



## The economic Libyan corridors from the Mediterranean Sea to landlocked countries around Chad lake - The challenges and goals

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### Abstract:

Libya has great potential in developing land transport corridors to connect land locked countries around Chad lake to Libyan ports on the Mediterranean Sea and to the international transport traffic served by the sea shipping companies, see Figure 1. The scope for improving the existing land corridors and road network is analyzed. Description of Libyan ports and proposal to develop some of them to function as Hub ports shall be among topics of this paper. Preliminary lines and comments on the present plan of the new railway network project shall be done in order to make the Libyan corridors competitive alternatives to the existing land corridors from North and West Africa countries.

### Keywords:

Landlocked countries, Libya, Mediterranean Sea, Transit corridor, Port, Container, Free zone.

### 1. Introduction

The need for sustainable and spatial development for a country like Libya with large geography, most of it is desert, and relatively low population specially in the south is a vital issue. It is necessary to develop projects which can achieve that development and keep equal standards of living for the whole country. Transit Trade is one of the projects that can achieve such development. Previous research presented a proposal for transport corridor from Misurata port on the Mediterranean coast to the south of Libya and consequently to Niger and Chad, (ESAHIRI, 2012). The landlocked countries in Africa

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suffer from high costs of transport of their export and import commodities. Transport expenses account for approximately fifty per cent of the total value of the commodities, (UNCTAD, annual maritime transport reports for years 2008, 2009, 2021 and 2022). This paper presents description for the proposed Western corridor and proposes another important corridor for the east part of Libya which starts from Benghazi Port to Sudan and Chad through Ajdabiya and Al-Kufra cities.

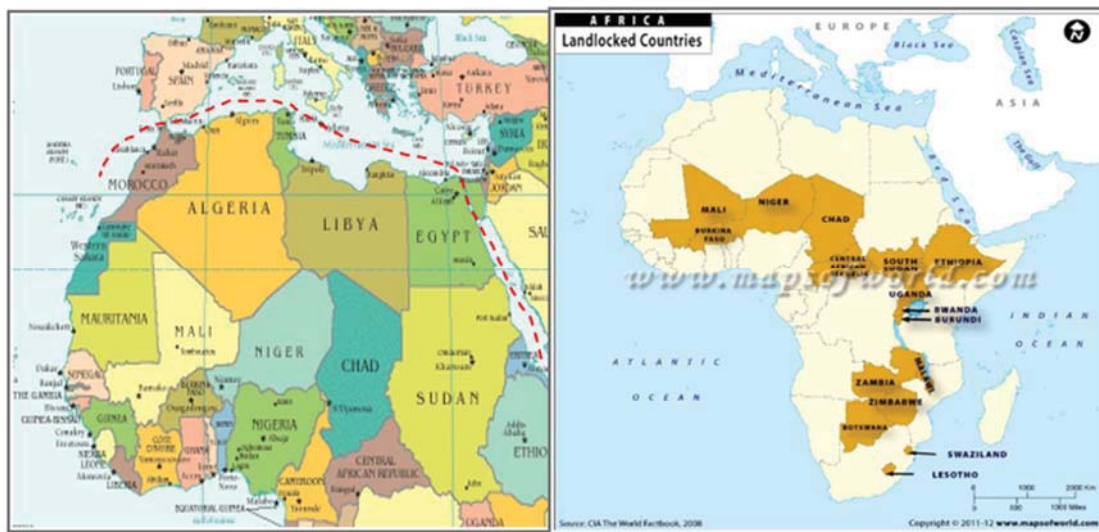


Figure 1. Africa's landlocked countries and the distinguished geographic location of Libya.

