5.3 Conclusions and Recommendations

5.3.1 Port Management and Operation in Egypt

(1) Enforcement of Control Power of Maritime Transport Sector

Each Port Authority is proceeding with their own development projects based on their own plans, which are not harmonized with each other. The Maritime Transport Sector should play a role in coordinating and controlling all development projects in Egyptian ports. However, the sector is not performing this role at present. The situation results in duplication to function of ports and result in excess-investment for ports. Moreover, Egyptian Ports will be less competitive in attracting foreign operators. Thus, The JICA Study Team recommends enforcing the authority of the Maritime Transport Sector to coordinate and control the whole port sector development.

In addition, a Master Plan Study for all Egyptian container ports, including Alexandria Port, Dekheila Port, Damietta Port, Port Said Port (West), Port Said Port (East) and Sokhna Port, is needed immediately, because container terminal development projects are in progress without sufficient central coordination.

(2) Combination of Port Authority and Container Handling Company

The JICA Study Team recommends combining the Port Authorities under the Ministry of Transport and the Government Container Handling Companies under the Ministry of Investment to be one organization for each port. In that case, prompt action would be possible as happens at Sokhna Port, because the decision maker is one organization. Moreover, there is a possibility that this combination would produce a simple tariff, because one organization would collect port charges and container handling charges from shipping agents.

(3) Reform of Tariff System

As discussed above, there are two currency tariffs in the Managerial Decrees, for example the Managerial Decree No. 156 for Port Said Port (West) in 1999. Sokhna Port follows the decree, while the other Egyptian container terminals regard foreign vessels as domestic ones and do not follow the decrees. Therefore, the JICA Study Team recommends unifying the tariff, whether it is in USD or Egyptian Pound, at the Egyptian container terminals considering its revision, and applying the "CY/CY" system to the tariff calculation at the Egyptian container terminals in order to avoid double charging for unloading.

5.3.2 Sea Ports in Egypt

Table 5.3.1 shows the recent shares of container handling volume at each group of ports, namely, Alexandria and Dekheila Ports, Damietta Port, Port Said Port (West) & (East), Sokhna Port and others. It is evident that the share of container handling volume at Alexandria and Dekheila Ports has decreased in the three years, even though the total handling volume has not changed so much. Instead, the share of container handling volume at Port Said Port (West) & (East) and Sokhna Port have been increasing. This means that the increase in container volume has been shifted from Alexandria and Dekheila Ports to Port Said Port (West) & (East)

and Sokhna Port, because consignees have been trying to reduce the cost and time for transport. It can be observed that container handling has been shifted to ports closer to the international shipping route.

In the mean time, it is necessary to observe carefully later on whether this trend of shifting local containers from Alexandria and Dekheila Ports to Port Said Port (West) & (East) and Sokhna Port is temporary or permanent.

Table 5.3.1 Share of Container Handling Volume (Export and Import)

Unit: TEU

	2004		2005		2006	
	Volume	Share	Volume	Share	Volume	Share
Alexandria and Dekheila Ports	597,597	55%	708,870	56%	419,518	38%
Damietta Port	150,329	14%	145,081	11%	140,534	13%
Port Said Port (West) & (East)	138,326	13%	183,832	15%	290,474	26%
Sokhna Port	187,700	17%	223,955	18%	256,447	23%
Others	4,638	0%	4,376	0%	6,702	1%
TOTAL	1,078,590	100%	1,266,114	100%	1,113,675	100%

Source: Website of Maritime Transport Sector (www.mts.gov.eg)

The terminal handling capacities of each container terminal are shown in Table 5.3.2 based on the preliminary estimate by the JICA Study Team. Those in 2022 have considered the improved handling productivity discussed in the Sub-section 5.2.5.

