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STAFF APPRAISAL REPORT

TUNISIA

THIRD PORT PROJECT

December 28, 1979

Regional Projects Department  
Europe, Middle East and North Africa Regional Office

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CURRENCY EQUIVALENTS

(As of July 3, 1979)

Currency Unit	=	Tunisian Dinar (TD)
TD 1	=	1,000 Millimes (Mils)
US\$1	=	400 Millimes (Mils)
US\$1	=	TD 400,000
TD 1	=	US\$2.50
TD 1 million	=	US\$2,500,000

WEIGHTS AND MEASURES

1 hectare (ha)	=	2.47 acres (ac)
1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 miles (mi)
1 kilogram (kg)	=	2.20 pounds (lbs)
1 metric ton (m ton)	=	2,200 pounds (lbs)

ABBREVIATIONS AND ACRONYMS

BCEOM	-	Bureau Central d'Etudes pour les Equipements d'Outre-Mer (Central Studies Company for Overseas Equipment)
COTUNAV	-	Compagnie Tunisienne de Navigation (Tunisian Shipping Company)
CST	-	Commission Sectorielle des Transports (Transport Sector Commission)
dwt	-	Deadweight Tonnage
EEC	-	European Economic Community
ICB	-	International Competitive Bidding
MPE	-	Ministry of Planning and National Economy (Ministère du Plan et de l'Economie)
MPW	-	Ministry of Public Works (Ministère des Travaux publics)
MTC	-	Ministry of Transport and Communications (Ministère des Transports et des Communications)
OPNT	-	Office des Ports Nationaux Tunisiens (Tunisian National Ports Authority)
SIGMA	-	Société Informatique de Gestion et de Mathématiques Appliquées (Management Information and Applied Mathematics Company - Consultants)
STAM	-	Société Tunisienne d'Acconage et de Manutention (Tunisian Stevedoring and Cargo-Handling Company)
STUDI	-	Société Tunisienne d'Ingénierie (Tunisian Engineering Company - Consultants)

FISCAL YEAR

(of OPNT)

January 1 to December 31

STAFF APPRAISAL REPORT

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This report is based on the findings of the appraisal missions to Tunisia in September-October 1978 and June-July 1979, composed of Messrs. J. Burns (Senior Financial Analyst), G. Unda (Port Engineer), J. Bigosinski (Economist, Consultant), and F. Lefebvre (Port Operations Specialist, Consultant). Mr. T. Pankaj (Transport Economist) assisted in the preparation of this report.

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MAPS

The Ports Subsector	-	IBRD 14530
La Goulette Port Project	-	IBRD 14277
Sfax Port Project	-	IBRD 14034

## I. THE TRANSPORT SECTOR

### A. The Transport System

1.01 Tunisia, with an area of 164,150 km<sup>2</sup>, or about one-quarter of that of France, is bounded by the Mediterranean on the north and east, by Algeria on the west and by Libya on the southeast. In mid-1977 its population was estimated to be about 5.9 million, and it is increasing by about 2.3% per annum. About half of the population is concentrated in the four northeastern coastal provinces of Tunis, Sousse, Sfax and Bizerte where population density approaches 100 per km<sup>2</sup>, compared with fewer than 20 inhabitants per km<sup>2</sup> in the interior. The southern part of the country is largely infertile desert.

1.02 At independence in 1956, Tunisia inherited a relatively well-developed transport system which was adequate to support economic development through the 1960s. However, rapid growth in output and increases in traffic during the last decade now require that greater emphasis be given to the transport sector than in previous years.

1.03 The transport system comprises some 17,600 km of classified roads; 2,000 km of standard- and narrow-gauge railways; five major commercial sea-ports; and five airports, of which three handle international traffic.

1.04 The railways continue to lose traffic to the roads, accounting for 34% of freight traffic other than phosphates and iron ore and 23% of total passenger traffic in 1976, compared with 46% and 30% in 1967. Total cargo handled by the five major ports increased from 8.9 million m tons in 1972 to 11.0 million m tons in 1978, or an average annual growth rate of about 4%. Due mainly to the development of tourism, total air passenger traffic increased from 840,000 passengers in 1970 to 2,500,000 passengers in 1977, or an average annual growth rate of about 29%.

### B. Transport Policy, Planning and Coordination

1.05 During the Fourth Development Plan (1973-76), some progress was made in increasing transport capacity through investments in both infrastructure and equipment. While the existing transport facilities are now generally adequate in capacity and coverage, the condition of the network needs to be improved in many areas in order to handle rapidly increasing traffic volumes and to avoid a major bottleneck to future economic growth. Changes in shipping technology will require the provision of specialized facilities to ensure adequate port capacity for the next 10/15 years. To meet the increasing demands of domestic and international air services, new airports have been constructed at Sfax and Tozeur, and improvements have been made to the Tunis, Djerba and Sousse airports.

1.06 The main objectives of the Fifth Plan (1977-81) for the transport sector are:

- (a) to provide a more efficient use of the existing infrastructure as well as maintaining and improving it as required;
- (b) to provide rural development by increasing and improving feeder roads;
- (c) to improve urban transport; and
- (d) to reorganize the regional transport companies.

In order to achieve these objectives, investments of US\$1,250.0 million have been planned for the sector; during 1977 and 1978 about US\$500.0 million were spent on approved projects. If the budget allocations for 1979 are added, almost two-thirds of the Plan investments will have been achieved in the first three years of the Fifth Plan. Maritime investments account for about 25% of the total. A lack of guidelines and a well-defined investment program for the transport sector follows from weaknesses in subsectoral planning and project preparation, and insufficient overall coordination. The Government is aware of the need for a clear transport policy and has engaged consultants to prepare both a subsectoral development plan as well as an overall transport coordination study. These studies are now being reviewed as part of the preparation necessary for the Sixth Development Plan (1982-86).

1.07 The Ministry of Transport and Communications (MTC) is responsible for the coordination of all modes of transport, the improvement of transport regulations and tariffs, the overall development of the transport sector, and the planning of rail, sea and airport infrastructure. The Ministry of Planning and National Economy (MPE) has broad overall responsibility for transport development, along with all other sectors.

1.08 The Commission Sectorielle des Transports (CST) is a consultative body established by the MTC and the MPE. It consists of representatives of the administration, of the various transport agencies, and of users. Its main function is to safeguard user and business interests.

### C. The Ports Subsector (IBRD Map. No. 14530)

1.09 Tunisia's five major commercial ports (Tunis/La Goulette, Sfax, Bizerte, Sousse and Gabes) handled 11.0 million m tons of cargo in 1978, of which 9.3 million m tons or 85% was international traffic. Coastal traffic amounting to 1.6 million m tons consisted mainly of the movement of petroleum products from Bizerte to Sfax and La Goulette. Liquid bulk cargo totalled 4.1 million m tons; dry bulk, 4.3 million m tons (including grain, 978,000 m tons) and general cargo, 2.6 million m tons. Eighty-four percent of the international trade is short-distance traffic with Europe and North Africa, 12% with the Americas and 4% with Asia.

1.10 There are about 45 fishing harbors scattered along the Tunisian coast. These are discussed in more detail in Staff Appraisal Report No. 2436a-TUN, on the Second Fisheries Project.

1.11 A summary of the traffic handled at the five commercial ports in 1978 follows:

(m tons, millions)

	<u>Tunis/ La Goulette</u>	<u>Sfax</u>	<u>Bizerte</u>	<u>Sousse</u>	<u>Gabes</u>	<u>Total</u>
Liquid Bulk	1.0	0.6	2.1	-	0.4	4.1
Dry Bulk	0.8	2.5	0.3	0.2	0.4	4.2
General Cargo	<u>1.4</u>	<u>0.4</u>	<u>0.3</u>	<u>0.5</u>	<u>0.1</u>	<u>2.7</u>
	3.2	3.5	2.7	0.7	0.9	11.0

As will be seen from the above table, about 70% of the general cargo traffic is handled at the project ports, Tunis/La Goulette and Sfax. General cargo handled at Bizerte and Sousse consists mainly of construction materials. Bizerte and Gabes are essentially geared to bulk traffics--crude oil, refined products and fertilizer materials.

1.12 Port facilities in Tunisia are owned and operated by the Office des Ports Nationaux Tunisiens (OPNT), with the exception of Gabes, which is being developed by the MTC and is managed by OPNT on their behalf.

