargo continues to rise (refer to Table 6.7) at the expense of other complementary cargoes, especially in recent years when freight rates have decreased. Several C.F.S. situated in Mombasa are complemented through

container handling and storage facilities (K.P.A., 2019).

Table 6. Number of Containers Handled In the Port of Mombasa in "000" TEUs

		2017	2018	2019	2020	2021
IMPORTS	Full	554,400	591,460	592,807	589,296	598,331
	Empty	7,055	10,427	8,715	10,733	9,828
	TOTAL	561,453	601,887	601,522	600,029	608,159
EXPORTS	Full	134,464	149,303	145,192	153,739	166,024
	Empty	406,799	425,379	450,768	422,180	431,838
	TOTAL	541,263	574,682	595,960	575,919	597,862
TRANSSHIPMENT	Full	60,998	85,776	151,983	123,578	153,725
	Empty	20,205	35,801	59,621	52,249	66,762
	TOTAL	81,203	121,577	211,604	175,827	220,487
RESTOWS	Full	5,238	5,590	7,022	6,896	7,664
	Empty	798	126	546	908	1,078
	TOTAL	6,036	5,716	7,568	7,804	8,742
TOTAL	Full	755,100	832,129	897,004	873,509	925,744
	Empty	434,855	471,733	519,650	486,070	509,506
	TOTAL	1,189,957	1,303,862	1,416,654	1,359,579	1,435,250

Source: K.P.A. Bulletin Statistics (2022)

Loaded containers, both exports, and imports, have, on the other hand, been growing at an average rate of 5.34%, which is close to the global average of 6.1% and is nearer to the overall growth in port traffic, which stands at 6.22% (MBEC, 2017). Critically affected by the Covid-19 epidemic.

7.1 Freight Tonnage by S.G.R. and Roads

Table 7 displays data on the throughput of TEUs handled through the Nairobi Inland Container Depot from 2017 when the S.G.R. was operationalized to the current published data (K.P.A., 2022) on port statistics up to 2021. After the operationalization of Standard Gauge Railway from Mombasa to Nairobi, the number of containers (TEUs) evacuated through the new infrastructure spiked (846.9%) from 30,459 TEUs in 2017 to 257,972 TEUs in 2018. As earlier noted, the efficiency of the new transport avenue helped the Port improve its performance and efficiency. After that, we see a yearly increment apart from a slight dip in 2020 due to the COVID-19 effect. Current data indicates an increment of 10.31% in cargo uptake through S.G.R. This indicates a symbiotic relationship between port efficiency and infrastructure improvement along the transport corridors. In fact, In the second year of S.G.R.'s operation, throughput rose from 15% to more than 20% in year three. And now above 30%. The

continued development of the transport corridor linking the Port to the hinterland has played a perfect jigsaw fit.

Table 7. Nairobi Inland Container Depot Traffic (2017 – 2021)

Cargo Category (TEUs)	*2017*	*2018*	*2019*	*2020*	*2021*
Imports Full	15,110	177,652	262,895	234,676	262,441
Exports Full	4,713	11,701	13,777	15,200	19,972
Empty	10,636	68,619	142,158	143,276	151,265
TOTAL	*30,459*	*257,972*	*418,830*	*393,152*	*433,678*

Source: K.P.A. Bulletin Statistics (2022)

Import traffic increased from 234,676 TEUs in 2020 to 262,441 TEUs in 2021, an increase of 11.83%. In the same period, Export (full) traffic increased from 15,200 TEUs to 19972 TEUs, a change of 31.39%, whereas Export (Empty) traffic increased from 143,276 TEUs to 151,265 TEUs, a change of 5.58%. Overall, in all categories, there was a remarkable increase in cargo handled at the Nairobi Inland Container Depot from 2017 to 2021. For the period to June 2018, the following table illustrates deliveries both by road and rail. To underscore the importance of the Port of Mombasa in the growth of the transport corridors in eastern Africa, Table 8 depicts the regional traffic in metric tonnes originating or terminating at the Port of Mombasa.

At the onset of operationalization of S.G.R. in 2017, total transit cargo from the Port of Mombasa was 8,636,606 Metric Tonnes. This tonnage continued to grow in 2018 (9,604,562 Metric Tonnes), 2019 (9,947,520 Metric Tonnes), and in 2020 to (10,171,015 Metric Tonnes) with a slight dip in growth in 2021 to 9,540,955 Metric Tonnes. Again, the corridors linking Kenya (From the Port of Mombasa) to Uganda, Tanzania, Burundi, Rwanda, South Sudan, DR Congo, Somalia, and others were increasingly busy through 2021. Most cargo destined for hinterland countries is ferried through the road corridors.