Table 5.3.2 Preliminary Estimate of Future Terminal Capacity

Container Terminal	2007			2010			2022		
	Whole Terminal Capacity (TEU)	Transshipment ratio	Terminal Capacity allotted for Local Containers (TEU)	Whole Terminal Capacity (TEU)	Transshipment ratio	Terminal Capacity allotted for Local Containers (TEU)	Whole Terminal Capacity (TEU)	Transshipment ratio	Terminal Capacity allotted for Local Containers (TEU)
Alexandria and Dekheila Ports			**1,447,000**			**2,143,000**			**2,700,000**
Alexandria terminal (Gov.)	500,000	1%	495,000	500,000	1%	495,000	630,000	1%	620,000
Alexandria terminal (AICT)	300,000	1%	297,000	585,000	1%	579,000	700,000	1%	690,000
Dekheila terminal (Gov.)	500,000	7%	465,000	500,000	5%	475,000	720,000	5%	680,000
Dekheila terminal (AICT)	200,000	5%	190,000	625,000	5%	594,000	750,000	5%	710,000
Damietta Port			**180,000**			**500,000**			**1,400,000**
Damietta terminal (Gov.)	1,200,000	85%	180,000	1,200,000	75%	300,000	1,500,000	60%	600,000
Damietta terminal (KGL.,	-	90%	-	2,000,000	90%	200,000	4,000,000	80%	800,000
Port Said Port			**257,000**			**580,000**			**5,070,000**
Port Said West terminal (Gov.)	850,000	75%	213,000	1,200,000	70%	360,000	1,500,000	50%	750,000
Port Said East terminal (SCCT)	2,200,000	98%	44,000	4,400,000	95%	220,000	5,100,000	80%	1,020,000
Future Plan (planned)							6,600,000	50%	3,300,000
Sokhna Port			**425,000**			**560,000**			**3,200,000**
Sokhna terminal (SPDC)	500,000	15%	425,000	700,000	20%	560,000	1,000,000	20%	800,000
Sokhna terminal (Private)							3,000,000	20%	2,400,000
TOTAL	6,250,000		**2,309,000**	11,710,000		**3,783,000**	25,500,000		**12,370,000**

Source: Maritime Transport Sector, AICT, SCCT, SPDC, and forecasted by JICA Study Team

As discussed in the Section 3.3 Freight Demand Forecast for Export and Import, the total cargo volume for export and import has been forecasted at more than 200 million tons in 2022, including 11 million tons of containerizable cargo. Roughly assumed that the future containerization ratio is 60% and the weight of 1 TEU is equal to 10 tons, the container volumes will be 6.6 million TEU. In addition, assumed that a loaded container and empty

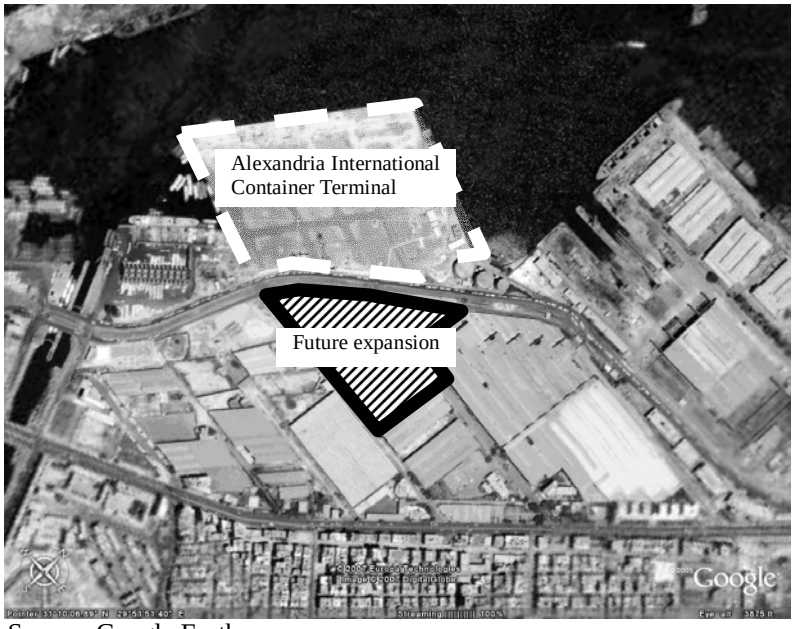
container have a two-one ratio, 9.9 million TEU of containers for export and import will be handled at Egyptian container terminals. Also, transhipment containers have been forecasted at 10.4 million TEU in 2022. The JICA Study Team confirmed that the total terminal capacity would meet the demand of 20.3 million TEU in 2022 if future development plans are implemented.

