TRANSPORT PLANNING AUTHORITY
MINISTRY OF TRANSPORT
THE ARAB REPUBLIC OF EGYPT

No.

MiNTS – MISR NATIONAL TRANSPORT STUDY

THE COMPREHENSIVE STUDY ON THE MASTER PLAN FOR NATIONWIDE TRANSPORT SYSTEM IN THE ARAB REPUBLIC OF EGYPT

FINAL REPORT

TECHNICAL REPORT 4

MARITIME SECTOR

March 2012

JAPAN INTERNATIONAL COOPERATION AGENCY

ORIENTAL CONSULTANTS CO., LTD.
ALMEC CORPORATION
KATAHIRA & ENGINEERS INTERNATIONAL

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CHAPTER 1: INTRODUCTION

1.1. BACKGROUND

The Japan International Cooperation Agency (JICA) and the Transport Planning Authority of the Ministry of Transport are cooperating in the conduct of the *Comprehensive Study on The Master Plan for Nationwide Transport System in the Arab Republic of Egypt* (MiNTS – Misr National Transport Study), based upon agreements finalized during July, 2009[1]. Oriental Consultants Company Limited, headquartered in Tokyo, Japan, is the designated lead consultant for the study. Associated firms are Almec Corporation, Japan and Katahira & Engineers International, Japan. Technical efforts in Egypt were initiated during December, 2009.

1.2. THE MiNTS FRAMEWORK

1.2.1. Study Scope and Objectives

MiNTS is comprehensive in nature, that is, approaches have been designed to mitigate transport problems and contribute to the sustainable development of the nation. Investigative efforts extend over the entirety of the Republic (Figure 1.2.1), with a particular focus being major corridors of movement for both persons and cargo. All major modes of transport are addressed including road, rail, maritime, inland waterway, civil aviation and pipeline. However, the practical master planning focus falls upon those modes falling under the jurisdiction of the Ministry of Transport; that is, the road, rail, maritime and inland waterway sectors.

Five key milestones form the foundation upon which planning efforts are based:

- Establish a nationwide, multi-modal database whose validity rests on a series of focused transport survey and data collection exercises;
- Formulate overall strategies and policies for development of the nationwide transport fabric;
- Develop an integrated, multi-modal transport master plan with years 2017, 2022 and 2027 being short, medium and ultimate planning horizons, respectively;
- Identification, within the master plan framework, of high-priority projects; and,
- Implementation of an effective and productive technology transfer program with Egyptian counterparts.

[1] *Scope of Work - Comprehensive Study on The Master Plan for Nationwide Transport System in the Arab Republic of Egypt*, as mutually agreed upon between the Japan International Cooperation Agency and the Ministry of Transport, Government of Egypt, July 16, 2009.

Source: JICA Study Team

Figure 1.2.1 MiNTS Study Area

The transport strategy embedded within MiNTS must concurrently contribute to an efficient economic structure, strengthen linkages within Egypt as well as with neighboring countries, and provide a base for market-oriented transport activity. Economic expansion and social transformations within Egypt are well underway; continuing improvements in productivity and well-being are expected. As economic growth continues, changes in transport activities and behavior will follow suit. Thus, the foci of transport planning must gradually shift from alleviation of present deficiencies to realization of a transport system founded upon sustainable evolution and integrated, mutually supportive transport solutions. This strategy is particularly valid given the almost 20-year planning horizon adopted by MiNTS.

1.2.2. A Consultative Planning Process

The final structure of MiNTS, and the successful reception thereof, can only be achieved as a direct result of cooperative efforts and close liaison between the Study Team and local experts. Considerable efforts have been expended in gathering information, reviewing previous studies and holding numerous discussions to enhance knowledge of, and sensitivity to, local transport conditions, norms and practices.

The Study Team, housed in the offices of the Transport Planning Authority, Ministry of Transport, is being strongly assisted by its designated counterpart Special Working Group, Coordination Committee and Steering Committee. Thus, continuous and productive technical liaison is being maintained with a number of organizations including the Ministry of Transport and various entities thereof (Office of the Minister, Transport Planning Authority, Egypt National Railways, General Authority for Roads, Bridges and Land Transport, General Authority for River Transport, Maritime Transport Sector); the Ministry of Housing,

Utilities and Urban Communities; Ministry of Civil Aviation; Ministry of Agriculture and Land Reclamation; Ministry of Trade and Industry; Ministry of Industrial Development; Ministry of Interior; Ministry of Local Development; Ministry of Finance; State Ministry of Foreign Affairs, Sector of International Cooperation; Ministry of the Environment; CAPMAS (Central Agency for Public Mobilization and Statistics); as well as various Governorates and entities thereof. Close coordination has also been effected with Universities and various departments within those learned institutions.

Likewise, effective consultations are programmed with various international agencies, funding institutions, donors, and consultant groups in order to obtain an overview of previous, current, and likely future activities and/or involvement in Egypt.

1.2.3. Sustainability and Human Resources Development

The components of the Master Plan diversify beyond the traditional "hardware" concepts associated with infrastructure provision. Additional key elements of the process consist of "software" aspects, that is, available technology, international standards, and modal integration needs (cargo/passenger terminals, logistics chains, transfer points) as well as "humanware" needs. In the latter case, this represents the cultivation of human resources via the designation of training and education programs as well as other requirements for developing expertise. In other words, "sustainability", or the notion that the planning process must allow Egyptian stakeholders to participate in visualizing and shaping their own future. This is of substantial importance in terms of ownership building if MiNTS is to be adopted and used by the people and their elected officials both during, and following, the conduct of MiNTS.

1.3. REPORTING STRUCTURE

The *Final Report* consists of three elements: *The Master Plan* report, *Technical Reports* and *Appendix Reports*.

- *The Master Plan* report is seen as the main document whose intent is to present, in a synoptic sense, main findings of the MiNTS investigations;
- *Technical Reports* represent a series of sector-specific reports which document the technical underpinning of *The Master Plan* document (Table 1.3.1), and,
- *Appendix Reports* represent task-specific or activity-specific documents and other data summaries, some of which have been developed in response to client group requests.

Table 1.3.1 Technical Reporting Structure

Report Number	Subject
1	Road Sector
2	Rail Sector
3	Inland Waterway Transport Sector
4	Maritime Sector
5	Civil Aviation and Pipeline Sectors
6	Demand Simulation and Scenario Testing
7	Organizational and Functional Aspects of the Transport Sector
8	Private Sector Participation
9	Environmental Considerations
10	The MiNTS Vision, Policies and Strategies
11	Transport Survey Findings
12	Project Prioritization
13	Counterpart Training Program

Source: JICA Study Team

CHAPTER 2: MARITIME TRANSPORT

2.1. COMMERCIAL PORTS IN EGYPT

Egypt has 15 commercial ports facing the Mediterranean Sea and the Red Sea (Figure 2.1.1, Table 2.1.1). The Maritime Transport Sector (MTS) is responsible for the administration of those ports. MTS has four regional Port Authorities in charge of the administration of the ports under its jurisdiction (Figure 2.1.2). The number of ports under the jurisdiction widely differs from one (Damietta Port Authority) to nine (Red Sea Port Authority). Among them, ports of the Port Said Port Authority handle the largest amount of cargo followed by those of the Alexandria Port Authority and the Damietta Port Authority (Table 2.1.2). This reflects the size of economic activities in the ports' hinterland as well as the presence of a container hub port. On the other hand, ports in the Red Sea Port Authority handle by far the greatest number of passengers due to the busy passenger traffic across the Red Sea.

Apart from the commercial ports, roughly fifty ports (petroleum ports, mining ports, tourist ports, and fishing ports) are designated as specialized ports by the Law No. 1 of 1996 and regulated by the Minister of Transport Resolution No. 81 of 1999 (Table 2.1.3).

Figure 2.1.1 Commercial Ports

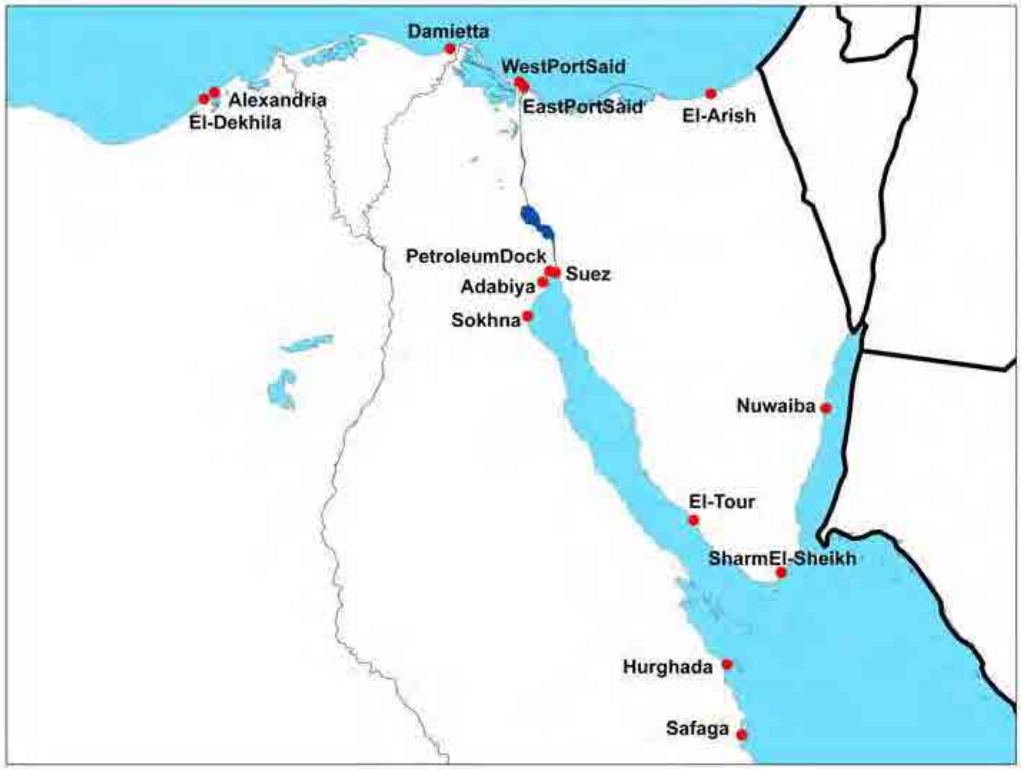


Table 2.1.1 Outline of Commercial Ports in Egypt (2009)

Port Name	Total Area (km^2)	Land Area (km^2)	Max Capacity		Actual handling volume In 2009			Total no. of berths	Total berth length (m)	Max. water depth (m)
			Cargo (million ton)	Container (million TEU)	Cargo (million ton)	Container (million TEU)	Passenger (million)			
Alexandria	8.40	1.60	36.80	0.5	22.1	0.6	0.5	59	7,625	12.8
El-Dekhila	6.20	3.50	22.10	0.5	23.3	0.7	0	20	4,586	20.0
Damietta	11.80	8.50	19.75	1.2	29.3	1.1	0	18	4,750	14.5
West Port Said	3.00	1.30	12.18	0.8	8.9	0.8	0.2	32	4,400	13.2
El Arish	0.23	0.05	1.20	0	1.3	0	0	2	364	8.0
East Port Said	35.00	33.50	6.00	2.2	22.9	2.5	0	3	1,200	14.5
Suez	162.40	2.30	6.60	0	1.5	0.001	0.02	12	2,070	8.0
Petroleum Dock		1.16	4.14	0	0	0	0	7	828	9.0
Adabiya		0.85	7.93	0	6.4	0.03	0.01	9	1,840	12.0
Sokhna	87.80	22.30	8.50	0.4	4.9	0.4	0.5	6	2,350	17.0
Hurghada	9.90	0.02	0	0	0	0	0.2	3	340	5.0
Safaga	57.00	0.48	6.37	0	2.1	0	0.8	3	968	14.0
El Tour	1.65	0.43	0.38	0	0	0	0	1	75	5.0
Nuwaiba	9.87	0.34	1.9	0	1.0	0	0.8	4	380	8.0
Sharm El Sheikh	88.28	0.16	0	0	0	0	0.2	1	625	8.0
Total	481.55	76.49	134.45	5.6	122.3	6.1	3.23	180	32,068	

Source: MTS

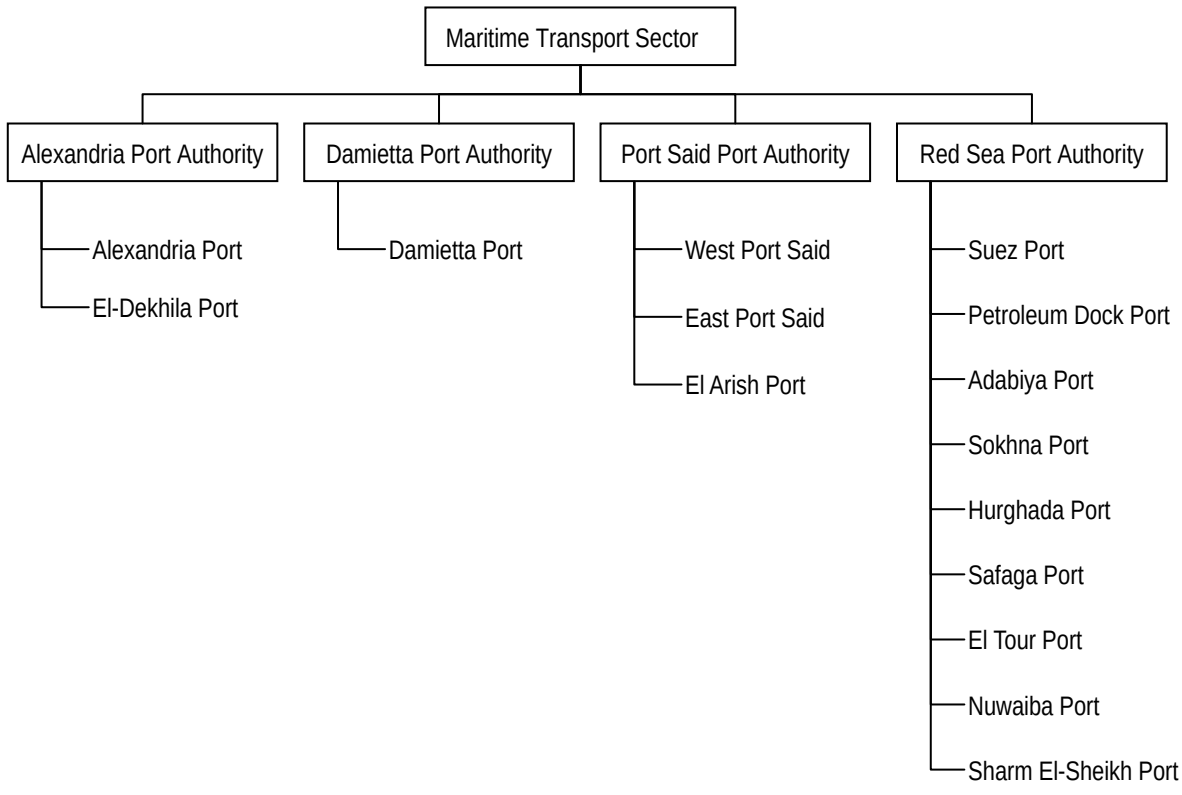


Figure 2.1.2 Organization Chart of Port Administration

Table 2.1.2 Year 2008 Port and Maritime Transport Data by the Port Authorities

Data		Alexandria Port Authority	Damietta Port Authority	Port Said Port Authority	Red Sea Port Authority
Number of berths		79	18	37	46
Maximum Water depth (m)		20	14.5	14	17.05
Cargo handling equipment (tug boats and launches)		38	9	6	26
Warehouse (m2)		2,181,374	396,741	915,253	520,015
Vessel calls		5,809	3,196	9,058	6,208
Number of passengers		385,857	0	147,352	2,453,619
Total cargo throughput (000 tons)		44,912	26,601	30,884	13,783
Commodity-wise throughput (000 tons)	General cargo	7,049	3,419	315	3,096
	Dry bulk	15,708	7,093	2,978	4,411
	Liquid bulk	6,656	4,321	28	1,983
	Containers	11,293	2,316	3,458	4,152
	Special cargo	2,944	608	15	180
	Transit	1,263	8,857	24,090	860
Containers (TEU)		1,264,455	1,124,969	3,186,589	505,990

Source: MTS

Table 2.1.3 Specialized Ports

Mining Ports	Petroleum Ports	Tourist Ports		Fishing Ports	Berths
		Operational	Under construction		
9	13	6	3	4	17

Source: MTS

2.2. PORT TRAFFIC

Export-import cargoes handled in the commercial ports are, in the order of volume, dry bulk, containers, general cargo, liquid bulk, and special cargo (Table 2.2.1). Alexandria, El-Dekhila, Damietta, West Port Said, and East Port Said are major ports with an annual throughput of 8 million tons or more. In 2009, these five ports handled a total of 107 million tons, accounting for 87 % of the total throughput of commercial ports. Alexandria, El-Dekhila, Damietta, West Port Said, East Port Said, Abadiya, Sokhna, and Safaga are deep sea ports with berths of more than 12 m in depth.

The cargo throughput at Egyptian commercial ports has increased at an annual average rate of 10 % between 2003 and 2009. The growth of East Port Said has been particularly impressive during the period. It is notable that the cargo growth has slowed down since 2006 (Figure 2.2.1).

Table 2.2.1 Imported Cargo Throughput of Commercial Ports in 2009

(1,000 ton)

Port	General cargo	Dry bulk	Liquid bulk	Container	Special cargo	Transit	Total
Alexandria	5,249	2,701	3,218	3,187	2,666	26	17,046
El Dekhila	5,790	9,426	394	3,571	70	306	19,557
Damietta	1,887	7,319	454	1,069	641	5,037	16,407
West Port Said	327	1,037	51	1,139	3	2,508	5,065
East Port Said	3	0	0	456	0	10,602	11,062
El Arish	0	9	0	0	0	0	9
Suez	66	2	15	0	30	1	115
Adabiya	1,499	427	1,999	154	32	7	4,118
Sokhna	586	63	0	1,556	9	553	2,767
Safaga	4	1,137	6	0	1	0	1,147
Nuwaiba	170	9	0	0	10	9	198
Total	15,580	22,130	6,137	11,132	3,460	19,050	77,490

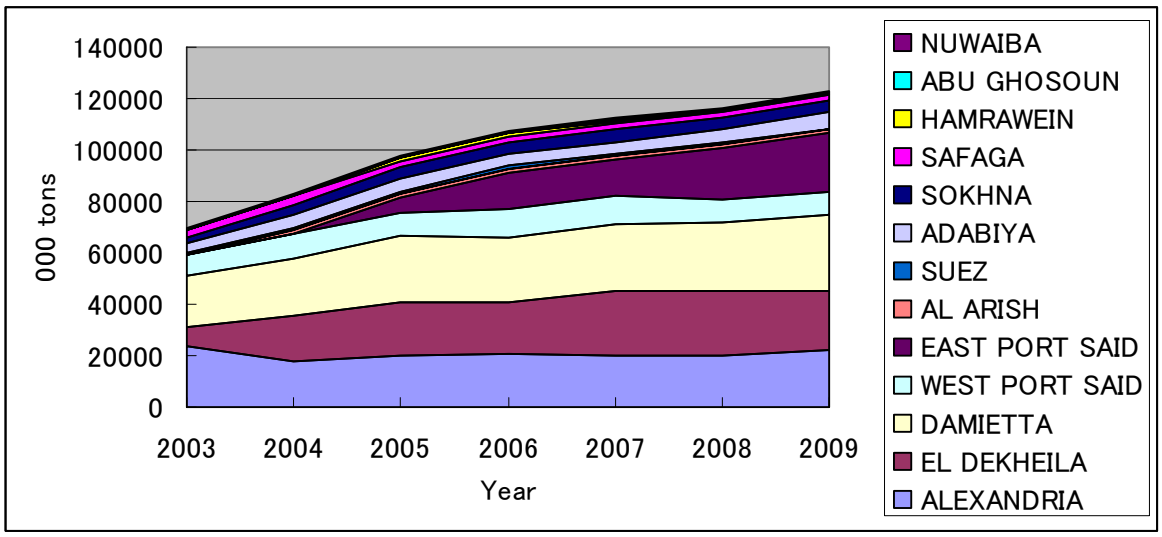
Source: MTS

Table 2.2.2 Exported Cargo Throughput of Commercial Ports in 2009

(1,000 ton)

Port	General cargo	Dry bulk	Liquid bulk	Container	Special cargo	Transit	Total
Alexandria	919	541	1,549	1,965	32	44	5,050
El Dekhila	58	766	1,151	1,544	2	276	3,797
Damietta	359	2,901	3,839	1,135	4	4,692	12,930
West Port Said	154	291	0	895	0	2,490	3,830
East Port Said	0	0	0	1,323	0	10,497	11,820
El Arish	2	1,322	0	0	0	0	1,324
Suez	235	22	0	5	14	0	276
Adabiya	620	1,414	29	194	7	0	2,263
Sokhna	589	79	0	1,451	0	34	2,152
Safaga	107	858	0	0	1	0	966
Hamrawein	0	698	00	0	0	0	698
Abu Ghosoun	0	76	0	0	0	0	76
Nuwaiba	375	7	1	0	84	0	467
Total	3,417	8,976	6,570	8,510	144	18,032	45,649

Source: MTS



Source: MTS

Figure 2.2.1 Total Cargo Handled at Egyptian Ports (2003-2009)

Container cargo is handled in eight ports. Among them, Alexandria, El-Dekhila, Damietta, West Port Said, East Port Said, and Sokhna cater for most of containers. A major portion of local containers is handled in Alexandria and El-Dekhila due to their proximity to the Cairo metropolitan area. On the other hand, most transit containers are handled in East Port Said due to its geographical advantage, deep draft, and terminal efficiency (Table 2.2.3).

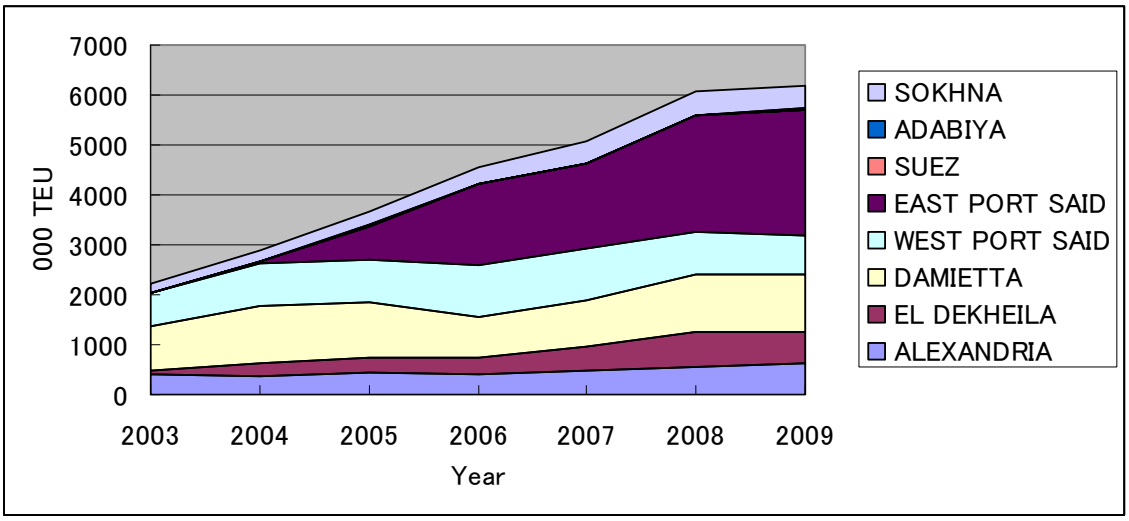
Container traffic recorded a high growth between 2003 and 2009, at an annual average rate of 18.4 %, in line with the rapid expansion of world trade. The growth is mainly attributable to the development of East Port Said (Figure 2.2.2). Growth of container cargo slowed down in 2008 reflecting the global financial crisis.

Table 2.2.3 Container Cargo Throughput of Commercial Ports in 2009

(1,000TEU)

Port	Local container	Transit container (A)	Total (B)	Transshipment ratio (A/B)
Alexandria	609	7	616	1.1%
El-Dekhila	615	47	661	7.1%
Damietta	202	937	1,139	82.3%
West Port Said	266	495	761	65.0%
East Port Said	174	2,366	2,540	93.1%
Suez	1	0	1	0.0%
Adabiya	30	0	30	0.0%
Sokhna	375	53	428	12.4%
Total	2,270	3,906	6,176	63.2%

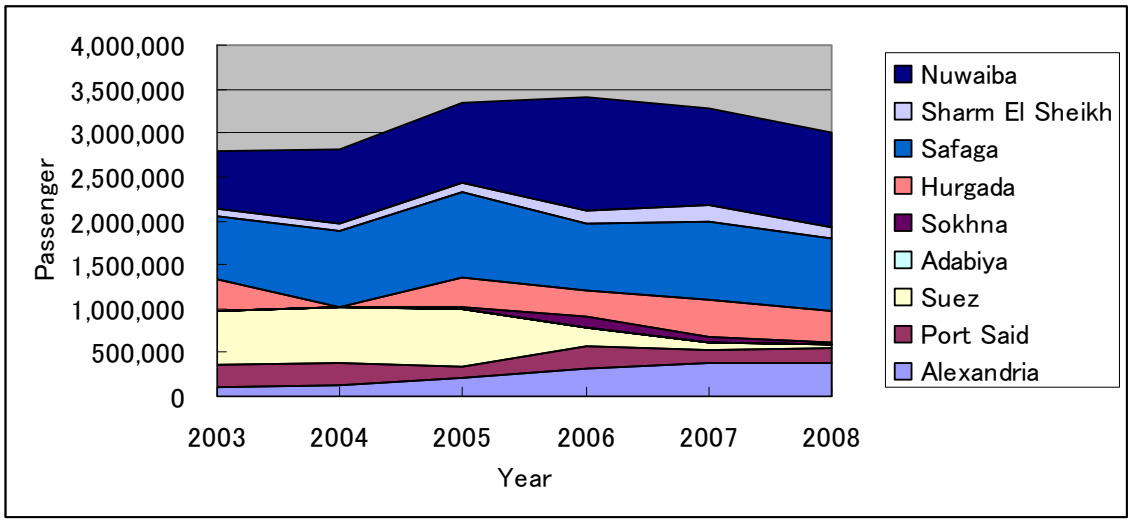
Source: MTS



Source: MTS

Figure 2.2.2 Containers Handled at Egyptian Ports

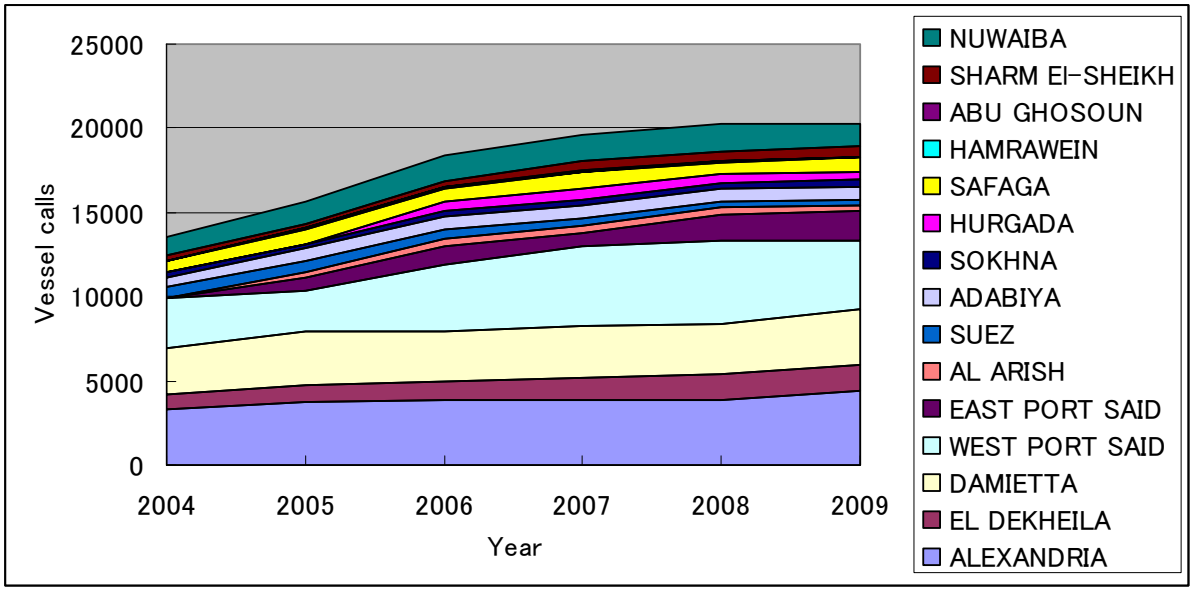
Eight commercial ports cater for passenger traffic, of which Nuwaiba and Safaga account for about 60 % of the total (Figure 2.2.3). These two ports are hubs of the passenger traffic across the Red Sea. Unlike the rapid growth of cargo throughput, passenger traffic at Egyptian ports has not shown a significant increase between 2003 and 2008. During this period, the passenger traffic recorded only a marginal expansion, an annual average growth of 1.5 %.



Source: MTS

Figure 2.2.3 Passenger Traffic at Egyptian Ports

Vessel calls at Egyptian commercial ports has increased at an annual average rate of 8.3 % between 2004 and 2009 (Figure 2.2.4). Alexandria, Damietta, and West Port Said account for about 60 % of the total.



Source: MTS

Figure 2.2.4 Vessel Calls at Egyptian Ports

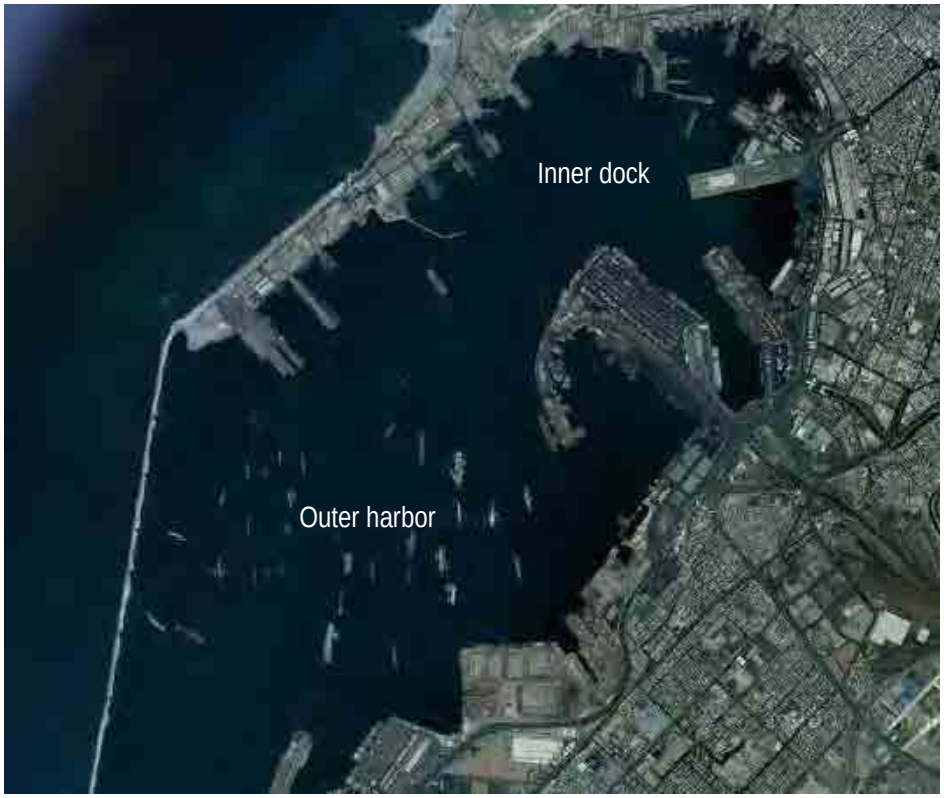
2.3. OVERVIEW OF MAJOR COMMERCIAL PORTS

2.3.1. Alexandria and El-dekhila

Alexandria Port is located about 180km to the north west of Cairo. It has been the most important port in Egypt for thousands of years and still plays a vital role in supporting the national economy and meeting the needs of the two metropolitan areas, Alexandria and Cairo.