## 2. The Important role of the of transport infrastructure in transit trade business

### 2.1 Ports and maritime transport

Seaports are important links between land and sea transportation. The Coordination and integration between all of them to reach new markets, which contributes to increasing trade opportunities is essential. Brief description of the nine Libyan commercial and industrial ports are presented in Table 1. Among the list is the Libyan Iron and Steel Company (LISCO) port, which can be considered as an industrial port too. This port has a very considerable depth and can be utilized as bunkering point for maritime transport fleet in the Mediterranean Sea, and can contribute to transit trade activities of Libyan petrochemical products, with a frame of organization with other ports like Ras-Lanouf Port, and Misurata Free Zone port (MFZ). Figure 2 shows all Libyan ports. While Figure 3 shows Benghazi, Al-Khoms, MFZ and LISCO ports master plans for upcoming development as four ports proposed at present stage to be as hub ports for Transit Trade (TT); subject of this paper. The master plans for these ports allow for increasing yearly capacity to cope with forecasting of trade development including transit trade. A capacity of 6 million tons/year is being under study MFZ. Benghazi and Al Al-Khoms ports are within the plan of Ministry of Transport to increase their annual capacity to be 8m

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tons/year and 5m tons/year respectively. The port of LISCO is doing regular dredging to keep the design depth of 19.5 m and extending their facilities and infrastructures to cope with multiple industrial requirements of TT. All the four ports proposed are well connected to the proposed railway and road networks and have good hinterland with land network.

*Table 1. Main characteristics of Libyan commercial ports.*

N°	Port name	Capacity/yr (10 <sup>6</sup> tons)	Port basin depth(m)	Navigation channel depth(m)	Open storage yard(ha)	Port water area(ha)	Total berth length(m)
1	Tripoli	5.5	11	12	7.5	610	3620
2	AL-Khoms	3.5	7-14	15	36	250	4600
3	Misurata (MFZ)	3.8	12	13	67	105	4300
4	Benghazi	4	5-12.5	13.5	80	170	4630
5	Darna	1	7.5	8	8	28	975
6	Tobruk	1	7	10	7	434	1850
7	Zuwara	0.2	5	6	75	13	270
8	Misurata* (LISCO)port	6.5	19	19.5	57	10	1092
9	Ras Lanouf**	0.28	12.5	15.5	---	---	700

Note: \*is Industrial iron and steel port (LISCO); \*\*Ras Lanouf port has 3 offshore oil loading points.



*Figure 2. The Libyan ports on the Mediterranean coast.*

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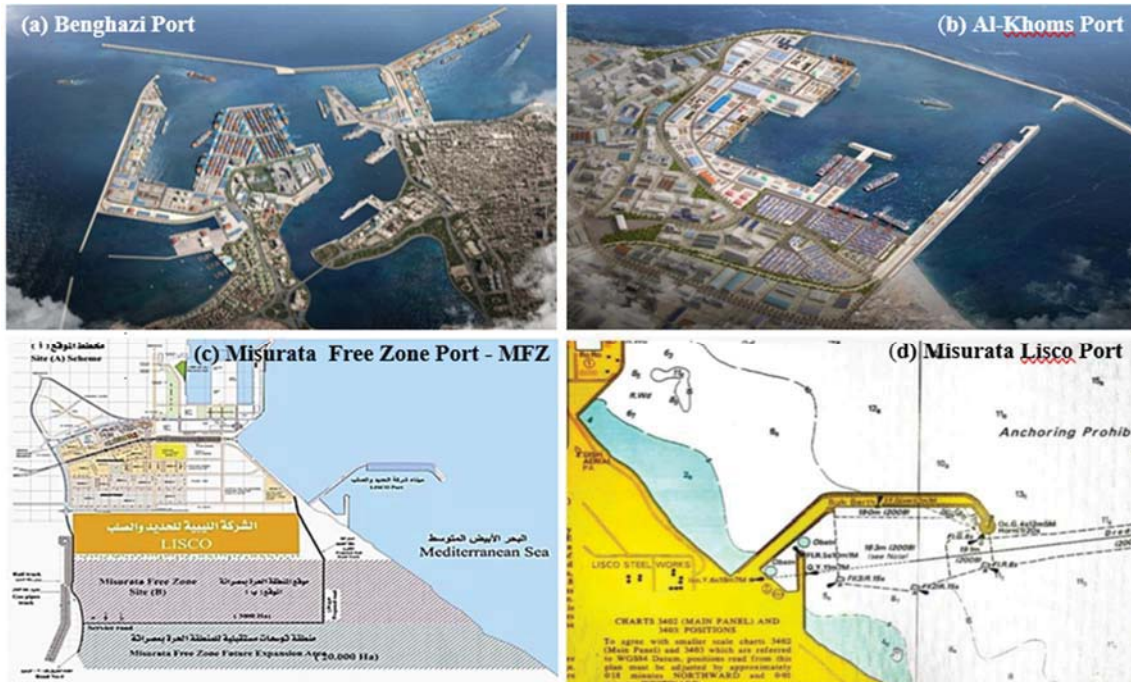


Figure 3. The upcoming development in the ports of (a) Benghazi, (b) Al-Khoms, (c) Misurata free zone - MFZ and (d) LISCO port in Misurata.