1.13 In 1975 a master plan study of the ports was undertaken by the French consultants, Bureau Central d'Etudes pour les Equipements d'Outre-Mer (BCEOM), partly financed from the proceeds of the Second Port Project (Loan 573-TUN) from which the proposed project for expansion of the ports of La Goulette and Sfax has been developed.

#### D. Previous Projects

1.14 The Bank has lent a total of US\$124.8 million equivalent for eight transport projects: four for roads, two for ports, one for railways and one for a pipeline. Seven of these projects have been satisfactorily completed. The most recent, made in June 1978 for a rural roads project, became effective on March 30, 1979. The proposed project would be the third in the ports sub-sector. Annex 1 contains a summary of previous projects.

## II. THE PROJECT PORTS

### A. General

2.01 The Tunis/La Goulette port complex is Tunisia's main general cargo port facility; and although it constitutes a single port complex, it is in fact composed of two distinct parts:

- (i) The Port of Tunis situated at the end of the 10-km long canal linking La Goulette to Tunis and comprising three basins.
- (ii) The Port of La Goulette comprising a canal basin with port installations on the north and south banks and an exterior basin for a fishing port located just inside the northern breakwater.

2.02 La Goulette (IBRD Map No. 14277) is located on the northern coast of Tunisia in the Gulf of Tunis and is a modern port which was extended and improved with Bank assistance in 1965-68 and in 1972-75. In 1978 the average daily throughputs were 385 m tons for general cargo and 600 m tons for roll-on/roll-off traffic. Operational improvements currently under way (paras. 2.24, 2.25 and 2.34) are expected to result in daily throughputs for general cargo and roll-on/roll-off traffic of 410 m tons and 645 m tons, respectively, by 1983. With the new facilities, equipment and training to be provided by the proposed project, it is forecast that, by 1985, 450 m tons per day will be achieved for general cargo and 710 m tons per day for roll-on/roll-off traffic.

2.03 Physical constraints at the existing port prevent the provision of adequate back-up and parking areas for the increasing roll-on/roll-off traffic. It will, therefore, be necessary to provide specialized facilities for this traffic at a new site on the south bank of the Tunis/La Goulette Canal.

2.04 Sfax (IBRD Map No. 14034), which is located on the east coast of Tunisia some 240 km south of Tunis, is next in importance to Tunis/La Goulette and serves a dry and less-developed area of the country. It is mainly a bulk cargo port for phosphates and chemical products. Its general cargo berths are old and handicapped by the lack of back-up areas due to the proximity of city development, and this necessitates the provision of new facilities on the south bank of the principal basin. A new fishing port, currently under construction to the south of the city, will replace the small fishing port adjacent to the commercial port. In 1978 the average daily throughput for general cargo was 395 m tons and, for the reasons stated in para. 2.02 above, is expected to reach 450 m tons in 1982 and 500 m tons in 1984. The roll-on/roll-off traffic, which is expected to expand, is forecast to achieve 700 m tons per day. The higher daily throughputs for general cargo compared with La Goulette are due to the greater preponderance of homogeneous cargoes at Sfax.

## B. Port Facilities

### La Goulette

2.05 The approach to the port is through an access channel 6.4 km long, dredged to a depth of 12 m. The harbor is well protected by breakwaters, and no interruptions to operations are experienced. The main general cargo facilities consist of a linear quay of 1,060 m on the north side of the canal with an alongside depth of 10.5 m. Specialized berthage is available on the south side of the canal for iron ore, phosphates, petroleum products and bulk grain; open and covered storage areas are also available. Rail access extends to the specialized bulk berths only, but road access is adequate for the general cargo berths. Additional cargo-handling equipment, improved maintenance facilities, and specialized facilities (including adequate back-up areas) will be required to handle the increase in roll-on/roll-off traffic (para. 2.03).

### Tunis

2.06 The general cargo facilities are located at a central basin with 900 m of quay and an alongside depth of 5 m. There is also a quay for mineral traffic, 600 m long with a depth alongside of 7.5 m; open and covered storage areas are provided and road and rail facilities are adequate. The port lacks sufficient back-up areas due to the proximity of the city of Tunis.

### Sfax

2.07 The approach to the port is through an access channel 6 km long, dredged to a depth of 11 m. The harbor is naturally sheltered. There are specialized berths for handling phosphates, sulphur, salt, edible oil, and petroleum and chemical products; these facilities have sufficient storage areas and adequate road and rail access. The general cargo facilities consist of a linear berth 520 m long, with an alongside depth of 11 m; storage areas are inadequate and hamper efficient operations. The access road to the general cargo area is through the city's narrow streets. Adequate back-up and storage areas for general cargo are therefore required (para. 2.04).

### Traffic - La Goulette

2.08 In 1978 the total number of commercial vessels calling at La Goulette was 1,547, of which 524 were general cargo liners, 289 roll-on/roll-off vessels, 319 car ferries, 98 cruise ships, and 317 bulk carriers. The general cargo vessels calling at La Goulette are small, averaging 2,900 dwt and 85 m in length; this is a feature of Mediterranean general cargo trade. Total traffic in 1978 was 2.6 m tons, of which 36% was bulk liquid cargo, 31% dry bulk and 33% general cargo. Roll-on/roll-off traffic is expected to develop rapidly as more facilities are provided. About 38% of general cargo was carried in roll-on/roll-off ships and car ferries in 1978. In 1978 the Port of Tunis handled some 606,000 m tons, of which general cargo totalled 515,000 m tons.

2.09 Traffic projections have been made in detail up to 1985; general cargo is expected to increase from 935,000 m tons in 1978 to 1.2 million m tons in 1985 and 1.6 million m tons by 1990. Further details of traffic projections are given in Chapter IV and in Project Files.

#### Traffic - Sfax

2.10 In 1978 the total number of commercial vessels calling at Sfax was 1,392, of which 527 were general cargo liners and 865 were bulk carriers. The general cargo liners calling at Sfax are similar in size to those calling at La Goulette. Total traffic in 1978 was 3.5 million m tons, of which 15% was bulk liquid cargo, 69% dry bulk and 16% general cargo.

2.11 Traffic projections have been made in detail up to 1985. Due to the expected cessation of cement and sugar imports, general cargo is expected to decline from 558,000 m tons in 1978 to 485,000 m tons in 1985. By 1990, however, general cargo traffic should have increased to 617,000 m tons, of which about one-third is expected to be carried in roll-on/roll-off vessels. Further details of traffic projections are given in Chapter IV and in Project Files.

### C. Port Administration

#### OPNT (The Borrower)

2.12 The Law No. 65/2 of 1965, as revised in 1972, established OPNT as an independent public authority. The authority is managed and acts through a Board (Conseil d'Administration) consisting of twelve members, five of whom are Government representatives, and seven of whom are port users and representatives of related interests; all are appointed by the Minister of Public Works (MPW) on the recommendation of the interested Government departments and other agencies. The Board is presided over by a President/ Director General who is responsible for implementing Board decisions and for the day-to-day management of OPNT; however, much of the latter has been delegated to the Assistant Director General.

2.13 In conformity with Government's regulation for controlling national corporations and agencies, a Technical and a Financial Controller also sit on the Board, and they are responsible for overseeing technical and financial matters; they are appointed by the MPW and the MPE, respectively.

2.14 The approval of MPE and MPW is required for:

- (a) the revenue and capital budgets;
- (b) the personnel establishment, regulations and remuneration;
- (c) tariffs;

- (d) long-term loans;
- (e) purchase and sale of assets; and
- (f) investments in other enterprises related to OPNT activities.

2.15 OPNT is also legally empowered (a) to operate and maintain the ports of Bizerte (including Menzel-Bourguiba), Tunis/La Goulette, Sousse and Sfax, and any other port assigned thereto by Government decree; and (b) to levy dues and charges for the use of the ports and their facilities. OPNT provides pilotage, towage, navigational aids and railway services and controls and supervises the quays and harbors, all within the ports' limits which have been fixed in agreement with the Ministries of Finance and of Public Works. OPNT has a satisfactory degree of autonomy in both financial and administrative affairs. The legislation is adequate for the purposes of the project and for lending operations.

2.16 Health and immigration services, police and customs are the responsibility of the appropriate Government departments.