Alexandria Port is a natural harbor protected by a peninsula and breakwaters. Its water basin is separated into two, the inner dock and the outer harbor, by coal berths (Figure 2.3.1). The port area comprises six zones, each catering for different types of cargo. El-Dekhila Port was created some 10 kilometers to the west of Alexandria to provide additional capacity (Figure 2.3.2). These two ports are closely linked by an arterial road and act as a single port (Figure 2.3.3).

The Alexandria Port Authority (APA), established in 1967, manages Alexandria Port and El-Dekhila Port. The area of the water surface and land surface is 6.8 km2 and 1.6 km2 respectively. Pilotage is compulsory for all vessels and tugging is mandatory for vessels exceeding 2,000 tons. In 2005, concession agreements were signed with Alexandria International Container Terminals (AICT) to convert general cargo berths in Alexandria Port and El-Dekhila Port into container berths.



Source: Google earth

Figure 2.3.1 Alexandria Port

Source: Google earth

Figure 2.3.2 El- Dekhila Port

Source: APA

Figure 2.3.3 Roads Linking Alexandria Port and El-Dekhila Port

Alexandria Port handles a variety of cargo including general cargo, containers, dry bulk, and liquid bulk as well as passenger traffic (Table 2.3.1,Table 2.3.2). Combined with El-Dekhila Port, more than 70 berths are provided to accommodate the traffic needs (Table 2.3.4). The maximum alongside depth is 12.49m for container vessels and 12.81m for bulk cargo vessels. The approach channel has a depth of 14m. The master plan for 2015 prepared by APA covers both Alexandria Port and El-Dekhila Port and aims to add 11.3-km long berths including a container terminal, multi-purpose terminal, and petrochemical terminal.

Table 2.3.1 Cargo Throughput of Alexandria Port and El-Dekhila Port in 2009

(1,000 ton)

Cargo	Port	General cargo	Dry bulk	Liquid bulk	Containers	Particular goods	Total
Import	Alexandria	5,249	2,701	3,218	3,187	2,666	26
	El Dekhila	5,790	9,426	394	3,571	70	306
Export	Alexandria	919	541	1,549	1,965	32	44
	El Dekhila	58	766	1,151	1,544	2	276

Source: MTS

Table 2.3.2 Ship Calls in Alexandria Port and El-Dekhila Port in 2009

Port	General cargo	Dry bulk	Liquid bulk	Containers	Rolling	Passenger	Other	Total
Alexandria	2,375	244	488	733	237	184	179	4,440
El Dekhila	604	305	67	545	9	0	10	1,540

Source: MTS

Table 2.3.3 Terminals in Alexandria Port

Cargo type	Number of berths	Berth length (m)	Alongside depth (m)
General cargo	25	3,004	3.96-11.89
Passengers and tourists	5	805	9.7-11.7
RORO	1	30	8.84-9.15
Military	2	335	12.49
Container	4	732	12.49
Fertilizer	3	426	8.23-8.54
Molasses	1	71	10.06
Grains and supplies	3	695	9.76-12.81
Coal	4	365	8.54-10.06
Container (HPH)	3	585	9-11
Livestock	1	120	8.54
Petroleum and food oil	5	862	10.06-10.37
Repairing	2		
Total	59	7,959	

Source: APA

Table 2.3.4 Terminals in El-Dekhila Port

Cargo type	Number of berths	Berth length (m)	Alongside depth (m)
Oil	4	842	11.9-13.6
Minerals	2	640	14-18.9
Grains	5	1,281	11.6-14
Container	3	732	11.9
Multi-purpose	3	579	10.7-11.9
Total	17	4,074	.54

Source: APA

Alexandria Port and El-Dekhila Port each has two container terminals Table 2.3.5, Table 2.3.6). Alexandria Container Terminal and Dekhila Container Terminal are operated by a public entity, Alexandria Container & Cargo Handling Co., and thus act as multi-user terminals. On the other hand, Alexandria International Container Terminal and Dekhila International Container Terminal belong to the group of Hutchison Port Holdings (HPH). HPH holds 50 % of the equity based on the agreement signed with APA in 2005. Alexandria International Container Terminal acts as a dedicated terminal for the Maersk line, while Dekhila International Container Terminal is a multi-user terminal. Alexandria Container Terminal has decided to replace a gantry and add 2 RTGs in 2011.

Table 2.3.5 Container Terminals in Alexandria Port

Terminal	Alexandria Container Terminal (ACT)	Alexandria International Container Terminal (AICT)
Operator	Alexandria Container & Cargo Handling Co.	Alexandria International Container Terminals Co.
Start of operation		2007
Berth length and alongside depth	520 m (-14 m)	380m (-12 m)
Terminal area	163,000 m2	110,000 m2
CFS	32,000 m2	-
Storage capacity	14,000 TEU	7,000 TEU
Reefer points	500	600
Gantries	2 Panamax 1 Over Panamax 2 Post Panamax	2 Ship-shore Gantry
Yard handling	6 RTGs 1 Top-lifter 5 Reachstackers	5 RTGs 4 Reachstackers
Annual throughput	352,988 TEU (2008)	
Annual Capacity	400,000 TEU	220,000 TEU
Direct-call liner services	APL, Borchard, EMES, Gracechurch, Hapag-Lloyd, Maersk	Maersk

Source: Containerization International 2010, APA, Alexandria Container & Cargo Handling Company

Alexandria Container & Handling Co. also operates Dekhila Container Terminal catering for multiple users. Dekhila Container Terminal has decided to add a gantry and 4 RTGs in 2011.

Table 2.3.6 Container Terminals in El-Dekhila Port

Terminal	Dekhila Container Terminal (DCT)	Dekhila International Container Terminal (DICT)
Operator	Alexandria Container & Cargo Handling Co.	Alexandria International Container Terminals Co.
Start of operation		2007
Berth length and alongside depth	1,040 m (-12-14 m)	512 m (-12 m)
Terminal area	406,000 m2	190,000 m2
CFS	17,200 m2	
Storage capacity	20,000 TEU	
Reefer points	400	
Gantries	5 Post Panamax 2 Super Post Panamax	2 Ship-shore Gantry
Yard handling	8 RTGs 4 Reachstackers	7 RTGs 4 Reachstackers
Annual throughput	446,748 TEU (2008)	269,583 TEU (2008)
Annual Capacity	500,000 TEU	220,000 TEU
Direct-call liner services	APL, CMA CGM, EMES, Evergreen Line, Hamburg Sud, Hanjin, Hapag-Lloyd, Maersk, MSC, NNC, PIL, UASC, YML	CMA CGM, Hamburg Sud, MSC

Source: Containerization International 2010, APA, Alexandria Container & Cargo Handling Company

Alexandria Container & Cargo Handling Co. is a state-owned company but the private sector holds a small portion of its shares (Table 2.3.7).

Table 2.3.7 Shareholders of Alexandria Container & Cargo Handling Company

Shareholder	Number of shares	Shares value (LE)	Percentage (%)
Handling Company for Maritime & Land Transport	13,747,762	68,738,810	55.8
Alexandria Port Authority	9,840,000	49,200,000	39.9
Private Sector	1,055,502	5,277,510	4.3
Total	24,643,264	123,216,320	100

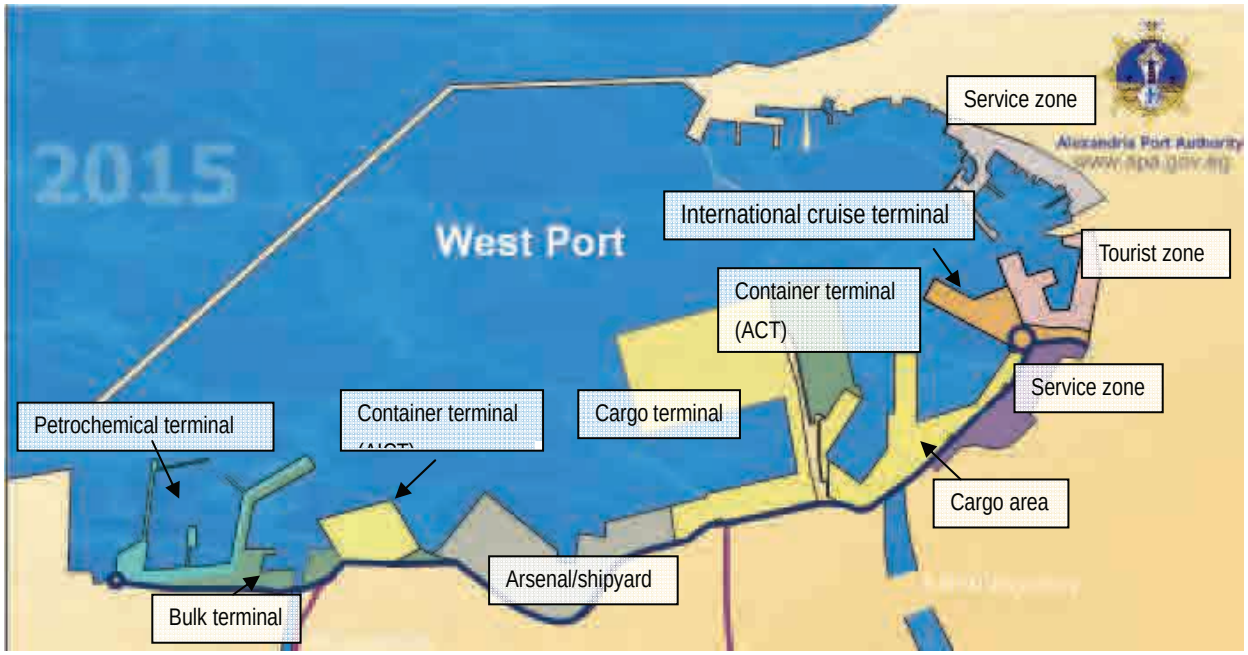
Source: Alexandria Container & Cargo Handling Company

The JICA Study Team learned the following through interviews with port officials at Alexandria:

- Mater plan
  - Master plan for 2015 is prepared including the creation of a multipurpose terminal in Alexandria Port and a container terminal in El-Dekhila Port (Figure 2.3.4,Figure 2.3.5).
- Port use
  - Alexandria and El-Dekhila are administered under the single authority, APA. Accordingly, marine traffic control for the two ports is carried out by a single control tower.
  - Pilotage is compulsory except for fishing boats.
  - Port charges are first transferred to the Ministry of Finance and later distributed to APA for management and maintenance of the ports. Extra government money is provided in case of a large project.
  - Railway transport is available for some berths but not frequently used because arranging the secondary transport at both ends of the traffic is troublesome and the velocity of cargo trains is slow (40km/h).
  - APA owns infrastructure and private companies own superstructure.
  - A new passenger terminal building is completed but not operational until an investor is determined to manage the building.
- Container terminal management
  - The government terminal and the private terminal are in fierce competition. The private terminal has greater flexibility for management decisions. APA welcomes the competition and does not support their merger.
- Projects
  - The multipurpose terminal a previous JICA report[2] proposed 10 years ago is still in a planning stage due to a lack of extra government money.
  - A new container terminal in El-Dekhila is also in a planning stage. It may be either a government project or PPP. APA expects to have a third player for this terminal in order to realize further competition among operators. APA wishes to start the project in 2011.
  - "Middle Port" is a dream project for APA. Many people inhabit behind the area and their relocation will be difficult.

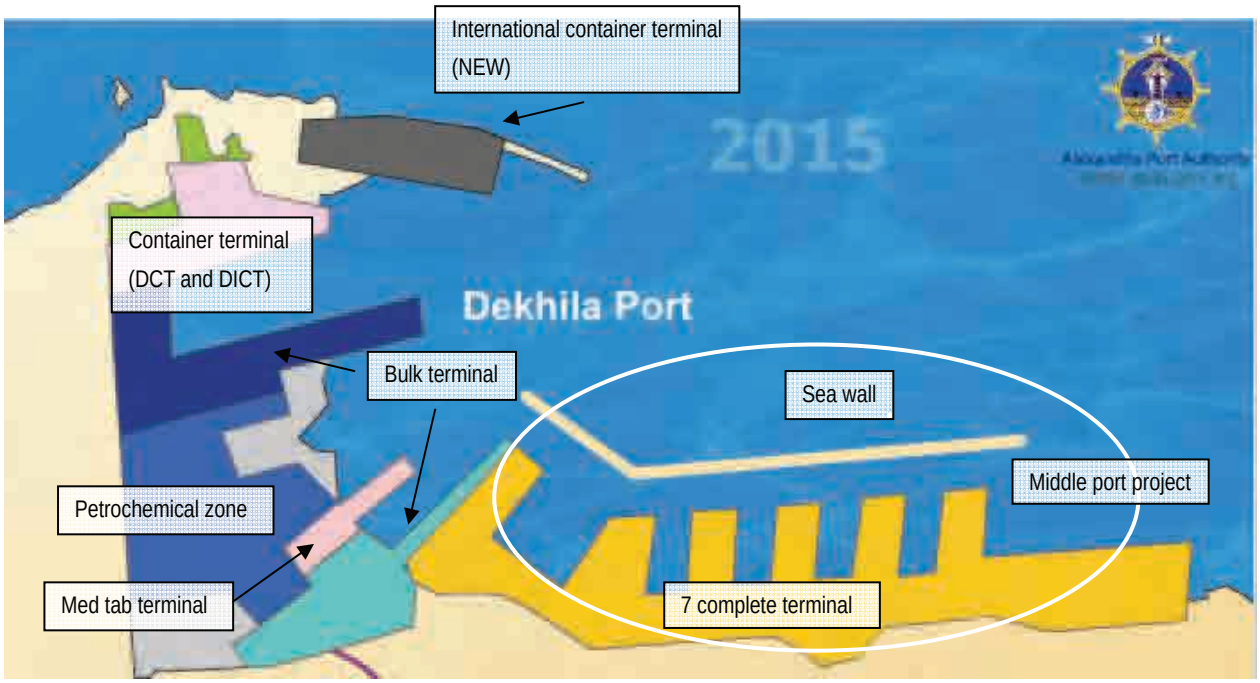
[2] The Study on Master Plan and Rehabilitation Scheme of the Greater Alexandria Port in the Arab Republic of Egypt, November 1999

- Breakwater construction in El-Dekhila
  - APA started the construction work in October 2009. It is 500 m in length, costs 200 million LE, and takes two years for completion. Details of the project were unavailable during the site visit.
  - EGYCO, the contractor for the project, is redoing construction works after a design defect was found.



Source: APA

Figure 2.3.4 2015 Master Plan of Alexandria Port



Source: APA

Figure 2.3.5 2015 Master Plan of El-Dekhila Port

The JICA Study Team carried out a brief site observation and found the following:

- Alexandria Port
  - A very large passenger terminal building with 73 slots for shops is completed but not operational. A private investor is yet to be found for its management. The terminal is linked with the city by an exclusive access road bypassing the main gate.
  - ACT has a double track railway access. A coal terminal is located right next to ACT with possible negative impacts on container cargoes.
  - The western part of the port trunk road pavement is deteriorated. Railway transport may interfere with road traffic as it does not have an exclusive railway track in this part of the port.
- El-Dekhila Port
  - El-Dekhila Port is more spacious than Alexandria Port. Railway facilities are in a good condition up to DCT and a switching yard is available as well.
  - A large-scale grain terminal with silos and modern handling equipment is in operation.
  - 4-lane trunk roads are provided inside the port with additional spaces for a railway track.

Strength and weakness of the Greater Alexandria Port (Alexandria Port and El-Dekhila Port) are summarized as follows:

- Strength
  - Proximity to the Cairo/Alexandria metropolitan areas and industrial areas
  - Concentration of the maritime industries
  - Smooth road connection to Cairo via the 8-lane desert road
  - International airport
  - Maintenance dredging is unnecessary
  - Comfortable climate
- Weakness
  - Lack of land space for expansion
  - Closed for 30 days a year due to strong winds impeding the attraction of transshipment containers
  - Congested terminals due to the small terminal space
  - Difficulty for captains in identifying berths at night due to the bright lights behind the port
  - Relatively shallow draft (max -14.5 m)

2.3.2. Damietta

Damietta Port is one of the oldest ports in Egypt, located 10 km to the west of the Damietta branch of the River Nile. It is served by railways and highways and also connected to the River Nile via a navigational channel (Figure 2.3.6). To respond to the growing traffic, construction of a new port started in 1982. In 1986, the Damietta Port Authority (DPA) was established to administrate and operate the port.

Source: Google earth

Figure 2.3.6 Damietta Port

Damietta Port has berths ranging from 12 m to 14.5 m in depth catering for dry bulk, liquid bulk, general cargo, and containers (Table 2.3.8-Table 2.3.10). Damietta Port is still the second busiest container port in Egypt but its throughput has not recorded a constant growth (Table 2.3.11).

Apart from facilities for ocean going vessels, it has a barge dock and a barge channel linking the port with the River Nile. The barge channel is 4.5 km in length, 5m in depth, and 90 m in width. The access channel is 11.5 km in length and 15 m in depth. DPA wishes to deepen and extend it to -17 m in depth and 15 km in length. Pilotage is compulsory. A pilot embarks a ship 12 km outside the breakwater. Since the channel is one-way traffic, arriving vessels have to wait for the entrance for 1.2 days on average. A 72-hour advance notice for entrance is requested to calling vessels. Damietta Port needs constant maintenance dredging due to littoral drift. DPA asks the Suez Canal Authority to carry out maintenance dredging, costing it 1.5 million LE/year.

Table 2.3.8 Cargo Throughput of Damietta Port in 2009

(1,000 ton)

Cargo	General cargo	Dry bulk	Liquid bulk	Containers	Particular goods	Total
Import	1,887	7,319	454	1,069	641	5,037
Export	359	2,901	3,839	1,135	4	4,692

Source: MTS

Table 2.3.9 Ship Calls Damietta Port in 2009

Cargo	General cargo	Dry bulk	Liquid bulk	Containers	Rolling	Passenger	Other	Total
	1,408	294	264	1,233	3	0	43	3,245

Source: MTS

Table 2.3.10 Berths in Damietta Port

Berth Type	Number of Berths	Auxiliary Berths	Length (m)	Depth (m)
Container	4	1,2,3,4	1,050	14.5
General cargo	4	5,6,7,8	800	12
Bulk	4	9,10,11,12	900	12
Grains	2	13,14	600	14.5
Oil	2	15,16	600	14.5
Gas	2	-	800	14
Total	18	-	4,750	-

Source: MTS

Table 2.3.11 Container Throughput Growth in Damietta Port

Year	2005	2006	2007	2008	2009
Throughput (TEU)	1,130,128	840,630	999,193	1,247,039	1,109,236
Growth rate (%/year)	-	-26.6%	+18.9%	+24.8%	-11.1%

Source: Containerization International 2010

Damietta Container & Cargo Handling Company (DCHC), a state owned company, operates the container terminal (Table 2.3.12, Table 2.3.13, Figure 2.3.7). DCHC replaced two gantries last year. The container terminal handles 360 TEU/hour with 10 gantries. This is equivalent to 24 boxes/hour/crane. Half of the yard operation is carried out by RTGs and the rest by reachstackers, which is rather unusual. DCHC plans to purchase RTGs to improve terminal efficiency. Transshipment containers are the focus of container operation in Damietta, accounting for 91.2 % of the total container throughput in 2009.

Table 2.3.12 Shareholders of Damietta Container & Cargo Handling Company

Shareholder	Percentage (%)
Handling Company for Maritime & Land Transport	42
Damietta Port Authority	25
Canal Company for Shipping Agencies	20
Port Said Containers & Cargo Handling Company	3
Damietta Company for Navigation & Maritime Services	5
Individuals	5
Total	100

Source: Damietta Container & Cargo Handling Company

Table 2.3.13 Container Terminals in Damietta Port

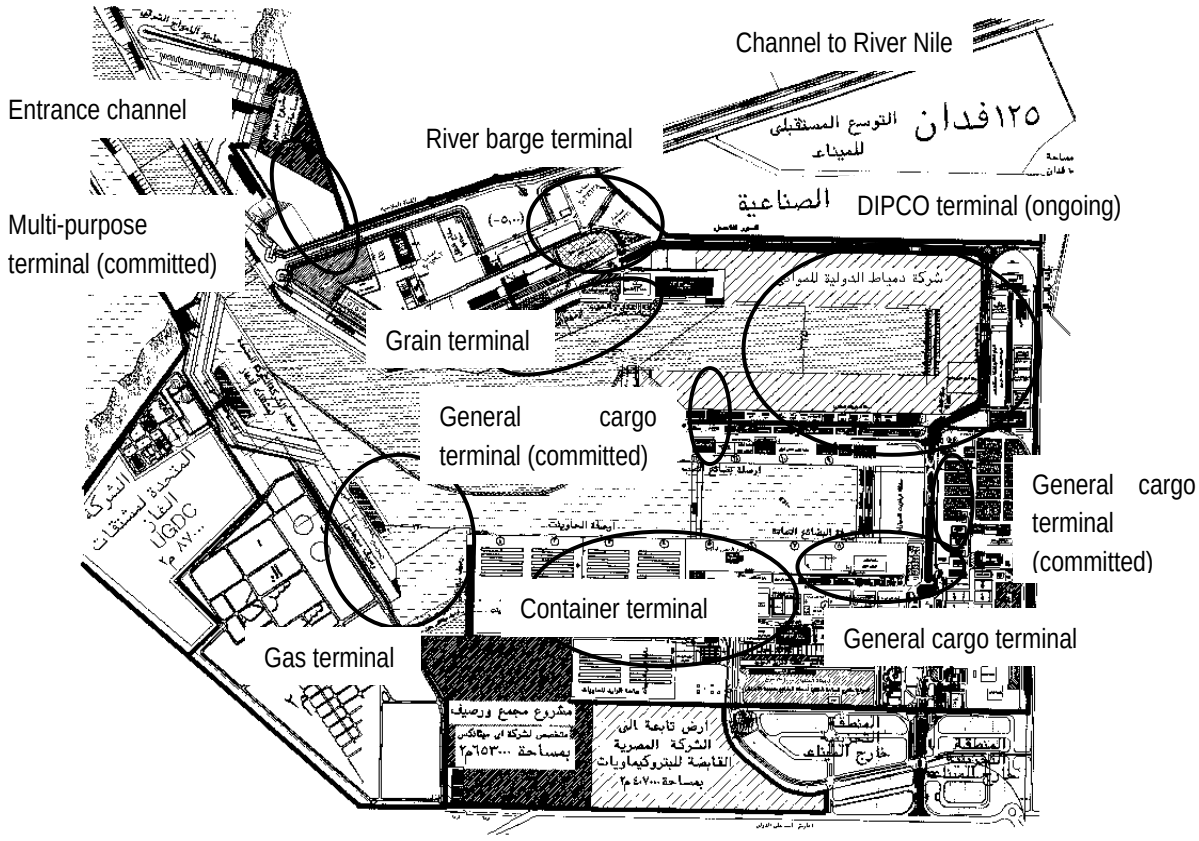
Operator	Damietta Container & Cargo Handling Company
Start of operation	1990
Berth length and alongside depth	1,050 m (-14.5m)
Terminal area	620,000m2
CFS	4,000m2
Storage capacity	30,000TEU
Reefer points	650
Gantries	10 Quay gantry cranes (Super Post Panamax and Post Panamax)
Yard handling	10 RTGs 6 Reachstackers
Annual capacity	-
Annual throughput	1,139,018 TEU (2009)
Direct-call liner services	APL, CMA CGM, CSCL, DAL, EMES, Hamburg Sud, Hanjin, Hapag-Lloyd, HMM, IRISL, K Line, Maersk, MISC, MOL, NYK, OOCL, UASC

Source: Containerization International 2010, DCHC, MTS

Source: Google earth

Figure 2.3.7 Container Terminal in Damietta Port

As for port expansion at Damietta, Kuwait & Gulf Link Transport Company, together with Damietta Port Authority, CMA CGM, China Shipping Container Line, and UASC, established the Damietta International Port Company (DIPCO). DIPCO won a 40-year BOT contract to create a new deep-draft container terminal (Figure 2.3.8). DIPCO terminal comprises two phases; the capacity of phase-1 and phase-2 are respectively 2.5 million TEU and 4 million TEU. Deep draft quays of 2,300m in length will be constructed in the first phase. Unlike many BOT projects, DIPCO is responsible for the construction of related infrastructure. After the completion, the new terminal of DIPCO will compete with the existing container terminal operated by DCHC.



Source: DPA

Figure 2.3.8 Port Plan of Damietta

The JICA Study Team learned the following through interviews with officials of DPA:

- DIPCO project
  - Construction works of DIPCO has been halted for a year due to the shortage of funds. DIPCO is talking with banks and the project could be resumed before long.

  - Other projects
  - Two PPP projects are conceived in Damietta Port (Figure 2.3.8). A multi-purpose terminal and a general cargo terminal will be separately put out to tender for a 25-year BOT scheme. They are waiting for a minister's approval with their technical specification completed. DPA does not have ideas on the project costs because they will be calculated

by bidders.
    - DPA plans to construct a general cargo berth between berth 8 and 9 with government expenses. A tender process has started and PQ of consultants is underway. This berth will be operational within three years.
- Access channel
    - DPA requested a previous JICA Study Team[3] for the improvement of the access channel, either doubling of it or creation of another port entrance. Expansion of the channel is possible outside the breakwater but impossible inside it. DPA asked JICA for an assistance in solving sedimentation problem some 15 years ago.

During a site visit, the JICA Study Team found the following:

- Terminals are mostly spacious and their pavement is in a good condition. They do not need major expansion or improvement.
- Containers are stacked four boxes high. Replacement of reachstackers with RTGs will increase the terminal efficiency.
- Civil works are halted in the DIPCO project area. The ground has not been leveled or paved.
- 4 ZPMC super post-Panamax gantries with 60-65 t lifting capacity are working in addition to 4 old Mitsubishi super post-Panamax gantries.
- The river port terminal is spacious but not highly utilized.

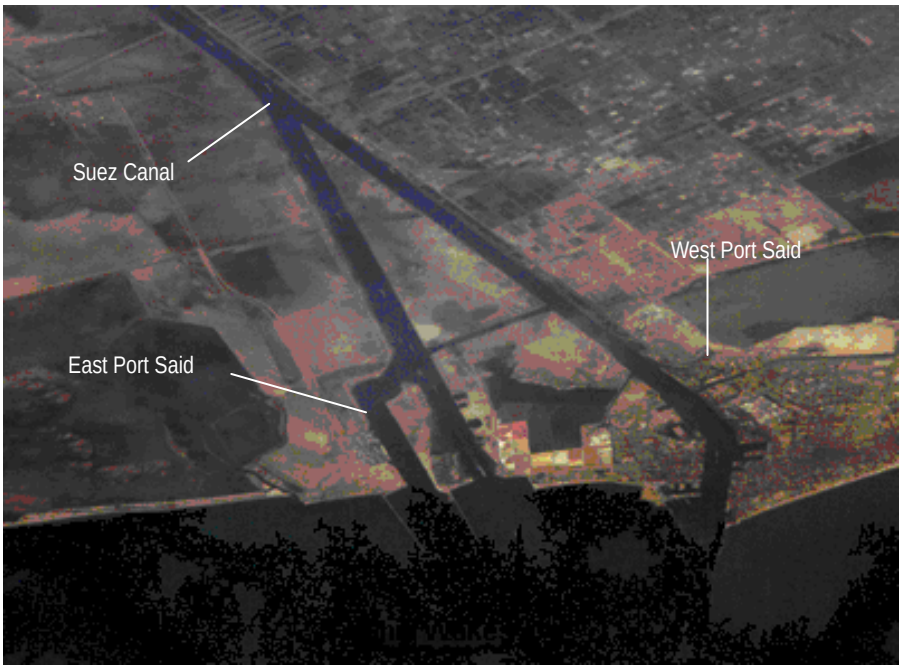
Strength and weakness of Damietta Port are summarized as follows:

- Strength
    - Proximity to the Cairo/Alexandria metropolitan areas and industrial areas
    - Smooth road connection to Cairo
    - Connection with river transportation through a barge channel
    - Comfortable climate
- Weakness
    - Regular maintenance dredging is needed
    - Vessel waiting before entering the port due to the one-way traffic of the access channel
    - Narrow port entrance
    - Reachstacker operation of the existing container terminal
    - Relatively shallow draft (max -14.5 m)

2.3.3. Port Said

Port Said Port is located at the north end of the Suez Canal and started operation in 1859 when the canal construction commenced. Ship calls began to increase after the Suez Canal restarted operation in 1975 following the cease fire but ships had to wait for services due to the lack of port capacity. For this reason, the Egyptian government planned to create a new large port, East Port Said, at the east of the north end of the Canal (Figure 2.3.9). The plan aimed to create a hub of international trade taking advantage of the fact that the port is right on the east-west maritime trunk route. The Port Said Port Authority (PSPA) manages West Port Said and East Port Said as well as El Arish Port.

[3] The Study on Multimodal Transport and Logistics System of The Eastern Mediterranean Region and Master Plan, August 2008



Source: NASA ISS013-E-44847

Figure 2.3.9 Port Said Port

West Port Said handles a wide variety of cargo and passengers while East Port Said is specialized in containers, transshipment containers in particular (Table 2.3.14-Table 2.3.16). The Maersk Line, the main user of SCCT, has brought a high growth of container throughput to East Port Said. On the other hand, the container growth in West Port Said has been hindered by port congestion.

