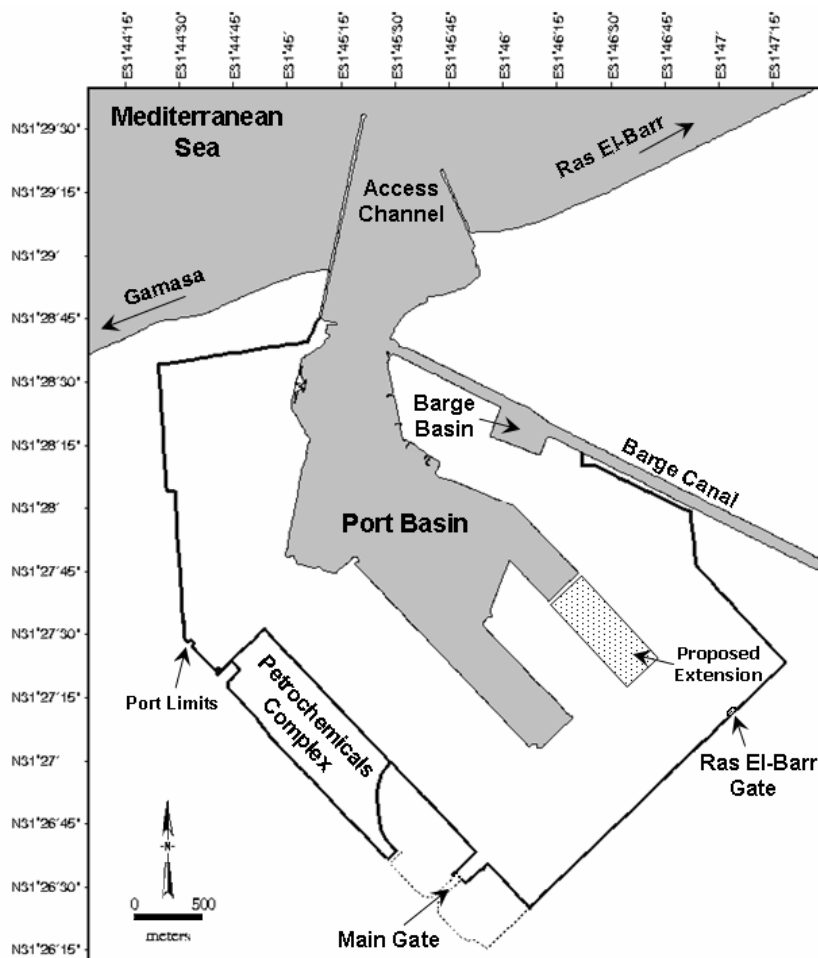


## Chapter 1 INTRODUCTION

The New Damietta port has been established in early eighties and began its operation in July 1987 for the purpose of improving trade facilities and fostering flow of trade-traffic across the Mediterranean coast of Egypt.

The port is situated on the Egyptian Mediterranean coast, about 70 km west of Port-Said and about 8.5 km of Dumyat city. It handles export of agricultural products, fertilizers, and furniture and receipt imported goods such as petrochemicals, cement, grains, flour, and general cargo with a total capacity of about 5.6 million tons annually.

The port is subdivided into two main parts; the shipping area, which is an inland section containing 16 berths and quays, and the water area which composed of an access channel connecting the shipping area with the Mediterranean Sea and the main basin. In order to ease access to inland navigation, the port's basin has been connected to the Rosetta branch of the River Nile through a man-made barge canal of 4.5 km long and 5 m depth (Figure 1).



**Figure 1. Generalized map showing limits of the port and location of the new proposed extension.**

There was some ambitious plans for development of the port and improving its trade facilities. Late in December 2004, the port has linked electronically with other ports to exchange shipping and trade information and hence, became the first port in Egypt to be operated electronically. In this regard, the Port Authority intends, in accordance with the third phase of the port development, to make a new extension to the Grain berth (Figure 1).

According to the Egyptian environmental legislation, each new establishment or project as well as expansion of existing establishment (which is the case of the new extension of the port) must be subject to an "environmental impact assessment" (EIA) before a permit is issued. In this respect, KGL/PI had assigned Wataniya Environmental Services Co. Kuwait (WES) to conduct the necessary EIA study for the new port extension.

The Port of Damietta is about 8.5 km west of Damietta branch of River Nile on the Mediterranean Sea west and about 70 km west of Port-Said Port (Fig. 2). Damietta Harbor is considered as semi closed water body affected mainly from loading/unloading operations, municipal and agricultural wastes resulting from Damietta Governorate. Untreated domestic wastewater with agricultural and industrial wastes still released through a number of drainages and outfalls along the coastal area of study.

The approaching navigational channel at Damietta Port is about 11.3 km long and 300 m wide which gradually decreases till it reaches 250 m at water break and 15 m depth. The channel is marked with 18 buoys which are lit at night, odd numbers on the right and even numbers on the left, There is an external waiting area. The western water break is about 1500 m seaward long and its landward is about 140 m with a total of 1640 m.