#### Organization and Management

2.17 OPNT's management structure comprises the President/Director General and Assistant Director General and five Directors of the following departments: planning and development, administration, finance, technical, and new works. At the Port of La Goulette there is a Port Director with six senior managers: commercial, administrative, operational, accounting, maintenance, and stores. At Sfax there is a Port Director and Commercial and Accounting Managers, supported by operational, maintenance and stores, and administrative divisions.

2.18 In general, the organization and management of OPNT has functioned well. The accounting and financial management is particularly strong, following technical assistance and training provided under the two previous port loans (No. 380-TUN and No. 573-TUN). The Project Performance Audit Report (PPAR) on the Second Port Project (Loan No. 573-TUN) identified the lack of improvement in operational efficiency as a major weakness, despite the considerable investment in facilities. The proposed project will address this problem by providing consulting services to assist in the improvement of operations and technical assistance to develop and implement training programs for port personnel (para. 3.31).

### D. Operations

#### General

2.19 The review of cargo-handling operations at the project ports is limited to general cargo and does not include bulk cargoes, both liquid and dry, which are handled at specialized facilities at both ports.

2.20 The movement of cargo from and to ships and within the ports to and from the transit sheds or open storage areas is done by the cargo-handling companies who employ the necessary labor. Delivery of cargo already cleared by the customs is undertaken by OPNT at La Goulette and by the cargo-handling companies at Sfax.

#### Cargo-handling Companies

2.21 Although there are several cargo-handling companies operating at the various Tunisian ports, the Societe Tunisienne d'Acconage et de Manutention (STAM) is by far the largest and most important. It has a de facto though not de jure monopoly of cargo handling at La Goulette and is the major operator at Sfax.

2.22 STAM is a limited company established and operating under the Tunisian Commercial Code in which the state-owned shipping company, Compagnie Tunisienne de Navigation (COTUNAV), has a 60% majority shareholding and six seats out of ten on the Board (Conseil d'Administration): OPNT has no shareholding or direct representation in STAM.

#### Operations at La Goulette

2.23 Ships' waiting time does not as yet present a serious problem, but the cargo congestion on the quays and open storage areas does and affects cargo throughput (para. 2.02). Until now, OPNT has exerted little effective control over these operations, mainly due to the lack of experienced supervisors.

2.24 To help ease the congestion, OPNT is presently constructing two warehouses away from the operational areas and replacing a transit shed destroyed by fire.

2.25 Following an initial reorganization of operations by STAM, there is some improvement in stowing cargo in the sheds and in the open, and a start has been made to palletize cargoes.

#### Operations at Sfax

2.26 The problems at Sfax stem from the lack of sufficient back-up areas behind the commercial quays, and expansion is prevented by the proximity of the city. However, port operations there are more efficient due to competition between the cargo-handling companies and to more effective control and supervision by OPNT.

#### Labor

2.27 Labor relations in the ports are generally good, though the present practice whereby the stevedores travel to and from Tunis to La Goulette shortens the working day there by about two hours. Normally, two 6-hour shifts are worked from 7 a.m. to 1 p.m. and from 2 p.m. to 8 p.m. and, if required, a further 6-hour shift from 9 p.m. to 3 a.m. may be worked. There is a labor surplus in the country and efforts to reduce port labor are resisted.

2.28 There are 850 permanent dockers on the labor register at Tunis/La Goulette, but around only 500 are present each day. The casual labor force is about 1,200, of whom about 1,000 attend daily. At Sfax the labor force is about 300 permanent and 500 casual dockers. The conditions of employment are fixed by a collective agreement negotiated between the employers and employees. This agreement lasts for three years, and a new agreement is now in course of negotiation.

2.29 Although the level of skills of the port workers is acceptable, it will be necessary to institute training programs at all levels to increase productivity (paras. 2.35 and 3.32).

#### Cargo-handling Equipment

2.30 OPNT owns quay cranes, mobile cranes and forklift trucks of various capacities. At La Goulette the cranes are leased to STAM by OPNT, and the forklift trucks are used by OPNT for the delivery of cargo.

2.31 STAM owns a considerable quantity of cargo-handling and transport equipment for its operations. Existing equipment is sufficient to handle present traffic provided (a) it is properly maintained and (b) both OPNT and STAM implement their programs for replacement of old equipment.

2.32 Repair and maintenance of all cargo-handling equipment is currently undertaken at STAM's workshops, which are inadequate and poorly equipped; however, a new maintenance workshop is under construction at La Goulette.

2.33 During negotiations both OPNT and STAM agreed that consultants should be retained to reorganize the repair and maintenance services for port equipment, including all equipment and workshops in the proposed project, and the project includes technical assistance for these services (para. 3.30). Maintenance and repair of all equipment will be undertaken by STAM to avoid unnecessary duplication.

#### Plan of Action

2.34 In order to maintain the momentum generated for improving port operations, an outline Plan of Action with target dates for implementation has been prepared and agreed with OPNT and STAM during negotiations.

#### Training

2.35 Personnel training requirements for OPNT, STAM and other cargo-handling companies have already been identified; and in order to avoid unnecessary duplication, OPNT and STAM have prepared their joint proposals for training and implementation (para. 3.32). The implementation schedule therefore, which has been agreed with the Bank during negotiations, is included in the Plan of Action referred to in para. 2.34 above.

E. Finance, Accounting and Audit

General

2.36 OPNT's accounting system, which is in conformity with the Plan Comptable Tunisien which contains specific regulations as to form, is satisfactory. Training and advisory services provided under the two earlier loans (No. 380-TUN and No. 573-TUN) have expanded the management information aspect of the system. The accounting and statistical systems have been partially computerized, and further expansion is planned to enable a fully computerized, comprehensive management information system to be introduced, based on the recommendations of the Societe Informatique de Gestion et de Mathematiques Appliquees (SIGMA). As provided by the Loan Agreement 573-TUN, OPNT's assets have until now been valued at cost, but the revaluation of assets, using the Wholesale Price Index for Tunisia as a basis to provide adequate data for cost-related tariffs (para. 5.09), has been agreed by OPNT and the Bank during negotiations.

2.37 About 26% of OPNT's 1978 revenues were derived from dues on passengers and goods, 33% from storage, 13% from ships and 26% from renting equipment, ground and buildings.

2.38 OPNT's annual budget for current and capital expenditures is submitted to the MPE and the MPW for approval. OPNT's accounts are audited by independent auditors acceptable to the Bank.

Insurance

2.39 OPNT maintains adequate insurance against insurable port operating risks consistent with sound business practice.

Tariffs

2.40 Dues are levied on ships for entry, berthing, pilotage and towing and on goods for wharfage and storage. Other charges cover the use of the canals between Tunis and La Goulette and between Bizerte and Menzel-Bourguiba; hire of cranes and other equipment; and supply of fresh water and electricity.

2.41 There have been several studies over the years on the tariff structure, one of which was financed by the First Port Loan (No. 380-TUN). The most recent was undertaken by BCEOM, and most of their recommendations for revision of the structure have been accepted by OPNT and incorporated in a new schedule of dues and charges. The new tariff, a copy of which is in Project Files, has been approved by the Government and came into force on July 16, 1979: it will increase OPNT revenues by about 30% overall in a full year, with specific increases of 150% on ships' dues and 30% on cargo. It goes some way towards equating the proportion of revenues obtained from ships and cargo. Assurances were obtained from OPNT that the rates levied will be reasonably related to the costs of providing the various services, having particular regard to (a) the fact that the new facilities being provided under the project will mainly benefit the shipowners and to (b) storage charges in order to encourage owners to remove goods more expeditiously and thereby prevent cargo congestion in operational areas of the ports (paras. 5.02 and 5.09).

III. THE INVESTMENT PLAN AND THE PROJECT

A. The Port Investment Program

3.01 Long-term port planning was undertaken by the Government in 1974 when a master plan study, partially financed by the Bank through Loan 573-TUN, was prepared by BCEOM (para. 1.13). The Bank has reviewed and agreed the proposed plan.

3.02 Based on the above study, OPNT retained BCEOM and the Societe Tunisienne d'Ingenierie (STUDI) (Tunisia) in 1977 to prepare preliminary engineering for the expansion of the ports of La Goulette and Sfax for the period 1979-1990 and requested the Bank to appraise these projects to determine their suitability for Bank financing. The Government has decided to proceed with the expansion of these ports.

3.03 As the low level of productivity has been a matter of concern, cargo-handling equipment for La Goulette and Sfax ports and technical assistance to improve operations have been included in the project.