Table 2.3.14 Cargo Throughput of Port Said in 2009

(1,000 ton)

Port	Cargo	General cargo	Dry bulk	Liquid bulk	Containers	Special cargo	Transit	Total
West Port Said	Import	327	1,037	51	1,139	3	2,508	5,065
	Export	154	291	0	895	0	2,490	3,830
East Port Said	Import	3	0	0	456	0	10,602	11,062
	Export	0	0	0	1,323	0	10,497	11,820

Source: MTS

Table 2.3.15 Ship Calls in Port Said in 2009

Port	General cargo	Dry bulk	Liquid bulk	Containers	Rolling	Passenger	Other	Total
West Port Said	574	62	55	1,062	10	163	2,122	4,048
East Port Said	74	0	2	1,714	0	0	4	1,794

Source: MTS

Table 2.3.16 Berths in West Port Said

Berth	Dry bulk	Cruise	RORO	General cargo
Number of berths	2	3	1	7
Berth length	245.7m	400m	125m	940m
Maximum vessel draft	12.6m	10-10.5m	8.1m	8.1m

Source: PSPA

PSPA has the following business principles:

- To provide rapid, inexpensive, and high-quality services quickly responding to the user needs
- To shorten the cycle time of vessels and cargoes in the port
- To implement the ISPS codes and port state control
- To simplify port procedures
- To offer flexible and competitive tariffs
- To enhance human resources development

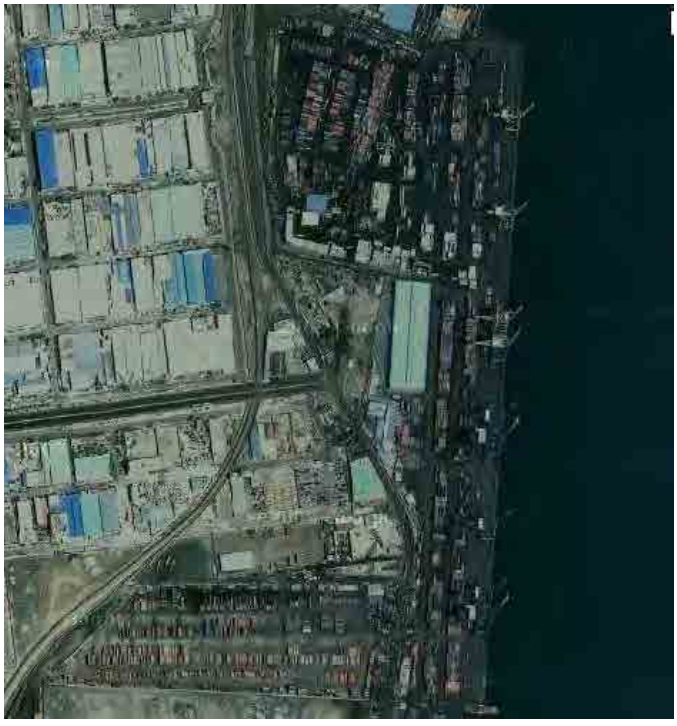
Port Said Port has two container terminals operated by different operators (Table 2.3.17). It handled 3.3 million TEU in 2009 and is currently the third largest container port in the Mediterranean following Algeciras and Gioia Tauro. In West Port Said, Port Said Container & Cargo Handling Company (PSCCHC), a state owned company, continues to be the terminal operator (Figure 2.3.10). The Suez Canal Container Terminal (SCCT) operates the terminal in East Port Said (Figure 2.3.11).

During a site visit, the JICA Study Team learned that productivity of container terminals is 27 boxes/hour/crane in West Port Said and 36 boxes/hour/crane in East Port Said. If West Port Said improves the productivity, it can handle more containers. Having said that, SCCT and West Port Said will go side by side in future because customer needs are diversified; some request rapid but expensive services while others prefer slow but less costly services.

Table 2.3.17 Container Terminals in Port Said

Port	West Port Said	East Port Said
Operator	Port Said Container & Cargo Handling Co.	Suez Canal Container Terminal
Start of operation		2004
Berth length and alongside depth	970 m (-14m) 350 m (-9.2m)	1,200 m (-16.5 m)
Terminal area	467,130 m2	600,000 m2
CFS	347,130 m2	-
Storage capacity	24,000 TEU	24,000 TEU
Reefer points	650	1,655
Gantries	1 Super Post Panamax 3 Post Panamax 3 Ship-shore Gantry	12 Super Post Panamax 4 Super Post Panamax (to be operat ional soon)
Yard handling	7 RTGs 26 Reachstackers	45 RTGs 4 Reachstackers
Annual capacity	895,500 TEU	2.2 million TEU
Annual throughput	760,967 TEU (2009)	2,539,984 TEU (2009)
Direct-call liner services	APL, CMA CGM, COSCON, CSAV NORASIA, Evergreen Line, Hanjin, Hapag-Lloyd, K Line, YML	CMA CGM, COSCON, K Line, Maersk, United Arab, Hanjin, YML

Source: Containerization International 2010, PSPA, PSCCHC. SCCT, MTS



Source: Google earth

Figure 2.3.10 Container Terminal in West Port Said

Source: Google earth

Figure 2.3.11 Container Terminal in East Port Said

In 1999, a 30-year concession agreement for the construction and operation of the superstructure of a new container terminal was put out to tender by the Egyptian government. The government signed the concession agreement in 2000 with SCCT, whose equity was shared by the APM terminals (60%), Denmark Development Bank (15%), and Egyptian domestic funds (25%). The current list of shareholders is shown below (Table 2.3.18). The government started to construct wharves in 2000 and SCCT equipped the superstructure. The new container terminal became operational in October 2004. During a site visit, the JICA Study Team learned that the term of the concession agreement in force is 49 years from the Cabinet Decree in 2003.

Table 2.3.18 Shareholders of SCCT

Shareholder	Percentage (%)
APM Terminals	55
COSCO Pacific	20
Suez Canal Authority & Affiliates	10
National Bank of Egypt	5
Egyptian private sector	10
Total	100

Source: SCCT

The Mearsk Line, an affiliated company of the APM terminals, transferred its transship hub for the Mediterranean from Damietta and Gioia Tauro to Port Said reshuffling its navigation routes. As a consequence, container throughput of the SCCT rapidly increased, reaching one million TEU within 18 months from the opening. Since then its throughput has been constantly increasing with an impressive growth of local containers (Table 2.3.19). Though APM terminals own the majority of the equity, all shipping companies are treated equally in SCCT. Services are assured within the berth windows specified in the

contract. Berth windows are well observed in SCCT because of the convoy navigation in the Suez Canal. Ships arriving outside the berth windows are served on a first-come and first-served basis.

In 2008-2009, the throughput of SCCT increased while that of the other ports in the East Mediterranean region decreased. SCCT provides higher productivity (36 boxes/hour/crane) than the other ports (around 25 boxes/hour/crane, in general). It is a major competitive edge of SCCT. If those ports improve their productivity, the total capacity in the region will significantly increase without any addition of facilities. On the other hand, the Red Sea area is out of the reach of SCCT due to the transit fee of the Suez Canal.

Table 2.3.19 Container Throughput in SCCT

(TEU)

Year	Transshipment	Local	Total	Ratio of Transshipment (%)
2006	1,684,600	110,358	1,794,958	93.9
2007	1,778,885	180,918	1,959,803	90.8
2008	2,393,837	254,798	2,648,635	90.4
2009	2,659,582	311,688	2,971,270	89.5

Source: SCCT

Terminal operation at East Port Said is carried out quite smoothly using state-of-the-art equipment. 12 super post-Panamax gantries with 90-t lifting capacity are in operation. 4 more have been already installed and will soon become operational. Containers are stacked 5 boxes high. Productivity of quay cranes is 36.4 boxes/hour/crane (2009) and 3,000 boxes are handled in 12 hours. Double hoist handling is already introduced and twin lift handling is considered. Employees of the Port Authority carry out mooring and all other works are done by SCCT employees. Currently, large-scale civil works for phase-2 are underway outside the terminal. A rail siding is under construction by the government behind the SCCT yard, but the time of the start of operation is not determined yet.

For the container terminal in East Port Said, “Landlord Concept” is adopted. The concession agreement for the phase-1 development specifies the roles of the Egyptian government and SCCT as follows:

- The Egyptian government provides water basins, channels, and wharves, as well as access roads and railways, power and water supply up to the terminal boundary.
- SCCT undertakes the design and construction of civil and architectural works including roads, railways, and power and water supply facilities. SCCT provides all the equipment including cranes, and employs and train the workforce.
- SCCT provides terminal services to multiple users throughout the concession period. SCCT is allowed to set tariffs and implement marketing efforts on its own.

The concession agreement stipulated the dimension of the terminal as 1,200m for the first phase. SCCT has an option to extend the terminal up to 2,400m.

Expansion Plan of East Port Said

- The Egyptian government and SCCT signed a contract on the phase-2 development in 2007 (Table 2.3.20). For this project, the private sector bears the entire infrastructure construction costs of $US 500 million.

- Phase-2 comprises 1,200 m quays with 15.5 m depth, of which a 200 m quay is completed. 4 new gantries were procured and will start operation in August 2010. The entire phase-2 terminal will become operational in 2013 with 8 more gantries. The total cost including phase-1 and 2 will be approximately 1 billion $US. Combined with the phase-1, SCCT will create 2,350 jobs directly.

- Railway facilities are available. The Egyptian Government is responsible for inter modal transport facilities.

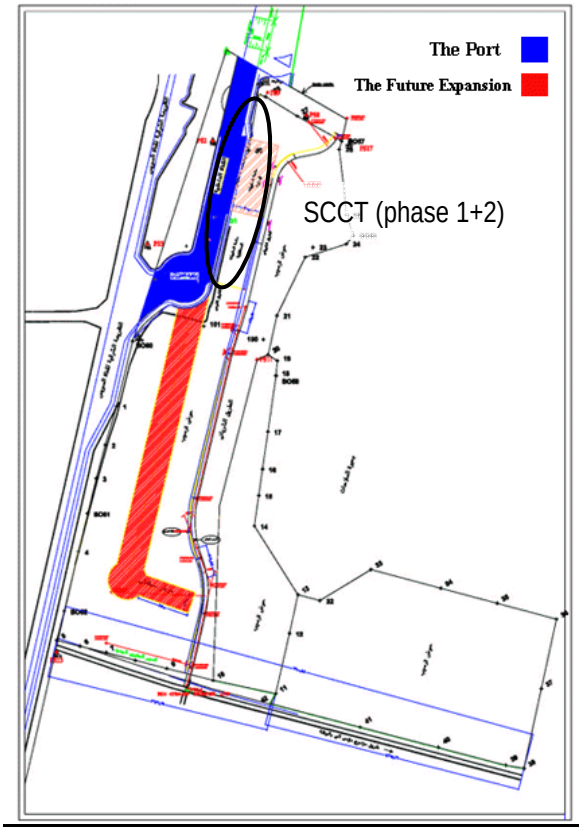
- The Egyptian Government has a master plan for East Port Said which aims to create an 87- km2 industrial area and free zone (Figure 2.3.12,Figure 2.3.13). The government is responsible for the hinterland development. SCCT also welcomes free zone development which will generate local cargoes.

- Light industries and a logistics center are more likely than heavy industries because soil improvement for quay walls and yards is costly in this area.

Table 2.3.20 Development Plan of SCCT

Phase	Phase 1	Phase 1+2
Cranes	12 super post-Panamax	24 super post-Panamax
Quay length	1,200 m	2,400 m
Draft	14.5 m	15.5 m
Terminal capacity	2.7 million TEU/year	5.3 million TEU/year
Terminal area	600,000 m2	1,200,000 m2
Reefers plug	1,700 plugs	2,300-2,500 plugs
Total investment	240 million $US	Approximately 1 billion $US
Direct employees	1,350	2,350

Source: SCCT



Source: PSPA

Figure 2.3.12 Master Plan of East Port Said

Source: Ministry of Transport

Figure 2.3.13 Industrial Area behind East Port Said

Expansion Plan of West Port Said

PSPA plans to add a 400m container quay with the alongside depth of 15-16m with government funds. The funds have not been acquired yet though.

Strength and weakness of Port Said Port are summarized as follows:

- Strength
  - Zero deviation from the trunk navigation route.
  - Natural conditions are perfect for port operation thanks to the canal breakwaters. No waves or swells hinder port operation. SCCT is closed for only 3 days a year due to sand storms and fog.
  - Some maintenance dredging is needed but its volume is limited because this port is far away from the mouth of the River Nile (Dredging is carried out by the Suez Canal Authority using a part of the port dues paid by SCCT clients).
  - Vast land area is available for port expansion at East Port Said.
  - High productivity at East Port Said.

- Weakness
  - Soil conditions are poor. A 40-m thick soft clay layer requires piles to be driven to 60 m deep.
  - Port congestion in West Port Said due to the small terminal space.
  - East Port Said lacks full customs functions due to the absence of some related authorities. Users need to travel between East and West Port Said for that.
  - A move between East Port Said and West Port Said requires two ferry trips, making it time-consuming and inefficient.
  - In Egypt, customs clearance fees/charges are regionalized. Consequently, local cargoes are transported to Alexandria by feeder vessels. This transport costs 150 $US/TEU and takes 5 days, adding no values.
  - Land transport to Cairo goes through a ferry or bridge at this moment, or tunnel not there yet, which could become a bottleneck.

2.3.4. Sokhna

Sokhna Port is located 40km from the south entrance of the Suez Canal and is the closest container port to Cairo (Figure 2.3.14). The port lies inside the North West Suez Economic Zone and is linked with Cairo and other areas of Egypt by highways and railways. Due to its location, Sokhna Port can act as a gateway port of Egypt for the cargo to/from Asia. A 25-year BOT agreement signed in 1999 gave the Sokhna Port Development Company (SPDC) the right to manage and operate the first basin of the port. The construction of the first basin cost the Egyptian government LE800 million. Sokhna Port is developed as an integral part of an industrial and logistics complex; a variety of industrial development plans including a magnesium smelter, bio diesel refinery, and methanol plant are conceived (Figure 2.3.15) sugar refinery has already started operation behind the bulk terminal.

Taking into account the port's high growth potential, DP World acquired 90 % of the equity of SPDC in February 2008 and DP World Sokhna became the operator of the port. The concession agreement was extended to 30 years starting from 2008. DP World Sokhna directly employs 1,100 workers for port operation and out sources another 300 jobs. It regards Sokhna Port as the main gate for the cargo to/from Asia. For now, this port is neither competing with East Mediterranean ports nor interested in transshipment;

currently, 99 % is local containers. Containers and general cargo are the main cargo of Sokhna Port (Table 2.3.21, Table 2.3.22)

Its strength is 100 % automation. With the investment of LE40 million, DP World Sokhna established an online system connecting all relevant agencies and offices, providing “one-stop shopping” to customers.

Source: Google earth

Figure 2.3.14 Sokhna Port

Table 2.3.21 Cargo Throughput of Sokhna Port in 2009

(1,000 ton)

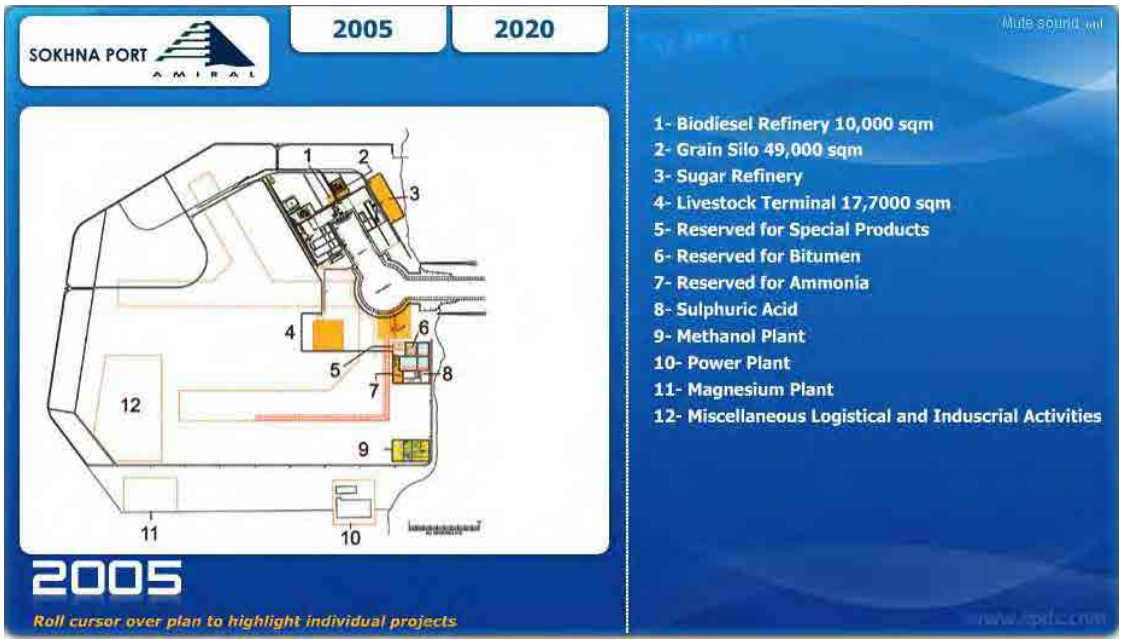
Cargo	General cargo	Dry bulk	Liquid bulk	Containers	Particular goods	Total
Import	586	63	0	1,556	9	553
Export	589	79	0	1,451	0	34

Source: MTS

Table 2.3.22 Ship Calls of Sokhna Port in 2009

General cargo	Dry bulk	Liquid bulk	Containers	Rolling	Passenger	Other	Total
36	21	17	349	1	35	0	459

Source: MTS



Source: SPDC

Figure 2.3.15 Layout of Sokhna Port and Industrial Development

Sokhna Port has an access channel of 3,650 m in length, 250 m in width, and 17 m in depth. It has a 750 m container quay with a 17 m draft, which can cater for the largest container vessels in operation. A bulk terminal, general cargo terminal, and liquid bulk terminal are available as well (Table 2.3.23, Table 2.3.24). Combined with its strategic location and future industrial development plans, Sokhna Port has the potential to become a center of distribution and industrial activities.

Table 2.3.23 Berths in Sokhna Port

	Number of berths	Berth length (m)	Alongside depth (m)
RORO	2	200	17
Bulk and General	1	750	17
Container	1	750	17
Liquid bulk	1 (2 vessels can simultaneously berth at the finger jetty		17
Tug Craft	1	200	5.5
Assisting units	1	100	5.5
Total	6	2,000	

Source: MTS, DP World Sokhna

Table 2.3.24 Container Terminals in Sokhna Port

Operator	DP World Sokhna
Start of operation	2002
Berth length and alongside depth	750 m (-17 m)
Terminal area	200,000 m2
CFS	4,000 m2
Storage capacity	24,000 TEU
Reefer points	216
Gantries	2 Super Post Panamax 2 Post Panamax
Yard handling	8 RTGs 6 Reachstackers
Annual capacity	1.1 million TEU after equipment and yard are added
Annual throughput	427,879 TEU (2009)
Direct-call liner services	APL, CMA CGM, COSCON, Delmas, Evergreen Line, Hanjin, Hapag-Lloyd, K Line, MSC, PIL

Source: DP World Sokhna, Containerization International 2010

Sokhna Port achieved a rapid growth in container throughput until 2008 taking advantage of its strategic location and a 6-lane highway linking the port with Cairo (Table 2.3.25). Its cargo is mostly local containers though transshipment containers have begun to increase. In 2008, Sokhna Port handled 53 thousand TEU of transit containers, accounting for 2% of the national total and trailing far behind Port Said and Damietta.

Unexpected surge of container volume has resulted in terminal congestion since the beginning of 2010. Vessels were kept waiting for a few days for loading/unloading and the throughput decreased. Productivity of the container terminal, 20-22 boxes/hour/crane before the congestion, has fallen to 15-18 boxes/hour/crane. DP World is responding to this issue by introducing additional handling equipment (RTGs, reachstackers, yard trucks) and expanding the container yard (14.2 ha will be added). Some equipment has already arrived and others are in the pipeline. DP World expects to improve the productivity to its target, 25 boxes/hour/crane, after these measures are completed toward the beginning of 2011. Due to the congestion, the current dwelling time for import containers is 11 days, a dramatic rise from 5-7 days before the congestion. DP World expects to reduce it to 2-2.5 days from 2011. The terminal capacity will reach 1.1 million TEU/year after these improvements.

Table 2.3.25 Container Throughput Growth in Sokhna Port

Year	2005	2006	2007	2008	2009
Throughput (TEU)	259,759	318,411	433,837	481,617	427,879
Growth rate (%/year)		+22.6%	+36.2%	+11.1%	-11.2%

Source: Containerization International, MTS

Strength and weakness of Sokhna Port are summarized as follows:

- Strength
  - Proximity to the Cairo metropolitan area
  - Smooth road connection to Cairo via a 6-lane motorway
  - Vast available land area behind the port

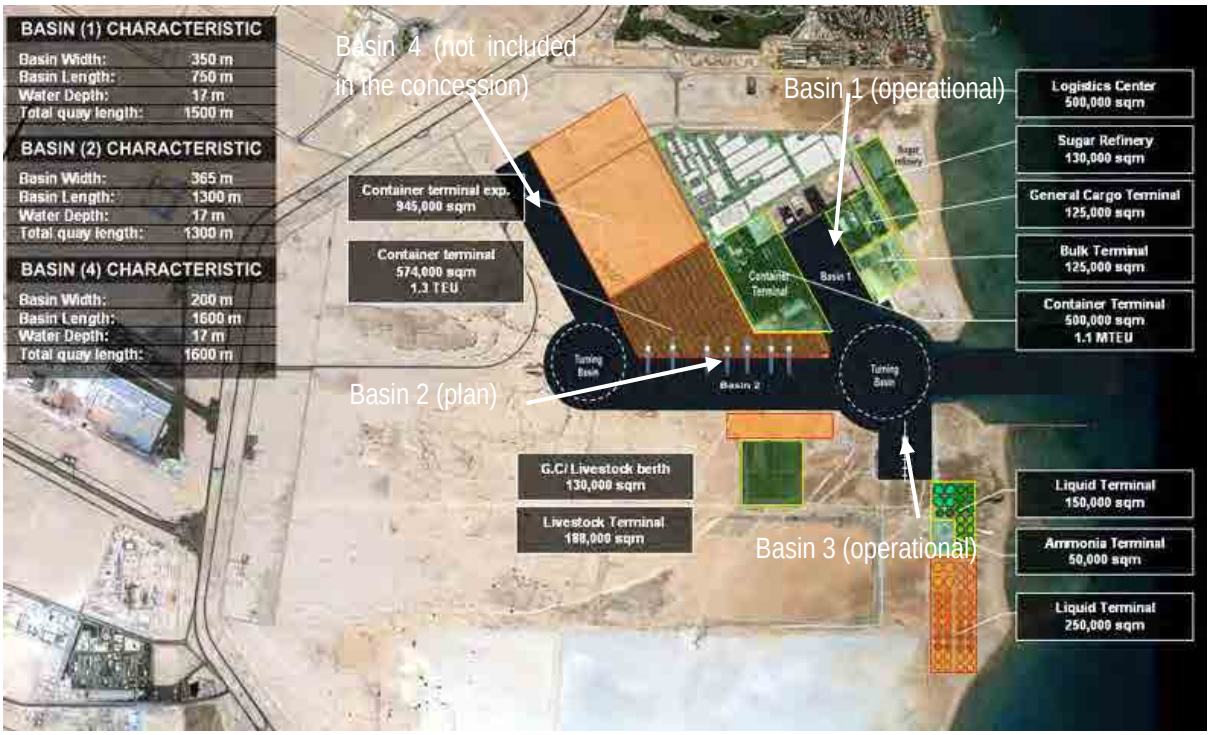
- Maintenance dredging is unnecessary

- Weakness
  - Lack of handling capacity resulting in vessel waiting and diversion
  - Lack of urban functions

DP World Sokhna plans to construct container quays of 1300 m in length with 17 m draft in the Basin 2 (Figure 2.3.16). Basin 2 project is already agreed upon between the company and the government. The project will start in 2013 and become operational in 2015, providing 1.75 million TEU/year of additional capacity. DP World bears the entire costs of the project including both infrastructure and superstructure. The project costs are: US$145million for dredging, 109million for quays, 221 million for equipment, and 53 million for civil works. The funding will be through bank loans and private investment. After the completion of the Basin 2, Sokhna Port will enter the transshipment market.

Sokhna Port has an ambitious traffic projection expecting to handle 90 million tons in 2020, a 15-time increase from 2005. Expected cargoes are:

- More than 4 million TEU of containers
- More than 10 million tons of agricultural bulk
- Approximately 10 million tons of other dry bulk
- Approximately 30 million tons of liquid bulk
- Over 1 million tons of general cargo



Source: DP World

Figure 2.3.16 Master Plan of Sokhna Port

2.4. NATIONAL POLICY ON THE MARITIME SECTOR

2.4.1. 5-year plans

The 6th 5-Year Plan establishes the following strategy and development policies for the maritime sector:

- Developing maritime ports in compliance with international agreements for maritime safety
- Raising the competitiveness of maritime ports
- Raising the efficiency of operation and management of maritime ports through the introduction of EDI in order to attract container shipment
- Establishing industrial and trade areas near ports to increase economic and financial returns
- Connecting maritime and air ports to international transportation networks to create additional value added from multi-mode transportation

The 5-Year Plan specifies the following targets:

- Creation of new multi-purpose quays
- Introduction of two maritime tug boats
- Completion of the passenger terminal development in Alexandria Port
- Completion of the main road in El-Dekhila Port and construction of wave barriers
- Completion of the passenger terminal development in Nuwaiba Port, Safaga Port, Hurghada Port, and Adabiya Port
- Completion of the replacement and renewal of the sanitation network in Suez Port
- Construction of a southern quay of 340 m in length and a maritime tug boat, maintenance of the navigation channel, and completion of the extension of the container quay by 1,200 m in Port Said
- Construction of a public cargo quay along the navigation channel

Quantitative targets of the 6th 5-Year Plan for the passenger traffic and cargo throughput assume the annual growth rate of 5.3 %, rather modest goals considering the annual economic growth target of 8% (Table 2.4.1).

Table 2.4.1 Quantitative Targets of Maritime Transportation in the Sixth Five Year Plan

	2006/2007	2011/2012	Average annual growth rate (%)
Passenger (1,000 passengers)	763	989	5.3
Cargo throughput (1,000 tons)	11,435	14,818	5.3

Source: 6th 5-Year Plan

For a longer term, Egypt Vision 2050 envisages expansion of port facilities, establishment of new ports, and development of Egyptian ports to enhance their competitiveness.

2.4.2. National Port Investment

During the 5th 5-year-Plan, the transport sector received LE 14 billion of investment, out of which LE 6 billion was invested to the water transport sector. With this huge amount of investment, maritime port capacity expanded from 54.8 million tons in 2001 to 74.8 million tons in 2006/2007. The 6th 5-Year Plan lists major achievements in the maritime port sector during the 5th 5-year-Plan as follows:

- Development of Damietta Port with a capacity of 5.6 million tons, later increased to 7.6 million tons
- Completion of the first phase of El-Dekhila Port with a capacity of 7.7 million tons
- Development of container stations in Alexandria Port, Port Said Port, Damietta Port, and El-Dekhila Port
- Development, operation, and rehabilitation of Nuwaiba Port and Sharm El-Sheikh Port
- Completion of the first phase of Sokhna Port
- Development and deepening of the quays in East Port Said

In response to a request from the JICA Study Team, TPA provided the following figures regarding the government investment in the 2009/2010 national budget (Table 2.4.2-Table 2.4.7).

Table 2.4.2 Government Investment for Maritime Transport Sector

Project Title	General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 30/09/2009	Implementation Percentage (%)
Information center development.	3.05	-	-

Source: TPA

Table 2.4.3 Government Investment for Alexandria Port Authority

Project Title	Modified General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 30/09/2009	Implementation Percentage (%)
Automatic equipment to improve efficiency	85.00	8.70	10.2
Renovation and development of facilities	105.00	2.90	2,8
Docks and equipment.	10.00	0.08	0.8
Total	200.00	11.68	5.8

Source: TPA

Table 2.4.4 Government Investment for Port Said Port Authority

Project Title	General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 30/09/2009	Implementation Percentage (%)
East Port Said	203.0	37.24	18.3
West Port Said (Docks and Marine equipment development project)	20.33	4.28	21.1
El-Arish Port Development	7.15	2.89	40.4
Total			

Source: TPA

Table 2.4.5 Government Investment for Damietta Port Authority

Project Title	General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 30/09/2009	Implementation Percentage (%)
Developing and raising the efficiency of Damietta Port. - Companies in Charge: Development and construction Cooperative. Abd ELrazek Hoza. Dar El-emara El-Radwan for Import. El-Safa. Arab Gulf.	60.00	9.99	16.7
Establishment of new docks, yards, and equipment. - Companies in Charge: Arab Contractors. China Shipping.	215.00	2.08	1.0
Total			

Source: TPA

Table 2.4.6 Government Investment for Red Sea Port Authority

Project Title	General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 3 0/09/2009	Implementation Percentage (%)
Raise the efficiency of services in the ports	29.25	0.4	1.4
Raise the efficiency of Sharm El-Sheikh Port	0.10	-	-
Raise the efficiency of Suez Port	1.05	-	-
Raise the efficiency of Nuwaiba Port.	0.05	-	-
Raise the efficiency of Safaga Port.	0.05	-	-
Raise the efficiency of Hurghada Port.	3.0	1.2	40
Raise the efficiency of Adabiya Port	0.50	-	-
Information systems project.	1.0	-	-
Total			

Source: TPA

Table 2.4.7 Egyptian Authority for Maritime Safety

Project Title	General Credit 2009/2010 (million L.E)	Progress during the period from 1/07/2009 to 30/09/2009	Implementation Percentage (%)
Development of navigation in the Red and Mediterranean seas.	3.39	0.35	10.3
Raising the efficiency of communication with lighthouses.	1.53	-	-
Renovating and purchasing new trailers, cranes, launches, and information systems.	1.85	0.14	7.6
Radar control and surveillance project.	45.10	2.14	4.7
Regulating navigation in the Suez Gulf.	17.37	0.86	5
Total			

Source: TPA

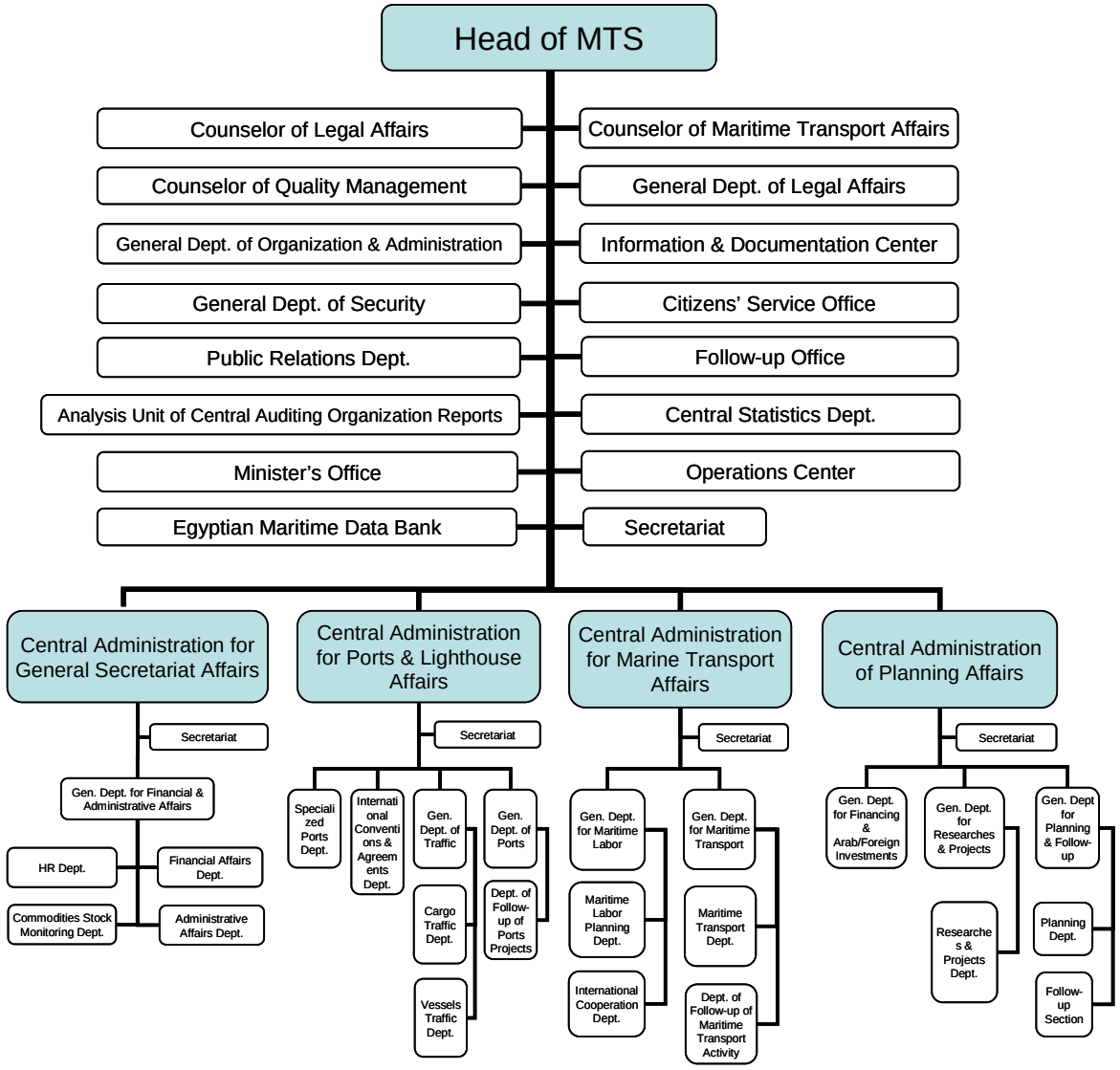
2.4.3. Maritime Administration

Maritime administration in Egypt is implemented by the Maritime Transport Sector (MTS), port authorities, and Egyptian Authority of Maritime Safety (EAMS) under the supervision of the Minister of Transport (Figure 2.4.1). MTS is responsible for the planning and coordination of the Egyptian maritime policy including port, lighthouse, shipping, and maritime labor. It is notable that MTS established the Egyptian Maritime Data Bank (EMDB) to gather and analyze statistical data in the maritime sector. Those data are digitized and readily available for everyone through internet.

