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**The African Cooperation within Egypt-Sudan using
Multimodal Transportation: Systematic Review Paper**



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The African Cooperation within Egypt-Sudan using Multimodal Transportation: Systematic Review Paper

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Abstract

Purpose: Investigating the advancements and implementation facilities required in Egypt and Sudan in terms of Multimodal transport to maximize Egypt's economic gains within the footprints of the agreements between the two nations and African cooperatives. To strike a balance between social, economic, and environmental concerns, the Egyptian government prioritizes transportation projects as part of its ambitious objective of providing and integrating varied transportation networks and technologies.

Methodology: Conducting a comprehensive, systematic literature review of 55 published studies in order to compile the most significant published papers matching the research keywords, supporting the theoretical contributions of the research and the previous researchers' recommendations for the subsequent studies, by assessing primary data collected through semi-structured interviews with Egyptian and African transport authority officials.

Results: It has been shown that too few research studies have used the river connection to disrupt commerce flow in order to examine multimodal transportation. There has also been no further inquiry into the border terminals and route networks between Egypt and Sudan that might help in the enhancement of the countries' import and export operations, notably the upgrading and modernization of ports in Nile Basin countries, despite the fact that increased activities, services, and hubs might help both countries' transportation networks, seaports and logistics networks surrounded by Africa.

Unique Contribution to Theory, Policy and Practices: The research provides an original contribution to the literature by identifying the impact of cooperation in terms of transport sector by improving inter-modality services and logistics services between the two countries. A network of highways linking Egypt and Sudan will gain better benefits using data from real investigations and theoretical models established by the researcher, but it will need considerable exploration and actuality.

Keywords: *Egypt-Sudan; African Cooperation; Multimodal transport; Agreements; Logistics activities*

INTRODUCTION

Egypt and Sudan play a primary role in each other's initiatives due to their geographical locations as neighboring countries, which is an especially crucial part in the economic relation as improving their border connections through an integrated logistics framework within land, river, and railway transportation; Sudan border relations with Egypt are characterized more by common bonds of interest than by peaceful exchange. Egypt and Sudan share a border, which has been a source of contention between the two countries for decades (World Atlas, 2020).

Egypt is a Mediterranean country bordered to the northeast by the Gaza Strip and Israel, to the east by the Gulf of Aqaba and the Red Sea, to the south by Sudan, and to the west by Libya. Egypt is the second-largest economy on the African continent, with one of the largest and most intricate markets in the Middle East, and it is expected to become one of the world's largest markets in the twenty-first century. Furthermore, it is obvious that Africa strongly affected Egypt's foreign policy, which helped to the creation of the Organization of African Unity, helping the development of Egyptian and Sudanese exports, imports, and passenger movements, focusing on demonstrating the economy's significant participation in global free markets. Transportation services and infrastructure are used by all sectors of the economy to connect production and consuming markets. When it comes to commerce, transportation bears the most weight; thus, smoothly operating transportation routes and systems will result in optimal production. The Egyptian government prioritizes transportation projects as part of its ambitious objectives of offering and integrating multiple transportation networks and technologies, with the purpose of striking a balance between social, economic, and environmental issues. Then, a thorough literature review was conducted to compile the most important published papers that met the study keywords and supported the research's theoretical contributions. Therefore, this research paper investigates the impact of Egypt-Sudan integrated transport network on the Egyptian-Sudanese multimodal activities and the obstacles that hinder the logistics services for trade, especially after investing in a new infrastructure connecting Egypt and Sudan, in addition to the road networks and terminals (Egypt Independent, 2020).

The research aims at determining the impact of transportation sector cooperation in terms of strengthening inter-modality services and logistics services between the two nations via links by road, rail, and river and evaluating how this would affect logistics service providers. The data were about 55 papers and books, used from different search engines to cover the various contents of the chapters, and almost 19 previous studies gathered in systematic literature review table were used, respectively. Despite that, the main output in this phase is to validate the systematic review by analyzing semi-structured interviews conducted with Egyptian and African transport authorities.

LITERATURE REVIEW

Egypt and Africa are inextricably linked. Egypt's geographical location in North East Africa makes it Africa's gateway to Asia, Europe, and North and South America. Since the beginning of time, Pharaonic Egypt has worked tirelessly to close the Nile River's gap. Looking for a way to switch on links with the other African kingdoms Sudan and Egypt share a border, language, and culture. Similarly, cultural and historical ties As a result, bilateral commerce between the two countries is significant. Particularly as compared to bilateral trade between alternative couples the profession has changed dramatically in the previous 20 years. Between these countries, there has been a significant expansion (Al-Haj, 2015).