3.04 A summary of the port investment program, 1979-84, which has been discussed and agreed with OPNT during negotiations, is given below.

	<u>Total</u>	<u>Local</u>	<u>Foreign</u>
	----- (TD '000s) -----		
(a) <u>Proposed Bank Project</u> (Details in this chapter)	50,350	25,240	25,110
(b) <u>Other Projects</u>			
1. La Goulette ongoing works	2,500	1,250	1,250
2. Repair and maintenance of port facilities at all ports	3,500	2,275	1,225
3. Studies	200	80	120
4. Replacement of equipment	<u>1,800</u>	<u>420</u>	<u>1,380</u>
Subtotal (b)	<u>8,000</u>	<u>4,025</u>	<u>3,975</u>
Total	<u>58,350</u>	<u>29,265</u>	<u>29,085</u>

3.05 This investment program includes taxes and import duties as part of the local cost. All items in the OPNT program for other projects appear generally justified.

## B. Timing of the Investment in the Project Ports

3.06 All too often the decision to invest in expansion of port facilities is taken after problems such as ship-waiting time and port congestion have already arisen, with consequent cost to the country. At the moment, there is little ship-waiting time at La Goulette and only minor amounts at Sfax. However, conservative projections show that in four years' time ships would experience considerable delay; this the Government and OPNT are determined to prevent.

## C. Project Objectives and Dimensions

### General

3.07 Changing technology in sea transport, in the Mediterranean particularly, has enabled total transport costs from origin to destination to be reduced; in particular, the advent of roll-on/roll-off vessels has had a significant impact on costs. In the case of La Goulette where back-up areas on the north side are restricted, the only solution is to move to the south side of the canal and install roll-on/roll-off berths there. This entails fairly massive dredging and reclamation, part of which will benefit expansion of facilities in the future.

### Objectives

3.08 The main objectives of the project are therefore (a) to enable the project ports to cope with the changes in shipping technology and future traffic, and (b) to increase operational efficiency and capacity at the project ports.

3.09 The above objectives will be accomplished by providing (a) specialized facilities to accommodate roll-on/roll-off vessels; (b) additional port facilities with appropriate operational and storage areas, transit sheds and warehouses; (c) additional cargo-handling equipment; and (d) repair and maintenance facilities. To complement the physical components, the project also includes the necessary technical assistance to improve operations and to train port personnel and port workers.

### Dimensions

3.10 The scope of the project has been determined separately for each of the project ports, taking into consideration traffic growth and shipping patterns.

At La Goulette

3.11 The project is the first major step towards the development of a new port area on the south bank of the Tunis/La Goulette channel; it is in accordance with the master plan study mentioned in para. 3.01 and will involve, as its major cost component, deepening and widening the existing Tunis/La Goulette channel and dredging a new deep-water basin. Land required for the new port area and for further port expansion will be reclaimed under the project using part of the dredged material. The project will enable OPNT to further expand the port, as required, at a relatively low cost and will also make available an additional area of about 30 ha which could be leased or rented by 1984 for commercial or industrial uses on a temporary basis.

3.12 Existing port capacity excluding the specialized berths for dry and liquid bulk cargoes consists of a linear quay of 1,060 m in length, able to accommodate on an average eight relatively small ships. These facilities are currently utilized as follows: (a) one berth for car ferries; (b) one berth for cruise ships, which have berthing priority; (c) one berth for roll-on/roll-off ships; and (d) five berths for conventional general cargo vessels, one of which is occupied from time to time by oil tankers supplying fuel to the adjacent electric power station and another by roll-on/roll-off vessels using a floating pontoon with limited operational efficiency.

3.13 Tourist traffic to Tunisia has more than doubled during the 1970s, and in 1978 cruise vessels used about 200 ship-days in the Port of La Goulette. Assuming that the tourist traffic will continue to grow at about the same pace in the 1980s, one full berth will be needed for the cruisers by about 1982; and by about 1991, another berth will be necessary.

3.14 Taking into account the forecast growth in cargo and passenger traffics and the changes in shipping patterns (paras. 4.09 and 4.11), it is anticipated that by 1991 berth requirements would be as follows: (a) car ferries--one berth; (b) cruise ships--two berths; (c) roll-on/roll-off vessels--five berths; (d) general cargo--six berths.

3.15 With regard to the volume of traffic forecast for 1985, i.e., 1.2 million m tons, the two multipurpose cargo berths at the new site may be underutilized during the initial years after completion of the project. However, if construction of these berths were postponed, then retaining dikes would have to be built to confine the adjacent reclaimed land at an estimated cost of US\$1.0 million, compared with quay wall costs of US\$2.8 million. The net incremental cost of constructing the two berths is therefore only US\$1.8 million. The last of these two berths would be required not later than 1991, and their construction would have to start at least three years earlier. Their estimated construction costs (including mobilization) in constant price terms would be about US\$4.2 million. A present value analysis, using an acceptable 10% discount rate, shows that building these berths now would be more economical than postponing them; this analysis does not include the cost of dislocation of normal port operations involved in such delayed construction.

At Sfax

3.16 The project is in accordance with the master plan study mentioned in para. 3.01 and will develop for port use the area at the south and adjacent to the existing port basin. Further expansion, when required, is provided for by the long-term port development plan.

3.17 Existing general cargo port capacity consists of 520 m of general cargo quays; operational capabilities are constrained by inadequate back-up and storage areas (about 8.7 ha, including 3,500 m<sup>2</sup> of sheds). Further expansion of the existing port area is impossible due to the proximity of city developments.

3.18 The project is dimensioned to cope with forecast traffic and shipping patterns up to about the year 2000 and includes the provision of one roll-on/roll-off berth, two general cargo berths and one shallow-draft berth for harbor craft and small vessels.

D. Description of the Project

3.19 The project consists of:

(a) Civil Works

At La Goulette

- (i) dredging of access channel and south port basin to a depth of 10 m;
- (ii) dredging and reclamation at the new port area to replace soft layers with suitable material;
- (iii) improving soil conditions at the new port area;
- (iv) constructing about 350 m of quays, and of jetties capable of handling general cargo liners, roll-on/roll-off vessels, and container ships;
- (v) constructing about 30,000 m<sup>2</sup> of transit and customs' sheds;
- (vi) paving open storage areas and constructing the port access road;
- (vii) constructing port administration and other ancillary buildings;
- (viii) providing port utilities, inter alia, water supply, electricity, drainage, etc.; and
- (ix) constructing a shallow-water berth and related back-up area to handle dangerous materials.

At Sfax

- (i) constructing quays about 515 m long and 11 m deep, capable of handling general cargo liners and roll-on/roll-off vessels;
- (ii) constructing the port access road;
- (iii) filling, grading and paving open storage and parking areas;
- (iv) constructing transit and customs' sheds and ancillary buildings; and
- (v) providing port utilities, inter alia, water supply, electricity, drainage, etc.

(b) Equipment and Materials

At La Goulette and Sfax

- (i) cargo-handling and workshop equipment; and
- (ii) timber for manufacture of about 20,000 pallets.

(c) Technical Assistance

- (i) consulting services for supervision of civil works construction;
- (ii) consulting services to assist OPNT and STAM to reorganize repair and maintenance services; and
- (iii) technical assistance to develop and implement training programs for port workers.

E. Engineering Evaluation

General

3.20 The proposed project was evaluated taking into account the following general considerations:

- (a) Physical constraints in expanding existing port facilities to cope with forecast traffic;
- (b) Suitability of proposed ports expansion in accordance with types of cargoes and shipping patterns;
- (c) Availability of reserve areas for future expansion;
- (d) Road network links;

- (e) Environmental effects, if any, of the project; and
- (f) The selected port layouts and development schemes correspond to least-cost solutions when compared with alternative schemes analyzed during the preparation of the master plan studies (para. 3.01).

### Engineering

3.21 Development plans for La Goulette and Sfax ports expansion and final engineering, prepared by BCEOM and STUDI, are based on the master plan studies mentioned in para. 3.01. Each project port was evaluated separately as follows:

#### La Goulette

3.22 The proposed port expansion is located at a new site on the south bank of the Tunis/La Goulette Canal and is consequently free of any sea-generated wave action; the site, however, is exposed to winds, but conditions are not different from those at the present port facilities where wind exposure is not a problem. Tidal range, being Mediterranean, rarely exceeds 0.60 m.