Alexandria and Dekheila Ports already have enough terminal capacity for handling local containers in 2020. This means additional container yards will not be required but the improvement of handling capacity such as replacing deteriorated handling equipment with new equipment, acquiring additional yard for empty containers, etc should be implemented.

(1) Alexandria Port

a) Container Yard Expansion (AICT)

The hatched area in Figure 5.3.1, just behind Alexandria Container Terminal (AICT), should be converted to an inland container depot or empty container yard for AICT.



Source: Google Earth

Figure 5.3.1 Alexandria International Container Terminal

b) Renewal of Gantry Cranes and Installation of Additional RTGs (Government terminal)

Three gantry cranes should be replaced by new ones and three RTGs should be additionally installed.

c) Upgrading of Container Yard Pavement (Government terminal)

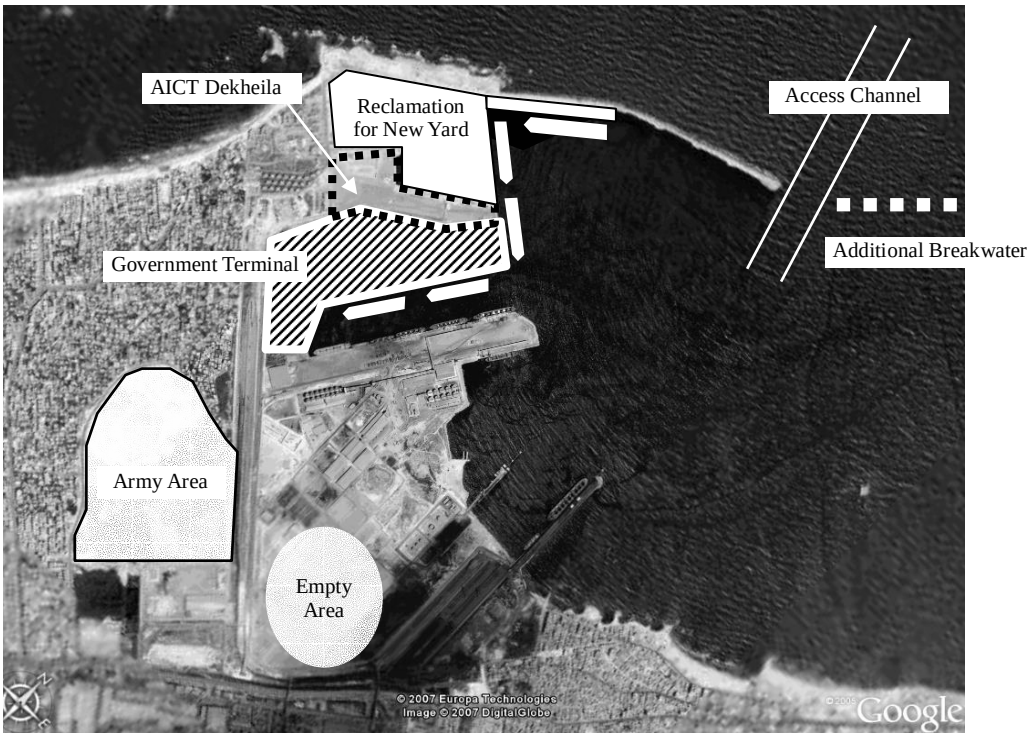
The yard pavement should be upgraded with clear markings on the surface so each container can be stacked in order.

(2) Dekheila Port

a) Unity between Government Terminal and AICT Dekheila

According to the news, an agreement has been reached between Hutchison Port

Holdings (HPH) and Chinese shipping lines and the Port Authority agreed with them. AICT Dekheila has such a narrow container yard that it is difficult, even for HPH, to conduct an efficient operation. As a result, the JICA Study Team recommends that the two terminals should be united into one.



Source: Google Earth

Figure 5.3.2 Government Terminal and AICT Dekheila

b) Acquisition of Additional Container Yard

To conduct a modern container operation, the additional container yards are required near the terminal. Two areas have been found out by site reconnaissance. One is an empty area inside the port area. This area is near the coal terminal and dust will be harmful to container handling equipment. Therefore, the container yard should be kept some distance from bulk terminals such as the coal terminal.