Highlighted After sign language the Egypt-Sudan Four Freedoms Agreement in 2004; Egypt's chairmanship of the African Union (AU) in 2019 is expected to stimulate trade and investment with African countries, according to industry leaders. Investigating the current state of land transportation modes and facilities. Roads, railroads, and inland waterways in Egypt are evaluated, with an emphasis on their roles in the logistics system; and interior waterways in Egypt are evaluated, with a focus on their roles in the supply chain (Mounir, 2020). Through its participation in the African summits, Egypt expressed interest to transfer its data technology experience and efforts to the continent. Transferring data of knowledge and technology are by Egypt's will to assist in localizing and recruiting information technology inside the African communities, or by supporting African communities to require advantage of the achievements of those technologies. (Farouk, 2019).

Egypt's economy is one of the largest in Africa, with a positive and consistent economic growth rate for the previous thirty years. In terms of the Egyptian economy's structure, the agriculture sector contributes the least compared to other African nations. However, the service sector is a dominant sector in the Egyptian economy, indicating that the Egyptian economy is transitioning from agricultural to industry and service. As a result, Sudan is Africa's third biggest nation. The nation is one of the most geographically diversified in Africa, with many natural resources that make it suited for agriculture. The nation, in particular, has a plenty of land, cattle, and water resources. Despite its huge size, Sudan has a tiny population when compared to Ethiopia and Egypt; the nation was mostly dependent on agriculture, which was the backbone of the economy (Ebaidalla, 2016).

Egyptian efforts in reviving integration have been reported by Egyptian official sources, but have not been turned into genuine large-scale results that benefit the two nations (Ethiopian News Agency, 2017). The erratic nature of Egypt's economic cooperation policies with Sudan has also been shown in Egypt's ties with Ethiopia. Negotiations began in 1997 to establish a replacement comprehensive accord for cooperative management and development of the Nile River Basin Water Resources, as well as to establish a Nile Basin Commission (NRBC) as a permanent institutional mechanism for cooperation, in response to growing disagreement over the Nile River Cooperative Framework Agreement (CFA). The biggest disagreement over the CFA stemmed

from Egypt and Sudan's insistence on retaining their historical rights and present usage as defined by previous agreements under the new legal framework (Mills, 2014).

According to reports, Egypt has established a specified framework of 'beyond the river' collaboration inside the Nile River to water cooperation in order to safeguard its water security. Despite active presidential diplomacy, new institutional mechanisms, and a slew of recent proposals and initiatives over the last four years, Egypt's conceptualization of cooperation and assessment of the benefits, risks, and terms of potential collaboration with Sudanese political regimes has remained relatively unchanged (Morsy, 2014).

Egypt, as a previous founding parent and Sudan's Nile-valley neighbor to the north, would surely be affected by the Sudan's political upheaval. As Egypt's regional influence appears to be waning, the Sudan's growing economic strength, as well as the potential secession of Southern Sudan, exemplify Egypt's overall difficulties in relation to regional politics in the Horn of Africa and the Nile River Basin. Egypt needs reorganize its foreign policy in order to reconcile internal demands, relations with its near neighbors, and its position as a regional force; Egypt's national interests inside Sudan exclude neutrality in the next processes. It will play a critical role in a regional and international effort to guarantee Southern Sudan's peaceful separation (Ghitas, 2010).

According to the World Bank (2016), As announced by the head of the Egyptian Customs Authority, Kamal Negm, an agreement has been reached with Sudan on all logistics measures required to use Egyptian ports, particularly those in Ain Sokhna and Suez, to export and import Sudanese products; the agreement also includes the possibility of benefiting from all benefits provided by the special economic zone law, and a Sudanese usage fee is paid in addition to providing waiting areas for passengers. It was emphasized that the customs processes for Sudanese commodities travelling through Egypt's transit networks include inspecting the containers and complying with all quarantine control standards for goods.

The regulators are the governmental authorities, whose responsibility it is to guarantee that the market is fair for all stakeholders. It is also envisaged that the government would provide a platform (for example, a port, distribution center, or other infrastructure) for each industry to operate on. The most significant stakeholders for logistics service providers are shippers. They want their items to arrive on schedule, at the lowest possible cost, and in the best possible condition. Residents become logistics stakeholders when their neighborhood is negatively impacted by trucks or other types of freight transportation (Harby, 2011).