3.23 Soil Conditions. Extensive soil investigations proved that natural soil conditions are not adequate for construction of port facilities; consequently OPNT retained soil consultants, Mecasol, (France) to determine the means to improve soil conditions; the study's recommendations may be summarized as follows:

- (a) Zone of new quays: soft layers (mud) to be partially replaced with suitable dredged material, imposing an overload and building in a deep-drain system to accelerate consolidation of deeper compressible strata.
- (b) Zone to be reclaimed: Imposing an overload and building a semi-deep-drain system to accelerate consolidation of shallow compressible layers.

The Bank has reviewed and agrees with the consultants' recommendations.

3.24 Dredging and Reclamation. A dredging and reclamation program, directly related to soil improvement, was discussed and agreed by the Bank with OPNT and included in the bidding documents.

3.25 Engineering Design. Final design of quay structures was prepared, taking into consideration improved soil conditions; the selected type of construction and design criteria were reviewed and agreed by the Bank.

#### Sfax

3.26 The location selected for port expansion is fully protected by existing breakwaters; the site exposure to winds is similar to that at existing port facilities; therefore, prevailing regulations for berthing ships alongside the new berths will continue to apply.

3.27 Soil Conditions and Engineering Design. Soil investigations show that soil conditions are suitable for construction of proposed port facilities. Selected type of construction and design criteria were reviewed and agreed by the Bank.

#### Equipment

3.28 The Bank's proposed list of equipment for project ports is based on (a) an analysis of port operations of the various types of commodities and ships that will use the new port facilities and (b) OPNT and STAM programs for acquisition of cargo-handling equipment.

3.29 The list of required equipment has been discussed and agreed with OPNT and STAM at negotiations, and it will be revised in agreement with the Bank, if required by changes in operational techniques. All equipment will be procured and owned by OPNT who will then lease it as required to the cargo-handling companies on terms and conditions acceptable to the Bank. Spare parts and workshop equipment are also provided for in the project. Materials for the manufacture of pallets will be procured by OPNT and transferred to STAM under arrangements satisfactory to the Bank which will ensure full recovery of the costs involved.

#### Technical Assistance

3.30 The technical support required for the implementation of the project is described in para. 3.19(c). An area of particular interest is the improvement of productivity at La Goulette; to improve it, the project includes consulting services (a) to assist in reorganizing the ports' workshops and port equipment repair and maintenance services, and (b) to develop and implement training programs for port workers, either in Tunisia and/or overseas.

3.31 Consultants' terms of reference for item (a) under para. 3.30 have been discussed and agreed at negotiations, and OPNT and STAM will review, with the Bank, the consultants' recommendations and the action they propose to take.

3.32 Training requirements for port workers have been discussed and agreed with the Bank. Implementation of the training program has been discussed and agreed during negotiations (para. 2.35).

#### F. Cost Estimates

3.33 The total cost of the project is estimated at US\$125.8 million, including about US\$21.5 million equivalent of local taxes and customs' duties on imported goods. The foreign exchange component is US\$62.8 million, or about 50% of total cost.

3.34 Cost estimates for civil works at both project ports reflect December 1979 prices and are based on bid prices; bids received under international competitive bidding (ICB) were publicly opened in June 1979 and are being evaluated at present. It is estimated that the overall costs would have been

at least 12% higher, but for the extremely low prices quoted for dredging-- US\$0.70 per m3, as compared with an expected US\$2.00 per m3. Equipment cost estimates are based on actual prices obtained from foreign manufacturers and reflect December 1979 prices; 6% is included for spare parts and attachments.

3.35 Distribution of total project cost including taxes is as follows: (a) civil works: at La Goulette: US\$82.2 million, and at Sfax: US\$26.7 million; (b) equipment: at La Goulette: US\$8.2 million, and at Sfax: US\$4.6 million; (c) technical assistance: US\$4.1 million. A summary of cost estimates is given below:

SUMMARY OF COST ESTIMATES

	<u>Dinars Million</u>			<u>US\$ Million</u>			<u>% of Foreign Exchange</u>
	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	<u>Local</u>	<u>Foreign</u>	<u>Total</u>	
<u>A. Civil Works</u>							
1. At La Goulette	8.50	11.80	20.30	21.24	29.50	50.74	58.0
2. At Sfax	3.04	3.46	6.50	7.61	8.64	16.25	53.0
Subtotal	<u>11.54</u>	<u>15.26</u>	<u>26.80</u>	<u>28.85</u>	<u>38.14</u>	<u>66.99</u>	<u>57.0</u>
<u>B. Equipment</u>							
Subtotal-Basic Cost	<u>0.35</u>	<u>2.68</u>	<u>3.03</u>	<u>0.87</u>	<u>6.70</u>	<u>7.57</u>	<u>88.0</u>
Subtotal-Basic Cost	<u>11.89</u>	<u>17.94</u>	<u>29.83</u>	<u>29.72</u>	<u>44.84</u>	<u>74.56</u>	<u>60.0</u>
<u>C. Technical Assistance</u>							
Subtotal	<u>0.41</u>	<u>0.79</u>	<u>1.20</u>	<u>1.03</u>	<u>1.97</u>	<u>3.00</u>	<u>66.0</u>
<u>D. Contingencies</u>							
1. Physical /1	1.17	1.66	2.83	2.92	4.15	7.07	58.0
2. Price /2	3.12	4.72	7.84	7.80	11.80	19.60	61.0
Subtotal	<u>4.29</u>	<u>6.38</u>	<u>10.67</u>	<u>10.72</u>	<u>15.95</u>	<u>26.67</u>	<u>60.0</u>
Total Project Cost	<u>16.59</u>	<u>25.11</u>	<u>41.70</u>	<u>41.47</u>	<u>62.76</u>	<u>104.23</u>	<u>60.0</u>
Taxes	8.65	-	8.65	21.53	-	21.53	-
Total Project Cost Including Taxes	<u>25.24</u>	<u>25.11</u>	<u>50.35</u>	<u>63.00</u>	<u>62.76</u>	<u>125.76</u>	<u>50.0</u>

/1 Physical contingencies: 10% for all civil works; 5% for equipment.

/2 For calculating price contingencies, the following inflation rates were used: for local currency and foreign exchange costs: 1980--9% p.a.; 1981--8% p.a., 1982-1985--7% p.a. An average contingency of 22.6% of total basic project cost including physical contingencies but excluding technical assistance has been allowed for expected price increases.

3.36 Cost estimates for civil works reflect the availability of local construction materials and labor and are based on the fact that main works will be executed by foreign contractors; however, local contractors will probably participate in the execution of part of the works as subcontractors.

3.37 Estimates for consultants' services are based on manpower requirements as follows: (a) supervision of works: 150 man-months of expatriate experts, 110 man-months of local experts, and 260 man-months of local technicians; (b) organization of ports' workshops and equipment repair and maintenance services: five man-months of expatriate experts; and (c) training of OPNT and STAM personnel and port workers: 65 man-months of expatriate experts. Costs per man-month are estimated at US\$7,800 for expatriate experts, US\$4,000 for local experts, and US\$2,000 for local technicians.

3.38 An analysis of the cost of delays in project execution was conducted, and it shows that a delay of six months would increase the project costs by about US\$5.6 million, and a delay of one year, by about US\$11.0 million.

#### G. Financing Plan

3.39 The proposed Bank loan of US\$42.5 million (68% of the foreign exchange component of the total project) would contribute towards the foreign exchange cost of the following project elements to the extent stated:

	<u>US\$ Million</u>
<u>Civil Works at La Goulette</u>	29.5
<u>Technical Assistance</u>	2.0
<u>Contingencies</u>	11.0
Total	<u>42.5</u>

3.40 The financing plan is as follows:

<u>Source of Finance</u>	<u>Foreign</u>	<u>Local</u>	<u>Taxes</u>	<u>Total</u>
		(US\$ million)		
- IBRD	42.5	-	-	42.5
- Internally generated OPNT Funds	-	41.5	21.5	63.0
- Export credits	16.3	-	-	16.3
- Financial credits or Government	4.0	-	-	4.0
Total	<u>62.8</u>	<u>41.5</u>	<u>21.5</u>	<u>125.8</u>

3.41 The Bank loan will be to OPNT on standard Bank terms for a period of 17 years, including a grace period of 3.5 years. Eighty percent of the balance of foreign exchange required will be provided under export credits on the following terms: 12 years including a grace period of 4 years with interest at 8.5% per annum for civil works and satisfactory terms for equipment. It is anticipated that the remaining balance of foreign exchange requirements (20%) will be obtained from financial credits, failing which the Government has undertaken to secure the necessary finance.

