SUEZ CANAL LOGISTICS HUB: COMPETITION AND CHALLENGES

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ABSTRACT

The Suez Canal is continuously developed to accommodate modern ships whose draft reaches 66 feet. The Canal has four double-lane sections containing six bypasses with overall length 193.3 km. The canal provides the shortest route between Europe and the Far East in terms of distance, fuel consumption and operating costs. The canal allows the transit of ships in both directions and is attracting more shipping lines and shippers. However, alternative routes to move trade from North West Europe to the Far East exist, including Panama Canal, Northern Sea Route (NSR) and Cape of Good Hope. Hence, the Egyptian government has recently set executive steps for a national project that aims at developing the Suez Canal zone to become one of the world's leading logistics hubs. In recent times hubs have become essential for improving traffic as they provide shipping lines with adding value logistics activities and services. The purpose of this paper is to discuss how the Suez Canal zone can be further developed as an international hub to retain its monopolistic position for world trade

Keywords: Adding value logistics activities, logistics hub, Suez Canal competitive route

บทคัดย่อ

คลองสุเอซได้มีการพัฒนาอย่างต่อเนื่อง เพื่อรองรับเรือสมัยใหม่ที่กินน้ำลึกได้ถึง 66 ฟุต คลองสุเอซมี 4 โซนคู่ 6 เส้นทางเลี่ยงเมือง ซึ่งมีความยาวรวม 193.3 กิโลเมตร นับเป็นเส้นทางที่สั้นที่สุดที่เชื่อมระหว่างทวีปยุโรปและตะวันออกไกล ในแง่ของระยะทาง การใช้เชื้อเพลิง และต้นทุนในการดำเนินการ ก่อให้เกิดการขนส่งทางเรือทั้งสองทิศทาง และดึงดูดสายเรือและผู้ที่ต้องการส่งของให้เพิ่มจำนวนขึ้น อย่างไรก็ตาม ก็ยังมีเส้นทางเลือกอื่น ๆ ที่สามารถใช้ขนส่งสินค้าจากฝั่งตะวันตกเฉียงเหนือของยุโรป ไปยังตะวันออกไกล โดยผ่านคลองปานามา ทะเลเหนือ และแหลมกู๊ดโฮป ด้วยเหตุนี้ รัฐบาลอียิปต์จึงได้จัดทำโครงการแห่งชาติ โดยมีวัตถุประสงค์เพื่อพัฒนาเขตคลองสุเอซให้เป็นหนึ่งในศูนย์กลางโลจิสติกส์ชั้นนำของโลก ศูนย์กลางโลจิสติกส์ทั้งหลายมีความสำคัญมากในปัจจุบัน เพื่อช่วยปรับปรุงความคับคั่งจากการที่สามารถให้บริการและจัดกิจกรรมที่เพิ่มมูลค่าให้กับสายเรือต่าง ๆ วัตถุประสงค์

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ของงานวิจัยนี้ เพื่อศึกษาว่าคลองสุเอซจะสามารถพัฒนาให้เป็นศูนย์กลางโลจิสติกส์นานาชาติได้อย่างไร เพื่อรักษาไว้ซึ่งสถานะที่เป็นเอกสิทธิทางการค้าโลก

INTRODUCTION

The Suez Canal is an artificial sea-level waterway in Egypt, connecting the Mediterranean Sea and the Red Sea as shown in Figure 1. Since opening on 17th November 1869, it allows transportation by water between Europe and Asia without navigation around Africa. The northern terminus is Port Said and the southern terminus is Port Tawfiq at the city of Suez. When first built, the Canal was 26 ft deep. After multiple enlargements, the Canal is 66 ft deep. The Canal is a single lane with six passing places. It is the longest Canal in the world without locks; seawater flows freely through the Canal. The Canal is owned and maintained by the Suez Canal Authority (SCA) of Egypt. The accidents are almost nil compared with other waterways, and where navigation goes on day and night. Geographically, it lies on a unique site, hosting 8% of the world sea-born trade in 2012 with annual earning of almost $5.2 billion.