Egyptian-African Trade Facilitation

The trial functioning of the Arqeen border terminal between Egypt and Sudan on September 29 is anticipated to assist improve commerce between the two nations. The terminal is an essential addition to the road connector between African nations through the Alexandria-Cape Town route,

which will promote inter-African commerce. Al Abbas Transport, an Egyptian trade and logistics company, has extended its network with the inclusion of a new route between Arqeen and Khartoum. The launch of the Egypt-Sudan overland connection from Arqeen to Sudan's northern city of Dongola coincides with the opening of the new route (The Higher Egyptian-Sudanese Committee, 2016). "Al Abbas stated that cargo volumes to Sudan increased in the previous year, indicating increased commerce between Egypt and Sudan and compelling us to develop a new transport route," said Mohamed Atta Gad, chairman and managing director. The 362-kilometer route gives access to Northern Sudan and was designed to boost trade between the two countries. According to recent figures, Egypt was Sudan's third biggest investor, and transport and logistics operations are likely to grow as commerce between the two nations expands. The company will begin by sending 20 trucks every day, laden with diverse commodities and merchandise. Khartoum will be the final destination. Al Abbas also intends to create a new logistical center for commodities storage in Arqeen, which will handle arriving and departing products to and from Sudan. "Our new logistics center will make it easier to handle commodities, products, and merchandise between Egypt and Sudan, as well as eventually destinations deeper into Africa including Ethiopia, Kenya, and Tanzania." This benefits our clients by ensuring prompt and effective goods delivery to their destinations," stated Atta Gad of Trade Arabia News Service (2013).

Egypt Engagement with Africa

Egypt-based commercial and supply enterprise has expanded its network with the inclusion of its most recent route between Arqeen and Sudan's capital. According to a news statement, the new route corresponds with the gap in the Egypt-Sudan land connection from Arqeen to Sudan's northern town of Dongola. "Al Abbas Transport has observed shipment quantities to Sudan climb within the last year, reflecting the accumulating commerce between Egypt and Sudan and leading the United States to include a brand-new transport channel," stated Mohamed Atta Gad, chairman and manager. The establishment of a fresh new supply hub for product storage in Arqeen, capable of accommodating the process of arriving and departing goods to and from Sudan, is proposed. "Our new supply center will assist the movement of commodities, products, and goods between Egypt and Sudan, as well as eventual destinations farther into Africa such as Ethiopia, the Republic of Kenya, and the United Republic of Tanzania." This better benefits clients by providing them with timely and cost-effective package delivery to their intended destinations," Gad said (2018).

An affiliate agreement has been established with Sudan on all supply procedures required to export and import Sudanese goods via Egyptian ports, notably in Ain Sokhna and the urban core. The agreement also includes the possibility of earning from all of the advantages provided by the special economic zone legislation. Observing that the customs processes for Sudanese products travelling through Egypt's transit systems include inspecting the containers and adhering to all quarantine management regulations for products that must show items to regulatory authorities.

Egypt is willing to complete all transit goods processes while giving all necessary assurances till the Sudanese side completes creating its agreed-upon firm (Tawfiq, 2019).

Mohamed Maait, Minister of Finance (2020), previewed the outcomes of joint talks between Egyptian authorities and a few Sudanese businesses to discuss strategies to increase transit commerce for Sudanese products via Egyptian ports. It is critical to assist Sudan in resolving its lack of trade flow and in facilitating product accumulation caused by insufficient infrastructure at Port Sudan. Sudan has stated a willingness to join forces with Egypt's ports, concluding all processes for Sudanese exports and imports and removing all obstacles at Port Sudan, potentially strengthening transit commerce with Egypt.

Egypt's foreign policy contributed in the founding of the Organization of African Unity. The Ministry of Trade and Industry is working on a new policy to triple exports to Africa. Halayeb has been tied to the image that authorities in Egypt and Sudan, wishing to create in the future. Southwestern grain and pulses corridor to be efficiently broken down into natural resources, agricultural goods, industries, export and import items, and partners. Egypt's Nile comprises Lake Nasser from the boundaries to the upstream High Aswan Dam, as Sudanese navigation The White Nile south of Khartoum includes shallow sections that limit barge carrying capacity, especially during low water times, and sharp bends. In order to expand exports, imports, and passenger movements between Egypt and Sudan, it is important to study the possibility of joining the two existing rivers. Reflecting on a deep engagement of the economy in free markets worldwide and aiming to establish a balance between social, economic, and environmental concerns, the Egyptian government prioritizes transportation projects as part of its ambitious goal to offer and integrate diverse transportation networks and methods.