Another area belongs to the army. The JICA Study Team recommends that the Port Authority should negotiate with the army to rent the land for a container yard.

c) Construction of Additional Breakwater

The JICA Study Team recommends building the additional breakwater to reduce waves and ensure calm conditions for berthing and cargo handling not only for the container terminals but also for bulk terminals. The study of an additional breakwater to the one proposed should be carried out before finalizing the layout of breakwater.

d) May Need Further Examination of New AICT Development

The JICA Study Team recommends re-considering new AICT development, because Port Said Port (East) has the geographical advantage over Dekheila for the transhipment business. In addition, huge land area is available for container yards at

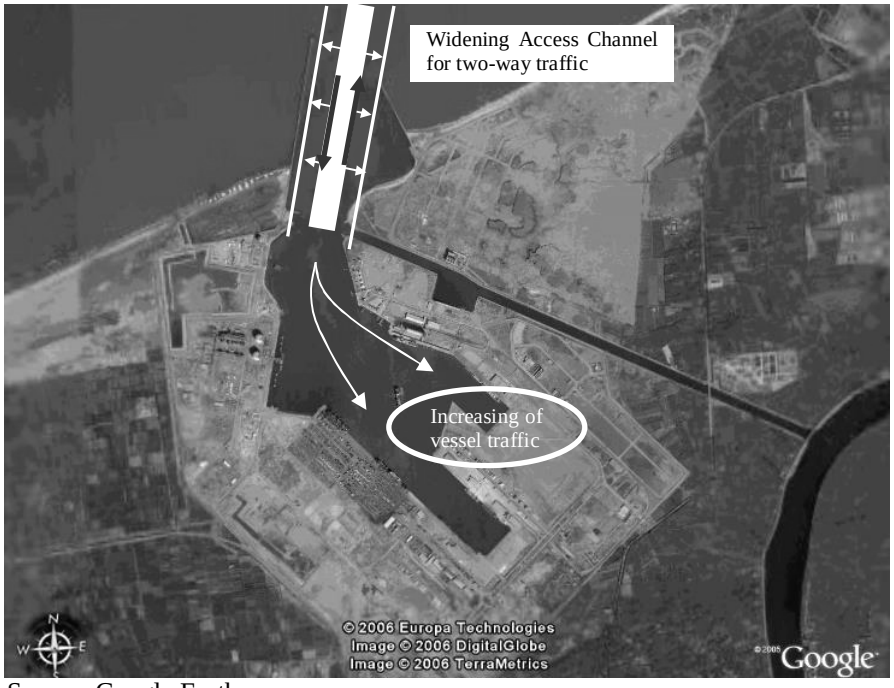
Port Said Port (East). Container vessels cannot reach the existing AICT due to insufficient width of the basin in front of the quay, once the new terminal is constructed. It is also difficult to access to/from the land and to coordinate with the existing AICT because of the isolated location of new terminal.

However, if governmental policy is to construct the new container terminal, the JICA Study Team recommends modifying the layout such as sketched in Figure 5.3.2.

(3) Damietta Port

a) Upgrading of Access Channel to Increase Channel Capacity

Once KGL terminal will start the operation, vessel traffic will suddenly increase. Also, the channel will be deepened from -14.5 m to -18.0 m to receive large container vessels to KGL terminal. The JICA Study Team recommends upgrading the existing channel for two-way traffic step by step. This means the first step is deepening all channels and widening only the outer channel (outside the breakwaters) from 300 m to 400 m and the second step is widening the inner channel (inside the breakwaters) from 200 m to 350 m. The Port Authority should conduct a study on channel capacity and design of the breakwater layout. The existing breakwaters are needed to offset out of the channel in the second step.



Source: Google Earth

Figure 5.3.3 Damietta Port Rehabilitation Plan

b) Numerical Simulation Study for Sedimentation

The JICA Study Team recommends that the Port Authority should conduct a numerical simulation study immediately to determine the countermeasures for large sedimentation, even though the reason is due to the insufficient length of breakwaters. The objectives of the study will be;

- To assess the previous studies,

- To conduct the additional field surveys,
- To conduct the sedimentation simulation by using numerical model, and
- To determine the countermeasures.