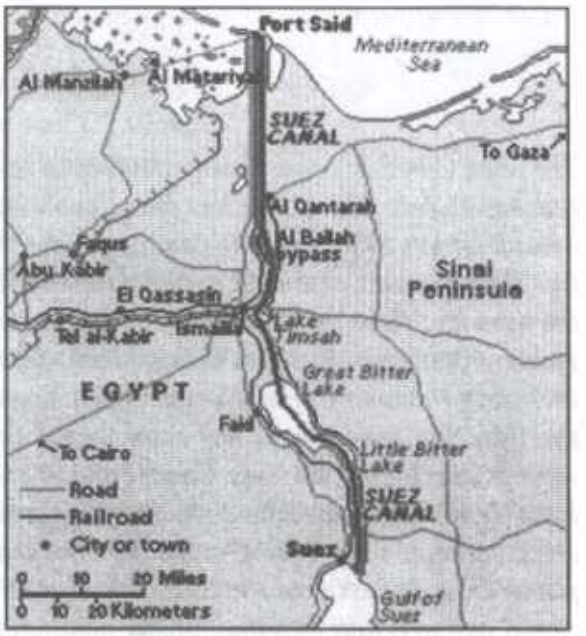


Figure 1: Suez Canal

Source: http: www.suezcanal.gov.eg, Gallal (2013)

The Suez Canal is considered to be the shortest route between the East and the West due to its unique geographic location

It plays an important role in serving international trade as it achieves a saving in distance, time, fuel consumption and ship operating costs. Table 1 shows, for example, the distance saved between some ports by using the Suez Canal route compared with the Cape route.

Table 1: Distance Saved between the Suez Canal and Cape Routes

From	To	Distance in nautical Miles		Saving	
		Canal	Cape	In Miles	Percentage
Ras Tanura	Constanza	4144	12094	7950	66%
Jeddah	Piraeus	1320	11207	9887	88%
Singapore	Rotterdam	8288	11755	3647	29%

Source: Gallal (2013)

The Suez Canal is the longest canal in the world without locks. The width of the navigational channel is between 200 m and 210 m and ships of about 20 m draft can pass through the Canal. The Canal is able to be widened and deepened when required, to cope with development in ship sizes and tonnages. Table 2 shows the Canal characteristics.

Table 2: Suez Canal characteristics

Description	Unit	2012
Overall Length	Km	193.3
Doubled Parts Length	Km	80.5
Cross Sectional Area	m^2	5200
Max. Permissible Draft	Feet	66
Max. Tonnage (DWT)	1000 tons	240

Source: Galall (2013)

THE EFFECT OF INCREASED WORLD SEA-BORNE TRADE

Technological development and scientific research have led to a rapid growth in international trade and the exchange of products between countries (Siebert, 1999). The developed economies witnessed an expansion in imports and exports by 11.5% in volume terms, while the rest of the world increased by 16.5% (WTO, 2010). The demand for seaborne trade is derived from the demand for international trade (Liu & Kronback, 2010). In fact, about 90% of world trade is transported by sea in volume terms and almost 80 % in value terms (Zouari and Khayech, 2011). The importance of the Suez Canal is augmented with an increase in demand in maritime transport and world trade. The Canal has the capacity to accommodate up to 25,000 ships per year. In 2012, the Canal accounted for 8% of the world trade as shown in Table 3.