The Eastern water break is about 538 m long seaward and about 200 landward with a total of 738 m. The water breaks are protected from the external side the industrial acrid bocks and they are topped by a cement layer. An imaginary line links between the two ends of the external eastern and western break waters for Port dimension (Fig.1). The barge channel consists of two parts one is 1350 m that links the barges dock to the sea and other is 3750 m that links to the dock to the Nile branch.

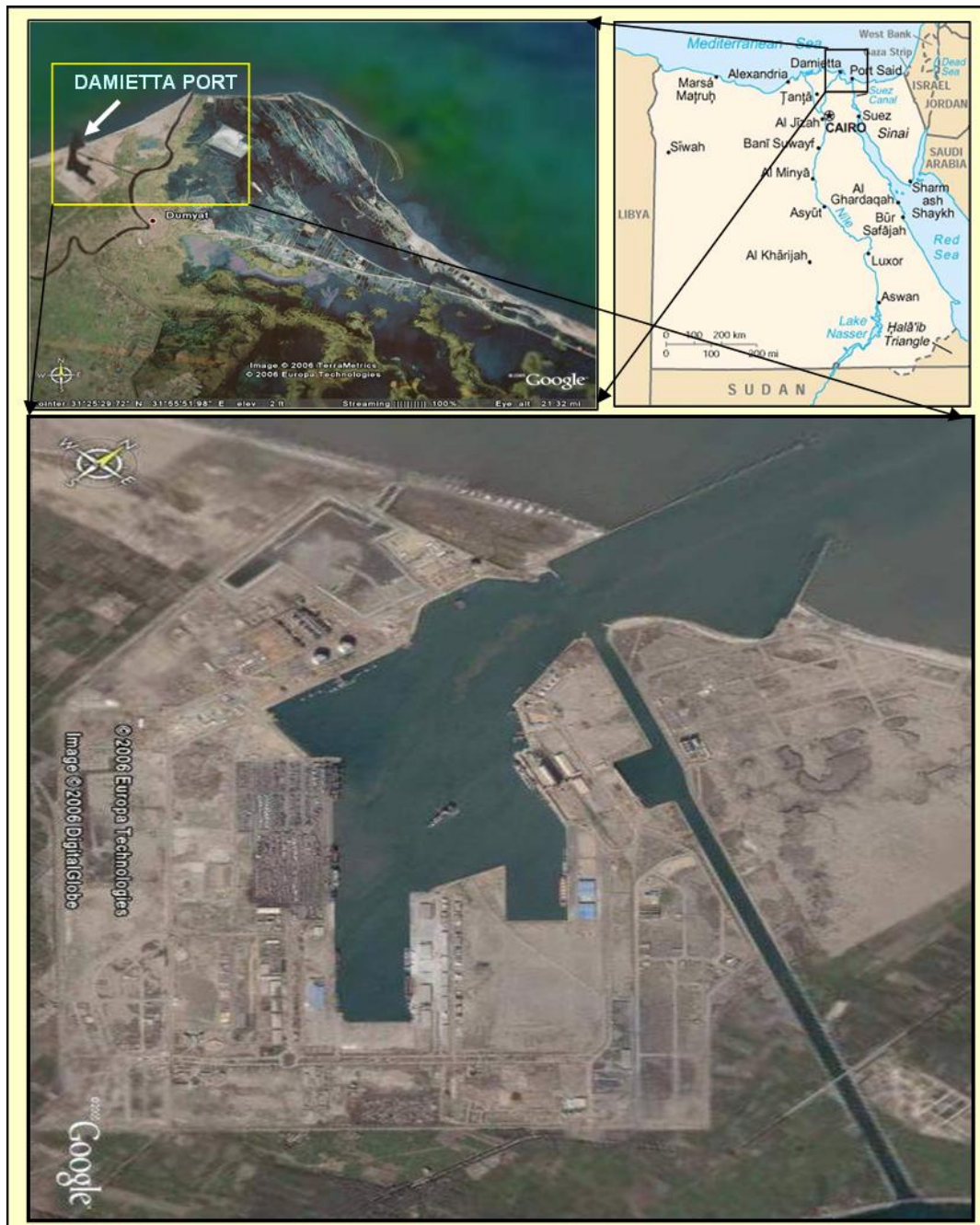
The area of the barge dock is 250 x 250 m and it is equipped with a berth of 250 m long where water depth is 5 m deep. Diameter of the rotation dock is 500 m and its depth is 14.5 m in front of the containers berth and 12 m in front the general cargo berths.

The present project will involve the extension of the harbor area (Fig.3). The area of the extension is about 300 m wide and about 1.5 kilometers long and 17 meters deep. The proposed project will occupy approximately 130 hectares of land at the port. There will be dredging involved for the project, but there will be no changes on the inlet itself. The area has witnessed high amounts of siltation.