3.42 It is expected that local currency costs, including taxes and duties, to the extent stated above (para. 3.40) will be financed from OPNT's internally generated funds. The OPNT Law of 1965 gives OPNT the power to secure loans from the Government or other sources on terms and conditions as may be approved by the Government; satisfactory agreements between OPNT, the Government and other external sources of finance will be a condition of effectiveness (para. 5.07). The Government has agreed to guarantee cost overruns.

#### H. Project Execution, Supervision and Reporting

3.43 OPNT is competent to execute the project with the support of consultants (a) to monitor project execution in accordance with the program discussed and agreed with OPNT during negotiations and (b) to supervise construction of civil works.

3.44 The project implementation schedule is mainly as follows:

##### A. Civil Works

- |                          |                      |
|--------------------------|----------------------|
| 1. <u>At La Goulette</u> |                      |
| Award of contract        | March 1980           |
| Construction             | June 1980-April 1984 |
| 2. <u>At Sfax</u>        |                      |
| Award of contract        | March 1980           |
| Construction             | May 1980-April 1983  |

##### B. Equipment

Technical Specifications	September-December 1980
Tendering	January-May 1981
Supply and Delivery	January 1983-January 1984

Equipment maintenance and repair consultants will be recruited not later than July 31, 1980. Training program consultants will be recruited not later than October 31, 1980, and training programs will be implemented from 1981 to 1982. The planning allows for a period of about six months for bid evaluation and award of contracts. The project is expected to be completed by June 1984, and the loan would be closed on June 30, 1985.

Reporting

3.45 OPNT will submit to the Bank quarterly progress reports which should include engineering, procurement, progress of construction and of consulting services, traffic statistics, financial statements and disbursement schedule, port efficiency indicators, critical path program, and progress of training implementation. The format has been discussed and agreed with OPNT at negotiations.

Project Completion Report (PCR)

3.46 During project implementation, OPNT will, as agreed during negotiations, generate the information needed for the preparation of the PCR in cooperation with Bank staff. The PCR should be submitted not later than six months after the closing date.

I. Procurement and Disbursement

Procurement

3.47 Procurement of civil works to be financed by the Bank was carried out on the basis of ICB in accordance with Bank guidelines of March 1977. Contract packages for Bank-financed items were previously discussed and agreed by the Bank with OPNT during appraisal.

Disbursement

3.48 Disbursements from the loan will be as follows:

<u>Civil works at La Goulette</u>	48% of total expenditures.
<u>Technical assistance</u>	100% of foreign expenditures.

3.49 The schedule of disbursements from the US\$42.5 million loan was discussed and agreed with OPNT at negotiations and is as follows:

TENTATIVE SCHEDULE OF DISBURSEMENTS

<u>Fiscal Year and Quarter Ending</u>	----- (US\$ '000s) -----	
	<u>Amount</u>	<u>Cumulative at End of Quarter</u>
<u>1980/1981</u>		
December 31, 1980	2,000	2,000
March 31, 1981	2,000	4,000
June 30, 1981	2,000	6,000
<u>1981/1982</u>		
September 30, 1981		8,100
December 31, 1981	2,100	10,200
March 31, 1982	2,100	12,300
June 30, 1982	2,300	14,600
<u>1982/1983</u>		
September 30, 1982	2,600	17,200
December 31, 1982	2,900	20,100
March 31, 1983	2,900	23,000
June 30, 1983	3,400	26,400
<u>1983/1984</u>		
September 30, 1983	3,100	29,500
December 31, 1983	3,300	32,800
March 31, 1984	2,600	35,400
June 30, 1984	2,500	37,900
<u>1984/85</u>		
September 30, 1984	2,000	39,900
December 31, 1984	1,600	41,500
March 31, 1985	500	42,000
June 30, 1985	500	42,500

J. Environmental Impact

At La Goulette

3.50 The expansion of La Goulette affects the hydraulic patterns of the south lake of Tunis, for reclaimed land will block an existing connecting channel that currently allows the flow of water between the Tunis/La Goulette Canal and a zone of the south lake in which some small fisheries are installed. To avoid this problem which would endanger the commercial operations of the

fisheries, the project includes dredging another connecting channel to maintain the hydraulic communication of the fisheries' basin with the Tunis/La Goulette channel.

3.51 The provision of new facilities on the south bank of the canal will enable road traffic destined for the southern regions of Tunisia to avoid the center of Tunis and thus prevent any further increase in urban traffic congestion from port-generated traffic.

3.52 The operational training program included in the project should cover pollution prevention, and consequently it should facilitate efforts to reduce pollution of the port area.

#### At Sfax

3.53 As at La Goulette, any further increase in urban traffic will be avoided since part of the port-generated traffic will not pass through the city center.

### K. Impact on Employment

3.54 The project will have a favorable impact on employment for the following reasons: (a) construction works at the project ports will generate a temporary demand for skilled and unskilled labor for three or four years; (b) training of port workers will improve their skills; and (c) palletization of cargo, which includes the manufacture, repair and maintenance of pallets, will provide alternative employment for workers displaced by changes in operational techniques.

## IV. ECONOMIC EVALUATION

### A. General

4.01 The project now proposed is mainly designed to meet the changes in shipping techniques, to avoid costly ship-waiting time and to improve productivity. That the project is justified is borne out by the satisfactory economic rates of return for each of the project ports.

B. Traffic Analysis

Tunis/La Goulette

Present Traffic

4.02 The Tunis/La Goulette port complex handled 3.2 million m tons of traffic in 1978, including 1.6 million m tons through the specialized bulk cargo facilities at La Goulette and 1.6 million m tons via general cargo berths (La Goulette, 1.0 million m tons and Tunis, 600,000 m tons).

4.03 According to a recent survey, 90% of the Tunis/La Goulette general cargo imports and 83% of general cargo exports are with Europe. Most of this traffic is shipped through Europe's Mediterranean seaports. Within Tunisia, inland origin and distribution of the ports' general cargo include all regions of the country either directly or through the distribution centers located throughout the greater Tunis metropolitan area.

4.04 Of the one million tons of general cargo handled at La Goulette in 1978, approximately one-third were homogeneous-type products--such as cement, steel, timber and sugar--carried in conventional break-bulk vessels. The rest, consisting of many semi-finished and finished manufactured products, was carried in part by conventional and in part by roll-on/roll-off vessels, including car ferries. Only conventional vessels, including small bulk carriers, call at the Port of Tunis; in 1978 nearly 100,000 m tons of its 600,000 m tons were classified as bulk cargo.

4.05 The conversion of general cargo shipments from conventional to roll-on/roll-off vessels is a recent, rapidly growing phenomenon. At La Goulette, the volume of general cargo shipped in roll-on/roll-off vessels rose to 35% of the total in less than five years. Because of its high throughput, roll-on/roll-off traffic permits more efficient utilization of berth facilities.

4.06 The western end of the general cargo quay at La Goulette is used by cruise ships and passenger car ferries. The expected growth of this segment of port traffic will reduce berthing and storage facilities available for general cargo traffic.

4.07 The growth of general cargo traffic through the project port, from 793,000 m tons in 1973 to 1,450,000 m tons in 1978, was mainly due to the construction sector imports which rose from 98,000 m tons to 531,000 m tons during that period, or 42% per annum. Other general cargo rose more slowly, averaging some 5.8% annually.

Traffic Projections

4.08 Port traffic projections have been prepared to estimate the future demand for general cargo and roll-on/roll-off facilities at the Port of La Goulette. These projections have been arrived at in three consecutive analyses: (1) traffic forecasts for the Tunis/La Goulette port complex, (2)

estimates of cargo likely to use the Port of La Goulette, and (3) estimates of cargo expected to move in roll-on/roll-off, car ferries and conventional vessels.