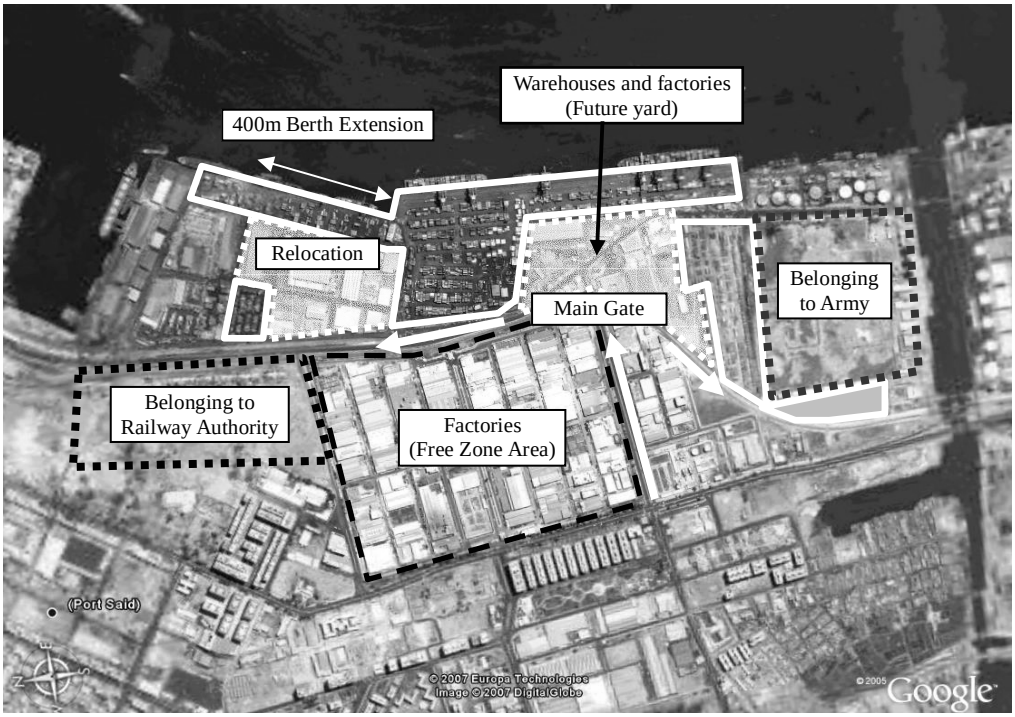
c) Yard Expansion (KGL)

The JICA Study Team recommends expanding the container yard of the KGL terminal. Otherwise, the yard operation can not be performed efficiently because containers have to be stacked high in five or six tiers due to the narrow yard.

(4) Port Said Port (West)

a) Expansion of Container Yard and Re-allocation of Public Road

As discussed in the Sub-section 5.2.4, the bottleneck at Port Said Port (West) is narrow container yard, even though the Port Authority and Container Handling Company are trying to shift warehouses and factories, indicated as "Under relocation" in Figure 5.3.4, out of the port area. At present, there are empty areas belonging to Army and Port Said City. The Container Handling Company should request them to lease such areas as container yards in order to increase the terminal handling capacity. Also, Port Authority should relocate remaining warehouses and factories, indicated as "Future yard" in Figure 5.3.4, just behind the container terminal to the other place to expand the container yard. The existing public road behind the terminal should be re-allocated along the outline of container terminal with one-way traffic. Enough parking area should be also provided.



Source: Google Earth

Figure 5.3.4 Port Said West Container Terminal

b) Deep Berth Construction by 400 m

The JICA Study Team recommends creating a 400 m berth with a depth of -16 m in front of the existing berth with a depth of -9.2 m. The Ministry of Investment should make decision to construct the 400 m berth as soon as possible. Otherwise, the CKYH Alliance, namely COSCO, K-Line, Yang Ming and Hanjin Shipping will shift their hub base from Port Said Port (West) to other port.

c) Set-up of New Main Gate

In harmony with the above re-alignment of the public road, the main gate should be set-up around the place indicated in Figure 5.3.4. At present, trucks have to turn just in front of the gate to enter the terminal. This is one of the reasons for the traffic congestion. Therefore, the new gate should be located with a straight connection to the road.