The new developments include the construction of a new U-shaped basin with total new terminals of about 2360 m. These new terminals berths will be able to accommodate giant container vessels with maximum draft of 16 m, and a length of 400 m and a width of 53 m. The developments will be at two stages. The first stage will include dredging of the basin and building of the side whole of the northern berth. The total handling capacity of the containers at this stage is 1.5 million TEU annually, with some predication of an increase in the handling capacity during 2009 to about 2.5 million TEU annually. During the second stage, additional land units will be built in order to reach a maximum handling capacity of 4 million TEU annually. According to EEAA, this new stage (Phase II) will need an additional EIA study.

## 2. Importance of EIA

Environmental Impact Assessment is a tool used for decision making regarding projects, developments and programs such as incinerators, airport runways, and power plants. The purpose of Environmental Impact Assessment (EIA) is to give the environment its due place in the decision making process by clearly evaluating the environmental consequences of a proposed activity before any action is taken. In general, an EIA is a process of identifying; predicting, interpreting and communicating the potential impacts that a proposed major project or plan will have on the environment.



**Fig. (2): Image showing the location of Damietta Port-Egypt**



**Fig. (3) Showing the proposed extension area of Damietta Port (Image from Google Earth)**

The EIA process is often described as an assessment of how, negatively or positively, a project affects various impact indicators. It makes sure that environmental issues are raised when a project or plan is first discussed and that all concerns are addressed as a project gains momentum through implementation.

To be of most benefit it is essential that environmental assessment is carried out to determine significant impacts early in the project cycle (i.e., before and during construction works). Once implementation of the project has commenced, the EIA should lead to a mechanism whereby adequate monitoring is undertaken to realize environmental management (Dougherty and Hall, 1995).

EIA is intended to identify the Environmental, Social and Economic impacts of a proposed development prior to decision making. This means that it is easy to identify; the most environmentally suitable option at an early stage, the best practicable environmental option and the alternative processes. The project managers can then address these problems in order to avoid or minimize environmental impacts in conjunction with their project planning. This results in the likelihood of the project planning stages running smoother.

An impact indicator is an element or parameter that provides some sort of measure of the magnitude of environmental impact (Munn, 1975). Examples of different indicators are loss of recreational activities, changes in water quality parameters such as pH and turbidity, or loss of bird communities and vegetation. The measurement may be qualitative or quantitative,

depending on the parameter and the means of evaluating future changes. The evaluation process is usually subject to expert opinions.

In cases where there is a lack of detailed information about the above-mentioned indicators, environmental studies are categorized as environmental assessment (EA). Environmental Assessment is carried out in order to produce an Environmental Statement. The Environmental Statement must include:

- A description of the project: location, design, scale, size etc.
- Description of significant effects.
- Mitigating measures
- A non-technical summary.

The Environmental Baseline Survey (EBS) for the new extension of Damietta Port was based and focused on active main tasks. These main tasks were:

- 1- Land Use
- 2- Demography and Socioeconomics
- 3- Geology, Hydrology and Water Resources
- 4- Soil Characterization
- 5- Coastal Marine Environment
- 6- Terrestrial Ecology
- 7- Meteorology and Ambient Air Pollution
- 8- Noise

**The main objective of the EIA study is:**

*‘To assess the potential impact of the new container terminal at Damietta Port with the use of driven necessary design specifications on the local marine and onshore environment with respect to coastal hydrodynamics, waves, coastal morphology, water quality, marine ecology and air quality ’.*

According to the IFC Performance Standards, the following objectives were undertaken into consideration while performing the EIA processes:

- identify and assess social and environment impacts, both adverse and beneficial, in the project’s area of influence
- avoid, or where avoidance is not possible, minimize, mitigate, or compensate for adverse impacts on workers, affected communities, and the environment
- ensure that affected communities are appropriately engaged on issues that could potentially affect them
- promote improved social and environment performance of companies through the effective use of management systems

**The specific objectives in commissioning this EIA study are:**

- To demonstrate whether the projects, environmentally, meet all local, national and international regulations and guidelines.
- To ensure that the studies (and hence the proposed developments) are acceptable to the EEAA so as to enable the working companies to obtain necessary permits to construct and subsequently operate the Damietta Port Extension and in accordance with all existing and proposed regulation, orders and legislation.
- To ensure that the studies (and hence the proposed developments) are acceptable to international financial lending institutions enabling them to obtain necessary funding to construct and subsequently operate the new Damietta Port Extension in

- accordance with all existing and proposed regulations, orders and legislation and international guidelines.
- To ensure comprehensive understanding of the social and environmental components which are likely be impacted by operating the new Damietta Port Extension.
  - To set-up the mitigation measures that should be followed during construction work as well as during the operation of the project.
  - To set-up the required monitoring program during the live cycle of the project.