4.09 A detailed analysis of the major imports and exports up to 1985 was undertaken by OPNT; for the remainder, imports were estimated to grow at about 5% per annum and exports at about 9% per annum. These forecasts have been reviewed by the Bank and accepted as reasonable. Traffic growth after 1985 is related to macro-economic growth parameters and averages just under 6% per annum. The forecasts take into account the Bank's latest economic review, the European Economic Community (EEC) policies for agricultural and industrial imports and the Tunisian Government's import substitution program (specifically, cement and sugar imports will end). The results of these forecasts are summarized below for selected years:

<u>La Goulette</u>						
<u>Traffic Projections 1983-2000 /a</u>						
(m tons '000s)						
	<u>1978</u> (actual)	<u>1983</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
<u>Imports</u>						
Cement	362	100	30	(See Footnote /a)		
Steel	93	129	145	↓	↓	↓
Timber	76	95	110	↓	↓	↓
Sugar	68	-	-	↓	↓	↓
Equipment	126	223	255	↓	↓	↓
Chemicals	76	256	286	↓	↓	↓
Textiles	43	63	75	↓	↓	↓
Food Products	78	120	135	↓	↓	↓
Other	297	109	95	↓	↓	↓
Subtotal	<u>1,219</u>	<u>1,095</u>	<u>1,131</u>	<u>1,446</u>	<u>1,863</u>	<u>2,408</u>
<u>Exports</u>						
Fruits & Vegetables	97	137	150	(See Footnote /a)		
Wine	47	60	60	↓	↓	↓
Other	87	166	220	↓	↓	↓
Subtotal	<u>231</u>	<u>363</u>	<u>430</u>	<u>556</u>	<u>704</u>	<u>883</u>
Total	<u>1,450</u>	<u>1,458</u>	<u>1,561</u>	<u>2,002</u>	<u>2,567</u>	<u>3,291</u>

/a Detailed commodity analysis not available after 1985.

4.10 The basis for interport allocation of general cargo is the actual distribution recorded in 1978. General cargo projections are allocated between the two ports based on anticipated port user preferences. However, if the project is not implemented and La Goulette becomes congested, other ports including the old port of Tunis would be expected to handle part of La Goulette's general cargo. Cargo diversion from La Goulette to Tunis and other ports is estimated and evaluated in paras. 4.30 and 4.31.

4.11 Roll-on/roll-off traffic is likely to be limited by cargo characteristics, geographical origin and destination of port traffic and availability of roll-on/roll-off facilities in the ports of Tunisia's trading partners. This appraisal assumes that most of the traffic with continental Western Europe which is capable of being carried in roll-on/roll-off vessels (70% of total general cargo traffic) will eventually divert to roll-on/roll-off vessels as facilities become available. Projections for La Goulette for roll-on/roll-off traffic and other cargo which will continue to use conventional vessels and car ferries are as follows:

General Cargo Projections by Port and Mode of Shipment  
(m tons '000s)

Year	La Goulette			General Cargo Total	Tunis		Total
	--Roll-on/Roll-off-- In Ro/Ro ships	In car ferry	Conventional Ships		General Cargo	/1	
1978	201	137	597	935	515		1,450
1980	255	150	466	871	456		1,327
1983	470	150	461	1,081	377		1,458
1985	769	150	328	1,247	314		1,561
1990	1,023	150	479	1,652	350		2,002
1995	1,348	150	654	2,152	415		2,567
2000	1,762	150	873	2,785	506		3,291

/1 Excludes liquid and dry bulk goods handled over general cargo berths = 92,000 tons in 1978.

Sfax

Present Traffic

4.12 After Tunis/La Goulette, Sfax is the second largest general cargo port in Tunisia. Located 240 km south of Tunis, the port is a gateway to Tunisia's southern region. The port handles mineral and agricultural exports and, jointly with Tunis/La Goulette, seaborne imports for the southern provinces. The primary economic activity in the South consists of olive and almond cultivation, fishing, and phosphate and salt exploitation. Oil and gas deposits have been found and exploration begun some 100 km offshore from Sfax. The secondary sector is dominated, on the one hand by well-established artisan and small industries, and on the other, by heavy chemical industries. There is little or no manufacturing industry.

4.13 In 1978 port traffic totalled 3.5 million m tons. Bulk exports (phosphates and salt) and imports (petroleum and sulphur) accounted for 2.9 million m tons. General cargo shipments of 558,000 m tons consisted of 340,000 m tons of largely homogeneous goods such as cement, steel, timber, sugar and cereals; 171,000 m tons of miscellaneous break-bulk cargo; and 47,000 m tons of olive oil exported both in homogeneous (liquid) and break-bulk form.

4.14 All bulk commodities are shipped over specialized facilities adjoining the general cargo quay. Due to the lack of berthing and storage facilities in the general cargo port area, some break-bulk imports consigned to the mining and chemical companies are unloaded at their bulk cargo berths. A portion of the general cargo quay is used as a supply depot and home port for vessels supporting offshore oil exploration activities.

#### Traffic Projections

4.15 Traffic projections for Sfax have been prepared on the same basis as for La Goulette (para. 4.09) and take into account other events directly affecting economic and port activities in the region:

- (a) the proposed construction of an Algerian gas pipeline;
- (b) offshore oil and gas exploration; and
- (c) the completion of industrial estates.

4.16 According to OPNT, roll-on/roll-off vessels carried 27,000 m tons, or 4.8%, of general cargo at Sfax in 1978. This is despite the fact that the port has no roll-on/roll-off berths and very limited storage and parking facilities. Taking account of physical characteristics and geographic distribution of Sfax's seaborne commerce, it is estimated that nearly one-third or 158,000 m tons of general cargo will be carried by roll-on/roll-off vessels in 1985.

4.17 Traffic projections for Sfax are summarized below:

Sfax  
Traffic Projections 1983-2000 /a  
(m tons '000s)

	<u>1978</u> (actual)	<u>1983</u>	<u>1985</u>	<u>1990</u>	<u>1995</u>	<u>2000</u>
<u>Imports</u>						
Cement	91	-	-	(See Footnote /a)		
Steel	18	34	38	↓	↓	↓
Timber	57	100	114			
Sugar	43	-	-			
Cereals	131	61	67			
Equipment	58	76	80			
Chemicals	32	38	40			
Other	54	19	18			
Subtotal	<u>484</u>	<u>328</u>	<u>357</u>	<u>447</u>	<u>536</u>	<u>675</u>
<u>Exports</u>						
Olive oil	47	40	40	(See Footnote /a)		
Other	27	68	88	"	"	"
Subtotal	<u>74</u>	<u>108</u>	<u>128</u>	<u>170</u>	<u>254</u>	<u>341</u>
Total	<u>558</u>	<u>436</u>	<u>485</u>	<u>617</u>	<u>790</u>	<u>1,016</u>
Of which roll-on/ roll-off	27	80	158	202	258	330

/a Detailed commodity analysis not available after 1985.

4.18 The above figures reflect (a) the cessation of sugar and cement imports for the reasons stated in para. 4.09 and (b) a decline in cereal imports; these were high in 1977 and 1978 because of a drought which resulted in the diversion of grain ships from La Goulette where the silos were full and were being used for storage of grain.

### C. Project Benefits

#### General

4.19 The method used in estimating project benefits has been to compare the "with project" and "without project" situations and to estimate the difference in economic costs. This analysis has been done separately for La Goulette and Sfax.

4.20 At La Goulette, with or without the project, the increasing passenger traffic (car ferries and cruise ships) will utilize more of the existing capacity of eight berths, taking about one and one-half berths in 1978, two full berths by 1982, and gradually increasing to three full berths by 1992, thus leaving less capacity to handle growing general cargo traffic. The main feature of the "without project" situation at La Goulette would be that the conversion to the faster and more operationally efficient roll-on/roll-off traffic would have to be frozen at a level of about 500,000 m tons, in view of the physical limitations at the existing berths. The remaining part of the growing general cargo traffic would be handled as break-bulk cargo, resulting in more ship-time for cargo-handling, higher berth utilization levels and consequently longer ship-waiting lines. The expected diversion of part of the existing port capacity to passenger traffic would further aggravate congestion and waiting costs. In the "with project" situation, there would be no physical constraints, and the conversion to roll-on/roll-off traffic would be achieved to the maximum extent (about 1 million m tons by 1990 and 1.7 million m tons by the year 2000). The analysis presented below attempts to identify and estimate the various costs and benefits related to the two situations.

4.21 At Sfax, the shortage of general cargo berthing and back-up storage areas is so acute that efficient operations are hindered, and there is no capacity for further increases in general cargo traffic or for handling the expected switch to roll-on/roll-off traffic. Without the project, these conditions would generate further congestion.