The main objectives of MTS are:

- to set maritime policies coordinating actions of relevant agencies,
- to develop sea ports meeting the changing needs of the maritime industry and transforming ports to nodes of multi-modal transport,
- to raise the efficiency of maritime transport personnel,
- to respond to the needs of the IT era,
- to achieve navigation safety within the territorial water,
- to encourage private sector participation in the maritime sector, and
- to increase the transit cargo volume.

Four port authorities cover the nation and are responsible for port planning, construction/maintenance of port facilities, navigation safety within the port limit, and maritime-related services. Port authorities own the land within the port area, undertake civil works, and grant concessions to terminal operators which use their properties.



Source: MTS

Figure 2.4.1 Organization chart of Maritime Transport Sector

2.4.4. Current policy Direction for the Port Sector

MTS has the following strategic objectives for the port sector:

- To make ports a locomotive for economic development
- To promote the transit trade taking advantage of the geographic location of Egypt and the expansion of global trade
- To convert ports into logistics centers and hubs of multi modal transportation
- To introduce the "landlord concept" in the management of major ports inviting both domestic and overseas private capital to ports and their hinterland
- To introduce an EDI system in every port

2.4.5. Introduction of PPP in the Maritime Sector

Privatization in the maritime sector in Egypt started in the second half of 1990's. New legislations were enacted to allow for private sector's initiatives including FDI (Foreign Direct Investment) into various maritime transport activities. This new policy was essential for the maritime industries in Egypt to meet the growing demand for import/export cargoes, to improve productivity, and to enhance competitiveness in the global market. The first legislation relative to privatization was the Ministerial Decree No.21 in 1996, which allows private companies to possess Egyptian flag vessels. It was followed by the Ministerial Decree No.30 in 1998 to open port operation works and shipping agency works to the private sector. The scheme for granting licenses to the private companies is stipulated in the Ministerial Decree No.520/2003 (Table 2.4.8).

Table 2.4.8 Provisions for Granting Maritime Licenses to the Private Sectors

Category of work		Prerequisite			License validity	Authority to submit request	Authority to approve	Authority to issue license	License fees payable	Collected charges payable to
		Issued capital (LE)	Bank guarantee (LE)	Other conditions						
Stevedoring works	General goods & containers outside container terminals (up to 50 containers/vessel)	30,000,000	500,000	1) Value of equipments shall be at least 50% of issued capital. 2) Liability insurance : 250,000 LE /accident	10 years	Port Authority	Board of Directors of Port Authority	Board of Directors of Port Authority	NIL	Port Authority
	Dry bulk	30,000,000	500,000							
	Liquid bulk	30,000,000	500,000							
	General goods & containers outside container terminals	50,000,000	600,000							
	Containers	100,000,000	900,000							
	All stevedoring activities	150,000,000	1,200,000							
Shipping agency	Up to 400 DWT	50,000	25,000	1) Egyptian share shall be at least 51% 2) Technical standard issued by UNCTAD	5 years	MTS	Minister of Transport	MTS Permanent Committee	1) On cargo : 1 LE /ton 2) On Suez Canal transit: 1,000-10,000 DWT: US$200 over 10,000 DWT: US$250	Port Authority
	Up to 10,000 DWT	250,000	125,000							
	Up to 25,000 DWT	500,000	200,000							
	open tonnage	750,000	250,000							
Vessel maintenance & repair works		50,000	Not required	NIL	5 years	Port Authority	Board of Directors of Port Authority	Board of Directors of Port Authority	5,000 LE /year	Port Authority
Marine supplies		50,000								
Maritime works		50,000								
Fuel/water supply		1,000,000								
Storing & warehouses		10,000,000			10 years				1 LE/ton /month	

Source: JICA Study Team

100% foreign capital had been allowed for shipping agents by the Investment Law since 1997. However, the Ministerial Decree No.451 enacted in Oct. 2009 limits foreign capitals to less than 50% of the total. Some

international shipping lines established with 100% foreign capitals are now in an awkward situation. They are requesting the Egyptian government to withdraw the decree.

As for the stevedoring charges, private terminal operators are allowed to introduce their own tariffs. They offer more flexible tariff structures than port authorities, providing incentives such as “volume discount”. Regarding shipping agency fees, the minimum tariff is stipulated in the Ministerial Decree No.75/2003.

Port management and operation had long been carried out by the public sector. Commercial ports are managed by Port Authorities under the jurisdiction of the Ministry of Transport and cargo handling at commercial ports had been carried out by public entities. Ministry of Transport, however, has started an aggressive move to invite private investment in the transportation sector. The Ministry decided to introduce the “landlord” concept in the port management. In this concept, the government generally builds and owns infrastructure, and the private sector builds and owns superstructure and operate the terminal.

Egyptian port authorities seem to share a common view that both public-owned terminal and PPP terminal should be operating in a port thereby encouraging healthy competition between them (Table 2.4.9). As similar examples are found in many successful ports in the world, the policy seems quite reasonable to keep their operational efficiency at a high level.

Table 2.4.9 Terminal Operators in Egyptian Container Ports

Port	State-owned company	Public-Private Partnership
Alexandria	Alexandria Container & Cargo Handling Company	Alexandria International Container Terminal (AICT)
El-Dekhila	Alexandria Container & Cargo Handling Company	Alexandria International Container Terminal (AICT)
Damietta	Damietta Container & Cargo Handling Company	Damietta International Ports Company (DIPCO)
West Port Said	Port Said Container & Cargo Handling Company	
East Port Said		Suez Canal Container Terminal (SCCT)
Sokhna		DP World Sokhna

Source: JICA Study Team

2.4.6. PPP Projects in Port Development

Many PPP projects have been already introduced in the port sector and are showing strong performance (Table 2.4.10). In case of a private terminal operator, the port authority concludes a concession contract with the operator. The first BOT (Build-Operate-Transfer) scheme was introduced to the Egyptian port sector when the concession of Sokhna Port was granted to Sokhna Port Development Company (SPDC) for 25 years in 1999. The second BOT was concluded for 49 years with Suez Canal Container Terminal (SCCT) in East Port Said. Since then, BOT has been considered by Egyptian port authorities as the standard scheme for PPP initiatives. The period of BOT is determined considering the scale of investment.

PPP in Egyptian ports started in the container business and now includes a wide variety of cargo terminals. Their objectives are creation of major hub ports, improvement of port efficiency, expansion of port capacity, attraction of foreign investment, and generation of job opportunities.

Table 2.4.10 Major PPP Projects in Egyptian Ports

Port	Private investor	PPP entity	Business areas	Year of signing	Concession term (year)
East Port Said	APM terminals, COSCO Pacific, Egyptian domestic funds	Suez Canal Container Terminal (SCCT)	Container handling	1999	49
Alexandria an d El-Dekhila	Hutchison Port Holdings	Alexandria International Container Terminals (AICT)	Container handling	2005	25
Sokhna	DP World Amiral Holdings Ltd.	DP World Sokhna	Container, dry bulk, liquid bulk, general cargo, logistics and industrial complex	1999	30
Damietta	Kuwait & Gulf Link Transport Company, CMA CGM, China Shipping Container Line, UASC	Damietta International Port Company (DIPCO)	Container handling	2006	40

Source: JICA Study Team

In 2008, Ministry of Transport made an extensive presentation on PPP in the transportation sector at the eighth Joint Council Meeting Egypt Business Seminar in Tokyo. On this occasion, the Ministry illustrated advantages of PPP concepts for the public as follows:

- Creation of strong and sophisticated transport and logistics sector needed for economic development
- Continued investment the government budget can not cover
- Benefit from commercial dynamism and efficiencies

The following projects were introduced at this occasion:

- Alexandria Port
  - ✓ Tourist area and passenger terminal
  - ✓ Multi purpose terminal
- East Port Said
  - ✓ General cargo terminal
  - ✓ 3rd container terminal
  - ✓ Liquid bulk and bunker terminal
  - ✓ 1st stage logistics center
- Sokhna
  - ✓ 2nd liquid bulk terminal

- Damietta
  - ✓ General cargo terminal
  - ✓ Multi purpose terminal
- Adabiya
  - ✓ Multi purpose terminal
  - ✓ General cargo terminal
  - ✓ Container terminal

2.4.7. Port Authorities

Tariffs of state-owned terminals and supporting services provided by port authorities are regulated by various ministerial decrees. Charges collected by port authorities are transferred to the Ministry of Finance and later distributed to the port authority for management and maintenance of the port.

There is an issue raised by a previous JICA report4 regarding questionable double charging of import containers stevedoring onto both consignees and shipping lines. This issue needs to be carefully examined through talking with interested parties.

It is note-worthy that port authorities have been making substantial surplus in recent years except PSPA (Table 2.4.11-Table 2.4.14). The surplus of the four port authorities totaled LE 480 millions or US$ 86.4 millions in 2008. The surplus is transferred to the Ministry of Finance. Some part of that cash accumulation might have been spent by the government to improve port facilities. In short, port operation has been quite profitable in Egypt. Considering the future competitiveness of Egyptian ports in the region, however, a question might be raised whether a part of the surplus can be returned to port users by reducing the tariff rates.

Table 2.4.11 Profit & Loss Statement of Alexandria Port Authority

(unit: million LE)

Item		2005	2006	2007	2008
Revenues	Current Activity Revenues	461	454	584	697
	Security revenues	40		39	50
	Transfer Revenues	202	212	249	322
	Revenue Total	703	666	872	1,069
Expenses	Payroll	57	77	56	73
	General expenses	38	26	26	28
	Depreciation & interest	373	392	511	547
	Current transfers	138	167	157	177
	Expense total	607	662	749	825
Surplus		97	4	123	244

Source: EMDB

[4] The Study on Multimodal Transport and Logistics System of The Eastern Mediterranean Region and Master Plan, August 2008

Table 2.4.12 Profit &Loss Statement of Damietta Port Authority

(unit: million LE)

Item		2005	2006	2007	2008
Revenues	Current Activity Revenues	247	264	323	386
	Security revenues	20	22	21	27
	Transfer Revenues	101	139	92	68
	Revenue Total	368	425	436	481
Expenses	Payroll	24	27	30	39
	General expenses	34	45	45	56
	Depreciation & interest	132	104	122	121
	Current transfers	69	148	130	140
	Expense total	259	324	328	356
Surplus		109	101	109	125

Source: EMDB

Table 2.4.13 Profit & Loss Statement of Port Said Port Authority

(unit: million LE)

Item		2005	2006	2007	2008
Revenues	Current Activity Revenues	232	261	316	336
	Security revenues	23	23	29	32
	Transfer Revenues	84	98	81	113
	Revenue Total	340	383	427	481
Expenses	Payroll	18	21	26	31
	General expenses	32	29	43	38
	Depreciation & interest	378	380	375	419
	Current transfers	32	38	55	48
	Expense total	460	468	498	536
Deficit		-120	-85	-71	-56

Source: EMDB

Table 2.4.14 Profit & Loss Statement of Red Sea Port Authority

(unit: million LE)

Item		2007	2008
Revenues	Current Activity Revenues	343	379
	Security revenues		
	Transfer Revenues	264	30
	Revenue Total	606	409
Expenses	Payroll	36	44
	General expenses	15	18
	Depreciation & interest	139	107
	Current transfers	252	73
	Expense total	441	242
Surplus		165	167

Source: EMDB

2.4.8. Shipping Industry

The Statistical Year Book 2008 published by EMDB shows that 171 vessels hoist Egyptian flags totaling 1,420 thousand DWT. Out of that, 134 vessels with 1,274 thousand DWT are in operation. However, the share of cargo volume carried by Egyptian flag ships is only 5.6% of the total, while it used to be 20% during 1990's. The decrease is mainly attributable to a lack of investment in replacing the aging fleet. Out of the total Egyptian fleet of 171 vessels/1,420 thousand DWT, 56.6% (133 vessels/803,400 DWT) is 20 years of age or above, and only 9 vessels is 5 years of age or less.

In view of the above, MTS has set a strategic target to raise the share of national flag ships from current 5.6% to 10%, while no exact time flame is shown. MTS recommends increasing the Egyptian ownership of feeder vessels not exceeding 250-500 TEU as those sizes are suitable to develop inter-trade operations. MTS is also looking at the opportunities of dry bulk vessels with stable COA contracts to ensure income stability.

Maritime Trade Law (Law No.8/1990) stipulates general rules for owning/chartering of ships, responsibility of captain, crew, and agent, maritime incidents, marine insurance, tugs and pilots. Cabotage is allowed only to Egyptian flag vessels.

2.4.9. Maritime Safety

Recently established Egyptian Authority for Maritime Safety (EAFMS) is responsible for navigational safety outside the port limit, provision of navigation aids, registration of Egyptian flag ships, and issuance of marine passports. On the other hand, maritime traffic within the port limit is regulated under the responsibility of a port authority. The main task of EAFMS is investigation of maritime accidents. When a maritime accident occurs, an investigation team comprising three experts (judicial, technical, and environmental) is formed. EAFMS assigns a judicial and technical expert to the team. When the team has identified the cause of the accident, EAFMS makes it known to relevant agencies: a shipping company, port authority, or the Maritime Academy, according to the cause. EAFMS also notifies the Maritime Accident International Forum. Criminal investigation for a navigation accident is carried out by courts independently. Search and rescue is carried out by the Air Force and Navy; EAFMS has no rescue ships or equipment. Contingency plan for oil spill/sea pollution is under the jurisdiction of Ministry of Environment. The plan is made for three levels: ports, regions, and the nation. Egypt has adopted all MARPOL Annexes except Annex VI (air pollution from ships).

2.5. PORT DEVELOPMENT PROJECTS

A variety of port development projects are planned and being implemented in Egypt. Many of them are conceived as a PPP project. The JICA Study Team prepared a list of port development projects based on the information provided by the Ministry of Transport, port authorities, and terminal operators (Table 2.5.1). The Study Team will keep updating this list taking into account the feedbacks from the Egyptian side.

Table 2.5.1 Port Development Projects

Port	Project	Berth length (m)	Berth depth (m)	Area (m2)	Breakwater / channel (m)	Cost (million LE)	Cost estimated in	Project status
Alexandria	Multi purpose terminal	1,450	14	337,000		494	1999	Planned
El-Dekhila	Container terminal							Planned

Port	Project	Berth length (m)	Berth depth (m)	Area (m2)	Breakwater / channel (m)	Cost (million LE)	Cost estimated in	Project status
	Breakwater					75		Ongoing
	Multi purpose terminal	600				300		Ongoing
East Port Said	General cargo terminal	500	16	200,000		US$150 million		Planned
	Phase-2 container terminal (SCCT)	1,200	15.5	600,000		US$760 million		Ongoing 49-year BOT (including infrastructure)
	Liquid bulk and bunker terminal					US$200 million each		Planned
	1st stage logistics center					US$200 million		Planned
	New approach channel at the north entrance				L=5,000 m W=250 m D=18.5 m	450	2010	Planned
	Trucks park			500,000		212	2010	Planned
	Transformer plant of 250 MVA					220	2010	Ongoing
West Port Said	Extension of container terminal	400	15-16				2008	Planned
	Port incinerator					18	2008	Ongoing
El Arish	1st stage	500	16	300,000	1,010	430	2008	Planned
	2nd stage	800	16	60,000		170	2008	Planned
	3rd stage	1,100	16	300,000	2,415	570	2008	Planned
	4th stage	840	16	312,000		170	2008	Planned
Damietta	General cargo terminal	630	17	175,000		US$180-200 million		Committed (waiting for a minister's approval) 25-year BOT (including infrastructure)
	Multi purpose terminal	300	17	150,000		Approx. US$100 million		Committed (waiting for a minister's approval) 25-year BOT (including infrastructure)
Damietta	General cargo terminal							Committed (consultants PQ is in progress) Government-funded
	Container terminal	2,300	17					Ongoing 40-year BOT
	Study on the sedimentation problem							Committed
Sokhna	2nd basin container terminal	1,300	17	574,000		US$528 million		Planned (BOT scheme including infrastructure and superstructure is agreed upon between the government and DP World Sokhna)
Adabiya	Multi purpose terminal	600	17	250,000		150	2008	Ongoing (construction works of infrastructure was started by the government, invitation of private sector
	General cargo terminal	500	14	150,000				

Port	Project	Berth length (m)	Berth depth (m)	Area (m2)	Breakwater / channel (m)	Cost (million LE)	Cost estimated in	Project status
								participation is considered)
	Container terminal	900	14	550,000		US$350 million		Planned
Suez	Raising the efficiency (terminals, port entrance)					1,050	2009	Ongoing
Safaga	Passenger terminal					150		Ongoing Government-funded
	Increasing the capacity					161	2007	Ongoing
Hurghada	Passenger terminal					150		Committed (in a tender process) Government-funded
	Raising the efficiency					110	2009	Ongoing
Nuwaiba	Passenger terminal					150		Ongoing Government-funded
	Raising the efficiency					150	2008	Ongoing
Sharm El Sheikh	Raising the efficiency (furniture and office equipment)					100	2009	Ongoing
Ports of the Red Sea Port Authority	Raising the efficiency (Suez Canal terminal, replacement and renewal of facilities and buildings, tugboats)					63	2009	Ongoing
	Information system					1		Committed

Source: MOT, MTS, APA, PSPA, DPA, RSPA, SCCT, DP World, Containerization International 2010

Shaded projects are included in the response from MTS

Through the interviews and site visits at port authorities, the JICA Study Team found that PPP projects are progressing more smoothly than government-funded projects. Apparently, government funds are not readily available for large-scale unprofitable projects while private investors are taking up profitable projects. Taking the multi purpose terminal planned in Alexandria for an example, this terminal was proposed by a previous JICA Study5 in 1999, but is still in a planning stage due to the lack of government funds. Projects of the Red Sea Port Authority seem exceptional, though. Four government-funded projects are in progress each costing 150 million LE.

[5] The Study on Master Plan and Rehabilitation Scheme of the Greater Alexandria Port in the Arab Republic of Egypt, November 1999

Another JICA Study6 proposed port-related projects in 2008. The current statuses of the proposed projects are summarized with comments in Table 2.5.2.

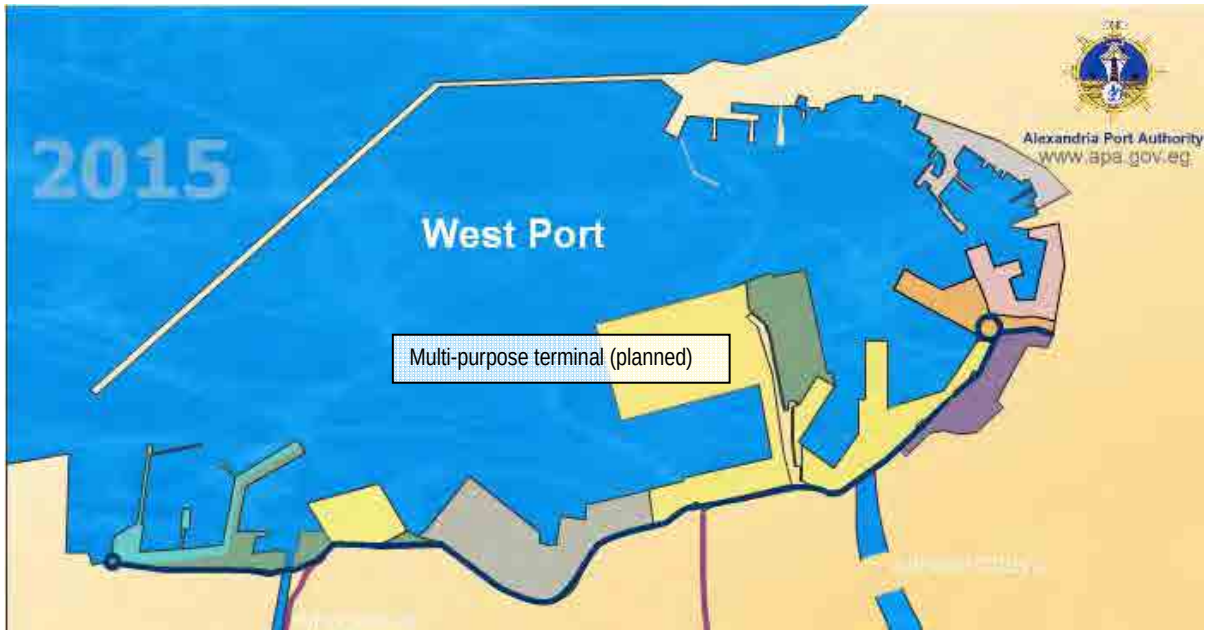
Table 2.5.2 Port-related Projects Recommended in the Previous Study

Port	Recommended Project / Action	Action taken to date	Remarks by the pertinent port authority	Observations of the Study Team
Alexandria	Container yard expansion (AICT)			
	Renewal of equipment (ACCH)	ACCH has deployed 2 super-post Panamax gantries	ACCH has decided to replace a gantry and add 2 RTGs in 2011	
	Upgrading of yard pavement (ACCH)			
Dekhila	Unification of ACCH and AICT terminals		Merger of the two terminals is not welcome	
	Acquisition of additional yard			
	Examination of the breakwater	Construction of a new breakwater is under way		
	Installation of a conveyor system			
Damietta	Deepening and widening of the access channel		Widening is possible for the outer channel but impossible for the inner channel. Incoming vessels have to wait for berthing for 1.2 days on average	Progress of the DIPCO terminal projects needs to be monitored Studies on sedimentation and vessel waiting will be needed before determining the expansion and deepening of the access channel
	Numerical simulation study for sedimentation			
West Port Said	Yard expansion and re-allocation of the public road			Large vessels may be better served at East Port Said Acquisition of a large yard area will be needed to capitalize on the new deep draft berth
	400m berth expansion		Not yet started due to the lack of funds	
	Set-up of a new main gate			
East Port Said	Review of the master plan			
	Careful examination of bunkering service			

Source: JICA Study Team

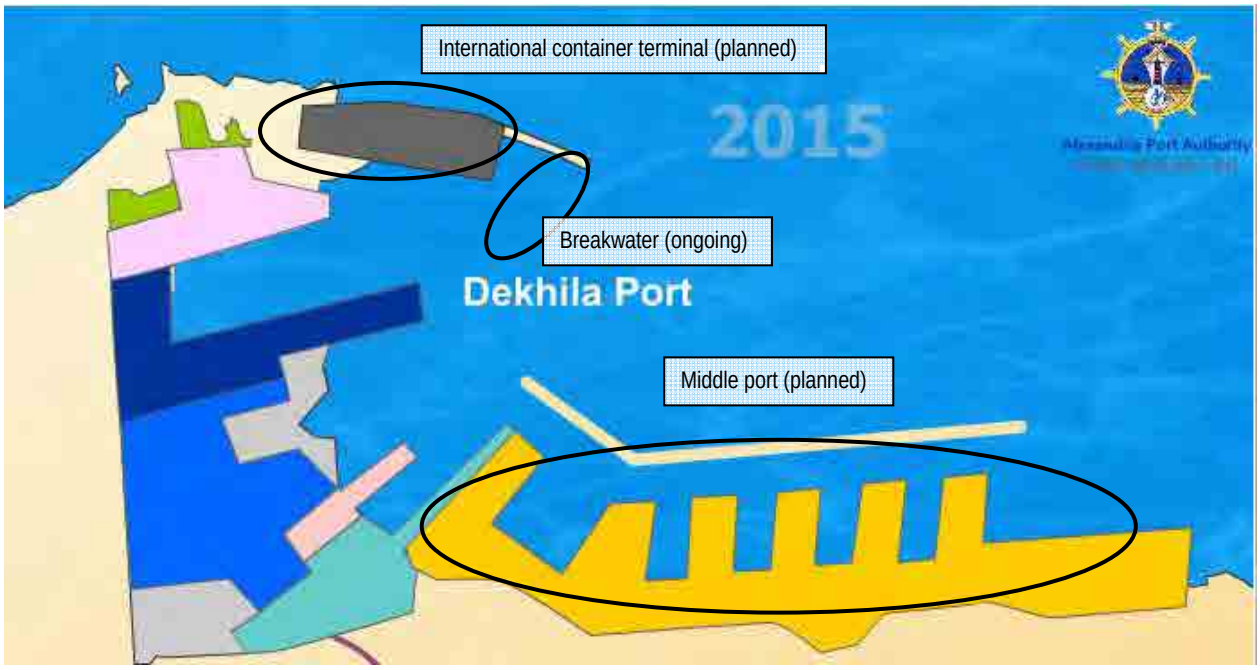
[6] The Study on Multimodal Transport and Logistics System of The Eastern Mediterranean Region and Master Plan, August 2008

Major port development projects are identified in the following figures (Figure 2.5.1-Figure 2.5.7).