RESEARCH METHODS

In this research, the inductive approach was chosen as the research method for this study. Inductive investigation is implemented since the theory will be generated from the acquired, identified and tested qualitative evidence, which requires such bottom-up approach and generalization at the end, in addition to a more adaptable structure to allow changes of investigation. To adapt the framework of this study, a mixed research methodology will be used; on the other hand, the examination of the research will incorporate both quantitative and qualitative research techniques, since benefiting from qualitative approaches will raise the comprehension level, which comprises online semi-structured interviews with land, river, and rail and marine transport regulatory officials in Africa.

The following section will hand over results of systematic literature review of the most valuable publications about Egypt-Sudan Cooperation within Africa using Multimodal Transportation among Logistical Hubs between the years 2001 and 2021; the research structure briefly presented in the figure below. Furthermore, it will answer the research questions: *what are*

the trading and transport amplification between Egypt & Sudan in the last 10 years? How do the agreements and implemented projects between Egypt & Sudan affect their logistics practices?

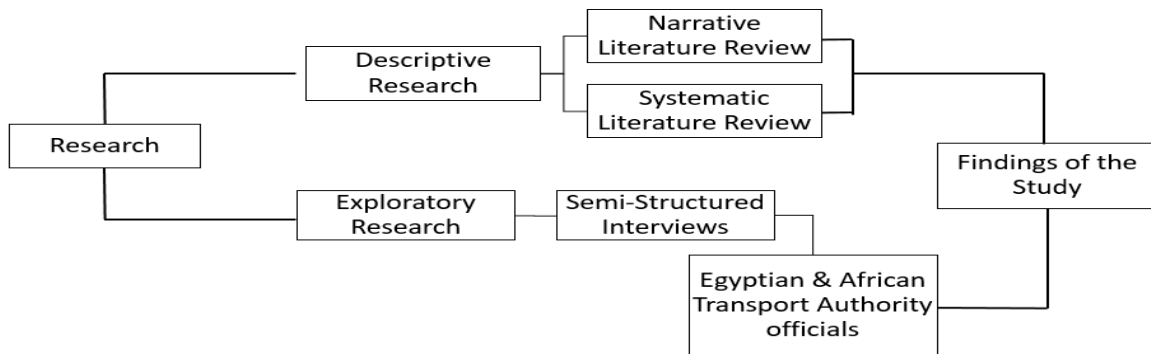


Figure 1: Research Structure Presentation

Source: (Author, 2022)

RESULTS

The table below compiles 19 reviewed papers by identifying research scope, selecting relevant studies, assessing the quality of selected studies, extracting data and monitoring progress, synthesizing the selected relevant studies, and compromising sources, the majority of which were written by authors affiliated with higher education institutions. The research carries out a thorough literature evaluation of 55 existing studies in order to assemble the most important published articles that support the research's theoretical contributions and previous researchers' suggestions for future investigations. Consequently, the scope of a study explains Egypt-Sudan trade and transport integration. In addition, the agreements and cooperation of Africa within Egypt & Sudan will be explored in the work, and the parameters the study will be operating will be specified. Basically, this means that you will have to define what the study is going to cover and what it is focusing on. Literature was gathered based upon a number of keywords (Egypt-Sudan, Cooperation, Regional Integration, and Neighboring Countries).