2.2 Assessment of present road network in Libya

In Libya there is considerable road networks of about 34,500 km paved connecting all sea ports with most of cities, and all borders with neighbor countries. The roads network is under consideration for maintenance and upgrading by the Libyan Authority for Roads and Bridges belongs to the Ministry of Transport, see Figure 4.



Figure 4. Libyan road network.

### 2.3 Assessment of railway network

There is no railway in Libya at present time, but a network of railway of total length of 2800 km was planned and approved many years ago; part of the railway network was either constructed partially or contracts for studies and design were signed (Table 2 and Figure 5). It is worthwhile to mention that the south railway section of 992 km is a part of the proposal path of Western corridor, subject of this paper. Preliminary studies for extending it south towards Niger are available, aiming to joint African railway network, and Dakar-Djibouti corridor in Marada, the strategic city north of Niamey.

Table 2. The proposed Libyan railway network.

No.	Route	Length (km)	Status
1	Ras Ajdir – Benghazi on the Mediterranean coast	1800 dual carriageway	Contract signed in 2008, no work started yet
2	Misrata - Heshisa - Sabha - Tamanhint Free Zone	992 single carriageway	Studies and designs completed



Figure 5. The proposed railway networks.

### 3. The concept of transport corridor

Transport corridor can be defined as a network of transport routes comprising roads, railways, inland terminals, border points, etc. Crossing the limits of more than one country. It's usually established for purposes of enhancing transit trade and the transport facilitation. It could be also named as trade and transport corridor (TTC). The Libyan corridors present a promising international opportunity for both the private and public sectors to explore potential investments. Countries associated with this project can capitalize on the numerous advantages it offers. In this research paper, the Libyan corridors were divided into two main corridors:

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1.The Western Corridor: It starts from one of the Western ports of the country, namely Khoms, Misurata, and Ras-Lanouf ports, and cross the border point, Al Tum with Niger with estimated length of 2450 km at present stage of planning

2.The Eastern Corridor: It starts from the port of Benghazi, Darna, and Tobruk cross the borders with Chad and Sudan with estimated length of 2520km at this stage.

### 3.1 The Western corridor (corridor 1)

The preliminary layout of this corridor is shown in Figure 6.The corridor length of 1335 km inside Libyan territory from Misurata ports to Al Tum; the border point, and 1115 km inside Niger up to Agadez city (at present stage) as shown in Table3.The roads in the Libyan side need maintenance but inside Niger, a major rehabilitation is required. Recently the Libyan government issued a decision to activate the maintenance of this corridor with the Easter corridor (corridor 2) through Build Operate Transfer (BOT) or Private, Public, Partnership (PPP) systems.

As far as railway is concerned, The Libyan railway authority carried out preliminary studies and designs for the railway route running from the north to the south, specifically to the city of Sabha. Construction has begun but unfortunately stopped in the early stages of the project in 2011. It is of importance to resume the construction of this part and activate the study in the near future for having at least single non-electric lane to add value to the corridor and to be more competitive to the other corridors on the long-term basis, due to relatively low cost of maintenance costs in such severe weather conditions. The Western corridor construction up to Agadez city in Niger is roughly estimated, \$ 3billions.

*Table 3. Distance in kilometers of the Western corridor and its status.*

<i>N°</i>	<i>Road name</i>	<i>Length (km)</i>	<i>Road conditions</i>
<b>1</b>	<i>Misrata port– Jufra – Umm-Aranib</i>	<i>770</i>	<i>Poor (45% détériorâtes) - requiers urgent maintenance</i>
<b>2</b>	<i>Umm-Aranib - Sabha</i>	<i>80</i>	<i>New (80% Complete)</i>
<b>3</b>	<i>Umm-Aranib - Ghatron</i>	<i>155</i>	<i>Very poor (90% détériorâtes) – requiers urgent maintenance</i>
<b>4</b>	<i>Ghatron - Wawiyya - Tum</i>	<i>330</i>	<i>Good</i>
<b>5</b>	<i>Al-Tum - Madama – Darco– Agadez (This part is inside Niger)</i>	<i>1115</i>	<i>Notpaved</i>



Figure 6. The proposed route of the Western corridor.