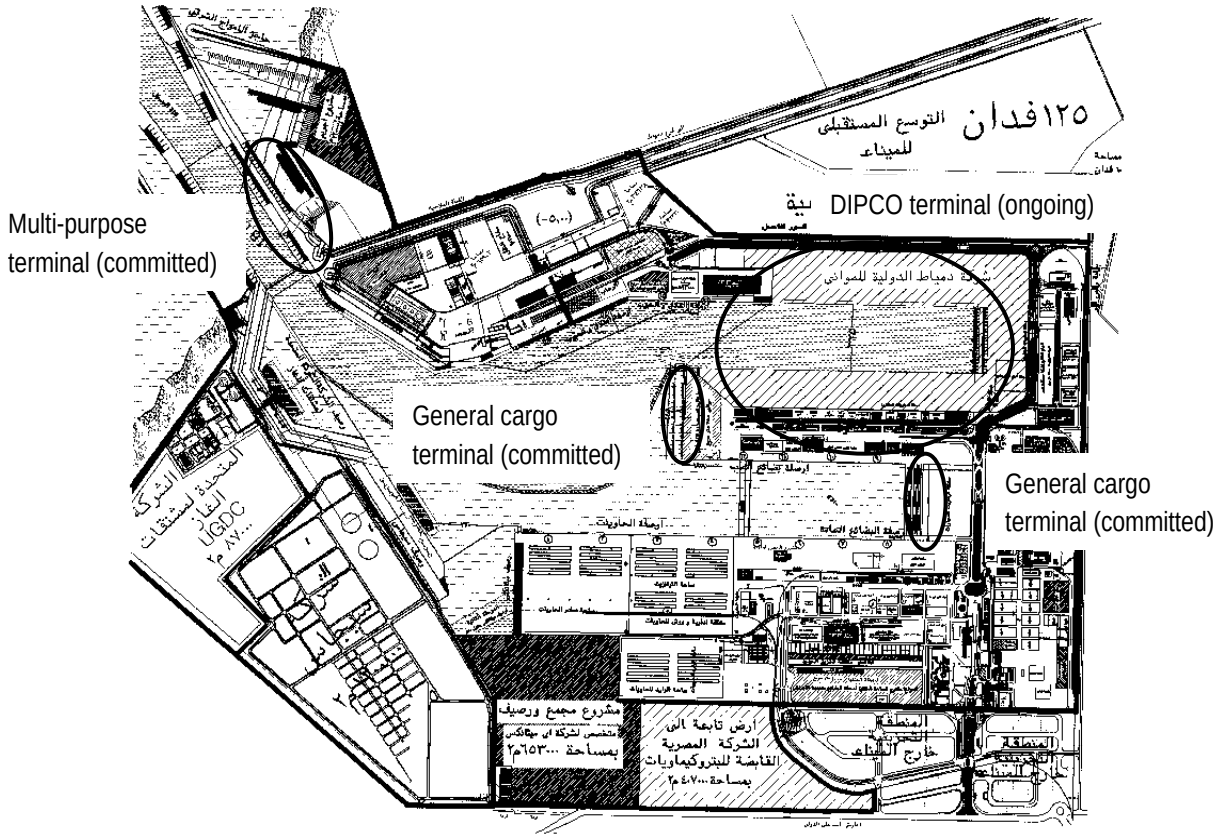
Source: APA

Figure 2.5.1 Port Development Projects in Alexandria Port



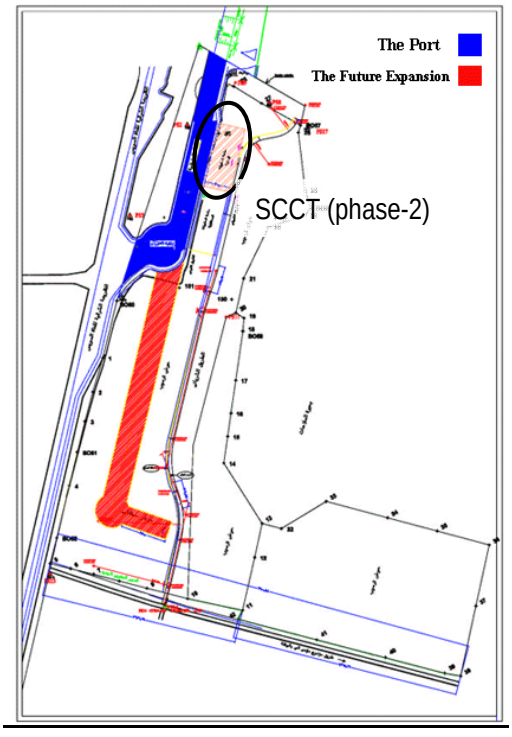
Source: APA

Figure 2.5.2 Port Development Projects in El-Dekhila Port



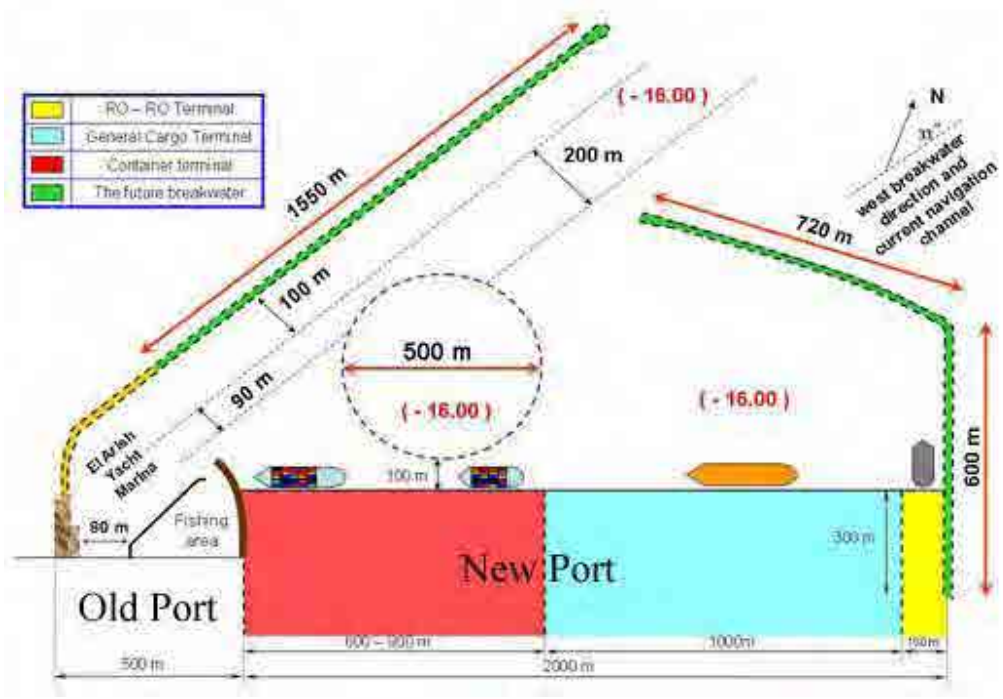
Source: DPA

Figure 2.5.3 Port Development Projects in Damietta Port



Source: PSPA

Figure 2.5.4 Port Development Projects in East Port Said

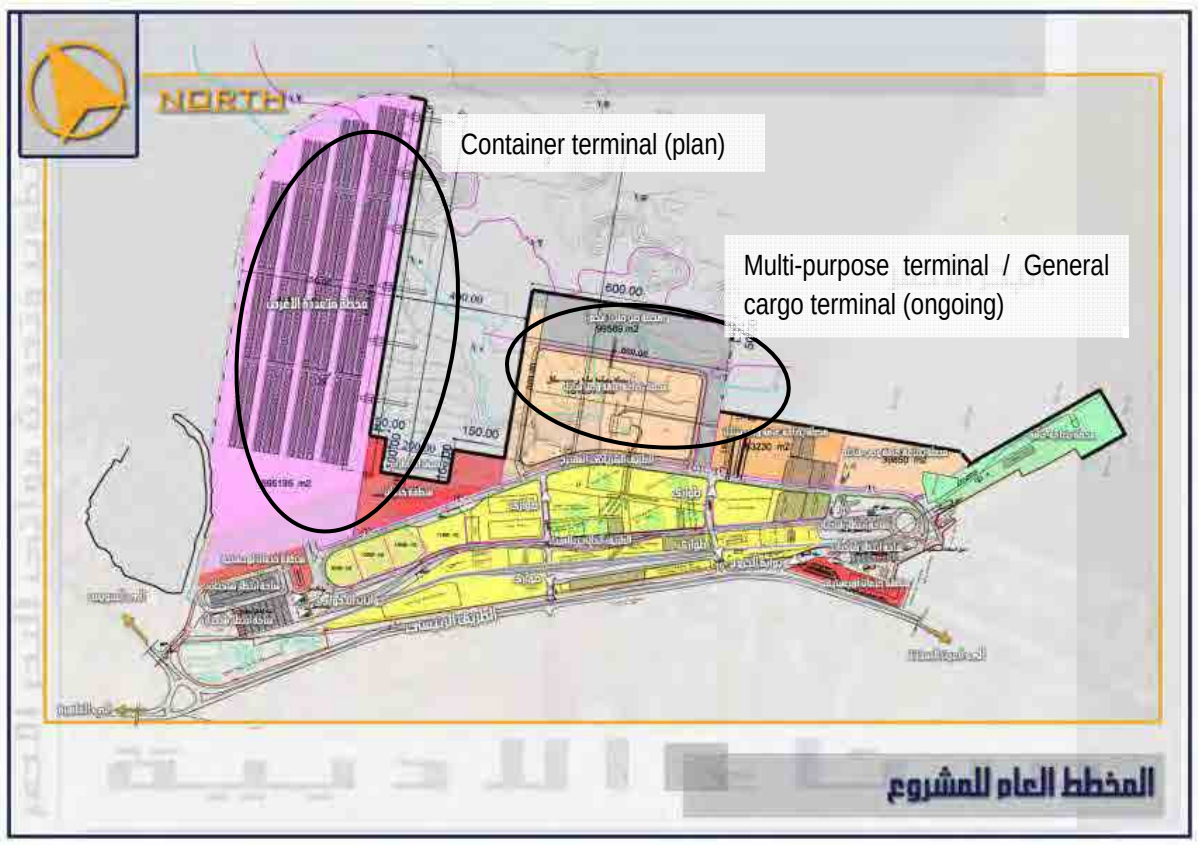


Source: PSPA

Figure 2.5.5 Port Development Projects in El-Arish Port

Source: DP World

Figure 2.5.6 Port Development Projects in Sokhna Port



Source: MOT, RSPA

Figure 2.5.7 Port Development Projects in Adabiya Port

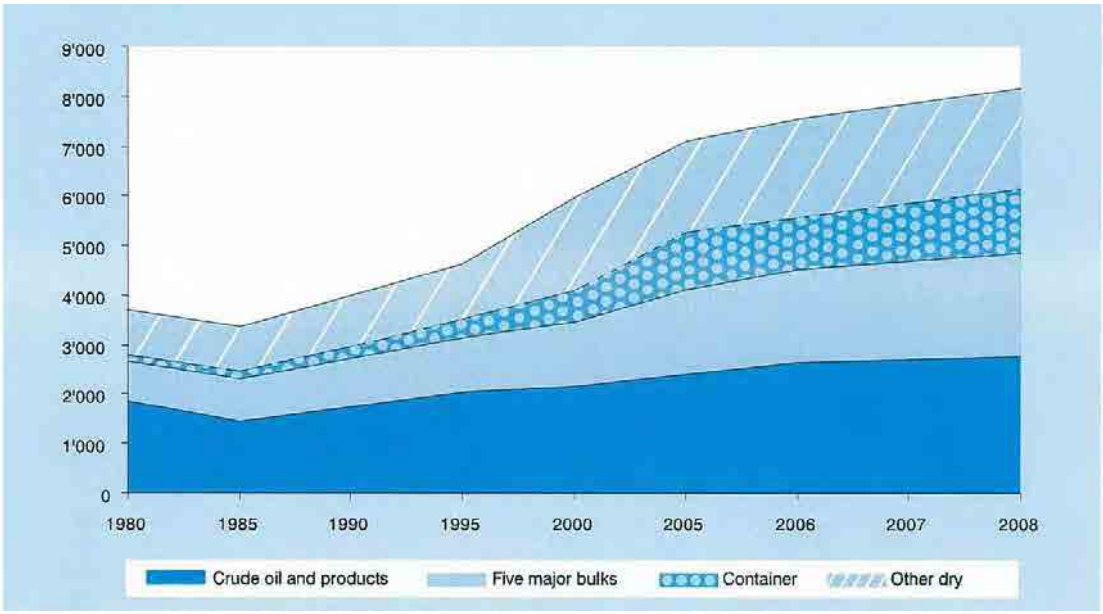
2.6. OVERVIEW OF THE WORLD SHIPPING INDUSTRY

2.6.1. International Seaborne Trade

The globalization of economy increases the opportunities for international trade. Under the globalized economy, manufacturers of a country procure raw materials from overseas suppliers and sell their products to consumers in the global market. International trade is moved in the web of global supply chains by utilizing various transportation modes. Carrying over 80% of the world merchandise trade, maritime transport has long been a growing industry and will continue to be essential to world trade.

For the international seaborne trade, a significant growth has been experienced in all major commodities and the total volume has more than doubled during the past 20 years (Figure 2.6.1).

(million tons)



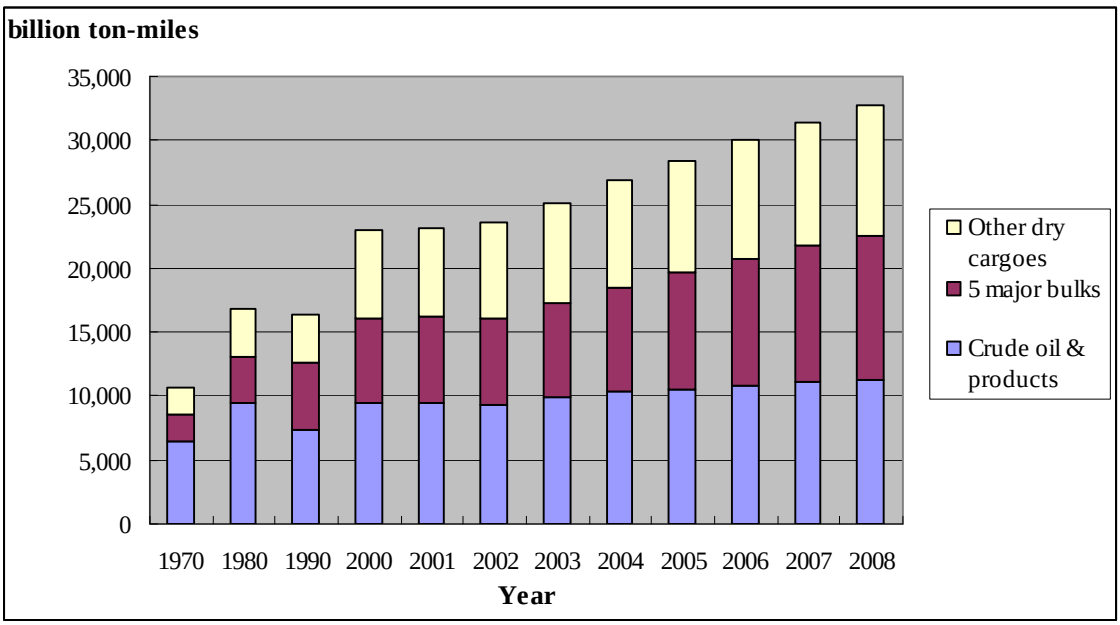
Source: UNCTAD "Review of Maritime Transport 2009"

* 5 major bulks includes iron ore, coal, grain, bauxite/alumina and phosphate.

Figure 2.6.1 World Seaborne Trade by Commodities

Demand of maritime transport is more adequately expressed in ton-miles, as it reflects both cargo volume and traveling distances. Total ton-miles have nearly doubled from 16.4 trillion ton-miles in 1990 to 32.7 trillion ton-miles in 2008 (Figure 2.6.2). Significant increase is seen in dry bulk (5 major bulks) and other dry cargoes (including containerized cargoes), while a smaller increase is experienced in crude oil and products.

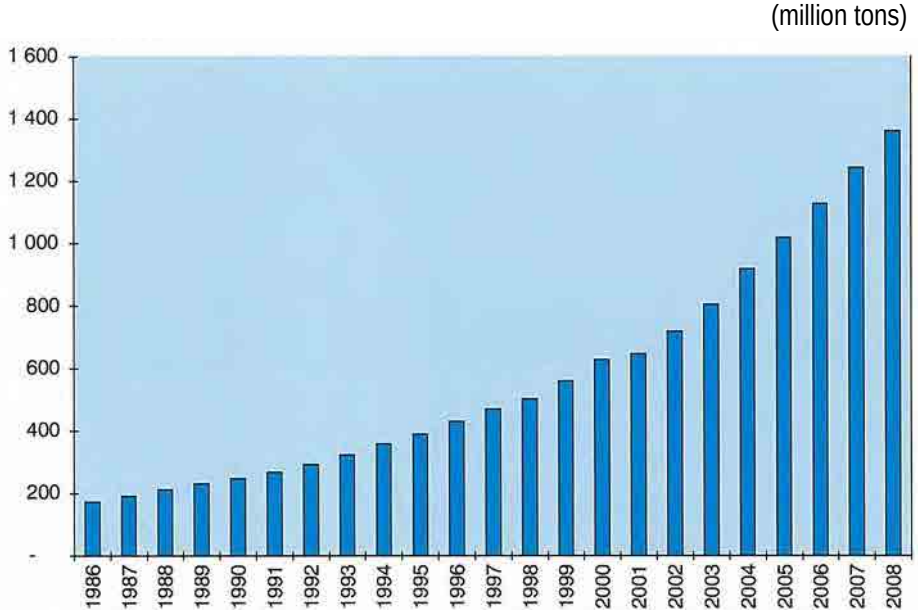
(billion ton-miles)



Source: UNCTAD "Review of Maritime Transport 2009"

Figure 2.6.2 World Seaborne Trade in Ton-miles

Containerized trade has made the most remarkable growth among all commodities of maritime transport. The volume has increased nearly 7 times in the past 20 years (Figure 2.6.3).



Source: UNCTAD "Review of Maritime Transport 2009"

Figure 2.6.3 World Containerized Trade Growth

East Asia–Europe trade on which trunk line major Egyptian ports are located carries over 15 million TEU in a year (Table 2.6.1).

Table 2.6.1 OD Volume of World Container Movement

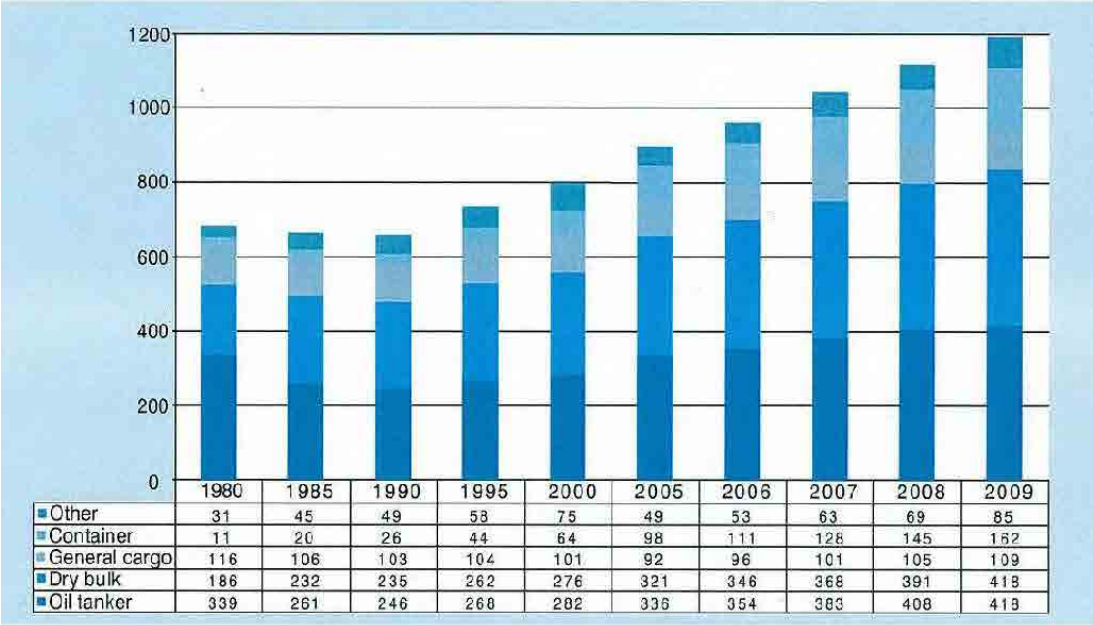
(1,000TEU carried onboard in 2006)

From/to	North America	East Asia	Europe	South America	Middle East	South Asia	Africa	Oceania	Total
North America	240	5,704	1,996	1,912	309	224	244	237	10,866
East Asia	14,740	14,859	10,604	1,569	1,573	1,085	1,141	1,069	46,640
Europe	2,963	4,669	2,851	1,750	2,299	613	2,539	333	18,017
South America	2,093	718	1,750	1,583	174	37	361	55	6,771
Middle East	157	322	803	6	393	140	212	29	2,062
South Asia	683	493	883	87	378	225	278	33	3,060
Africa	156	494	1,605	52	113	132	635	34	3,221
Oceania	215	768	303	49	104	51	72	492	2,054
Total	21,245	28,027	20,795	7,006	5,344	2,507	5,482	2,281	92,687

Source: Mitsui O.S.K. Lines Research Office

Looking at the supply side of maritime transport, vessel tonnage has increased in line with the growth of cargo volume (Figure 2.6.4).

(million DWT)



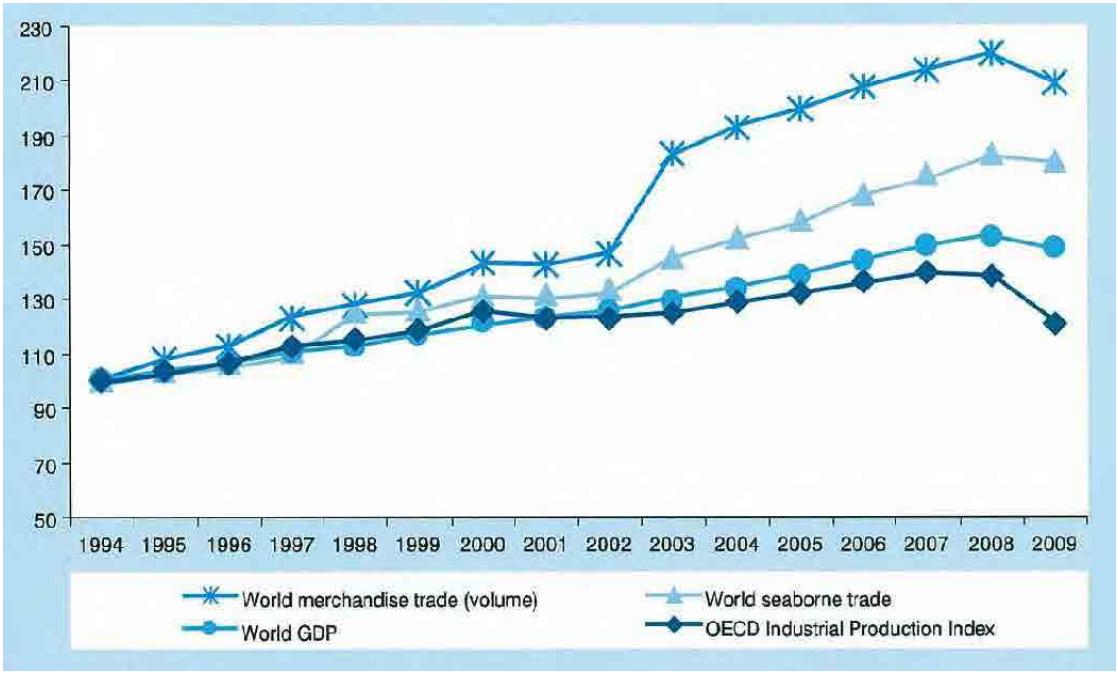
	1980	1985	1990	1995	2000	2005	2006	2007	2008	2009
Other	31	45	49	58	75	49	53	63	69	85
Container	11	20	26	44	64	98	111	128	145	162
General cargo	116	106	103	104	101	92	96	101	105	109
Dry bulk	186	232	235	262	276	321	346	368	391	418
Oil tanker	339	261	246	268	282	336	354	383	408	418

Source: UNCTAD "Review of Maritime Transport 2009"

Figure 2.6.4 World Fleet by Vessel Types

The global financial crisis started in September 2008, marking a historical turning point in world trade and maritime transport. Collapse of the US financial sector seriously impacted on the real economy throughout the world. Severe contraction of demand had a negative multiplier effect on the worldwide production and trade. Being inter-dependent in the global supply chains, the world merchandise trade fell into a broad and simultaneous downturn in the largest magnitude since World War 2 (Figure 2.6.5).

(1994=100)



Source: UNCTAD "Review of Maritime Transport 2009"

Figure 2.6.5 World GDP, Merchandise Trade and Seaborne trade

2.6.2. Container Carriers

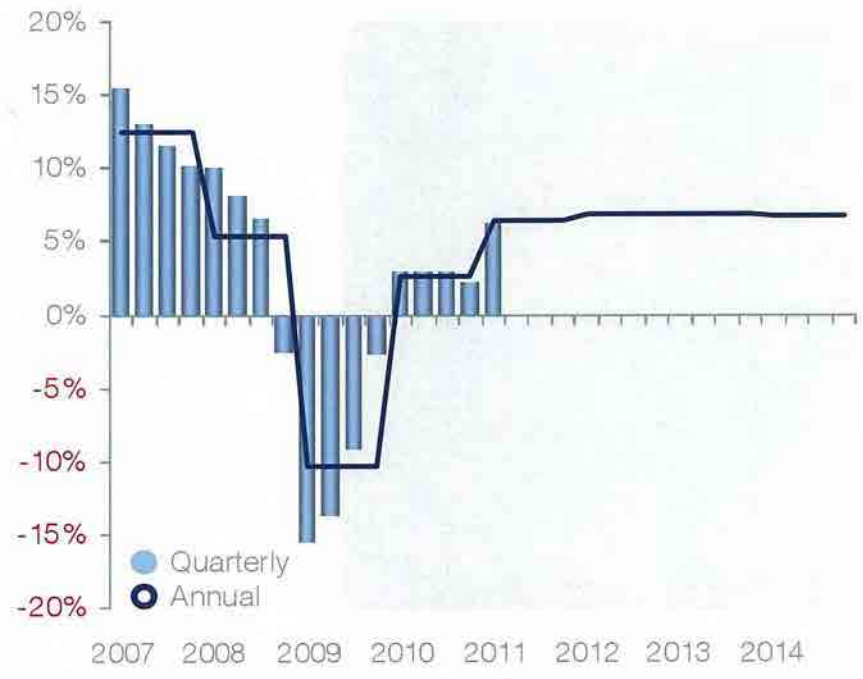
Although the tonnage gap between supply and demand has continued to be a problem in all areas of maritime transport, the world-wide over-tonnage caused by the sudden contraction of cargo movement had a huge negative impact on shipping lines. In order to adjust the vessel supply down to the shrunk cargo demand, shipping lines have been taking various measures since the last quarter of 2008 (Table 2.6.2).

Table 2.6.2 Countermeasures against the Over-tonnage

Counter measures	Present circumstances regarding container trade
Cancellation of new vessel orders	22.5% of vessels on shipyards' order books will be cancelled in 2010-2013.
Delays of new vessel orders	40% of vessels on the current order books will be delayed
Demolition of aging vessels	Over 300,000 TEU of vessels have been scrapped in 2009,
Slow steaming	Reduction of the navigation speed down to 14 knots or less
Deviation	Not going for short cuts through the Malacca Straits or Suez Canal
Lay-up	10% of the world operational fleet is laid up

Source: JICA Study Team

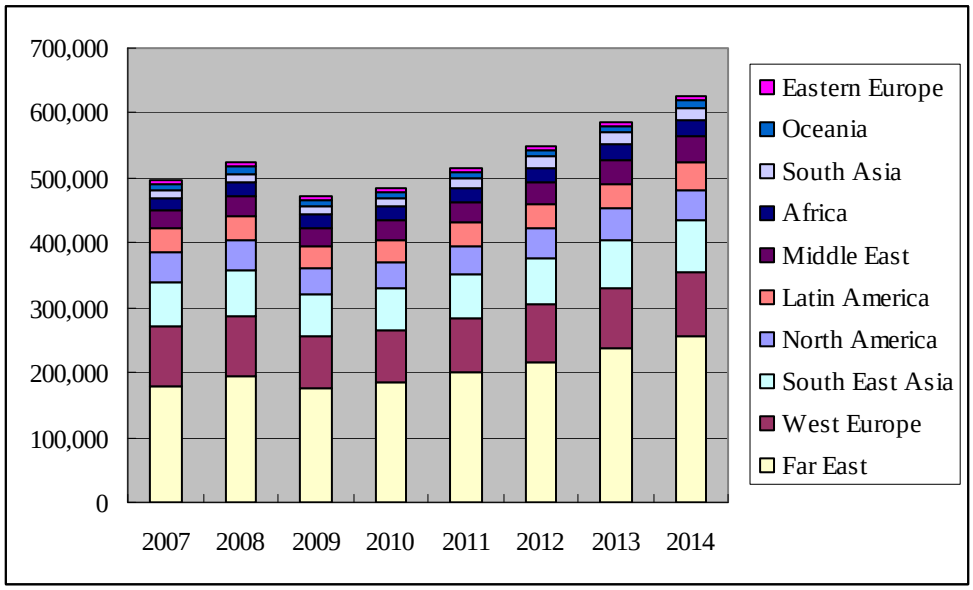
The volume of world container movement has already hit the bottom and now is on the way of a slow recovery (Figure 2.6.6). According to the latest announcements of industry analysts, the cargo movement will regain the ante-Lehman Shock level in 2011 or 2012 (Figure 2.6.7).



Source: Drewry "Container Market 2009/10"

Figure 2.6.6 Yearly Growth of World Container Handling Volume

(1,000TEU of port handling, including empty & transshipment)



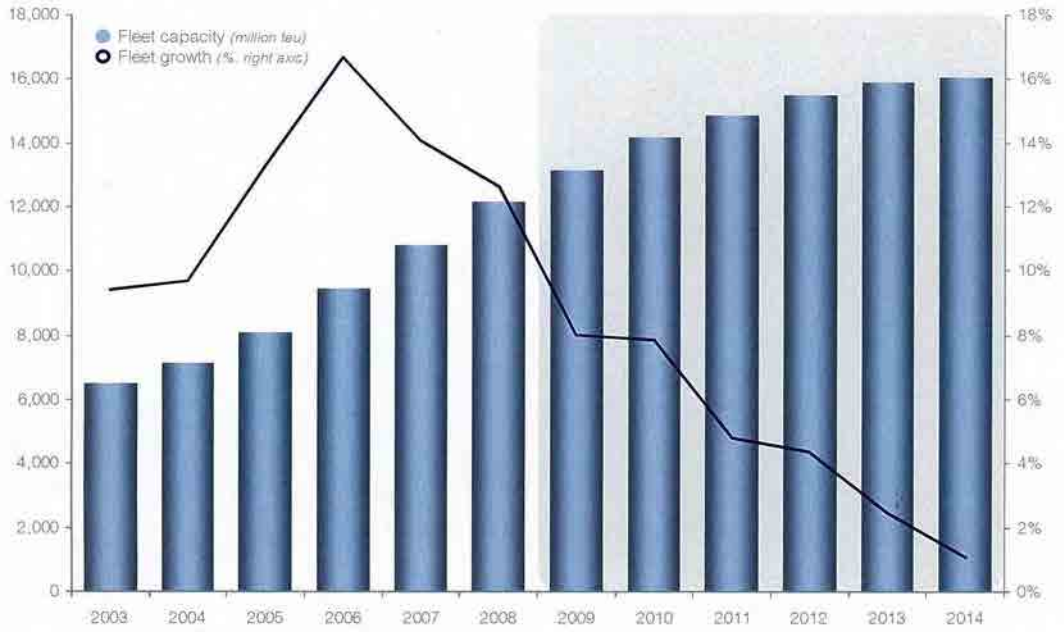
Source: Drewry "Container Market 2009/10"

Figure 2.6.7 Mid-term Forecast of Container Handling by Region

However, the vessel tonnage of container carriers still greatly exceeds the demand. With all their attempts to adjust the size of the fleet down to the decreased demand, it will take some more years until the balance between the supply and demand is achieved (Figure 2.6.8, Figure 2.6.9).

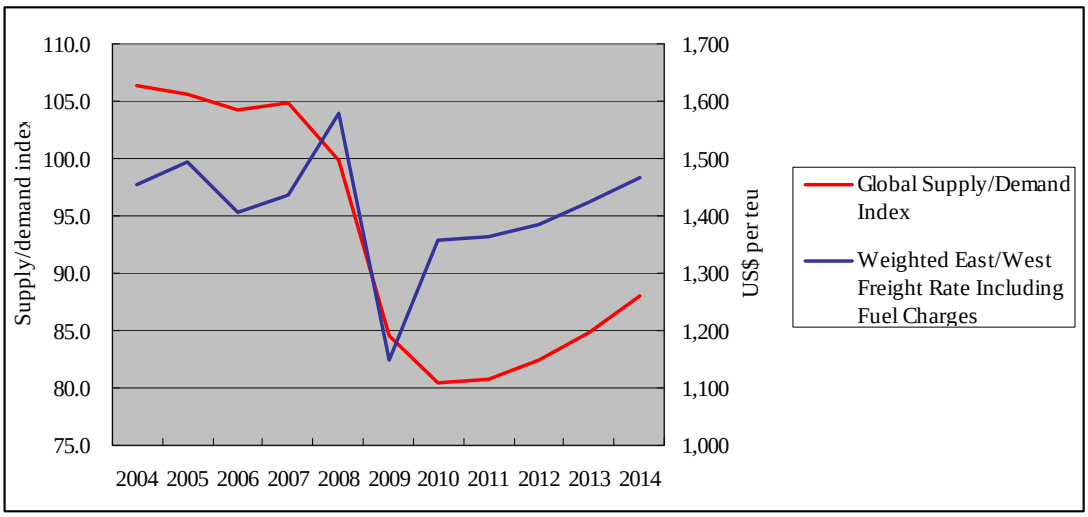
In the course of that recovery period, the container carriers will seek cost-competitiveness more desperately than ever, resulting in severe selection of ports or in their strong requests to the container terminal operators for the improvement of service qualities.

(for bar chart: million TEU, left axis/for line chart: %, right axis)



Source: Drewry "Container Market 2009/10"

Figure 2.6.8 Containership Fleet Development



Source: Drewry "Container Market 2009/10"

Global Supply Demand Index: Score of 100.0 represents "balanced".

Figure 2.6.9 Forecast of Global Supply/Demand Balance up to 2014

Table 2.6.3 shows the recent 6-year trend of container movements carried by major container lines. Most of those carriers are also engaged in the trades related to Egypt.