Table (1)*Authors Name, Paper Title, Year of Publication, Paper Focus & Their Findings*

| Authors Name | Paper Title | Year | Paper Focus | Findings |
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| Biong Kuol Deng | Cooperation between Egypt and Sudan over the Nile River Waters: The Challenges of Duality | 2007 | While Egypt and Sudan's dualism continues to characterize ties between downstream and upstream nations. | Speeding the development of a new regional treaty. |
| Jacob Høigilt, Åshild Falch Øystein H. Rolandsen | The Sudan Referendum and Neighboring Countries: Egypt and Uganda | 2010 | The Sudan's (north and south) relations with Egypt and Uganda are diametrically opposed in many ways. Egypt has explicitly stated its preference for a united Sudan, but it has dwindling regional leverage and minimal leverage over Sudanese. | Addressing the scarcity of current, in-depth study on regional politics and Sudanese connections The overarching conclusion is that neighboring countries have a clear interest in aiding to Sudan's peaceful transition. |

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| <p>Yoon Lee,1 Taeyeon Yoon,2 and Farhed A. Shah</p> | <p>Economics of integrated watershed management in the presence of a dam</p> | <p>2011</p> | <p>An optimum control model of integrated watershed management in the presence of a dam is presented. An illustrated application of the approach to Lake Aswan, located between Egypt and Sudan, demonstrates significant advantages from long-term thinking and collaboration among all agents.</p> | <p>The advantages to reservoir management and agriculture in Egypt are minor in comparison to the gains Egypt receives from enhanced instream flow control. Furthermore, subject to technological constraints, improving reservoir life with HSRS is economically beneficial.</p> |
| <p>Rupa Ranganathan and Cecilia Briceño- Garmendia</p> | <p>Sudan's Infrastructure : A Continental Perspective</p> | <p>2011</p> | <p>The Africa Infrastructure Country Diagnostic (AICD) is an initiative aimed at increasing global understanding of physical infrastructure in Africa. Future improvements in infrastructure services may be assessed, allowing donors to track the benefits of their contributions.</p> | <p>If Sudan fails to generate extra funding or cut infrastructure costs, the only option to accomplish the objectives outlined here would be to take more than 10 years.</p> |

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| <p>A M MacDonald , H C Bonsor , B E´ O Dochartaigh and R G Taylor</p> | <p>Quantitative maps of groundwater resources in Africa</p> | <p>2012</p> | <p>Strategies based on the widespread digging of high yielding boreholes to increase irrigation or deliver water to rapidly urbanizing cities are likely to fail. Because groundwater is the most abundant. The quantitative maps are meant to help identify Africa's largest and most widely distributed freshwater reservoirs.</p> | <p>Contribution to more realistic estimates of water security and water stress, and to encourage a more sustainable water management system. At the national and regional levels, a quantitative technique to mapping groundwater resources is used.</p> |
| <p>I. Masih , S. Maskey, F. E. F. Mussá, and P. Trambauer</p> | <p>A review of droughts on the African continent: A geospatial and long-term perspective.</p> | <p>2014</p> | <p>Provides a thorough evaluation and analysis of the current literature and information on droughts in order to develop a continental, regional, and country level picture. viewpoint on drought geographic and temporal variation in the African continent</p> | <p>Extreme and widespread droughts are quite likely to hit the African continent in the future. The vulnerability is projected to increase as water demands rise and land and environmental resources deteriorate.</p> |

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| Bakenaz A. Zeidan | Water Conflicts in the Nile River Basin: Impacts on Egypt Water Resources Management and Road Map | 2015 | Freshwater resources are limited, unevenly distributed over the world, and frequently shared by more than one country. Thus, while fresh water might be a source of contention, it can also be a source of collaboration. | Establishing comprehensive transboundary water management; achieving a basin-wide agreement managing the Nile River is hampered by opposing requirements of upstream and downstream users, as well as colonial treaties |
| FAO AQUASTAT Reports | Country Profile – Egypt (Food and agriculture organization of the united nations) | 2016 | Egypt Geography, Climate, population, economy, agriculture, food security and water resource. International water issues, irrigation, drainage system and legislative policies | Improving water efficiency, reserving some water for newly constructed regions. This would reroute Egypt's traditional water supply. The country's development toward a more effective water allocation policy. |
| Ebaidalla Mahjoub Ebaidalla | Trade Between Egypt, Sudan and Ethiopia: Prospects and Challenges For Trilateral Trade Integration | 2016 | The performance of trilateral commerce between Egypt, Sudan, and Ethiopia is investigated in this research. Moreover, it examines the potential and barriers for trade development between these two nations. | Describing some of the obstacles to the execution of any trade agreements between these nations, such as export concentration, insufficient infrastructure, and political instability. Finally, several proposals to promote free trade are made. |