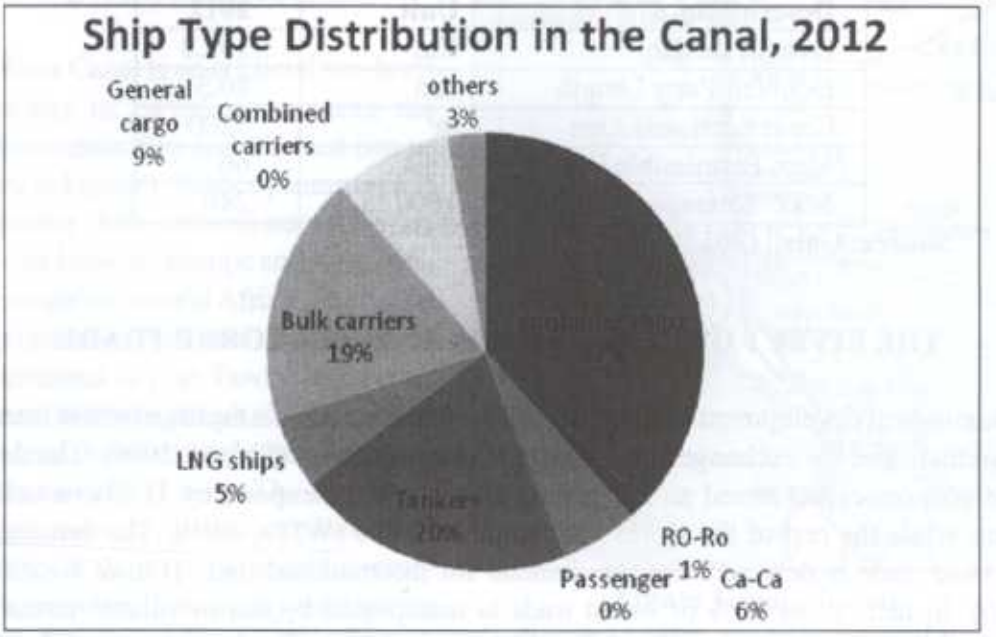
Table 3: World Sea-borne Trade Development and Suez Canal share (2003-2012)

Years	World Trade (Mn.Ton)	Suez Canal Traffic		
		No. of Vessels	Mn.Ton	SC share %
2008	8238	21415	723.0	8.8
2009	7838	17228	559.2	7.1
2010	8591	17993	646.1	7.5
2011	8947	17799	691.8	7.7
2012	9297	17225	739.9	8.0

Source: http: www.suezcanal.gov.eg, 2013

In 2012, there were 17,225 ships passing through the Canal, compared with 17,799 ships passing in 2011 (a reduction of 3.2 %). There was mainly a decrease in LNG ships by 26.1%, container ships by 11.8% and passenger ships by 10.4%. Figure 2 shows the ship type distribution passing through the Canal in 2012.

Figure 2: Ship Type Distribution Passing through the Suez Canal in 2012



Source: http: www.suezcanal.gov.eg, 2014

The Suez Canal role in the Asia-Europe trade lane diminishes year by year due to high charges, security reasons caused by piracy acts, and changes in world trade patterns. Many studies conclude that a challenge exists due to changing economic geography in world trade, such as the growth of new trade areas including South America and South Africa (Notteboom, 2012; Liu & Kronback, 2010). A later section will discuss the competitive routes.

However, even with a reduction in the total number of ships passing through the Canal, more than 77.8 % of the Europe-Far East container trade transited the Suez Canal in 2012, and more than 86.6% of the Europe and Middle East/South Asia/Far East container trade transited the Suez Canal in the same year (SCA, 2013). Also, the container trade route between the East Coast of North America and the Far East through Suez Canal is a fast growing route with growth by 28.1% on average yearly, with 3.1 million TEU in 2012 compared to 0.7 million TEU in 2006 (SCA, 2013).

A REVIEW OF SUEZ CANAL COMPETITION

A group of alternative routes are competing with the Suez Canal. All alternative routes can be grouped into three: sea routes, road and rail routes and oil and gas pipelines (Galall, 2013). Firstly, the sea routes include the Panama Canal after expansion (2015), the Northern Sea Route and the Cape Route. The expansion of the Panama Canal is due for completion in 2015 (known as Panamax). This will increase the draft by 50 feet attracting most of those Post-Panamax ships which have a total capacity of 12000 TEU. The Northern Sea Route (NSR) is the shortest route between North Europe and the Far-East. However, it is only seaworthy for four months each year and those ships passing through this route cannot carry more than 20,000 tonnes. For the Cape Route, Galall (2013) argued that this is an alternative route in case of closure of the Suez Canal rather than a competitive route.