(5) Port Said Port (East)

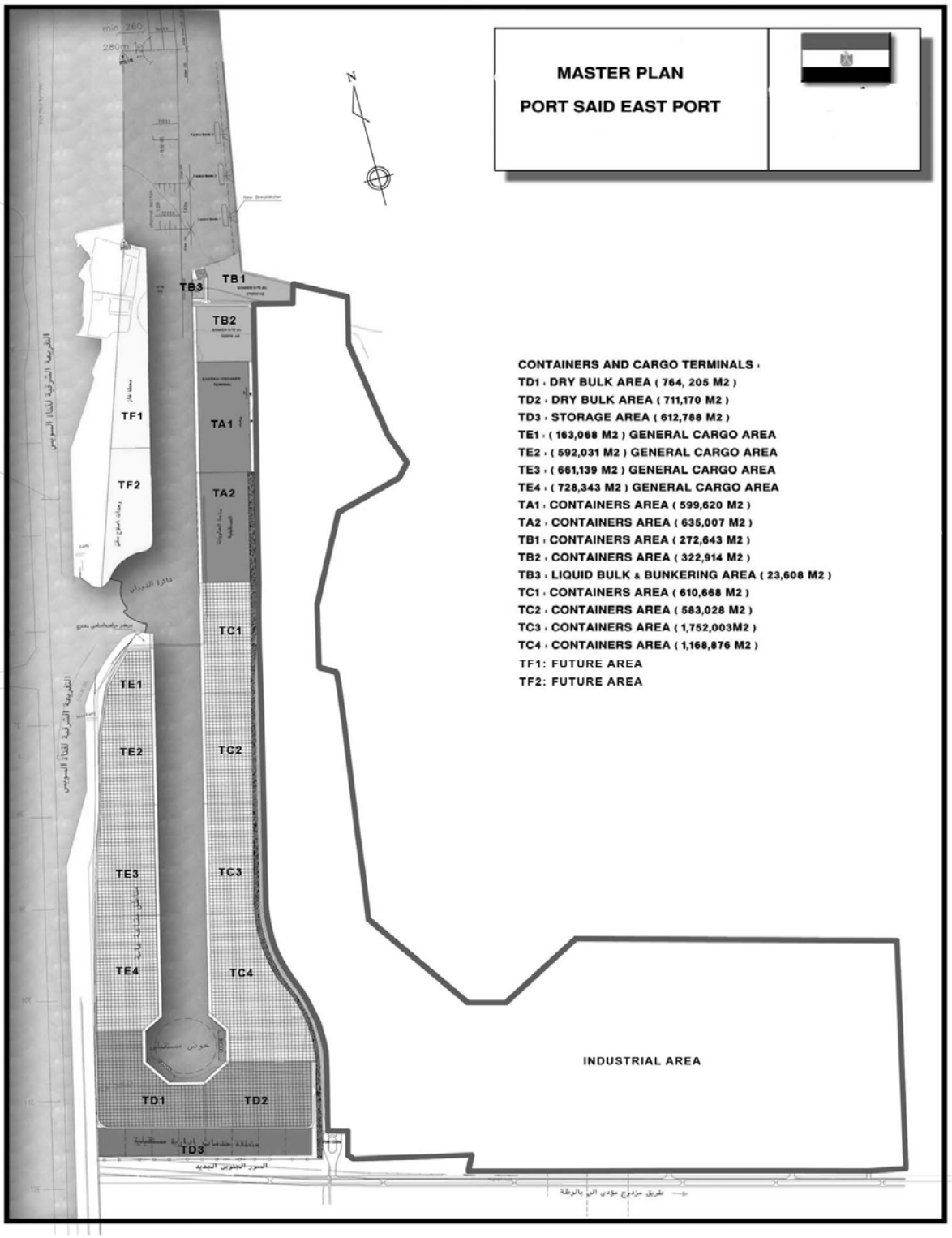
a) Review of Master Plan

The Port Authority has a plan to develop an area of 87 km^2 with a total berth length of 12 km as a world logistics center as shown in Figure 5.3.5.