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| Anna Louise Strachan | Cross-border conflict drivers/breaks across Sudan, Egypt, and Jordan | 2017 | The evidence on cross-border conflict drivers/breaks along the Sudan-Egypt-Jordan route is summarized. Because the evidence linking these nations is quite sparse. | Migration, religious extremism, economic marginalization, state persecution, and natural resources were recognized as important conflict drivers/breaks in Sudan, Egypt, and Jordan. |
| Dr. Saad A Alkaram | Water Cooperation Between Sudan, Egypt and South Sudan (Jongeli Canal as a model) | 2017 | Examining the relevance of water resource cooperation between Egypt, Sudan, and South Sudan in the face of several challenges, emphasizing the need of building big development projects. | Developing collaboration and mutual understanding among the three nations, as well as regulating Nile water in a way that promotes economic security and agricultural growth. |
| Alex Bank | A New Boost to Egyptian African Relations | 2018 | Egypt is currently making significant efforts to reclaim its historical role in Africa and capitalize on the continent's opportunities and potentials. | Driving Investment for Inclusive Growth in an effort to promote commerce and investment among African countries. |

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| Rawia Tawfik | Beyond the River: Elite Perceptions and Regional Cooperation in the Eastern Nile Basin | 2019 | This study contends that benefit-sharing literature has assumed, rather than explored, the conditions under which collaboration over shared water resources from transboundary rivers might lead to regional cooperation in other economic sectors cooperation "beyond the river." | Examining the case of the Eastern Nile Basin, demonstrating how economic cooperation between Ethiopia and Sudan has evolved during the previous decade despite the no meaningful progress in their water cooperation. |
| Sherif Mohyeldeen | The Egypt-Sudan Border: A Story of Unfulfilled Promise | 2020 | Egypt Border interactions have been marked by mutual distrust rather than amicable commerce. This legacy has been worsened over the years by a slew of barriers and conflicts, most notably the disputed Halayeb triangle. | Improving cross-border relations to fix unresolved conflicts between Egypt and Sudan. |
| Housam Darwisheh | Egyptian-Sudanese Relations Amidst Changing Geopolitics | 2020 | Republican Egypt has had tense ties with its southern neighbor, Sudan, because of the governing elites' divergent ideas and regime affiliations with competing power blocs in the Middle East and North Africa (MENA). | Suggesting that Egypt's impact on Sudan's foreign policy and the foreign policies of other Nile River riparian nations. |

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| <p>Sebastian Sterl, Dalia Fadly, Stefan Liersch, Hagen Koch And Wim Thiery</p> | <p>Linking solar and wind power in eastern Africa with operation of the Grand Ethiopian Renaissance Dam</p> | <p>2021</p> | <p>The Blue Nile's Grand Ethiopian Renaissance Dam (GERD), which is going to be Africa's largest hydroelectric project, with over 5GW of installed capacity. Because of the power trade-offs, this has been a highly contentious issue.</p> | <p>Impact on generation, water availability, and river ecology across the countries; Sudan, Ethiopia, and Egypt</p> |
| <p>Salah El-Din Amer, Yacob Arsano, Atta El-Battahani, Osman El-Tom Hamad, Magdy Abd El-Moenim Hefny and Imeru Tamrat.</p> | <p>Sustainable development and international cooperation in the Eastern Nile Basin</p> | <p>2004</p> | <p>Provides an overview of issues concerning international collaboration and water usage in the Eastern Nile Basin, introducing the three articles that follow, each written from an Ethiopian, Sudanese, and Egyptian perspective.</p> | <p>The key findings are that continuous, non-political communication may lead to collaboration, and that cooperation is the foundation of long-term water development.</p> |

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| Kevin G. Wheeler, Jim W. Hall1 , Gamal M. Abdo, Simon J. Dadson, Joseph R. Kasprzyk , Rebecca Smith, and Edith A. Zagona | Exploring Cooperative Transboundary River Management Strategies for the Eastern Nile Basin | 2018 | A water resource modelling approach is presented to aid multi-stakeholder agreements on Nile River transboundary management. | Shows how the resilience of prospective management arrangements, including greater inter-annual variability and highly unknown changes like as increases in the future permanence of droughts, may be demonstrated. |
| Samir Abdelghany Megahed Mahdaly and Abdelkhalik Kamaleldin Soliman Selmy | The Need for Nile River Vessel Traffic Services (NVTS) | 2018 | Rivers are essential natural resources for a variety of human activities. As a result, the river banks have inspired pioneers to build their new communities. River transport has always been critical to the economies of numerous nations. | Because the Nile is so important to Egypt, it should be re-planned for use in navigation and transportation. |

Source: (Author, 2022).