Secondly, the road and rail routes include Eilat – Ashdod Railway and the Euro-Asia Bridge. The Eilat – Ashdod Railway relies on trucks for moving containers from Eilat to Ashdod and it takes from 6 to 12 hours. This will result in extra cost and time and it requires connected terminals in both ports. The second alternative route is the Euro-Asia Bridge that connects Rotterdam port with Liaynyngang in China passing through 30 countries, saving 9000 miles in distance.

Thirdly, the oil and gas pipelines include Eilat-Ashkelon pipelines that connects Ceyhan Port in Turkey with the Eilat-Ashkelon pipeline in order to export central Asian oil to India and China, bypassing the Suez Canal.

Notteboom (2012) claimed that the Suez Canal's role in Asia-Europe trade lane diminishes every year, and he recommended the Cape route as a competitive alternative to the Suez route. He claimed that the first challenge appears in piracy acts shifting from Malacca to the Gulf of Aden. Increase in these threats has led to increase in insurance fees. The second challenge is that the Canal has a finite and full capacity that cannot accommodate future demand of transit vessels. The third challenge is the presence of alternative routes to the Canal, namely the Northern Sea Route, North South Land Corridor and the East-west Rail Corridor. The fourth challenge is that there are different routing alternatives for the trade traffic between USA and Asia, including US West coast ports and rail network and the Panama Canal. The final challenge exists in the changing economic geography in world trade, such as the growth in new trade areas including South America and South Africa.

As competitive routing alternatives to Suez Canal, Schoyen and Brathen (2011) identified alternative routes for movement from North West Europe to the Far East, namely the Panama Canal, NSR and Cape of Good Hope. Despite the navigation distance from

West to East via the Northern Sea Route (NSR) it is shorter than the Suez Canal route by 40%. However, the NSR is suffering from two problems. Firstly is uncertainty in schedule reliability that might fit tramp ships rather than liner ships, and secondly seasonality where the ice-free season has increased to 129 days instead of 89 days (Rodrigues, 2008). Nevertheless, the NSR route focuses on tramp shipping rather than liner shipping. The NSR focus was on bulk trade rather than other types of cargo. Also, NSR did not consider the challenges facing NSR such as requirement of a powerful ice-breaker fleet, strong diesel electric vessels, a lack of ice-breaker capacity, high fees of ice-breakers which are not linked with the actual services rendered, potential changes in the Arctic environment due to accidents and operations, and conflicts in coastal state regulation between Russia and Canada, USA and Norway (Ragner, 2008).

It can be concluded that there have been a number of alternative routes challenging the Suez Canal since its opening in 1869. These routes place the Canal in competition for attracting sea-borne trade. To remain as a competitive choice, Stopford (2009) identified five factors of product differentiation in shipping route choice: price, speed, size, security and reliability.

The discussion above shows a number of qualitative conclusions on perceived competition to provide routing alternatives to the Suez Canal. The question in this paper is how *the Suez Canal can be further developed as an international hub to retain its monopolistic position for world trade?*

THE SUEZ CANAL AS A LOGISTICS HUB

Logistics hubs have different forms (Nam and Song, 2011). From the logistics perspective, it can be a distribution centre. From the freight transport perspective, it can be a freight village (logistics node). From the facility location perspective, it can be a logistics zone (free trade zone). From the maritime logistics perspective, it is often referred to as a process of planning and managing the flow of cargo and information with ocean carriage being involved. Notteboom (2012) claimed that a maritime logistics hub is concerned with individual functions relating to sea transportation, as well as an effective logistics flow as a systematic entity of the logistics integration system. Nam and Song (2011) explained that maritime transport has three players namely; shipping companies, port operators including value adding services and freight forwarders. Huang et al. (2008) pointed out that the criteria to be a hub is not the throughput cargo rate but the transhipment cargo rate. The following section discusses the current and proposed value adding services at the Suez Canal that leads to it being an international logistics hub.