8.0 Analysis of the Facilitative Role of the Port of Mombasa

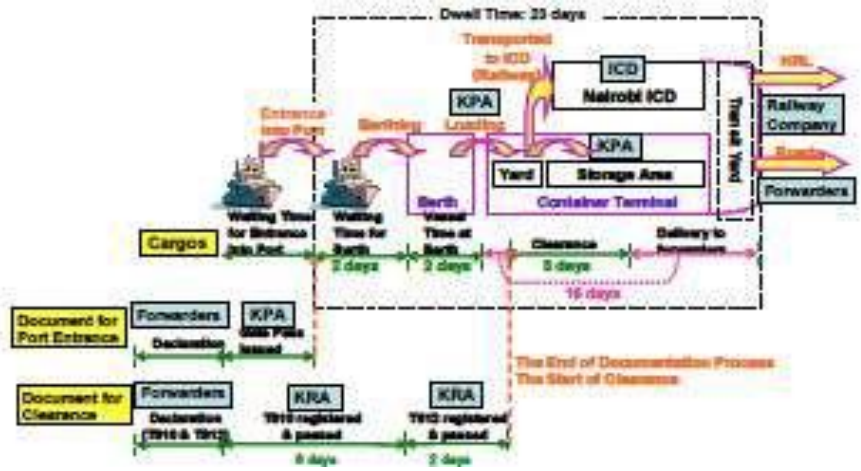
Mombasa Port serves as a hub of the Northern Transport Corridor and is currently the only Port engaged in international trade in Kenya. It represents the largest Port in East Africa, serving as the world's gateway to Kenya, Uganda, Rwanda, Burundi, the eastern part of the D.R.C., southern Sudan, and northern Tanzania. The Port has 22 berths with a total cumulative length of 3,044 m, with berth draft between 9.4–10.3 m and water depths of 7.0–13.4 m. After developing berth 22 (draft of 15m and 320m), the Container Terminal has effectively a quayside length of more than 1600 meters, increasing port capacity to handle 2.1 Million TEUs. The Port of Mombasa has natural topography features that do not require regular dredging. The Port is also relatively well furnished with necessary equipment and facilities compared to other regional international ports. The recent progressively larger container vessels calling the Port have resulted in rapid growth in container freight volumes, driven by the growth of the regional economy and improved road and rail infrastructure. Average cargo dwell time at

the Port amounted to 23 days in 2007, a consequence of severe congestion at the container terminal due to increases in cargo volumes. Creating an urge to expand port facilities, improve port procedures and institutions' efficiency, and improve night security.

In response to the prevailing inefficient circumstances, the Port of Mombasa opened the Port for operation and document processing round-the-clock. Kenya Port Authority (K.P.A.) started inspecting and controlling cargo transiting Mombasa Port to the hinterland, while customs inspection was undertaken by the Kenya Revenue Authority (KRA). These authorities continue to maintain relatively intra-synergies, generating more significant efficiency. This coordinated approach facilitated the port `emitting` more cargo to the transport corridors and, simultaneously, receiving back more export cargo, empty containers, and handling bigger vessels. After heavy investment in port infrastructure, particularly dredging and construction of new berths, the Net Ship Waiting Time massively improved (Table 2) from 5.0 days in 2017 and by 2021, the Net Ship Waiting Time was 1.42 days (K.P.A., 2018; K.P.A., 2019; K.P.A., 2022).

Source: Ogollah, Rucha, Aroni & Gichiri (2019)

Figure 5. A Schematic Procedural Flow for Transit Containers at Port of Mombasa.



Other roles of the Port of Mombasa in facilitating cargo movement to and from the Port include Container Freight Stations. These facilities are principally bonded storage areas where Customs treatment is undertaken while the shippers enjoy more extended free storage periods. There are about 22 C.F.S.s (By 2018) within Mombasa, various types of heavy equipment, trucks, and skilled labor. A good number of the C.F.S.s have their own trucks for transporting containers from the Port and empty containers to the Port, their services being complementary to those of long-distance haulage. Also, by 2018, about seven empty container depots received, stored, cleaned, and repaired containers. Over 30% of the shipped containers will be returned empty (see Table 6).

Other services anchored around the Port of Mombasa include Clearing and Forwarding Services (868 firms) and established Clearing and Forwarding Agents licensed and authorized by KRA to provide Customs services to cargo. Stuffing/Destuffing services: Services that take place in godowns where containers, most of the times carrying cargo from or to the Port, are de-stuffed/stuffed to facilitate the return of the empty containers to the shipping line within the specified period granted by the shipping line. For instance, tea and coffee are at the top of the list of exports, and stuffing and de-stuffing operations are carried out either at the Port of Mombasa or in bonded warehouses. The commodities are transported through the S.G.R. and roads to Mombasa from the farms and farmer organizations. Table 8 captures the volumes of exports for the two commodities from 2017 to 2021. Every tea or coffee container shipped out goes with a score of wooden pallets. It follows that for every container that is exported, ten pallets are also shipped away as exports. Creating demand for pallets and spurs another critical entrepreneurial activity around the Port of Mombasa.

Table 8. Exports of Tea and Coffee '000 tons

Product/year	2017	2018	2019	2020	2021
Tea	571	607	570	679	740
Coffee	361	287	298	358	450
Total	932	894	868	1037	1190

Source: K.P.A. Bulletin Statistics (2022)

8.1 Conclusions

This paper examined the Port of Mombasa's role in Eastern Africa's transport corridors. The paper concludes that enhancing the Port's logistical capacity and expanding inland transport infrastructure facilities, combined with the benefits of dedicated transport corridors, creates potential for more excellent regional economic development. It is also noteworthy that the Port of Mombasa, given its strategic role in cargo movement both in and outward bound, requires its management to optimize operations and productivity. The administrative jurisdictions of the Port will also need to be revisited, especially in enforcing the "Mombasa Charter." Finally, from a qualitative analysis approach, three factors need to be looked into if the role of the Port is to be enhanced. These factors include those related to the Port's

Capacity and management, assessment of the inland corridor mode limitations on carrying capacity, continuous improvement and maintenance of the infrastructural conditions, and the levels of connectivity. Finally, the socio-economic problems within the corridors must be addressed to remove any constraining environment for efficient logistics operation. The Port of Mombasa has a synergetic relationship with the transport corridors. Indeed, for a straw to draw well and judge its functionality, the content in the glass must be well prepared

for drawing.

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