DISCUSSION

Despite the need for advanced logistics infrastructure as an institutional investment product, economic progress, supply chain limitations, and the rise of e-commerce have all contributed to the expansion of European markets. A large land investments bank may be utilized for the flexible and quick building of logistics facilities and warehouses. However, existing infrastructures and facilities, as well as highly developed industrial firms, may allow for more investment and growth in Lower Egypt.

Previous studies on Egyptian-Sudanese development projects in transportation and logistics have shown that too limited research has attempted to evaluate the impact of agreements between the two countries in order to determine which route is more efficient to construct roadway for their reach; too few previous research has review the river connections to knock the trade flow in order to assess multimodal transportation. There is also no further investigation on the border terminals and route networks between Egypt and Sudan that might help enhance the countries' import and export activities, especially upgrading and modernizing ports in the Nile Basin countries. This is despite the fact that both countries' transportation networks and logistics could use more activities, services, and hubs.

The analysis of the semi-structured interviews assists in corroborating the comprehensive systematic literature review and examining the research objectives by analyzing the primary data after finalizing secondary data. The primary data are based on semi-structured interviews conducted with Egyptian and African transport authorities in the “African Development Senior Managers Forum- October 2021”. Moreover, the semi-structured interviews were held with African responsible authorities: Head of Internal services and Logistic in Rwanda, Head of Legal and Litigation in Djibouti, Principal Surveyor of Vessels, Port Affairs Officer in Guinea, and Researcher at the General Directorate of the Merchant Navy and Head of Internal Audit Section at the Autonomous Port of Guinea Conakry.

Table (2)*Semi-structured interviews output*

| Statement | Common | Conflict |
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| The status of African ports in boosting global trade | African ports have the potential to boost global trade considering the strategic location of key ports with the continent to include ports in Egypt (along the Suez Canal), Ports of Mombasa (in Kenya), Seychelles, TEMA (in Ghana) and such others. Despite Africa's low level in world trade, African ports still have a preponderant role in trade because of their strategic position in relation to sea routes. African Ports are positioned to enhance faster trade movements within Africa and the global market as a whole in record days. | Egypt needs to improve and upgrade its ports and activities as well as have a good coordination amongst African ports' activities. |
| Logistics centers in Egypt can | <u>The Average Interviewees Agree observing that</u> Egyptian lies in the way of global trade, mainly between Europe and Asia. In addition to excellent port infrastructure and | |

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| <p>play critical role the domestic and global market by integrating through the African countries</p> | <p>good connectivity between the ports and the other side of the country. Moreover, the logistical potential of Egyptian ports can play an important role in the framework of south-south cooperation, as Egypt's experience and expertise in the maritime and port domain could serve as a reference to other African ports. Mentioning that, the position of Egypt on the coast of the Mediterranean Sea and of the Suez Canal makes Egypt a hub for logistical convenience to filter into other African countries and the world to sustain the global market. Besides, Egypt is well centered for easy communication and connection with Asia, Europe, Africa, America and the Middle East through its facilities and the navigable channels, which pass through its territory. Another good reason is its infrastructure plans and policies.</p> | |
| <p>Egyptian ports are well integrated with the African ports</p> | <p><u>The Egyptian ports are not well integrated with the African ports</u>, as there is no transit cargo and the railway line from the Economic Zone is far from being completed and still under implementation. In addition, Egyptian ports are much less integrated with the African ports even though they remain connected with nearby countries to include Sudan. Therefore, the Egyptian ports need to be more connected with other regional ports to facilitate faster and easier trade within Africa and the world at large. What's more, the majority of African sports do not always conform to trends and global standards.</p> | <p>Excluding all that, Egyptian ports offer perfect integration to African countries</p> |
| <p>The proposed projects set between Egypt and Africa to serve trade</p> | <p>Construction of railway lines, upgrading of roads from the Economic Zone to the rest of Egypt, and booting Interconnectivity by road to other regional ports would serve trade purposes in Africa. . The realization could facilitate our trade and boost the economies of African countries, the projects are strong integration of skills and experience, creating port hubs and strengthening south-south cooperation through the transfer of skills.</p> | |

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| <p>The barriers facing Egypt imports and Exports within Africa</p> | <p>Connectivity with the rest of Africa, suggesting that Egypt should continue with the efforts to mastermind the coordination of African ports' products, which are available in Egypt imports and exports, which should properly fit into the African market, considering investing within modernization and the construction of road and rail networks to facilitate communication and transport of goods between states. Some obstacles are political; indeed, Africans must succeed in convincing the respective politicians and make everyone understand the importance of integration to overcome the major barriers.</p> | <p>Therefore, it is suggestive that Egyptian products, by default shifted to the African market. Furthermore, connectivity with the region and the rest Of Africa, The low level of performance of certain African ports due to the lack of infrastructure or modern equipment.</p> |
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Source: (Author, 2022).