Transforming the Suez Canal region into an international Logistics Hub is based on

developing six pillars, namely: transport, trade, tourism, renewable energy, human development, and industrial complexes. Three administrive governorates are located alongside the Canal that can help in developing these pillars, including Suez, Ismailia and Port Said governorates. In Suez, the Suez Canal Container Terminal is planning to provide modern handling and operating systems for all transiting vessels using advanced technology. In Ismailia, three projects are proposed, including dredging a tunnel under the Canal, establishing a valley of technology, and establishing industrial and logistical areas West of the Canal. In Port Said, construction of new quays at Port Said East Port is proposed with overall length 1200 m and width 500 m, accompanied by double rail lines connecting the port with its hinterlands. The SCA aims to provide value adding logistics activities in these governorates. The following section reviews the current and proposed logistics activities.

The Suez Canal can be transformed from a cargo gateway into a logistics hub. Optimising operations, interfacing with complex transport, improving performance, reducing customer lead times, reducing prices, offering a wide range of logistics activities, integrating with supply chain and reducing wastes are required for this upgrade to an international hub. The Suez Canal has currently a number of value-adding services (VAS) that helps to strengthen its competitive position.

Firstly, the Canal has two shipyards, namely Port Said Shipyard (PSS) and Port Tawfik Shipyard (PTS). The PSS is a leading shipyard in Egypt and has a unique strategic place at the northern entrance of the Suez Canal giving it the great privilege of attracting many transiting ships to its services: repairs, building different floating vessels and different types of ship, dredgers and tugboats. In addition, PTS has a unique strategic place at the southern entrance of the Suez Canal. There, PTS provides repairs and the building of medium and small floating units.

Secondly, the Suez Canal is provided with a fleet of 12 multi-type dredgers, and a fleet of 35 multi-type tugs used for towing, salvage, fire-fighting and berthing of ships. Also, there is a fleet of 35 cranes.

Thirdly, Suez Canal has the following seven affiliated companies in different fields to support all activities alongside the Canal.

(1) The Canal Mooring and Lights Company is responsible for mooring and unmooring of vessels transiting the Canal.
(2) The Canal Naval Construction Company is specialised in building and repairing floating units, ship modifications, petroleum service, medium size engine repairing, and ship scraping.
(3) The Port Said Engineering Works Company is specialised in repairing and

building small motor vessels and tugs.

(4) The Canal Rope Company is the biggest producer in the Middle East of all kind of ropes and twines (natural or synthetic) and woven bags.

(5) The Canal Harbour and Great Projects Company is specialised in Marine Works and in Quarrying.

(6) The Temsah Shipbuilding Company is specialised in shipbuilding, ship repairs, operation and maintenance of all kinds of auxiliary ships and water desalination plant.

(7) The Suez Shipyard company is specialised in ships repair, shipbuilding, steel structures, pipe lines, tanks, marine services, and repair dredging equipment.

The hinterland of the Suez Canal region is capable of accommodating new value adding projects, leading the Suez Canal to become one of the most successful logistics areas in the world. Firstly, the Cold Logistic Park project is proposed to support the cold products chain trade transiting the Suez Canal (Kotait, 2013). The project offers perishables companies access to growing markets in the Middle East, high quality and cost effective trans-shipment, consolidation, storage, packing, and distribution activities. It is proposed to establish a Container Park with full cold chain facilities.