The planned berth length is enough for future development. However, for such a big container terminal the water area such as the turning basin and approach channel seems to be narrow in consideration of the vessel traffic volume for such big container terminals. There will be the possibility of congestion of vessels and it may hinder smooth navigation to/from Port Said Port (East). The JICA Study Team recommends widening the basin in front of the berths, or to plan additional branch canals from the access channel, an additional turning basin, etc.

The future layout of the industrial area is L-shape. There is a possibility that the road traffic will be congested at the corner of the L-shape if the number of road lanes is not enough for the traffic volume. In the planning of the approach road from the industrial area to the quays, such matters should be taken into consideration. The swamp behind the industrial area should be reclaimed in order to widen the land and to create another route approach to the quays.

The predominant wind direction is North in this area and the surface water in the approach channel will be exposed to the wind and flow mainly from north to south. There is no planned waterway to the Suez Canal at the south end of development area. Therefore, water pollution might be occurred in the approach channel. The JICA Study Team recommends studying a method of water exchange and water quality control.



Source: Port Said Port Authority

Figure 5.3.5 Master Plan of Port Said Port (East)

b) Careful Examination of Location for Bunkering Service

The Suez Canal is a very important international shipping route and cannot be replaced by any other route. Therefore, the risk management for accident, fire incident, etc. is essential not only for Egypt but also for international shipping. Singapore is also located along the international shipping route. However, there are other routes between Asia and Middle East/Europe/USA avoiding Singapore away. In Singapore, no bunkering areas are located beside container terminals, even though there is no clear requirement for buffer zone in bunkering considerations.

Keeping the same argument mentioned above, it should be prohibited to deal with any volatile materials such as methanol and ammonia in the Port Said Port (East). Heavy oil might be acceptable with an appropriate buffer zone and safety measures like special firefighting facilities.

The JICA Study Team recommends discussing thoroughly with Suez Canal Authority, Ministry of Petroleum, Ministry of Environment and SCCT on safety matters, if necessary, together with bunkering specialists, before signing a contract with private company dealing with bunker fuels or dangerous materials.

(6) Sokhna Port

The previous bulk berth has been converted into a container berth and the length of the current container berth is 750 m. The warehouse behind the previous bulk berth is going to be moved to expand the container yard. Sokhna Port has the flexibility to meet the demand. Although there are current obstacles such as the lack of a gantry crane and RTG, Sokhna Port can overcome such obstacles because of its flexibility. Therefore, it is not necessary to recommend any action for the foreseeable future.

5.3.3 Recommended Project List

Table 5.3.3 shows the summary of recommended projects as discussed above.

Table 5.3.3 Summary of Required Functions and Actions at Each Port

Port	Function	Required Development	Actions/Project
Alexandria and Dekheila Ports	Gate for export/ import containers to/from Europe (same as that at present)	To concentrate on improving the handling efficiency	Alexandria 1. Container yard expansion (AICT) 2. Renewal of equipment (Gov.) 3. Upgrading of yard pavement (Gov.)
			Dekheila 1. Unify Gov. and AICT terminals 2. Acquisition of additional yard 3. Examination of breakwater 4. Installation of conveyor system
Damietta Port	Gate for transhipment containers (same as that at present)	To settle the sedimentation problem in the channel and to widen the channel	1. Deepening and widening of access channel 2. Numerical simulation study for sedimentation
Port Said Port (West)	Gate for export/ import containers to/from Europe and Asia, and for transhipment containers to the Eastern Mediterranean and the Black Sea	To expand the container yard	1. Yard expansion and re-allocation of public road 2. 400m berth expansion 3. Set-up of new main gate
Port Said Port (East)	Gate for transhipment containers to the Eastern Mediterranean and the Black Sea, and for export/ import containers to/from EU and Asia	To develop the container berth and yard	1. Review of Master Plan 2. Careful examination on bunkering service
Sokhna Port	Gate for export/ import containers to/ from Asia and Middle East in the Indian Ocean, and transhipment containers to the Red Sea	To develop the container berth and yard	N.A.

Source: JICA Study Team