### 3.2 The Eastern corridor (corridor 2)

This corridor is actually under use practically starting from Benghazi port to Al Kufra city through Ajdabiya city with a length of 1019 km, where it branches east to Sudan or south to Chad. Table 4 shows details of distances and status of roads of this corridor, while the existing layout being used is shown in Figure 7. This corridor need substantial rehabilitations immediately in the frame of the same Government's decision mentioned for corridor 1. Based on the information received from the Jowfe Caravans Project (free zone administration responsible for organizing the transit trade in the eastern part of Libya, between Benghazi port and Absha-Chad). The experts in this corridor believe that if a dirt road, paved road, or railroad will be constructed in this track, it is anticipated that the cost of transporting goods to the landlocked countries will be reduced by an impressive 40%, thereby contributing to the overall reduction in costs and alleviating the burdens of livelihood for all those living in the landlocked counties. The establishment of these Libyan corridors holds immense potential to address food security concerns in various regions by reducing food costs and generating substantial employment opportunities. Consequently, this initiative is expected to play a pivotal role in bolstering economic recovery efforts.

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Table 4. Distance between cities for Eastern corridor and its status.

Country	City or village	Distance from Benghazi (km)	Route description
Libya	Benghazi	0	
	Ajdabiya	161	Paved road
	Awjila	392	Paved road
	Jalu	407	Non-paved
	Kufra	1019	Non-paved
	Sarah	350	No road
Chad	Faya-Largeau	1869	No road
	Fada	2146	No road
	Biltine	2447	Dirt road
	Abéché	2527	Dirt road
Sudan	Zurk	2119	No road
	Tini	2219	No road
	Kutum	2240	No road
	Millet	2250	No road
	El Fasher	2300	No road
	Al Junaynah	2520	No road

The sandy geographical terrain poses the primary challenge for the Eastern corridor, resulting in increased costs for constructing roads or railroads in the area. Currently, approximately 1,019 km of the corridor, spanning from Benghazi to Kufra, is already in use, while the remaining portion from Kufra to Abéché in Chad; which consists of sandy or dirt roads is expected to cost \$ 0.5billion to construct paved road, covering a distance of 1,500 km. It is worthwhile to note that costs shall be higher when considering other portions of the corridor to Sudan.