Secondly, another project is applying the River Information Services (RIS) for logistics purposes (Gehlhaar, 2013). RIS is an intelligent IT solution that can assist SCA in their daily operations. RIS's objective is improving the integration of inland waterway transport through the Suez Canal into intermodal chains. It is not only a classical information provision, but it is also a tailor-made proactive information service which will support the system of Supply Chain Event Management (SCEM). Also, the RIS system aims to integrate terminals alongside the Suez Canal in order to align the processes between sea ports, inland waterway transport, and inland ports.

Thirdly, new container hub ports are emerging in the Suez Canal. The Suez Canal Container Terminal is located in Port Said, at the northern tip of the Canal, handling 3.1 mn TEU in 2011. It includes a series of free zone areas, with plans to establish logistics and distribution centres in the future. Sokhna Port is another container hub that is located at the southern entrance of the Canal. It handled 0.6 mn TEU in 2011, with future expansion in capacity.

Fourthly, the Establishment of a Sinai Canal has been recently proposed and discussed (Kamel, 2013). This proposed Canal aims to link the Mediterranean Sea with the Gulf of Aqaba in parallel to the Suez Canal. It aims to develop the Sinai Peninsula and to attract more investment in logistics and adding value activities such as production, storage and transhipment. There are key ports located in North and South Sinai that can play an important role in developing traffic in the proposed Canal, including Arish port in North-

ern Sinai and Taba Port in Southern Sinai. Three logistics centres are proposed to be established alongside the new Canal. One centre would be located west of the Canal for building and repairing all types of ships. A second centre would be used for storing and re-export purposes, supporting the transhipment industry. A third centre would be for production projects. Agricultural hinterlands are proposed in all these three centres.

Fifthly, a proposed plan for the period up to 2020 has been set by the Egyptian government for establishing a set of bridges and tunnels crossing the Suez Canal. For example, Ferdan Bridge is proposed to be the longest movable bridge in the world. Salam Bridge is for 5.9 Km enhancing the flow of cargo and passengers movement. Ismailia tunnel is proposed for 0.9 Km to link both sides of the Canal. A railway line is proposed for 1200 metres, crossing the Canal.

Also, it is proposed to establish a complete separate entity, a regulatory body, to manage and operate the Suez Canal Hub. Its responsibility is to deal with all involved ministries and agencies in Egypt and abroad, applying international standards. It is suggested that non-bureaucratic procedures be applied, and three sub entities be established in each zone (Port Said, Ismailia and Suez). It is proposed that this new body would be responsible for organizing competition and preventing monopoly, improving proficiency, increasing productivity, preparing human resources with required skills, managing commercial conflicts and disputes, and attracting investments.

Finally, transforming the Suez Canal from a cargo gateway into an international hub is a future requirement to accommodate the expected growth of China-North America Atlantic Coast(NAAC) container TEU trade to 14.3 mn TEU in 2030 compared to 4.1 mn TEU in 2010 (Ghonima, 2013). Presently the major segment of this traffic moves via the Panama Canal. A much smaller portion, moves via the Suez Canal, mostly to U.S Ports. Potential future diversion of 1.2 mn TEU to the Canadian Atlantic Port of Halifax via the Suez corridor, could develop due to water depth and the ability to develop incremental and terminal capacity to efficiently handle Super-Post-Panamax (SPPX) vessels.