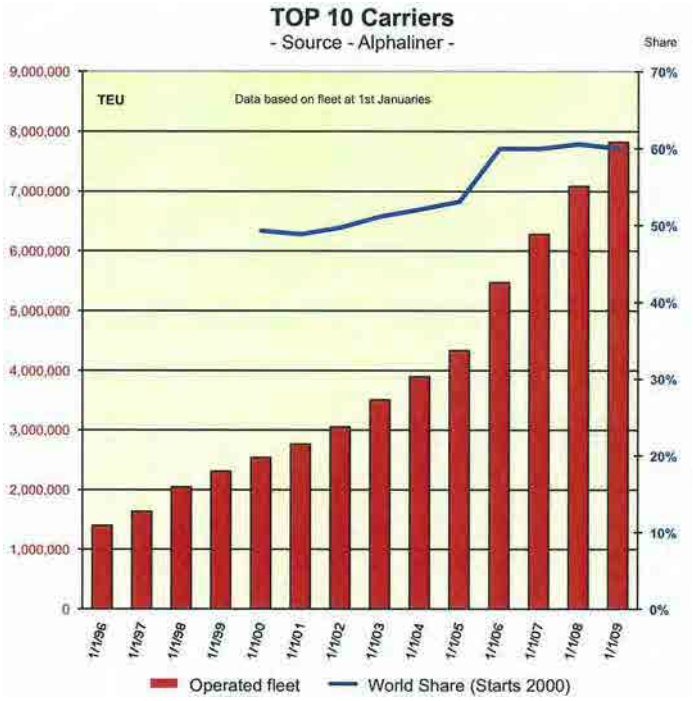
Table 2.6.3 Container Volume Carried by Major Container Carriers

(loaded TEU)

	2003	2004	2005	2006	2007	2008	2003-2008 CAGR %	% Growth 2007/08
Maersk Line	10,750,000	11,500,000	12,200,000	12,200,000	13,600,000	14,000,000	6.8%	2.9%
MSC	4,410,000	5,600,000	6,500,000	8,250,000	10,000,000	10,500,000	24.2%	5.0%
CMA CGM	2,800,000	3,891,000	4,675,000	5,980,000	7,683,000	8,879,000	33.4%	15.6%
CSCL	2,834,000	3,655,000	4,597,000	5,657,955	7,298,827	6,942,148	25.1%	-4.9%
Evergreen Group	4,750,000	5,100,000	5,200,000	5,700,000	6,300,000	6,400,000	7.7%	1.6%
Cosco	3,019,000	3,788,000	4,535,000	5,110,000	5,708,550	5,792,593	17.7%	1.5%
Hapag-Lloyd	2,156,500	2,415,000	4,800,000	5,004,000	5,454,000	5,546,000	26.6%	1.7%
APL	3,032,000	3,580,000	3,891,000	4,194,000	4,716,000	4,940,000	13.0%	4.7%
OOCL	2,687,545	3,268,055	3,523,218	3,894,204	4,601,625	4,834,689	15.8%	5.1%
NYK	3,411,885	3,750,000	4,000,000	4,120,000	4,000,000	3,600,000	1.4%	-10.0%
Hanjin	2,594,340	2,686,653	2,850,000	3,274,000	3,620,000	3,426,000	7.2%	-5.4%
MOL	2,161,500	2,250,000	2,351,000	2,733,000	3,159,000	3,300,000	11.2%	4.5%
K Line	2,280,700	2,463,156	2,600,000	2,900,000	3,219,000	3,103,000	8.0%	-3.6%
Yang Ming	2,028,000	2,318,344	2,415,701	2,719,834	3,146,170	3,080,000	11.0%	-2.1%
Regional Container Lines	1,740,000	2,100,000	2,200,000	2,470,000	2,700,000	2,900,000	13.6%	7.4%
Wan Hai	2,150,000	2,339,039	2,377,240	2,587,000	2,700,000	2,800,000	6.8%	3.7%
Hamburg Sud	1,150,000	1,400,000	1,525,000	1,839,000	2,140,000	2,700,000	23.8%	26.2%
HMM	1,864,302	2,091,190	2,137,000	2,160,000	2,400,000	2,654,000	9.2%	10.6%
PIL				2,000,000	2,500,000	2,600,000	n/a	4.0%
Zim	1,807,123	1,987,000	2,041,000	2,071,000	2,379,000	2,520,000	8.7%	5.9%
CSAV	1,338,000	1,607,000	2,075,000	2,213,000	2,129,040	2,191,000	13.1%	2.9%
Sinotrans				1,524,788	1,682,062	1,809,410	n/a	7.6%
Samudera Shipping Lines			1,320,000	1,430,000	1,423,000	1,510,000	n/a	6.1%
UASC	943,000	1,000,000	1,125,000	1,131,000	1,394,000	1,307,000	8.5%	-6.2%
TS Lines				790,000	1,070,000	1,180,000	n/a	10.3%
SITC				720,000	820,000	1,080,000	n/a	31.7%
Total				**92,672,781**	**105,843,274**	**109,594,840**		

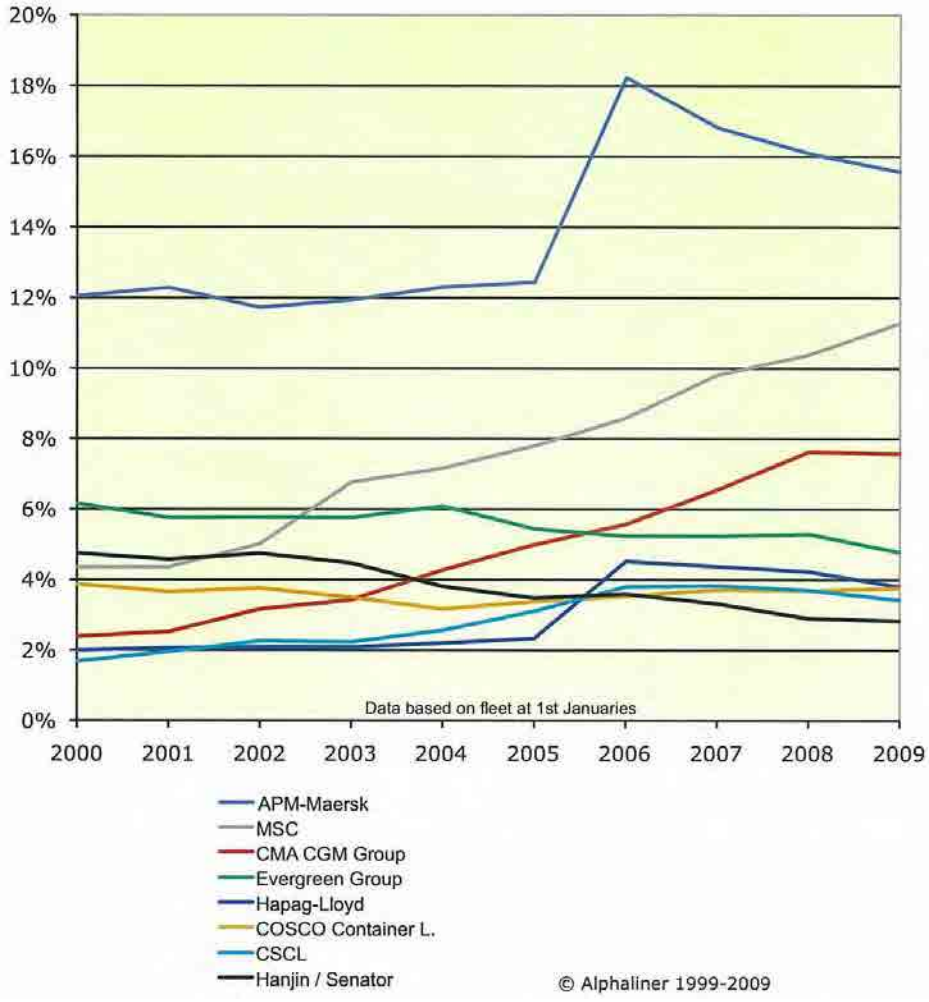
Source: Drewry "Container Market 2009/10"

The market of maritime container transport is quite oligopolistic. Substantial volume is being carried by a small number of "Mega Carriers" such as Maersk Line, MSC, and CMA CGM. The increase of their market share has been impressive (Figure 2.6.10, Figure 2.6.11).



Source: Alphaliner web site

Figure 2.6.10 Top 10 Container Carriers' Fleet and World Share



Source: Alphaliner web site

Figure 2.6.11 Mega Carriers' Fleet

As stated in the previous section, container carriers intend to increase their market shares by deploying a larger fleet in order to seek the economy of scale in both service coverage and cost competitiveness. A carrier's set-up can be enlarged not only on its own but also as a unit formed with other carriers. It is a common behavior among middle-scale carriers to form a "global alliance" teaming up with other carriers. The momentum to form global alliances started to grow in 1994. Carriers united their fleets and restructured trade lanes in a global scale so that they can increase the service frequency, obtain additional areas of service coverage, and reduce operational costs.

Currently the following alliances are formed:

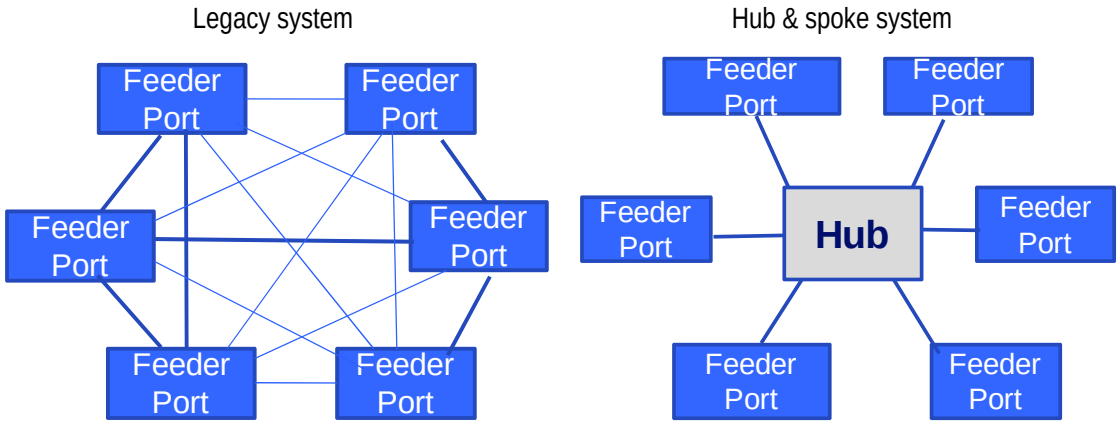
- The New World Alliance APL, MOL, Hyundai
- Grand Alliance Hapag, NYK, OOCL, MISC
- CKYH Green Alliance COSCO, K Line, Yang Ming, Hanjin
- Evergreen Group Evergreen, Hatsu, Italia Marittima
- Independent Maersk, MSC, CMA CGM, China Shipping

Some carriers went for M&A to enhance their set-ups for the same objectives. The movement began in 1997 and the following actions have been taken so far:

- In 1997 P&O and Nedlloyd merged → P&O Nedlloyd
  NOL acquired APL
- In 1999 Maersk (APM) acquired Sealand → Maersk Sealand
  Maersk also acquired Safmarine
  Evergreen acquired LT
- In 2005 Maersk Sealand (APM) acquired P&O Nedlloyd → Maersk
  Hapag (TUI) acquired CP Ships
- In 2006 CMA CGM acquired Delmas

Larger vessels need to be deployed in response to the unification of carriers' trade lanes through the formation of alliances and M&A. The largest container vessel currently in operation or on order books is as large as 14,000 TEU. An innovative trade lane management system suitable for mega vessels has been invented by mega carriers, as such large vessels are too costly to call at multiple ports under the traditional trade lane operations. The "hub & spoke system" originally invented in the airborne industry in the US is now broadly adopted by mega container carriers in the world.

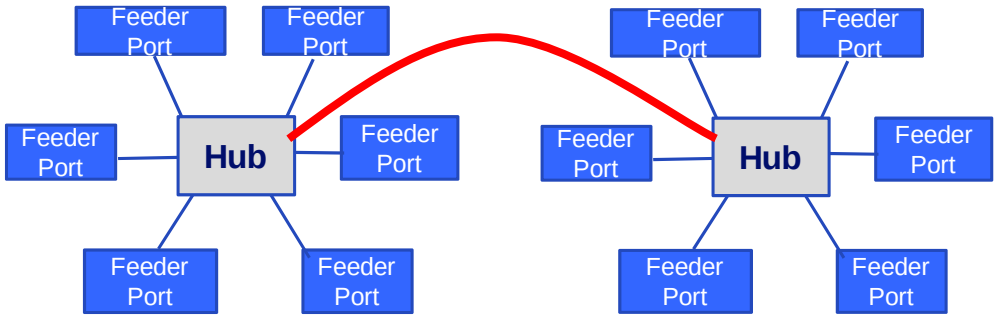
In case of a region with 6 feeder ports to cover, total 15 feeder lines are required to cover all port pairs under the traditional multiple-calling system. However, under the hub & spoke system, only 6 feeder lines are enough to cover all those port pairs, which will bring a substantial saving of feeder costs to the carrier (Figure 2.6.12).



Source: Akio Imai "Global Intermodal Transportation" modified by JICA Study Team

Figure 2.6.12 Hub & Spoke System in a Single Region

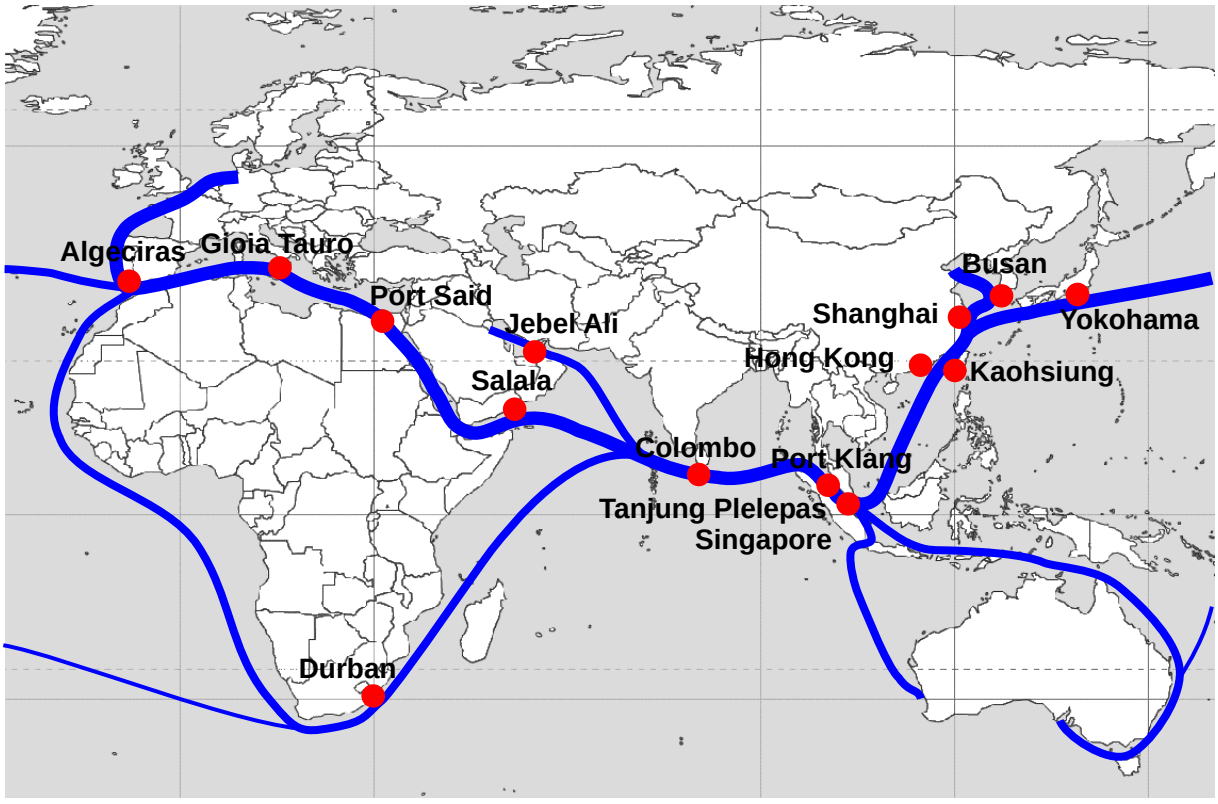
The hub & spoke system is more advantageous when a region is connected with another region. Since new port pairs are created, new business chances emerge for carriers (Figure 2.6.13).



Source: Akio Imai "Global Intermodal Transportation" modified by JICA Study Team

Figure 2.6.13 Hub & Spoke System Connecting Different Regions

Hub ports are selected by carriers in consideration of a geographical advantage, service quality, and total costs for feeder networks. A hub port doesn't need to have cargo sources in its own hinterland. It can be built even at a quiet village without any industrial area nearby, if only the factors mentioned above can be optimized. Figure 2.6.14 shows major hub ports on Asia-Europe/Africa trade lanes some of which were created as a green-field project.



Source: JICA Study Team

Figure 2.6.14 Major Hub Ports between Asia, Europe and Africa

In the Eastern Mediterranean area, Port Said in Egypt, Gioia Tauro in Italy and Marsaxlokk in Malta are the busiest hub ports where mega container carriers are calling. Located close to the busy Suez Canal and at the junction of three continents, Egypt has been playing an important role of transshipment hubs to connect

Asia-Europe trunk lines with feeder ports in the East Mediterranean, Black Sea, and East Africa. EMDB's data shows that the majority of containers transshipped in Egyptian ports are to/from the Black Sea, Turkey, Syria, Lebanon, Cyprus and Israel.

UNCTAD started to release "Liner Shipping Connectivity Index (LSCI)" in 2004 evaluating the availability of maritime networks for a country. LSCI is calculated considering available liner services in both quantity and quality. In 2009, Egypt ranked 17th among 162 countries in the world (Table 2.6.4). That high score represents the Egypt's strategic location embracing the Suez Canal.

However, it is notable that some countries in the Mediterranean region such as Italy, Greece and Malta have made a double digit increase in scores during the last five years, while Egypt improved by 9.12.The ports in those countries such as Gioia Tauro and Taranto in Italy, Marsaxlokk in Malta and Piraeus in Greece have been steadily enhancing their competence as a transshipment hub. Egyptian ports need to pay close attention to those competitors' development.

Table 2.6.4 Liner Shipping Connectivity Index

Economy	2004	2005	2006	2007	2008	2009	Rank 2009	Change 2009/2008	Change 2009/2004
China	100.00	108.29	113.10	127.85	137.38	132.47	1	-4.91	32.47
Hong Kong (China)	94.42	96.78	99.31	106.20	108.78	104.47	2	-4.30	10.05
Singapore	81.87	83.87	86.11	87.53	94.47	99.47	3	5.01	17.60
Netherlands	78.81	79.95	80.97	84.79	87.57	88.66	4	1.09	9.85
Korea, Republic of	68.68	73.03	71.92	77.19	76.40	86.67	5	10.28	18.00
United Kingdom	81.69	79.58	81.53	76.77	77.99	84.82	6	6.83	3.14
Germany	76.59	78.41	80.66	88.95	89.26	84.30	7	-4.96	7.71
Belgium	73.16	74.17	76.15	73.93	77.98	82.80	8	4.82	9.64
United States	83.30	87.62	85.80	83.68	82.45	82.43	9	-0.02	-0.87
Malaysia	62.83	64.97	69.20	81.58	77.60	81.21	10	3.61	18.38
Spain	54.44	58.16	62.29	71.26	67.67	70.22	11	2.56	15.78
Italy	58.13	62.20	58.11	58.84	55.87	69.97	12	14.10	11.84
France	67.34	70.00	67.78	64.84	66.24	67.01	13	0.77	-0.33
Japan	69.15	66.73	64.54	62.73	66.63	66.33	14	-0.30	-2.82
Taiwan Province of China	59.56	63.74	65.64	62.43	62.58	60.90	15	-1.67	1.34
United Arab Emirates	38.06	39.22	46.70	48.21	48.80	60.45	16	11.65	22.40
Egypt.	42.86	49.23	50.01	45.37	52.53	51.99	17	-0.55	9.12
Saudi Arabia	35.83	36.24	40.66	45.04	47.44	47.30	18	-0.14	11.47
Oman	23.33	23.64	20.28	28.96	30.42	45.32	19	14.90	21.98
Greece	30.22	29.07	31.29	30.70	27.14	41.91	20	14.77	11.68
Canada	39.67	39.81	36.32	34.40	34.28	41.34	21	7.06	1.68
India	34.14	36.88	42.90	40.47	42.18	40.97	22	-1.21	6.83
Morocco	9.39	8.68	8.54	9.02	29.79	38.40	23	8.61	29.02
Malta	27.53	25.70	30.32	29.53	29.92	37.71	24	7.78	10.17
Thailand	31.01	31.92	33.89	35.31	36.48	36.78	25	0.30	5.77
Sri Lanka	34.68	33.36	37.31	42.43	46.08	34.74	26	-11.34	0.06
Portugal	17.54	16.84	23.55	25.42	34.97	32.97	27	-2.00	15.43
Panama	32.05	29.12	27.61	30.53	30.45	32.66	28	2.21	0.60
South Africa	23.13	25.83	26.21	27.52	28.49	32.07	29	3.58	8.94
Turkey	25.60	27.09	27.09	32.60	35.64	31.98	30	-3.66	6.38

Source: UNCTAD "Transport Newsletter No.43"

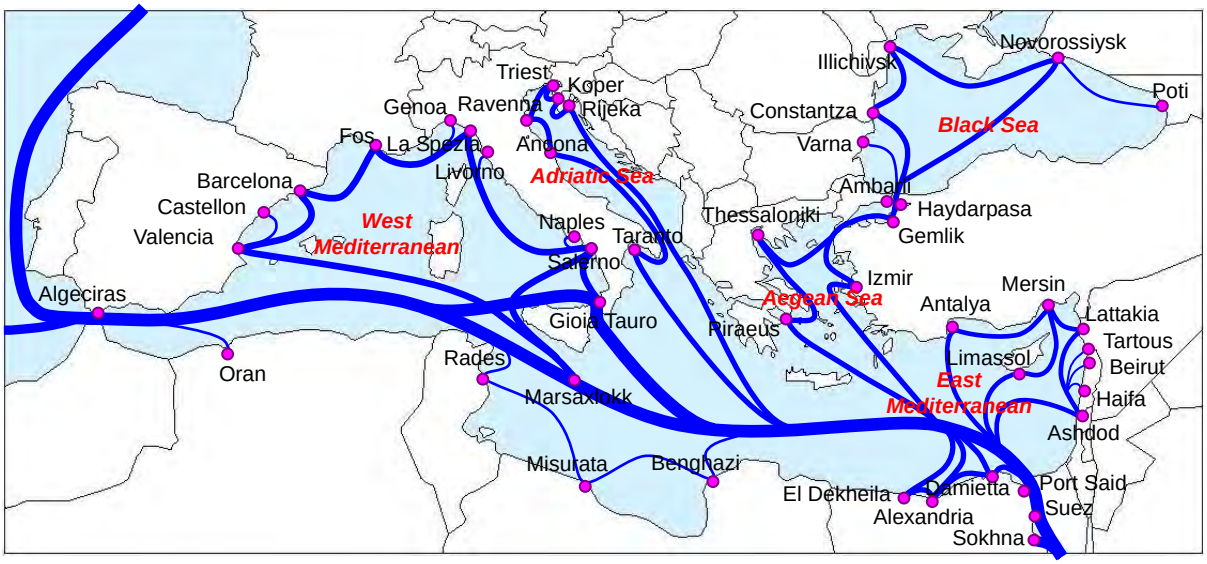
2.7. MARITIME TRANSPORT NETWORK IN EGYPT

2.7.1. Container Transport Network

Facing both the Mediterranean and Red Sea and having the Suez Canal linking them, Egyptian ports have been used by major shipping lines who have container services along the world-busiest East-West trade lane.

Most of those container carriers have a trunk line (or mainline) across the Mediterranean Sea with junction ports along it to make feeder connections with branch sea areas such as the East Mediterranean, Black Sea, Aegean Sea, Adriatic Sea and West Mediterranean. Keeping step with the growth of container cargo movement, maritime transport networks have been developed by the trunk line carriers and the feeder carriers jointly to improve the service coverage for the branch ports scattered along the coastline of each sea area.

Figure 2.7.1 depicts the current status of maritime transport networks in which Egyptian ports are incorporated.



SOURCE: JICA STUDY TEAM

Figure 2.7.1 Container Transport Network in the Mediterranean Sea

- Vessel Deployment for Mainline

Figure 2.7.2 indicates the port-wise composition of trade lanes for which the shipping lines are currently deploying their container vessel fleets. Table 2.7.1 shows the details of annual fleet capacities by port.

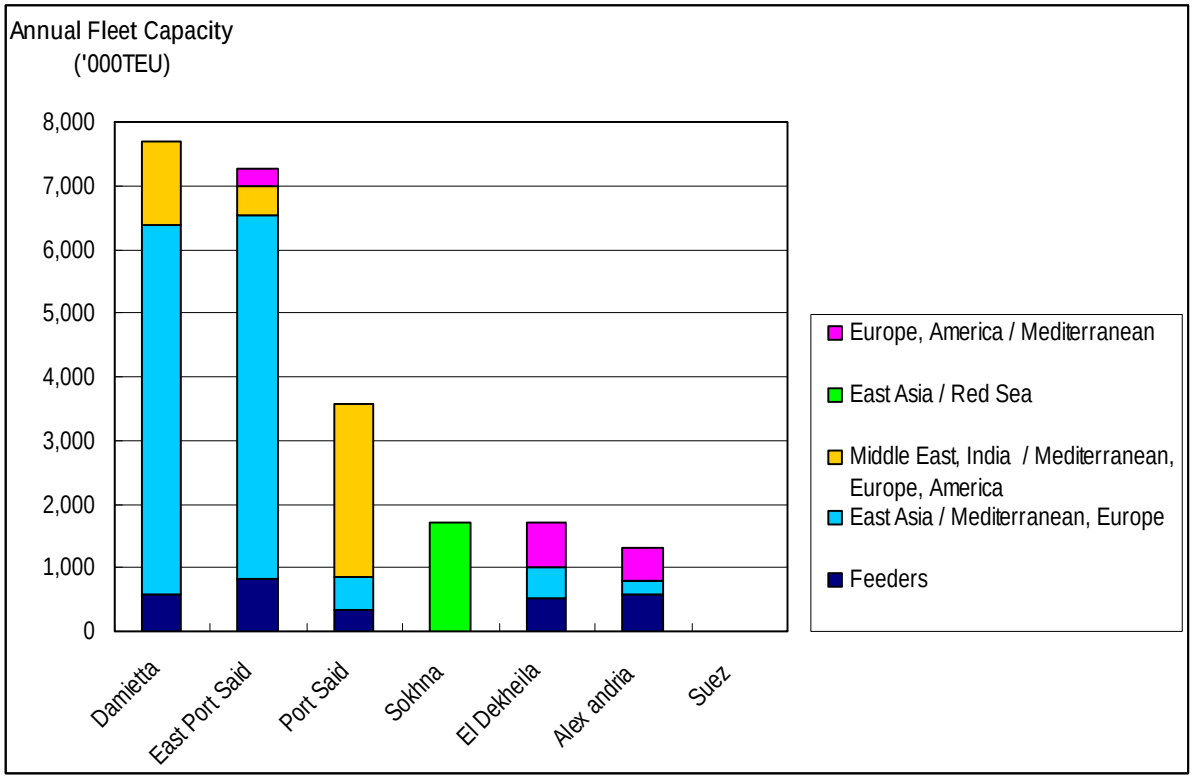
Damietta has the largest fleet capacity followed by East Port Said, as both are called by a number of mega container vessels deployed for East Asia trade. Those vessels are calling at those 2 ports on the way of the busiest east-west trade lane with many transship cargoes onboard. Having the fleet deployed mainly for Middle East/India rather than East Asia, the fleet capacity for West Port Said is almost half of East Port Said's. The fleet for El Dekheila and Alexandria is relatively small as the majority of cargoes for those ports tends to be local rather transshipment cargo. The vessels calling at Sokhna are all sailing upto Red Sea only, not passing through Suez Canal.

- Vessel Deployment for Feeders

Being the busiest transship hub in Egypt, East Port Said has the largest feeder availability, while the runner-ups of Alexandria, Damietta and El Dekheila have almost even fleet capacities.

It is geographically distinctive that the feeders for western sea areas such as West Mediterranean, Adriatic and Black Seas gather at the western-coastal ports of El Dekheila and Alexandria, while those for eastern

sea areas such as Aegean and East Mediterranean gather at the eastern-coastal ports of Damietta, West Port Said and East Port Said.



Source: JICA Study Team

Figure 2.7.2 Trade Lane Composition of Container Fleets by Calling Port

Table 2.7.1 Annual Fleet Capacity of Container Vessels by Calling Port (as of Nov. 1, 2010)

(unit: '000TEU)

Trade Lane		El Dekheila	Alex andria	Damietta	West Port Said	East Port Said	Sokhna	Suez
Mainline	East Asia / North Europe	201		294		1,723		
	East Asia / Mediterranean	288	220	5,512	516	4,012		
	East Asia / Red Sea						1,723	
	Middle East & India / North Europe			113	687			
	Middle East & India / North America			1,208	1,656	248		
	Middle East & India / Mediterranean				364	187		
	North Europe, Americas / Mediterranean	690	516			279		9
	Main Line Sub Total	1,179	736	7,127	3,223	6,448	1,723	9
Feeder	West Mediterranean	80	164					
	Adriatic	74	100		22			
	Black Sea	174	89			66		
	Aegean			305	171	369		
	East Mediterranean	87	90	194	43	300		
	Inter Egypt	102	141	80	102	79		
	Feeder Sub Total	518	583	579	338	813	0	0
Total		1,697	1,319	7,706	3,560	7,261	1,723	9

Source: JICA Study Team

- Vessel Size and Slot Allocations

Table 2.7.2 shows the average size of container vessels deployed for each port. The average size is given by dividing the total fleet capacity by the number of vessels deployed. The largest vessels are deployed for East Port Said for both mainlines and feeders, followed by Damietta, because of the nature of those 2 ports as the transship hubs. Being called by small shipping lines with legacy services between Europe and Egypt, Alexandria has smaller vessels compared with other ports.

Table 2.7.2 AVERAGE SIZE OF CONTAINER VESSELS BY CALLING PORT (AS OF NOV. 1, 2010)

(unit: TEU)

Trade Lane		El Dekheila	Alex andria	Damietta	West Port Said	East Port Said	Sokhna	Suez
Mainline	East Asia / North Europe	3,851		2,812		7,524		
	East Asia / Mediterranean	5,529	4,214	5,895	4,950	6,229		
	East Asia / Red Sea						3,296	
	Middle East & India / North Europe			2,478	4,417			
	Middle East & India / North America			4,507	3,829	4,747		
	Middle East & India / Mediterranean				4,186	4,747		
	North Europe, Americas / Mediterranean	3,378	1,132			2,661		707
	Main Line Average	4,219	1,275	5,158	4,323	5,868	3,296	707
Feeder	West Mediterranean	813	954					
	Adriatic	1,426	551		416			
	Black Sea	1,647	1,700			1,261		
	Aegean			1,580	1,190	1,768		
	East Mediterranean	1,678	990	930	822	1,123		
	Inter Egypt	392	539	385	392	755		
	Feeder Average	1,093	826	1,053	698	1,378		
Total Average		3,210	1,106	4,595	3,835	5,169	3,296	707

Source: JICA Study Team

Table 2.7.3 shows the slot allocation given to each port for local and transit cargoes respectively. The slot allocation is defined as the portion of a port in the total fleet capacity of mainline vessels, which is given by dividing the annual throughput by the doubled figure of annual fleet capacity to accommodate both loading and discharging.