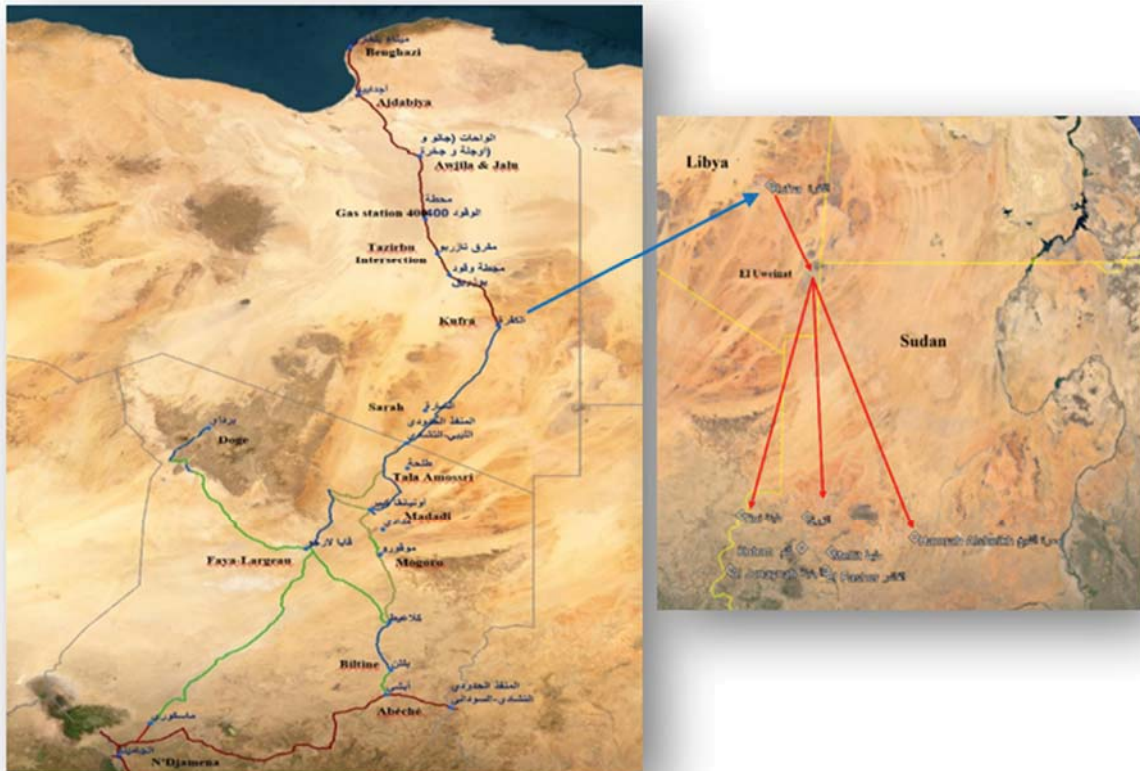


Figure 7. The proposed route of the Eastern corridor which is underuse.

#### 4. Conclusions

It is obvious that the geographical location of Libya related to the Mediterranean Sea and the landlocked countries is distinguished and may provide the shortest corridor lengths particularly to Chad, Niger, and west part of Sudan. In addition, the Western corridor can serve South East of Algeria through border point in Alburket/ Essien south of Ghat. Libya is large country with six neighbors' countries has eight border points, needs two main corridors. The Western one (corridor 1): starts from Khoms, Misurata and Ras-Lanouf; which are quite capable ports (at present time) to be developed to be Hub ports in later stages. The eastern one (corridor 2): is needed from Benghazi, Tobruk and Darna ports to serve part of trade to Sudan and Chad.

The spatial and sustainable development in the south of Libya suffer a lot since many years, therefore establishing such corridors for transit trade will be great element to provide the real development and chances of work for Libyans. Sustainable and spatial development of all countries served by these corridors will be achieved. Also, significant reduction in transportation cost will be achieved too compared to other long routes that requires more sailing time and cutting through difficult terrains on land. Meanwhile it is very essential that such corridors should be on high level of construction and management with necessary services throughout the routes to achieve the great goals mentioned above, bearing in mind competition will be high. Road Transport can be used at start after road

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maintenance and upgrading for the excessive loads. In a following stages, Railway Network should be established to add value to the project, due to low costs of construction and infrastructure maintenance, taking into consideration the severe weather conditions. A single non-electric train system can be used which proved well in Rio Tinto mines in Australia, to transport raw material along 1700 km with remarkable similarities in weather conditions.(TAIEX, expert mission, event 70112, Tunis, 2022).

The project is a major challenge, but it has the potential to transform Libya's economy, not to be dependent on oil only and have true impact for its diversity. The severe weather conditions and natural topography of the big Sahara Desert, and security issues, all should be well considered; because the goals to be achieved in the considerable reduction in transport costs and time saving are great. The reduction is expected to be more than 30% in 20 Ft container transport cost when it is delivered through Libyan corridors. The goals of this project are expected to contribute greatly in substantial and spatial development and finding of alternative energy resources and humanitarians' purposes.

### **5. Recommendations**

Understanding aims of Corridors in contributing to the development and providing high levels of transport services for trade and its economy, we recommend establishment of two economic corridors North-South in Libya as soon as possible due to their mutual benefit and interest with Chad and Niger and EU countries and can be a strategic project between EU, ENP countries and African Union countries. This paper suggests some important steps to overcome the project challenges:

A Memorandum of Understanding(MoU) should be established with road map plan for the project between, Libya, Chad, Niger and related EU countries with UNCTAD to define the purposes of the project, and its goals, methods of financing and providing securities and guarantees for investors, Tunisia has no access to the landlocked countries; therefore it can be a part in the MoU to add value to the project due to its agriculture and industrial products. Free zone trade agreement between Libya and Tunisia can be utilized. The authors recommend an extensive feasibility studies and optimization for best layouts should be made for the proposed corridors.

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