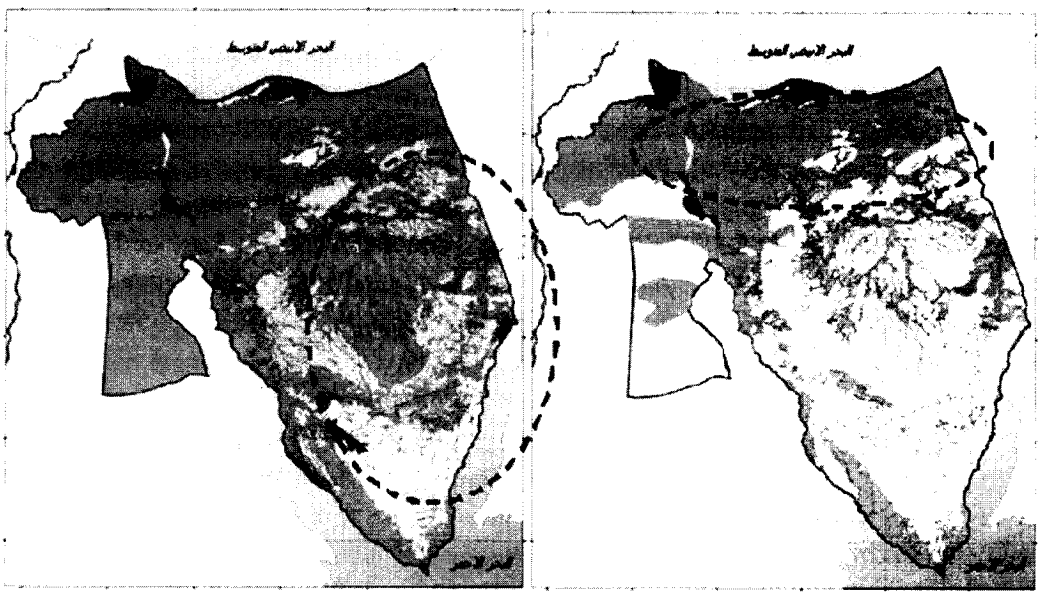
DIFFICUTIES IN DEVELOPMING A SUEZ CANAL HUB

To retain its monopolistic position in sea-borne trade, there is a need to develop the Suez Canal region. This will help to attract more shipping lines and shippers through providing value adding logistics activities.

However, the development process is facing many challenges, which can be summarised as follows:

(1) More that 50% of the region consists of difficult development areas because of the nature of the topography of Sinai, as shown in Figure 3.
(2) The region is suffering the lack of many basic services such as education, health care, trade, and the absence of industries.
(3) There are urban problems, caused by an imbalance between population growth and population areas.
(4) There is poor communication and poor links between the Eastern and Western Banks of the Canal.
(5) Peace Agreement conditions make the region unattractive for investment and limit the possibilities for exploitation of the region.
(6) There are difficulties which influence the demographic variables, related to religious values and social and environmental habits, which cannot be changed. Multiple cultures make habits into fundamentalist restrictions on development.
(7) Huge investments are needed to meet the requirement of the region's development. Most financial institutions, whether local or international, elude the required funding.
(8) The population in the Canal region is about 9 million, and its unemployment rate is 9.7% (2012).

Figure 3: The Topographic Nature of Sinai



Source: http://www.gopp.gov.eg, 2013

RECOMMENDATIONS

The following suggestions are proposed to be carried out in the future:

(a) It is recommended that the Canal be deepened to 72 feet in order to be able to accommodate a maximum ship capacity of 340,000 DWT.
(b) Also, most of the Canal is limited to a single lane of traffic. Thus, it is recommended to deepen the Canal's six bypasses as this will allow transit of ships in both directions.
(c) Review the competitive pricing policies applied by other competitive routes.
(d) Increase the national projects in the region to attract more investment.
(e) Re-distribute and relocate some population into remote areas in the region.
(f) Focus on the region's competitive advantage in the fields of energy production and tourism.
(g) Raise the standard of living and household income.
(h) Six governorates can play an important role in developing the Suez region, including Sharqia, Ismailia, Port Said, Suez, North Sinai and South Sinai. Coordination and integration between these governorates are essential.

CONCLUSION

The Suez Canal has a competitive advantage in its opportunities in existing and developing alternatives and competitive routes where all types of ships with maximum capacity of 240,000 DWT and 66 feet draft can pass through the Canal. Pricing policy applied by SCA plays a crucial role in attracting more ships. Difficulties confront the development of the Suez Canal region. However, the Canal has value adding services that can be expanded to cope with an increase in sea-borne trade. Proposed value adding services could transform the Suez region into an international logistics hub.

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