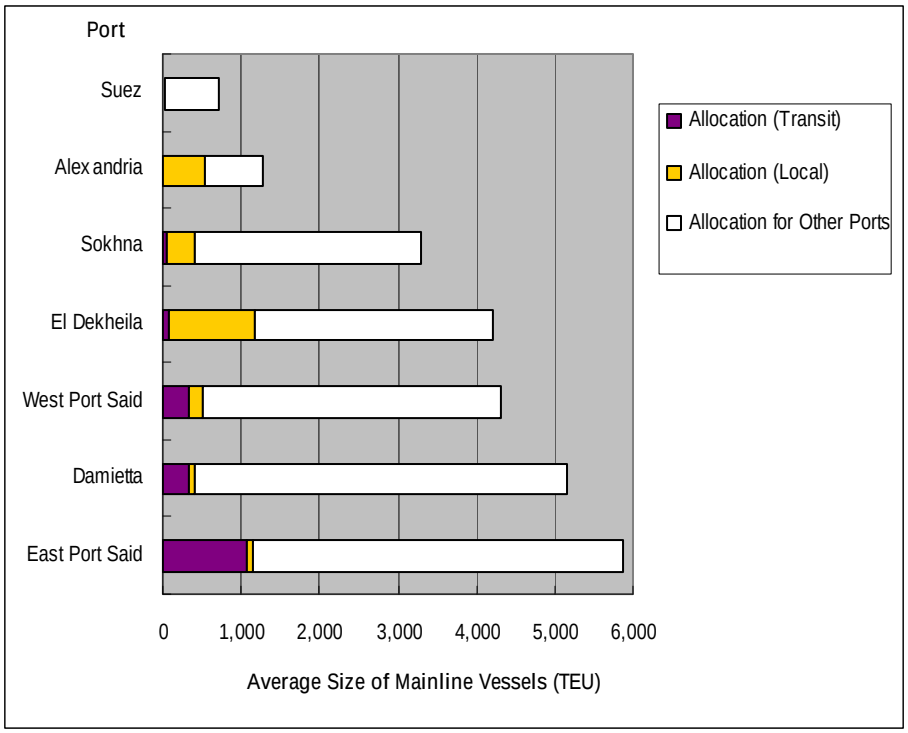
Table 2.7.3 Slot Allocation for Egyptian Ports in Annual Fleet Capacity (as of Nov. 1, 2010)

		El Dekheila	Alex andria	Damietta	West Port Said	East Port Said	Sokhna	Suez
① Annual Fleet Capacity of Mainline Vessels ('000TEU)		1,179	736	7,127	3,223	6,448	1,723	9
② Annual Throughput ('000TEU)	Local	615	609	202	266	174	375	1
	Transit	47	7	937	495	2,366	53	0
	Total	661	616	1,139	761	2,540	428	1
③ Allocation in Total Fleet Capacity ②÷(①×2)	Local	26.1%	41.4%	1.4%	4.1%	1.3%	10.9%	4.5%
	Transit	2.0%	0.5%	6.6%	7.7%	18.3%	1.5%	0.0%
	Total	28.1%	41.9%	8.0%	11.8%	19.7%	12.4%	4.5%

Source: JICA Study Team

Figure 2.7.3 shows the slot allocations when converted to “per vessel” figures. The allocation for each port in the average capacity of mainline vessels is indicated with the colored part of each graph bar. Contrast

between local and transit is more significantly found in the Figure. It is obvious that East Port Said and Damietta are transit-oriented while El Dekheila and Alexandria are local-oriented.



Source: JICA Study Team

Figure 2.7.3 Slot Allocations in The Average Vessel Size (as of Nov. 1, 2010)

- Forecast of Future Network

As stated In the previous paragraph, a clear distinction has been established between the role of local-oriented El Dekheila/Alexandria and transship-oriented East Port Said/Damietta. The future network of container transport is forecasted basically in line with this existing role separation of the ports.

El Dekheila and Alexandria will continue to be the gateway of local exports and imports, taking advantage of the proximity to Greater Cairo, Alexandria and the major industrial zones. Those local cargoes will also continue to increase steadily keeping pace with the growth of the Egyptian economy.

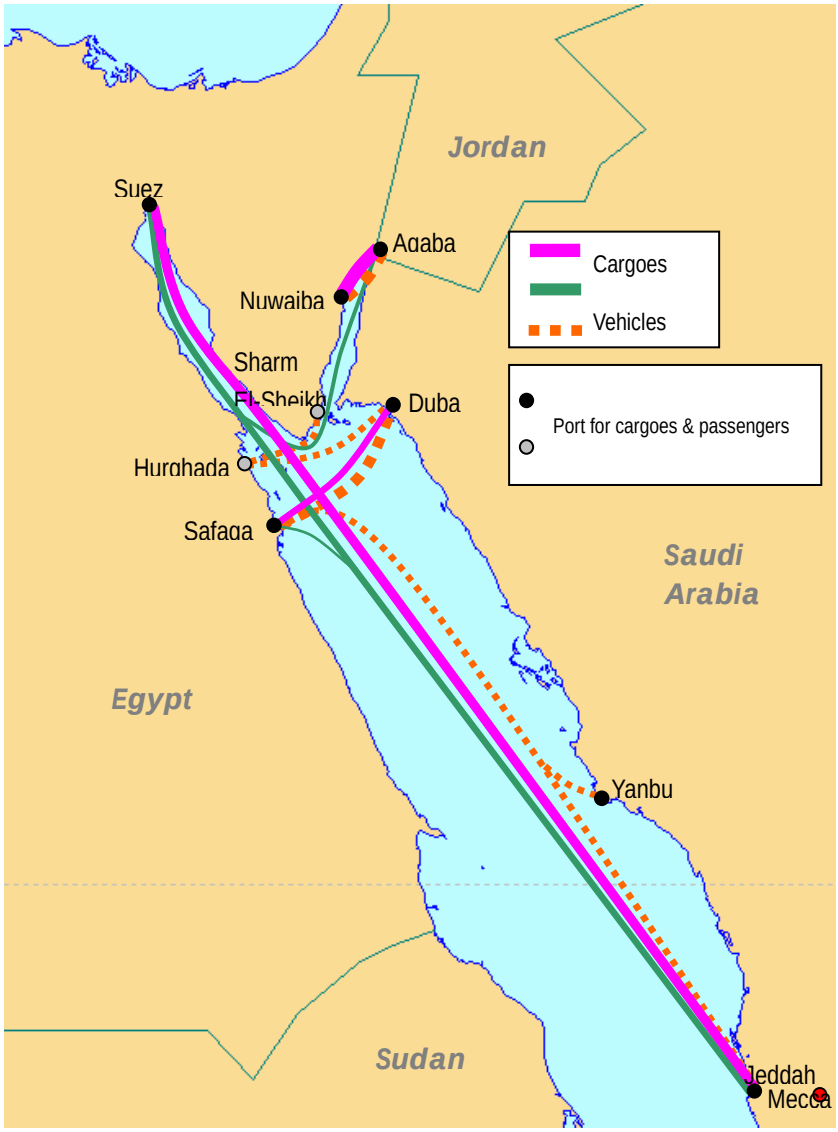
East Port Said and Damietta will continue to be transship hubs, making use of rapidly expanding feeder networks for the East Mediterranean, Aegean Sea and Black Sea where many emerging countries are situated on the coastlines. This scenario however, may change if those ports should become seriously congested and fail to provide sufficient berthing windows to user mega carriers or feeder lines for prompt transhipments. In this sense, constant expansion of the operational capacity should be ensured at those ports.

2.7.2. Ferry Network in the Red Sea

Another maritime transport network has been developed in the Red Sea area by the cross-sea ferry operators, linking the coastal countries i.e. Egypt, Jordan and Saudi Arabia. The traffic consists of general

cargoes, vehicles and passengers including Egyptian pilgrims for Mecca. Different types of ferries are deployed according to the traffic; Ro-Ro, Ro-Pax and high-speed passenger ferries.

Figure 2.7.4 depicts the current status of the network.



Source: JICA Study Team

Figure 2.7.4 Ferry Network in Red Sea

Major ferry operators, their fleets and calling ports are summarized in Table 2.7.4 below.

Table 2.7.4 Major Ferry Operators in Red Sea (as of Jul.1, 2009)

Operator	Country of Registration	Number, Type of Ferries	Calling Ports
Arab Bridge Maritime	Jordan	7 (RoRo, RoPax, Pax)	Suez, Safaga, Nuwaiba, Aqaba, Duba, Jeddah
Namma Shipping Line	Egypt	4 (RoPax)	Suez, Safaga, Duba, Jeddah, Sawakin (Sudan)
El Salam Maritime	Egypt	2 (RoRo)	Suez, Aqaba, Jeddah
Norna Shipping Corp.	Egypt	1 (RoRo)	Suez, Jeddah
National Navigation Co.	Egypt	2 (Pax)	Safaga, Yanbu, Jeddah
United Marine Lines	Egypt	2 (Pax)	Hurghada, Sharm El-Sheikh, Duba

Source: JICA Study Team

Volume of cargoes and number of vehicles/passengers are summarized by port pair as per Table 2.7.5 below.

Table 2.7.5 Ferry / RoRo Traffics in Red Sea Area (Jul. 1, 2009 – Jun. 30, 2010)

Major Port Pairs		Cargoes (tons)	Vehicles (units)	Passengers (persons)
Inter-national	Nuwaiba / Aqaba	635,934		796,292
	Suez / Jeddah	221,761	110,726	
	Safaga / Duba	54,827		530,541
	Hurghada / Duba			177,817
	Suez / Aqaba		1,519	
	Safaga / Jeddah		760	78,326
	Safaga / Yanbu			71,246
	Others	10,331	88	11,876
	Sub Total	922,853	113,093	1,666,098
Domestic	Hurghada / Sharm El-Sheikh			63,426
	Others	1,726	0	13,486
	Sub Total	1,726	0	76,912
Total		924,579	113,093	1,743,010

Note: Traffics of regular-calling ferries only. Cruise ship passengers are not included.

Source: Egyptian Maritime Data Bank

- Forecast of Future Network

It is forecasted that the existing ferry network in Red Sea area will remain as it is, as it is supported by the historical ties among the coastal countries. However, future growth of the traffic will depend on the area's economic growth which has been rather slow in recent years compared with the Mediterranean Sea area.

CHAPTER 3: CURRENT ISSUES AND FUTURE POLICY DIRECTION

3.1. PORT DEVELOPMENT

Alexandria, El-Dekhila, Damietta, West Port Said, East Port Said, and Sokhna are major commercial ports in Egypt handling 91% of the total cargo and 98% of the container cargo in 2009. Consequently, one can have a general idea of the current issues and future potential of the Egyptian port sector by analyzing these six ports. Strength and weakness of the ports are summarized below (Table 3.1.1).

Table 3.1.1 Strength and Weakness of Major Commercial Ports

Port	Strength	Weakness
Alexandria and El-Dekhila	✓ Proximity to the Cairo/Alexandria metropolitan areas and industrial areas ✓ Concentration of the maritime industries ✓ Smooth road connection to Cairo via the 8-lane desert road ✓ International airport ✓ Maintenance dredging is unnecessary ✓ Comfortable climate	✓ Lack of land space for expansion ✓ Closed for 30 days a year due to strong winds impeding the attraction of transshipment containers ✓ Congested terminals due to the small terminal space ✓ Difficulty for captains in identifying berths at night due to the bright lights behind the port ✓ Relatively shallow draft (max -14.5 m)
Damietta	✓ Proximity to the Cairo/Alexandria metropolitan areas and industrial areas ✓ Smooth road connection to Cairo ✓ Connection with river transportation through a barge channel ✓ Comfortable climate	✓ Regular maintenance dredging is needed ✓ Vessel waiting before entering the port due to the one-way traffic of the access channel ✓ Narrow port entrance ✓ Reachstacker operation of the existing container terminal ✓ Relatively shallow draft (max -14.5 m)
West Port Said and East Port Said	✓ Zero deviation from the trunk navigation route. ✓ Natural conditions are perfect for port operation thanks to the canal breakwaters. No waves or swells hinder port operation. SCCT is closed for only 3 days a year due to sand storms and fog. ✓ Some maintenance dredging is needed but its volume is limited because this port is far away from the mouth of the River Nile (Dredging is carried out by the Suez Canal Authority using a part of the port dues paid by SCCT clients). ✓ Vast land area available for port expansion at East Port Said. ✓ High productivity at East Port Said.	✓ Soil conditions are poor. A 40-m thick soft clay layer requires piles to be driven to 60 m deep ✓ Congested terminals in West Port Said due to the small terminal space ✓ East Port Said lacks full customs functions due to the absence of some related authorities. Users need to travel between East and West Port Said for that. ✓ A move between East Port Said and West Port Said requires two ferry trips, making it time-consuming and inefficient. ✓ In Egypt, customs clearance fees/charges are regionalized. Consequently, local cargoes are transported to Alexandria by feeder vessels. This transport costs 150 $US/TEU and takes 5 days, adding no values. ✓ Land transport to Cairo goes through a ferry or bridge at this moment, or tunnel not there yet, which could become a bottleneck.

Sokhna	✓ Proximity to the Cairo metropolitan area ✓ Vast available land area around the port ✓ Smooth road connection to Cairo via a 6-lane motorway ✓ Maintenance dredging is unnecessary ✓ Deep draft (-17 m)	✓ Lack of handling capacity resulting in vessel waiting and diversion ✓ Lack of urban functions

Source: JICA Study Team

During the last five years, the Egyptian port sector has experienced a very rapid growth at East Port Said and slow growth (or even a decline) at Damietta and West Port Said (Table 3.1.2). Alexandria and El-Dekhila have steadily grown during the period. Throughput in Sokhna was growing until 2008 but declined in 2009. Combined with the strength and weakness of the ports, these figures indicate the following:

- Alexandria and El-Dekhila are growing steadily as gateway ports to the Cairo/Alexandria metropolitan areas in spite of the port congestion and unfavorable wind conditions.
- Damietta lost a major client, the Maersk Line, to East Port Said, resulting in a decline of cargo.
- West Port Said is losing customers due to the port congestion and competition against East Port Said.
- East Port Said is growing rapidly taking advantage of the status as an efficient transshipment hub as well as vast land areas available for port expansion.
- With vast land areas available for port expansion, Sokhna has a great potential as a gateway port to the Cairo metropolitan area but the potential has not yet fully materialized.

Table 3.1.2 Cargo Growth at the Major Commercial Ports (2004-2009)

(%/year)

Port	Annual growth rate of the total cargo throughput	Annual growth rate of the container cargo throughput
Alexandria	4.1	10.2
El-Dekhila	6.1	21.2
Damietta	5.4	-0.2
West Port Said	-1.1	-2.6
East Port Said	242	172.5
Sokhna	5.5	12.5

Source: JICA Study Team

Judging from the productivity recorded in container terminals of major commercial ports, there is room for better utilization of the existing facilities except in East Port Said (Table 3.1.3). To develop a transshipment hub, productivity of the terminal needs to keep up with that of competitors in the region (Table 3.1.4, Table 3.1.5, Figure 3.1.1).

Table 3.1.3 Productivity of Container Terminals in Major Commercial Ports (2009)

Port	Container throughput (TEU) in 2009	Terminal Facility			Productivity		
		Berth length (m)	Terminal area (m2)	Gantry cranes	TEU/m	TEU/m2	TEU/gantry
Alexandria	615,977	900	273,000	7	684	2.3	87,997
El-Dekhila	661,456	1,552	596,000	9	426	1.1	73,495
Damietta	1,139,018	1,050	620,000	10	1,085	1.8	113,902
West Port Said	760,967	1,320	467,130	7	576	1.6	108,710
East Port Said	2,539,984	1,200	600,000	12	2,117	4.2	211,665
Sokhna	427,879	750	200,000	4	571	2.1	106,970

Source: JICA Study Team, based on MTS data (container throughput in 2009), Containerization International 2010 and DP World (terminal facility)

Table 3.1.4 Productivity of Container Terminals in Major Container Ports in the Region (2008)

Port	Container throughput (TEU) in 2008	Terminal Facility			Productivity		
		Berth length (m)	Terminal area (m2)	Gantry cranes	TEU/m	TEU/m2	TEU/gantry
Dubai	11,827,299	4,875	3,536,905	50	1,582	3.3	149,713
Gioia Tauro (Italy)	3,467,772	3,011	1,300,000	18	1,152	2.7	192,654
Marsaxlokk (Malta)	2,334,182	2,158	680,000	23	1,082	3.4	101,486

Source: JICA Study Team based on the data of Containerization International 2010

Table 3.1.5 Container Ports Competing in the East Mediterranean (2009)

Port	Operator	Capacity (million TEU/year)	Volume (million TEU)	Share in the East Med. market (%)
East Port Said	SCCT	2.7	2.7	19
West Port Said	PSCHC	1	0.8	6
Damietta	DCHC	1.2	1.2	9
Gioia Tauro	Euro gate	5	2.9	21
Malta	Terminal link	2.5	2.2	16
Piraeus	Cosco	2.1	0.4	3
Limassol	CPA	0.7	0.3	2
Taranto	Evergreen	2	0.7	5
Cagliari	Euro gate	0.9	0.7	5
Istanbul	State/Harkas	3.5	2.0	14

Source: SCCT

Figure 3.1.1 Container Ports Competing in the East Mediterranean

Based on these analyses, the Study Team presents the following preliminary observation for the future development of major commercial ports:

- Alexandria and El-Dekhila
  - Creation of new terminals needs to be explored as a steady cargo growth is expected in spite of the port congestion.
  - Judging from the depth and configuration of access channels, creation of deep draft terminals is more reasonable in El-Dekhila rather than in Alexandria (Figure 3.1.2).
  - Improvement in handling productivity is also desirable.
  - Priority should be given to local containers as areas for port expansion are limited and their potential as gateway ports to the metropolitan areas is incomparable.

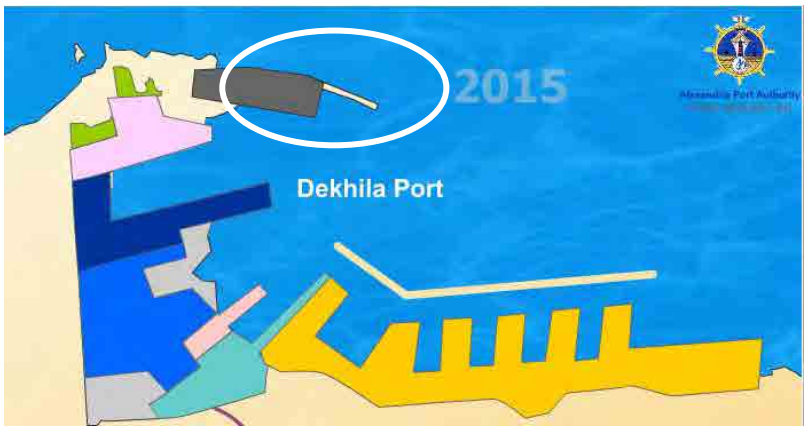


Figure 3.1.2 Container Terminal Planned in El-Dekhila Port

- Damietta
  - Progress of the DIPCO project needs to be closely monitored (Figure 3.1.3).
  - Once the DIPCO project is completed, expansion and deepening of the access channel will be needed though it will be costly.

- The narrow port entrance may eventually constrain the port capacity even if the access channel is widened outside the port.
- Studies on sedimentation and vessel waiting simulation will be needed before determining the expansion and deepening of the access channel.
- Since it is beneficial for Egypt to have a transshipment hub other than Port Said, the DIPCO project needs to be promoted.

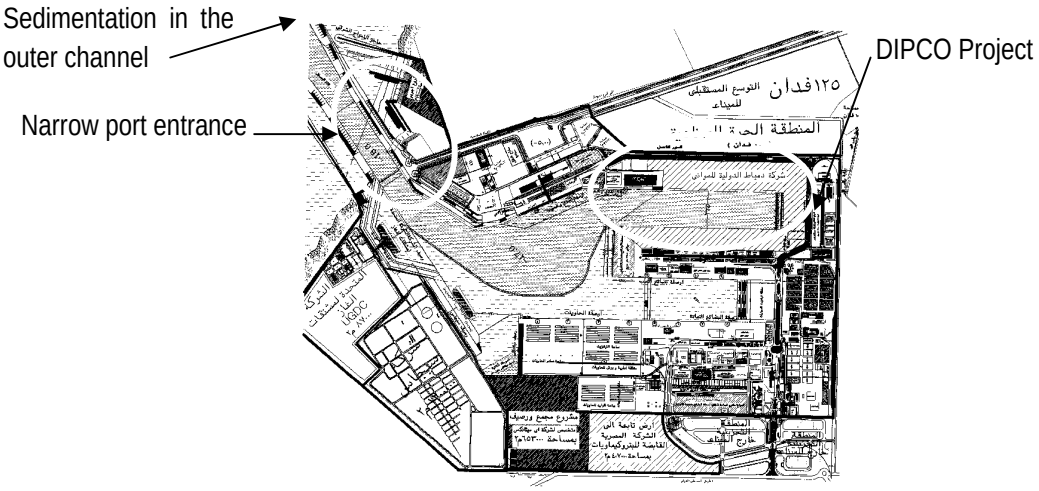


Figure 3.1.3 Issues in Damietta Port

- West Port Said
  - Potential of large-scale expansion is limited because of the urban land-use right behind the port (Figure 3.1.4).
  - To keep its position as a transshipment hub, improvement in handling productivity is desirable. For this purpose, expansion of the container yard will be needed.

Figure 3.1.4 Limited Terminal Space in West Port Said

- East Port Said
  - Since its potential as a transshipment hub is quite high, further expansion is expected.
  - Full customs functions will be needed at East Port Said to avoid ferry trips of customers to West Port Said (Figure 3.1.5).
  - Creation of a FTZ and/or industrial zones is desirable to maximize the benefit of port operation for the Egyptian economy.
  - Local containers at East Port Said have increased threefold between 2006 and 2009 (Table 3.1.6). Depending on the future traffic volume, road links with the western bank of the Suez Canal will need to be strengthened.

Table 3.1.6 Growth of Local Containers in East Port Said

Year	Local containers (TEU)	Annual growth rate (%/year)
2006	110,358	-
2007	180,918	63.9
2008	254,798	40.8
2009	311,688	22.3

Source: SCCT

Figure 3.1.5 Ferry Connections between East and West Port Said

- Sokhna
  - Its potential as a transshipment hub is not for the Mediterranean region but for the Red Sea area because of the transit fee of the Suez Canal.
  - Since Sokhna is located at the north end of the Red Sea, other ports located to the south such as Jeddah and Aden have a geographical advantage as a transshipment hub for the

Red Sea.

- Rather than being a transshipment hub, Sokhna can be an alternative to Alexandria and El-Dekhila as a gateway port to the Cairo metropolitan area taking advantage of the 6-lane motorway linking it with Cairo.
- This will help alleviate the congestion at Alexandria and El-Dekhila.
- For this reason, handling of local containers to/from Asia should be promoted.
- To solve the current port congestion, handling capacity needs to be enhanced.
- ITC

3.2. LOGISTICS ISSUES

Based on interviews with port authorities and major container carriers' agents as well as findings of site visits, the Study Team recommends that the following points be addressed to enhance logistics functions and ensure a smooth flow of port cargo traffic (Table 3.2.1).

Table 3.2.1 Measures to Enhance Logistics Functions

Area		Measures
Shipping industry		✓ Relaxation of the limit on foreign shareholding in shipping agent companies ✓ Standardization of port EDI systems
Stevedoring industry		✓ Diversification of the wage and employment system for stevedoring workers
Freight forwarding industry		✓ Introduction of a national single window system
Intermodal issues	Sea port/Rail	✓ Speeding-up of cargo trains ✓ Creation of inland container depots (ICD) near the center of Cairo with rail access ✓ Development of intermodal logistics services ✓ Creation of a cargo location system
	Sea port/IWT	✓ Improvement of navigability of channels ✓ Development of intermodal logistics services
	Sea port/Road	✓ Improvement of the exit of the Alexandria Desert Road at Alexandria ✓ Expansion of the access road to East Port Said ✓ Higher utilization of Sokhna Port
Trade facilitation		✓ Reduction of the time for documents preparation ✓ Reduction of cargo damage/loss at customs clearance

Source: JICA Study Team

These recommended measures are discussed in detail in the following sections.

3.2.1. Shipping Industry

- Relaxation of the limit on foreign shareholding in shipping agent companies
  - The Decree 451 enacted in October 2009 seems putting the clock back to the years before the promulgation of the Investment Law in 1997. MTS needs to provide convincing explanations to the agent companies concerned why 100% foreign capital once allowed under the Investment Law was suddenly limited down to less than 50%.
  - Agent companies whose principal shareholder shipping line has its own vessels regularly call at Egyptian ports, at least, should be exempted from the related provisions of the Decree 451. That is because those shipping lines should be rewarded for their costs for

bringing their vessels into Egyptian ports. Otherwise, Egyptian ports would become less attractive to foreign shipping lines which plan to deploy their vessels into Egypt.

- Standardization of port EDI systems
  - Although port EDI systems have already been introduced at some ports, each port is using a different EDI system and no common interface is established, which is causing unnecessary workloads to shipping lines' agents.
  - EDI procedures and platforms need to be standardized and integrated among all Egyptian ports so that agents can make an entry of data with minimum transactions.

3.2.2. Stevedoring Industry

- Diversification of the wage and employment system for stevedoring workers
  - In the course of interviews, some agent companies pointed out that stevedoring companies in state-owned container terminals lack flexibility of manpower to deal with the fluctuating cargo volume. Those stevedoring companies seem to bear substantial amount of fixed costs, which would make their break-even point rather high.
  - In consequence, it would be worth considering for those stevedoring companies to diversify their system of wages or employment into more flexible one.
  - A flexible employment system using manpower supply agencies could be an answer to respond to the fluctuation of handling volume. Those workers could be pooled and shared by multiple terminals.
  - In this case, skilled labors need to be respected and the instructions of works need to be retained in the manpower supply company so that it will not result in mere wage-cutting.
  - Since the labor issue is quite sensitive, cautious reviews will be needed by pertinent agencies and industries concerned.

3.2.3. Freight Forwarding Industry

- Introduction of a national single window system
  - As touched upon in a prior section and also in a previous JICA study[7], now is the time for Egypt to introduce a nation-wide single window system.
  - Having been proved in many economically advanced countries, trade facilitation increases the velocity of money circulation in a country, which will bring a large scale of benefit to the country's economy growth. A national single window system is one of the most effective solutions for trade facilitation.
  - The port EDI system should be incorporated into the national single window system, which will enable both shipping agents and freight forwarders to make far quicker data entries with less workload.
  - The national single window system will also eliminate legacy/obscure practices long been formed among customs and freight forwarders, as pointed out by the previous JICA study. It will enhance the transparency of customs procedures from the viewpoint of foreign traders and thus make the Egyptian economy more competitive.

[7] The Study on Multimodal Transport and Logistics System of The Eastern Mediterranean Region and Master Plan, Chapter 7, August 2008

3.2.4. Intermodal Issues

- Sea port/Railways
  - Railway access is available at major commercial ports including Alexandria, El-Dekhila, Damietta, Port-Said, and Sokhna but not highly utilized.
  - Low use of railway access is mostly attributable to the trouble in arranging secondary transport at both ends of the cargo traffic and the slow speed of cargo trains.
  - In order to promote rail transportation of maritime cargo, both hardware and software need to be improved. Generally, slow deliveries and uncertainty of transport schedule are the two main reasons to impede the use of rail transportation.
  - As for hardware, speeding-up of cargo trains and creation of inland container depots (ICD) near the center of Cairo with rail access should be considered. ICD should provide customs clearance services to reduce cargo dueling time within ports and alleviate port congestions. The previous JICA study proposed the creation of a logistics center with rail access at 6th of October industrial area and 10th of Ramadan industrial area.
  - As for software, intermodal logistics services should be developed so that a customer can count on a single company in arranging the entire cargo traffic between ports and origin/destination of cargo as well as customs clearance procedures. This company is also expected to coordinate the terminal operation in ports and arrangement of cargo trains.
  - Creation of a cargo location system is also important to enable efficient supply chain management for customers. In order to make this happen, all parties concerned should actively participate in the establishment of the system.
  - Once an efficient supply chain management is in place, some value-added services will become available by advanced logistics providers. For example, a modernized logistics center could be developed on a corridor connecting different gate ports, where a logistics provider offers a total logistics service from upper stream (just-in-time supply of raw materials) to down stream (consolidation of finished products from different manufacturers by order of the buyers) utilizing the logistics center. The logistic activities mentioned above may be integrated into the concept of Intermodal Transport Corridor (ITC) which will be propounded by the Study Team in a different chapter.

- Sea port/IWT
  - Among major commercial ports, Alexandria and Damietta have a link with inland waterways. Those links are not highly utilized, though.
  - The river barge terminal in Damietta is spacious and linked with the Damietta branch of the River Nile by a channel 5 m deep. Low utilization of IWT at Damietta seemingly arises from either the poor navigability of the channel up to the Cairo metropolitan area or a lack of freight forwarders providing intermodal services.

- Sea port/Roads
  - Major commercial ports in Egypt are linked with the Cairo Metropolitan Area by expressways. Road access to ports is generally good, but there is some room for further improvement.
  - For Alexandria and El-Dekhila, Alexandria Desert Road is the main access. It is a 6-8 lane expressway and cars can travel at 100 km/h throughout its entire length. Exit of the expressway at Alexandria has only 4 lanes, however, and triggers severe congestion. This is certainly an area to be improved.
  - East Port Said expects a dramatic rise in cargo volume after the Phase-2 becomes

operational, but the access road to East Port Said has just 2 lanes. If East Port Said will be developed as an area producing local cargo such as a distribution center or value-added industrial zone, the access road will surely need major expansion.

- Sokhna Port has a good road access, a 6-lane expressway linking the port with the Cairo Metropolitan Area. This port has a great potential but its throughput is still low (428,000 TEU in 2009) relative to its capacity (1,100,000TEU). Though it may be difficult for customers (shippers, consignees, traders) to change the port of lading/discharge due to established business practices, higher utilization of Sokhna is worth considering. Shift of the cargo to Sokhna Port will help delay the capacity saturation of Mediterranean ports, Alexandria, El-Dekhila, and Damietta.

Table 3.2.2 Expressways linking Commercial Ports with the Cairo Metropolitan Area

Commercial port	Highway number	Number of lanes
Alexandria	27, 237	6-8 (27), 4 (237)
El-Dekhila	27, 237	6-8 (27), 4 (237)
Damietta	37, 10/15	4
East Port Said	- (secondary road)	2
West Port Said	15	4
Sokhna	176	6

Source: JICA Study Team

3.2.5. Trade Facilitation

- Trade facilitation is vital for lowering trade barriers and thus achieving a smooth flow of goods across the borders. Recently, Egypt has achieved remarkable improvements in this regard (Table 3.2.3). In 2010, time to export and time to import are 12 days each, almost equal to the average of OECD high income countries (11 days each). Egypt now ranks at 21st in the world in this area. However, comparing this commendable track record with that of Singapore, the number one country in ease of doing business in the world, there still seems to be room for improvement (
-
-

- Table 3.2.4).

Table 3.2.3 Trading across Borders in Egypt

	Documents to export (number)	Time to export (days)	Cost to export (US$ per container)	Documents to import (number)	Time to import (days)	Cost to import (US$ per container)
2006	6	20	1,014	6	25	1,049
2007	6	15	714	6	18	729
2008	6	14	737	6	15	823
2009	6	14	737	6	15	823
2010	6	12	613	6	12	698

Source: Doing business, World Bank

Table 3.2.4 Trading across Borders in Singapore

	Documents to export (number)	Time to export (days)	Cost to export (US$ per container)	Documents to import (number)	Time to import (days)	Cost to import (US$ per container)
2006	4	5	416	4	4	367
2007	4	5	416	4	4	367
2008	4	5	456	4	4	439
2009	4	5	456	4	4	439
2010	4	5	456	4	4	439

Source: Doing business, World Bank

- Comparison of trade procedures between Egypt and Singapore clearly shows the area for further improvement. The duration needed for documents preparation shows a stark difference between the two economies (Table 3.2.5).
- Based on the analysis of trade procedures around the world, the World Bank points out that introduction of an EDI system, opening of a single window covering all agencies involved, and risk-based customs inspection can reduce the time for trade procedures.