As a result, the outcomes of the semi-structured interviews need to be validated and supported from the literature. Accordingly, Africa's intercontinental commerce is mainly reliant on ships and ports. While the continent accounts for approximately 2.7 percent of worldwide commerce by value, it contributes global seaborne trade, accounting for 7 percent and 5 percent of marine exports and imports by volume, respectively. Despite the fact that one-third of African countries are landlocked, maritime shipping remains the principal mode of access to the global economy (UNCTAD, 2018). Economic growth is an essential element of Egypt Vision 2030, which involves the development of transportation infrastructure facilities. The expansion of company market penetration and construction activity is likely to enhance demand for project and contract logistics. Egypt's government has launched attempts to make the nation a global logistics center, as well as to encourage foreign investment in a variety of areas (Mordor Intelligence, 2022).

Local development gaps in Africa must be filled in order to construct intra-African infrastructure and boost intra-continental commerce. When it comes to urban ports, Egypt has three in the south: Arkin, Qansal, and Ras Hadroba. This is in addition to Saloum in the west (El Tawil, 2021).

An Egyptian-Lebanese firm has been founded as part of the drive to promote Egyptian and Lebanese commodities on the African continent. Both governments prioritize the development of Egyptian-Lebanese economic ties, emphasizing the need of improving commercial and investment links between the two nations. The deal for the shipment of 60 containers of Egyptian pottery to Uganda was signed, functioning as an investment from which it might sell to African and Arab nations (Mohamed, 2018). The African market is characterized by significant commercial and non-

commercial risks, and it lacks conformity with the technical criteria governing the entrance of imported goods. In addition, there are legal obstacles, unqualified human resources, bureaucracy, political tensions, security instability, a lack of money, and high energy costs (El Tawil, 2021).

CONCLUSION

There has been a growing concern with Egypt's and Sudan's multimodal transportation innovation and implementation facilities in order to optimise Egypt's economic profits within the framework of the agreements between the two countries and African cooperatives. As a result, there has not been any additional investigation into the Egyptian-Sudanese border terminals and route networks, which might have a significant impact on both nations' import and export activities. For that reason, this research examines the impact of the Egypt-Sudan integrated transport network on Egyptian-Sudanese multimodal activities and the barriers that hinder logistics services for trade, particularly after investing in new infrastructure connecting Egypt and Sudan, in addition to road networks and terminals.

In Conclusion, according on the findings of the study, the following research agenda may be anticipated;

- ✓ Egypt's location on the Mediterranean Sea and the Suez Canal makes it a logistical centre for products needed to support the global market to flow into neighbouring African countries and the rest of the globe. Egyptian ports providing seamless interaction with the continents of Africa through the projected commercial projects that will connect Egypt and Africa.
- ✓ There is an agreement between Sudan and Egypt on all supply measures necessary for the export and import of Sudanese products through Egyptian ports (especially in Sokhna).
- ✓ The creation of a new supply centre for product storage in Arqeen, capable of accommodating the process of entering and exiting goods from Sudan.
- ✓ The facilitation of trade in commodities, products, and commerce between Egypt and Sudan, with final destinations in other African countries such as Ethiopia, Kenya, and Tanzania. Egypt and Sudan's trade and passenger movements may be expanded if the two rivers could be linked together.
- ✓ Global trade might be boosted by the strategic placement of African ports, such as the Egyptian port and Mombasa's Mombasa and Seychelles ports.
- ✓ African Ports are in a position to speed up commerce between Africa and the worldwide market in record time.
- ✓ Construction of a rail line and improvements to highways linking the economic zones to the rest of Egypt and other nations in the area are two of the most pressing issues facing Egypt today.
- ✓ Great port infrastructure and connectivity between ports and the rest of the country; there is also an abundance of natural resources in the region.

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