Table 3.2.5 Comparison of the Time for Trade Procedures between Egypt and Singapore

(days)

Procedures	Export		Import	
	Egypt	Singapore	Egypt	Singapore
Documents preparation	7	1	8	1
Customs clearance and technical control	1	1	1	1
Ports and terminal handling	2	1	1	1
Inland transportation and handling	2	2	2	1
Total	12	5	12	4

Source: Doing business, World Bank

- The Japan Chamber of Commerce and Industry pointed out, in the report[8] of Japan Business Council for Trade and Investment Facilitation, that cargo damage and cargo loss were frequently experienced at customs in Egypt and thus customs facilities and customs officers needed to be strengthened. The following is the excerpt of the report on this issue: *Lack of the transparency and chronic delay characterize the reality of the customs clearance in Egypt. Adoption of a large customs broker house does not improve the chronic congestion. Customs inspectors hardly pay any attention to preserving the products intact, undamaged by inspection. Breakage, damage, or pilferage occurs frequently. To ensure that cargoes go through the customs clearance undamaged, importers are forced to employ a personal customs broker to let him stick to the cargo throughout the customs clearance procedure each time.*

[8] Issues and requests relating to foreign trade and investment in 2010

- The World Bank publishes Logistics Performance Index (LPI), indicators to evaluate the efficiency of logistics in countries around the world. LPI is compiled based on a worldwide survey of operators (freight forwarders). International LPI is based on a survey of operators operating outside the country and Domestic LPI is based on those operating inside the country. Since LPI provides qualitative and quantitative evaluation for areas constituting logistics chain, it sheds some lights on areas to be improved in Egypt. Overall LPI of Egypt is relatively low, ranked at 92nd among 155 countries in the world. Among the factors constituting LPI, rating for customs is particularly low, ranked at 122nd in the world trailing behind the level of the neighboring region (Table 3.2.6). As for transport infrastructure, operators give very low marks to rail and, to a lesser extent, road (Table 3.2.7).

Table 3.2.6 Comparison of the 2010 International LPI between Egypt and the Neighboring Region

	Egypt		Middle East and North Africa	
			Score	Difference
Overall LPI	score	2.61	2.6	0.01
	rank	92		
Customs	score	2.11	2.33	-0.22
	rank	122		
Infrastructure	score	2.22	2.36	-0.15
	rank	106		
International shipments	score	2.56	2.65	-0.09
	rank	110		
Logistics competence	score	2.87	2.53	0.34
	rank	54		
Tracking & tracing	score	2.56	2.46	0.1
	rank	101		
Timeliness	score	3.31	3.22	0.1
	rank	81		

Source: Logistics Performance Index 2010, World Bank

Table 3.2.7 Comparison of the 2010 Domestic LPI on the Quality of Infrastructure between Egypt and the Neighboring Region

Evaluate the quality of trade and transport related infrastructure (e.g. ports, roads, airports, information technology) in your country of work	Percent of respondents answering low/very low	
	Egypt	Middle East and North Africa
Ports	25%	46.97%
Airports	50%	48.48%
Roads	75%	44.70%
Rail	100%	61.36%
Warehousing/transloading facilities	50%	48.48%
Telecommunications and IT	50%	26.52%

Source: Logistics Performance Index 2010, World Bank

CHAPTER 4: FUTURE DEVELOPMENT PLAN AND RECOMMENDATION

4.1. POLICY RECOMMENDATIONS ON THE PORT SECTOR

- Necessity of state-level coordination by MTS

  a) Recently most of the major development projects have been implemented on a PPP basis (for example; Phase 2 expansion project of East Port Said), and the risk taken by the government for the development projects has become relatively smaller. Consequently, the central government now seems to have less intention to coordinate and/or prioritize development projects among ports.

  b) However, taking consideration of the impact on the hinterland road networks for an example, it would be better for the central government to play more roles to make a state-level coordination among the ports.

- Functional allocation among the ports

  a) Proposed functional allocation among major Egyptian ports is indicated in Table 4.1.1 below.

Table 4.1.1 Functional Allocation among Major Ports in Egypt

Port	Major functions at present	Functions to be enhanced	Hinterland envisaged in future
Alexandria /El Dekhila	・ local containers ・ transship containers ・ general cargoes ・ bulk	・ local containers	・ Nile Delta ・ Greater Cairo Metropolitan Area
Damietta	・ transship containers ・ general cargoes ・ bulk	・ transship containers	・ Nile Delta ・ Greater Cairo Metropolitan Area
West Port Said	・ local containers ・ bulk	・ local containers (room for ・ expansion will be limited)	・ Nile Delta ・ Greater Cairo Metropolitan Area
East Port Said	・ transship containers	・ transship containers to be given priority ・ local containers ・ developmet of value-adding industries based on the development of SEZ	・ In addition to trans- shipment, Nile Delta & Greater Cairo Metropolitan Area o be involved in future
Sokhna	・ local containers	・ local containers ・ bulk (as an industrial port)	・ Greater Cairo Metropolitan Area and Upper Egypt (for Asia/Red Sea cargoes) ・ ITC transits (for Europe cargoes)

Source: JICA Study Team

b) The ports with limited water/land area (Alexandria/El Dekhila, West Port Said) should focus on local containers, while the port with large area for future development (East Port Said) should give priority to transship containers and SEZ development. Water area of Damietta is fully occupied with the on-going development projects.

c) Out of 6,800 container vessels with total capacity of 25 million TEU currently passing through Suez Canal, 3,300 vessels (48%) with total capacity of 16 million TEU (64%) are calling at Egyptian ports. Out of the total capacity of 25million TEU, 3.4 million TEU (13.5%) are loaded/discharged in Egyptian ports, which is presumed to include 1.1 million TEU (4.4%) of Egypt-local cargoes. Currently no container service is available for calling the ports on both sides of Mediterranean Sea and Red Sea. If bulk cargoes are included, approx. 6-10% of the total cargoes passing through Suez Canal are loaded/discharged at Egyptian ports in recent years.

d) Utilization of Sokhna is recommended for the cargoes transshipped between Greater Cairo Metropolitan Area and Asia/Red Sea area, in view of the mitigation of congestions at Alexandria / El Dekhila and desert highways, and also the saving of total transportation costs. As for Asia-Europe trade lanes however, it would not be practical to call at Sokhna and Mediterranean ports at the same time in view of the economic rationality.

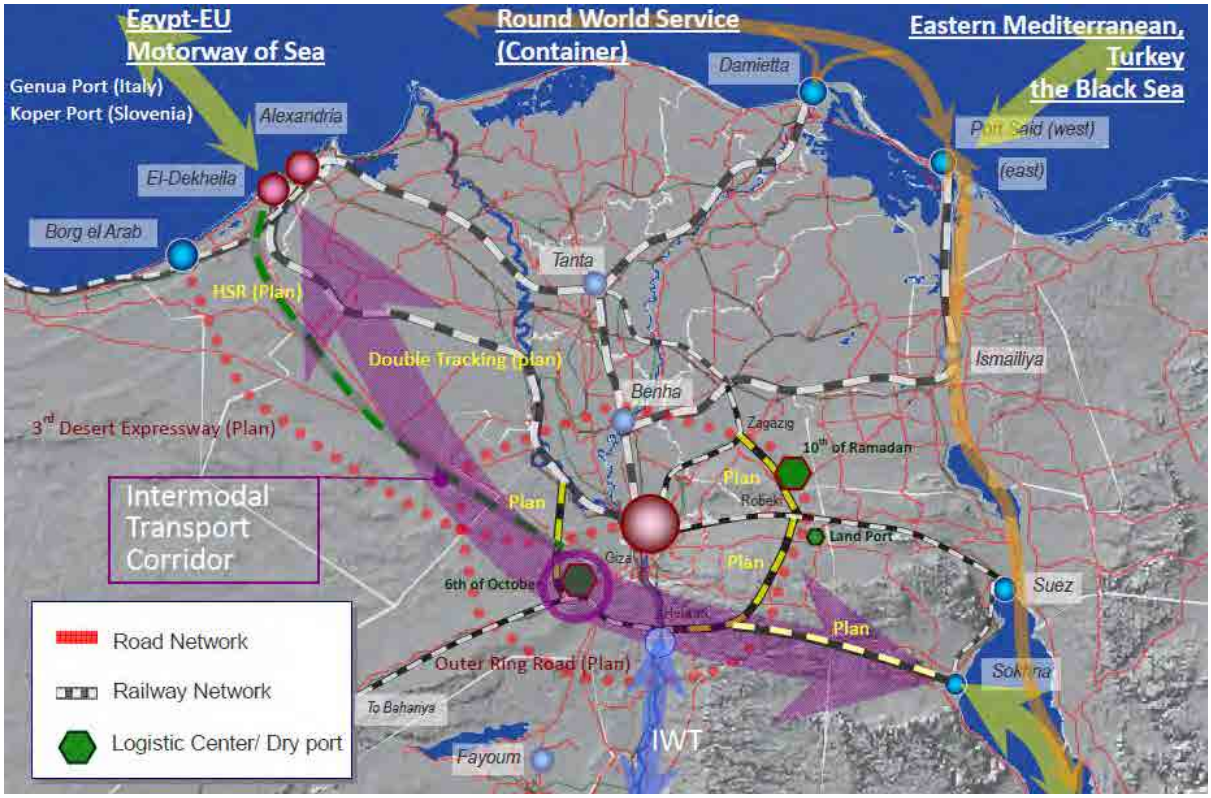
    1) Mediterranean ports have more potential as a transshipment hub.

    2) Mediterranean ports have a shorter distance to the gravity center of economic activities in the Nile Delta.

    3) Concentration of maritime-related industries at Alexandria

Consequently there is no such service at present as calling at Sokhna and any Mediterranean ports at the same time.

In future, the cargo movements between Europe and Asia may be canalized into the Intermodal Transportation Corridor (ITC). The conceptual image of ITC is shown in Figure 4.1.1 below.



Source: JICA Study Team

Figure 4.1.1 Conceptual Image of Intermodal Transport Corridor (ITC)

e) Since railway transportation is suitable for mineral products, it would be reasonable for those cargoes for Asia to be carried to Red Sea ports by railways. As Safaga is the only port in southern Egypt to have a railway access, Safaga can be the gateway for mineral products in Upper Egypt except Dakhla which has quite a distance to the existing railway. For those for Europe, railway transportation to the Mediterranean ports would be reasonable.

f) For the cargoes transshipped between Upper Egypt and Asia/Red Sea area, it is recommended to use Sokhna as stated in b) above. The cargoes transshipped between Upper Egypt and Europe are considered to use Mediterranean ports as stated in b). In those ports, any investments in expectation of Upper Egypt cargoes need to be considered carefully, as the area has a quite small scale of population and industrialization.

g) As Sokhna has already had an access of 6-lane roads and railways, it can be an alternative transportation route to Greater Cairo Metropolitan Area for Asian cargoes in case of malfunction in Suez Canal transit. Such redundancy can be secured if a continued development is implemented at Basin 2 where DP World has already obtained the concession for development. Pipelines will also be another alternative transportation route.

h) Yearly 920,000 tons and 110,000 vehicles are currently carried by the international ferries in Red Sea. The ferry routes with a large cargo movement are ①Nuwaiba-Aqaba, ②Suez-Jeddah, ③Safaga-Duba. Those 3 routes will continue to be the major ferry trade lanes in Red Sea in view of their characteristic features; ① is bypassing the inland

route via Israel, ② is the way to Mecca and ③ is connecting the nodal point in southern Saudi Arabia.

i) Passenger traffic (except leisure cruise passengers) by International ferries in Red Sea amounts in total to 1,740 thousand per year. The routes with a large passenger traffic are ①Nuwaiba-Aqaba, ②Safaga-Duba, ③Hurghada-Duba. Those are not only for daily use but also for the tourists as well as the pilgrims to Mecca in Hajji season. Having many high-speed boats been deployed in recent years, those will continue to be the major passenger ferry routes in Red Sea just as for the cargoes/vehicles. In addition to the above, 400,000 of leisure cruise passengers are getting on/off at Red Sea ports; Safaga as a tourism base for Luxor/Aswan of Upper Egypt, and Shalm El-Sheikh for Sinai. Some of the cruise ships come from Europe to Red Sea through Mediterranean Sea and Suez Canal.

4.2. CAPACITY REQUIREMENT AND FUTURE PORT DEVELOPMENT

The JICA Study Team analyzed the need to expand capacity of container terminals in Egypt. The capacity of the existing facilities and known expansion projects can be estimated with a reasonable degree of accuracy for container terminals. Currently, productivity of the existing container terminals except East Port Said is not high compared with advanced ports in the region (Table 4.2.1). In order for Egyptian ports to remain competitive with ports in the region and continue to be regional hubs, their productivity needs to catch up with that of competitors.

Table 4.2.1 Productivity of the Existing Container Terminals

Port	Container throughput (TEU) in 2009	Terminal facility			Productivity		
		Berth length (m)	Terminal area (m2)	Gantry cranes	TEU/m	TEU/m2	TEU/ gantry
Alexandria	615,977	900	273,000	7	684	2.3	87,997
El-Dekhila	661,456	1,552	596,000	9	426	1.1	73,495
Damietta	1,139,018	1,050	620,000	10	1,085	1.8	113,902
West Port Said	760,967	1,320	467,130	7	576	1.6	108,710
East Port Said	2,539,984	1,200	600,000	12	2,117	4.2	211,665
Sokhna	427,879	750	200,000	4	571	2.1	106,970
Total	6,145,281	6,772	2,756,130	49			

Source: JICA Study Team

Table 4.2.2 Productivity of Container Terminals of Hub Ports in the Region

Port	Container throughput (TEU) in 2008	Terminal facility			Productivity		
		Berth length (m)	Terminal area (m2)	Gantry cranes	TEU/m	TEU/m2	TEU/ gantry
Dubai	11,827,299	4,875	3,536,905	50	1,582	3.3	149,713
Gioia Tauro (Italy)	3,467,772	3,011	1,300,000	18	1,152	2.7	192,654
Marsaxlokk (Malta)	2,334,182	2,158	680,000	23	1,082	3.4	101,486

Source: JICA Study Team

Judging from the productivity of regional container hubs, the JICA Study Team proposes the following productivity figures for estimating the maximum handling capacity of the existing container terminals.

- 1,300 TEU/m
- 3 TEU/m2
- 150,000 TEU/gantry

Since SCCT in East Port Said is providing highly efficient terminal operation, the productivity recorded in 2009 is adopted for this terminal. With these figures, the maximum capacity of the existing terminals is calculated and compared with their declared capacity (Table 4.2.3). The result indicates the existing terminals can handle roughly nine million TEU, or two million TEU more than the declared capacity, if appropriate measures are taken. Necessary measures for achieving this target will differ depending on the port but one can make an educated guess by comparing the three calculated figures. Taking El-Dekhila as an example, the capacity estimated from berth length is far greater than that estimated from the number of gantries. This suggests that the terminal capacity of this port can be increased through the introduction of additional gantries. Other than the upgrading of hard-ware, improvement of soft-ware such as training of crane operators and optimization of yard planning, and effective use of EDI system needs to be considered to achieve maximum capacity.

Table 4.2.3 Capacity Estimate of the Existing Facility

Port	Declared capacity	Maximum capacity		
		Estimated from 1,300 TEU/m	Estimated from 3 TEU/m2	Estimated from 150,000 TEU/gantry
Alexandria	620,000	1,170,000	819,000	1,050,000
El-Dekhila	720,000	2,017,600	1,788,000	1,350,000
Damietta	α (N.A.)	1,365,000	1,860,000	1,500,000
West Port Said	895,500	1,716,000	1,401,390	1,050,000
East Port Said	2,700,000	2,539,984	2,539,984	2,539,984
Sokhna	1,100,000	975,000	600,000	600,000
Total	6,035,500 + α	9,783,584	9,008,374	8,089,984

Source: JICA Study Team

The future capacity of the Egyptian container ports is then estimated including the additional capacity to be provided by the known expansion projects (Table 4.2.4). The result indicates the container ports in Egypt will be able to handle up to 20 million TEU with those projects, more than three times as many boxes as the present throughput. The previous JICA Study9 estimated the future capacity of container terminals to be 25.5 million TEU in 2022. The difference between the two estimates is mostly attributable to whether or not further expansion of East Port Said beyond the phase-2 is included; the previous study estimated this expansion would add another 6.6 million TEU. Except for this, the two estimates give almost identical results.

[9] The Study on Multimodal Transport and Logistics System of The Eastern Mediterranean Region and Master Plan, August 2008

Table 4.2.4 Estimate of the Future Capacity

Port	Future terminal facility			Future capacity		
	Berth length (m)	Terminal area (m2)	Gantry cranes	Estimated from 1,300 TEU/m	Estimated from 3 TEU/m2	Estimated from 150,000 TEU/gantry
Alexandria	900	273,000	7	1,170,000	819,000	1,050,000
El-Dekhila	2,252	841,000	16	2,927,600	2,523,000	2,400,000
Damietta	3,350	620,000 + β (N.A.)	33	4,355,000	1,860,000 +3 β	4,950,000
West Port Said	1,320	467,130	7	1,716,000	1,401,390	1,050,000
El-El-Arish	900	360,000	9	1,170,000	1,080,000	1,350,000
East Port Said	2,400	1,200,000	24	5,079,968	5,079,968	5,079,968
Adabiya	900	550,000	9	1,170,000	1,650,000	1,350,000
Sokhna	2,050	1,074,000	20	2,665,000	3,222,000	3,000,000
Total	14,072	5,385,130+ β	125	20,253,568	17,635,358 +3 β	20,229,968

Source: JICA Study Team

1) Judging from the configuration of the port, the new terminal in El-Dekhila is assumed to have a 700 m quay, 122,500 m2 terminal, and 7 gantries
2) Phase-1 of the DIPCO project is considered for Damietta
3) Judging from the configuration of the port, the new terminal in El-El-Arish is assumed to have a 900 m quay, 360,000 m2 terminal, and 9 gantries
4) Phase-2 of SCCT is considered for East Port Said
5) 2nd basin is considered for Sokhna

Currently, Egyptian container ports are providing different functions and services depending on the port (Table 4.2.5). Factors differentiating those ports include the location, berth depth, and strategy of the terminal operators/shipping companies. Among them, the port's location relative to the Suez Canal will continue to be a determining factor well into the future. Ports located to the north of the Suez Canal will continue to be potential transshipment hubs covering the Eastern Mediterranean as well as gateways to the Cairo/Alexandria metropolitan area. Ports located to the south of the Canal will prosper as gateways for the cargo to/from Asia serving the Cairo metropolitan area.

On the other hand, the strategy of shipping companies may change as exemplified by the recent move of Maersk Line from Damietta to East Port Said. Since the development of new container terminals entails a large amount of investment, the public sector needs to minimize the risk arising from a policy change of shipping companies. Transshipment cargo is particularly affected by such policy changes. PPP is one of the measures to lessen the risk borne by the public sector.

Table 4.2.5 Current Functions of Egyptian Container Ports

Port	Location relative to the Suez Canal	Service	Cargo	TEU size band	Shipping company operating the largest vessels in the port
Alexandria	North	Mediterranean and European ports	Local	1,000-5,000	MSC
El-Dekhila	North	Europe-Asia trunk line	Local	6,000	Evergreen
Damietta	North	Europe-Asia trunk line Feeder service	Transit	2,000-8,000	CMA-CGM
Port Said (East and West)	North	Europe-Asia trunk line Feeder service	Transit	1,000-10,000	Maersk CSCL/Evergreen
Sokhna	South	Red Sea ports Red Sea-Asia	Local	2,000-5,000	APL

Source: JICA Study Team

Throughput of containers, both local and transit, has shown a very rapid annual growth of 18-19 % during the last six years (Table 4.2.6, Table 4.2.7). Growth of local containers is known to have a strong correlation with GDP growth. Though the multiplier applied to GDP growth has been around 3.0 in Egypt (Table 4.2.8), it will decline as containerization progresses as elsewhere in the world. Just for reference, this figure is much higher than the future projection for the South Europe and Mediterranean container market (an increase of 6-7 %/year for 2010-2020) estimated by an international shipping consultant

Table 4.2.6 Growth of Local Containers

(TEU)

Port	2003	2004	2005	2006	2007	2008	2009	Average growth rate
Alexandria	386,847	369,270	427,688	400,326	460,373	532,585	609,285	7.9%
El-Dekhila	84,743	228,571	282,210	322,431	458,152	628,694	614,552	39.1%
Damietta	109,126	150,330	145,130	140,653	149,850	207,195	201,609	10.8%
West Port Said	123,544	138,769	177,578	230,312	263,869	262,472	266,202	13.6%
East Port Said	0	35	6,255	59,155	92,765	145,120	173,689	-
Suez	371	261	260	25	158	481	775	13.1%
Adabiya	5,460	4,378	4,147	6,677	15,746	22,851	29,884	32.8%
Sokhna	135,441	187,700	223,955	257,325	355,420	405,668	374,501	18.5%
Total	845,532	1,079,314	1,267,223	1,416,904	1,796,333	2,205,066	2,270,497	17.9%

Source: MTS

Table 4.2.7 Growth of Transit Containers

(TEU)

Port	2003	2004	2005	2006	2007	2008	2009	Average growth rate
Alexandria	15,781	9,596	5,690	6,405	10,961	15,539	6,692	-13.3%
El-Dekhila	7,301	23,974	19,323	6,550	47,528	87,637	46,904	36.3%
Damietta	778,877	997,961	984,523	689,481	744,361	917,774	937,409	3.1%
West Port Said	532,300	727,786	645,753	782,817	779,084	592,155	494,765	-1.2%
East Port Said	0	16,874	692,270	1,588,858	1,620,087	2,186,842	2,366,295	-
Suez	16	29	0	0	0	0	0	-
Adabiya	284	0	0	0	108	1,041	334	2.7%
Sokhna	51,078	49,897	40,135	52,401	78,417	75,949	53,378	0.7%
Total	1,385,637	1,826,117	2,387,694	3,126,512	3,280,546	3,876,937	3,905,777	18.9%

Source: MTS

Table 4.2.8 Multiplier Applied to GDP Growth

	2004	2005	2006	2007	2008
Local container (TEU)	1,079,314	1,267,223	1,416,904	1,796,333	2,205,066
Year-on-year increase of local container (%)	27.6	17.4	11.8	26.8	22.8
Year-on-year increase of GDP (%) 1)	4.1	4.5	6.8	7.1	7.1
Multiplier	6.7	3.9	1.7	3.8	3.2

Source: JICA Study Team

1) GDP based on constant $US

The JICA Study Team analyzed the recent growth of total cargo in major commercial ports. It should be noted that a substantial part of the growth of port traffic was attributable to East Port Said, most cargo of which is transshipment containers (Table 4.2.9). After subtracting the throughput of East Port Said, the average growth rate is a modest 6.3 %, close to GDP growth during the period and in a sharp contrast with the 17.9 % growth of local containers. This indicates that port cargoes have rapidly been containerized and saturation of containerization is expected in the near future bringing down the multiplier. In fact, CUBE came up with an average local container growth rate of 5.7 % through 2010-2027. In order to avoid excessive investment as well as terminal capacity shortage, the Study Team suggests that the multiplier should be monitored for a few years before taking a decision on new port development involving a large public investment.

Table 4.2.9 Growth of Total Cargo

(000 ton)

	2003	2004	2005	2006	2007	2008	2009	Average growth rate (2003-2009)
Alexandria	23,410	18,062	19,943	21,084	20,234	20,324	22,096	
El-Dekhila	7,821	17,353	20,812	19,297	25,121	24,589	23,354	
Damietta	20,033	22,506	25,860	25,341	26,096	26,604	29,337	
West Port Said	8,032	9,423	8,988	11,168	11,007	9,569	8,895	
East Port Said	0	49	5,813	14,116	14,103	19,841	22,882	
Suez	629	716	675	1,085	537	365	391	
Adabiya	3,605	5,320	5,641	5,002	4,858	5,143	6,381	
Sokhna	2,711	3,758	3,832	3,842	4,907	4,516	4,919	
Total (A)	66,241	77,187	91,565	100,933	106,864	110,951	118,255	
Total except East Port Said (B)	66,241	77,138	85,752	86,818	92,761	91,111	95,373	
Year-on-year increase of A		16.5%	18.6%	10.2%	5.9%	3.8%	6.6%	10.1%
Year-on-year increase of B		16.4%	11.2%	1.2%	6.8%	-1.8%	4.7%	6.3%

Source: JICA Study Team

The JICA Study Team went on to examine the future balance of the terminal capacity. The following steps were taken to estimate future container cargo volume.

- CUBE provided port-wise cargo volume in 2027 with the break-down into 11 cargo groups
- Group-wise containerizable cargo ratio was calculated for the national total cargo and then applied to the cargo of each port
- The national total container volume provided by CUBE was used as the control total to come up with the containerization ratio for containerizable cargo
- Port-wise local container volume was calculated based on the containerization ratio and the TEU/weight coefficient (1 TEU=10.5t)

Table 4.2.10 Containerizable Cargo Volume in 2027

Converted into TEU/year

Port	2027		
	Export	Import	Total
West Port Said	232,257	627,876	860,133
Damietta Port	1,341,672	2,807,433	4,149,105
East Port Said	222,869	145,800	368,669
Suez	45,952	11,138	57,090
Adabiya	224,075	117,271	341,346
El-Dekhila	547,046	5,285,992	5,833,038
Alexandria	987,763	4,133,999	5,121,762
Safaga	179,763	285,427	465,189
El-Arish	231,606	26,463	258,069
Nuwaiba	85,355	60,653	146,008
Sokhna	962,627	373,610	1,336,236
Hamrawein	157,387	0	157,387
AbuGhosoun	4,000	0	4,000
Total	5,222,372	13,875,662	19,098,033

Source: JICA Study Team based on CUBE

Table 4.2.11 Control Total of Container Volume in 2027

Container (Inbound)	t/day	125,165	0
Container (Outbound)	t/day	0	61,923
Container (Inbound)	t/year	45,685,298	0
Container (Outbound)	t/year	0	22,601,828

Source: JICA Study Team based on CUBE

Table 4.2.12 Local Container Volume in 2027

TEU/year

Port	Export	Import	Total
West Port Said	95,732	196,883	292,614
Damietta Port	553,010	880,325	1,433,335
East Port Said	91,862	45,718	137,580
Suez	18,941	3,492	22,433
Adabiya	92,359	36,773	129,132
El-Dekhila	225,481	1,657,524	1,883,006
Alexandria	407,136	1,296,295	1,703,431
Safaga	74,094	89,501	163,595
El-Arish	95,463	8,298	103,761
Nuwaiba	35,182	19,019	54,200
Sokhna	396,775	117,153	513,928
Hamrawein	64,872	0	64,872
AbuGhosoun	1,649	0	1,649
Total	2,152,555	4,350,981	6,503,536

Source: JICA Study Team based on CUBE

Transit container should then be considered. Since CUBE does not provide transit container volume, an independent estimation is required. While throughput of local containers is mostly induced by the economic growth of the country, transshipment demand is rather determined by the strategy of shipping companies and terminal operators. Though changes in their strategy are hard to predict, container ports in Egypt need to at least have capacity enough to cater for local containers. For the sake of the Egyptian economy, the terminal capacity, if it is limited, is better allocated to local containers. In this regard, the Study Team added the transit container volume in 2010 to local container volume 2027 as the first step (Case A).

Table 4.2.13 Total Container Volume in 2027 (Case A)

TEU/year

	Export	Import	Transit	Total	Future Capacity 1)
West Port Said	95,732	196,883	681,603	974,217	1,383,000
Damietta Port	553,010	880,325	875,066	2,308,401	4,652,500
East Port Said	91,862	45,718	2,467,038	2,604,618	5,079,968
Suez	18,941	3,492		22,433	N.A.
Adabiya	92,359	36,773	19	129,151	1,260,000
El-Dekhila	225,481	1,657,524	38,836	1,921,842	2,663,800
Alexandria	407,136	1,296,295	9,084	1,712,515	1,110,000
Safaga	74,094	89,501		163,595	N.A.
El-Arish	95,463	8,298		103,761	1,260,000
Nuwaiba	35,182	19,019		54,200	N.A.
Sokhna	396,775	117,153	68,712	582,640	2,832,500
Hamrawein	64,872	0		64,872	N.A.
Abu Ghosoun	1,649	0		1,649	N.A.
Total	2,152,555	4,350,981	4,140,358	10,643,894	20,241,768

Source: JICA Study Team based on CUBE

1) Average of the estimation based on 1,300 TEU/m and 150,000 TEU/gantry

In Case A, the future container volume falls well within the terminal capacity as a whole. Looking closer at the balance in each port, one will find some ports such as Alexandria where cargo volume exceeds the capacity. However, Alexandria and El-Dekhila can be regarded as one port and thus will be jointly able to handle the cargo demand. By the same token, Adabiya can accommodate the cargo demand at nearby Suez. The container cargo estimated for Safaga and Hamrawein should be consolidated at Safaga or Sokhna because the estimated volume at the two ports is small. At least in an early stage of the planning horizon, these containers should be handled at Sokhna because the volume estimated for that stage is too small to justify container vessel calls at Safaga. The Study Team suggests that expansion/improvement of Safaga should be studied in a later stage taking into account the actual trend of container cargo to/from Upper Egypt. Estimated cargo volume at Nuwaiba is also too small to justify container vessel calls and port investment.

As the next step (Case B), the Study Team applied the annual growth rate of local containers (5.7 % through 2010-2027, based on CUBE) to transit container (Table 4.2.14). In Case B, the future container volume still falls within the terminal capacity as a whole but capacity shortage is found in West Port Said and East Port Said. Due to geographical conditions, new port development will be difficult in West Port Said. Consequently, if transit container increases as in Case B, the overflow transit containers will need to be handled in East Port Said. In this case, further expansion of East Port Said beyond phase-2 will be needed.

Table 4.2.14 Total Container Volume in 2027 (Case B)

TEU/year

	Export	Import	Transit	Total	Future Capacity 1)
West Port Said	95,732	196,883	1,743,784	2,036,398	1,383,000
Damietta Port	553,010	880,325	2,238,731	3,672,066	4,652,500
East Port Said	91,862	45,718	6,311,565	6,449,145	5,079,968
Suez	18,941	3,492	0	22,433	N.A.
Adabiya	92,359	36,773	49	129,180	1,260,000
El-Dekhila	225,481	1,657,524	99,356	1,982,362	2,663,800
Alexandria	407,136	1,296,295	23,240	1,726,671	1,110,000
Safaga	74,094	89,501	0	163,595	N.A.
El-Arish	95,463	8,298	0	103,761	1,260,000
Nuwaiba	35,182	19,019	0	54,200	N.A.
Sokhna	396,775	117,153	175,790	689,717	2,832,500
Hamrawein	64,872	0	0	64,872	N.A.
Abu Ghosoun	1,649	0	0	1,649	N.A.
Total	2,152,555	4,350,981	10,592,515	17,096,051	20,241,768

Source: JICA Study Team based on CUBE

1) Average of the estimation based on 1,300 TEU/m and 150,000 TEU/gantry

(Conclusion)

The combined capacity of the existing container terminals and known expansion projects will be basically sufficient to cater for the container cargo estimated for 2027. Considering the difficulty of port expansion, Alexandria, El-Dekhila, and Damietta should be focused to local containers for the Cairo/Alexandria metropolitan area. Transit containers and local containers to/from Upper Egypt should be monitored through the planning span. In case transit containers overflow the terminal capacity, East Port Said will be the right port to handle the excess and need further expansion. If local containers to/from Upper Egypt increase up to a volume large enough to justify container vessel calls, redevelopment/expansion of Safaga should be considered.