#### Sources and Assessment of Benefits

4.22 Quantifiable benefits attributed to the project, scheduled to become fully operational in July 1983 at Sfax and July 1984 at La Goulette, consist of:

- (a) lower cargo-handling costs;
- (b) reduced ship-service time;
- (c) reduced ship-waiting time;
- (d) avoidance of diversion costs, arising from re-routing cargo through alternative ports; and
- (e) value of reclaimed land.

#### (a) Lower cargo-handling costs

4.23 Information on actual cargo-handling rates and costs for conventional and roll-on/roll-off vessels, provided by STAM, has been revised to reflect operational improvements already being effected. Cargo-handling rates and costs have been weighted to allow for a changing mix of commodities and of conventional and roll-on/roll-off traffic moving through the port.

4.24 Through the training of port workers in modern cargo-handling methods and the provision of more storage and handling areas and newer equipment, the project will improve the efficiency of the shore-handling operations and will consequently generate some savings.

4.25 The resulting savings at La Goulette are estimated at about US\$197,000 in the first full year of operation (1984), rising to US\$300,000 in 1992; and at Sfax, about US\$100,000 in 1984, rising to US\$136,000 in 1992. (See Tables 1 and 2 following para. 4.34.)

(b) Reduced ship-service time (alongside berths)

4.26 A crucial element of cost in ocean transportation is the time spent by ships in port in loading and discharging cargo (service-time) and in waiting for berths. The proposed project will reduce both of these, thereby producing valuable savings in ship-time costs which will be ultimately reflected in the ocean freight charges paid by the country. The reduced service-time would result from (a) increased productivity in ship-servicing operations (whether general cargo or roll-on/roll-off traffic), arising from improved operational methods and new equipment and (b) the larger share of the traffic carried in roll-on/roll-off ships with higher throughputs. It is assumed that at La Goulette the present throughput of about 410 m tons per ship-day for general cargo and about 650 m tons per ship-day for roll-on/roll-off traffic would be maintained up to 1983; and then, with the introduction of the new facilities, would improve by a minimum of 10% in 1985. At Sfax, the present productivity of 400 m tons per ship-day for general cargo is expected to be maintained until about 1982 and then would improve by about 10% in 1984 with the introduction of the new facilities. Roll-on/roll-off traffic throughputs are estimated to be around 700 m tons per ship-day in 1984. Details of estimated ship-service-time savings are presented in Tables 1 and 2 after para. 4.34; the figures presented show only 90% of the global savings from this source, the share of benefits assumed accruing to Tunisia.

4.27 In quantifying the value of ship-time savings in ports (both for service-time and waiting-time) costs of US\$3,900 per ship-day for general cargo vessels and US\$5,600 per ship-day for roll-on/roll-off vessels have been used. These values have been weighted to allow for a changing mix of conventional and roll-on/roll-off vessels using the ports from year to year.

(c) Reduced ship-waiting time (awaiting berths)

4.28 Without the project, the expected general cargo traffic growth; the physical constraints in increasing conversion of part of this traffic to roll-on/roll-off; and, at La Goulette, the increasing utilization of berths by car-ferry and cruise ship traffic all would contribute to longer service-time, reduced berth capacity, higher berth-occupancy and consequently longer ship-waiting lines. With the project, the above constraints would be removed, and additional port capacity would be provided, thus reducing berth-occupancy and the related ship-waiting time. Savings in ship-waiting time have been taken as project benefits; however, when ship-waiting costs reach a certain level, it would be more economical to divert the additional traffic to other ports.

Ship-waiting-time savings have therefore been frozen at the level reached at the cutoff point which comes in the year 1989 at La Goulette and in 1993 at Sfax.

4.29 The costs for the diverted traffic are discussed in para. 4.30 below. Estimated savings from reduced waiting-time of ships accruing to Tunisia (assumed as 90% of global benefits) are shown in Tables 1 and 2 following para. 4.34.

(d) Avoidance of traffic diversion

4.30 As discussed in the foregoing paragraph, when the average cost of ship-waiting exceeds the cost of ship-diversion to other ports including inland transport for the cargo, such diversion of additional traffic to nearby ports becomes more economical.

4.31 At La Goulette, for example, estimated ship-waiting cost without the project would be about US\$10.0 per ton in 1988 and about US\$32.0 in 1989, whereas the cost of diversion to other ports and additional land transport cost for the cargo would be about US\$16.0 per ton. Therefore, it is less costly to divert part of the traffic from sometime in 1989, when waiting costs exceed US\$16.0 on a per ton of cargo basis. At Sfax, such diversion becomes economical from 1994. The resulting avoided diversion costs are shown in Tables 1 and 2 following para. 4.34.

(e) Value of reclaimed land

4.32 Apart from the land to be reclaimed under the project for immediate port use, about 30 ha of additional land adjacent to the Port of La Goulette will also be reclaimed as part of the dredging works, and will be available for industrial or commercial uses at the end of 1983. This land, because of its prime location, will constitute a valuable new asset created by the project; ruling market prices for such undeveloped land in the La Goulette area are about US\$50 per m<sup>2</sup>; for the present analysis, a conservative value of US\$25 per m<sup>2</sup> has been used, giving an amount of US\$7.5 million which has been taken as a one-time benefit from the project at La Goulette in the year 1984.

Summary - Benefits Streams

4.33 Tables 1 and 2 that follow on pages 34 and 35 present a summary of the benefits streams, for each port, arising from the project, as described in the foregoing paragraphs. The following points should be highlighted:

- (a) The economic evaluation covers a twenty-five-year period for project life, coinciding with the expected useful life of civil works, a major component of the project. The project benefits are assumed to accrue from mid-1983 at Sfax and from mid-1984 at La Goulette, except for reclaimed land at La Goulette (para. 4.32).

- (b) Economic benefits, other than diversion-cost savings, are held constant at the level attained in 1988 at La Goulette and in 1993 at Sfax, when these respective ports would, without the project, reach high levels of congestion, and it would become more economical to divert additional traffic to other ports. All project benefits are held constant after 1999 at La Goulette and 2005 at Sfax, when the expanded ports would be fully utilized.
  
- (c) All project benefits from the savings in cargo-handling, avoided diversion costs, and the value of the additional land accrue directly to Tunisia. However, part of the benefits from ship-time savings accrue first to foreign shipowners and have to be passed on to Tunisia, since ship-waiting in any country's port is ultimately paid by the country concerned either as demurrage charges (in the case of charter ships) or as congestion surcharges (in the case of liner ships); any savings in reducing such waiting costs would accrue in full to the country. As regards service-time benefits which in the present case are only a small amount compared with waiting-time savings, such passing on is uncertain. However, in the case of Tunisia, many factors would favor an almost full transfer of such benefits:
  - (i) The Tunisian national shipping company, Compagnie Tunisienne de Navigation (COTUNAV), has about a 30% share of the liner traffic and therefore has a considerable role in fixing liner freight rates.
  - (ii) Unlike other liner traffic where the freight rates are not sensitive to conditions in any particular port because of the several ports in a common freight range, the general cargo traffic between Tunisian and European ports (which accounts for most of the traffic--90% of imports and 83% of exports) is carried primarily by shuttle services between these ports. Therefore, changes in port conditions have a greater impact on freight rates; moreover, the projected growth of Tunisian national shipping lines will further strengthen Tunisia's bargaining power in this matter.
  - (iii) Finally, it is expected that OPNT's tariff policy will be restructured to help recover some of the benefits accruing to ships due to the project (para. 5.02). On these grounds, it would be reasonable to expect a full transfer of the ship-time savings to Tunisia; however, as a conservative assumption, only 90% of the total global benefits are assumed to accrue to Tunisia.

D. Economic Costs of the Project

4.34 The estimated financial cost of the project was adjusted for economic evaluation by excluding taxes (import and local) and price contingencies, as follows:

	<u>Total Financial</u> <u>Cost</u>	<u>Taxes</u>	<u>Price</u> <u>Contingencies</u>	<u>Economic</u> <u>Costs</u>
	----- (US\$'000s) -----			
La Goulette	90,440	15,580	13,970	60,890
Sfax	31,300	5,500	5,060	20,740

The economic costs include physical contingencies. The time-phasing of the investment used in the economic analyses is in accordance with the expected physical completion of the project. Periodic replacement costs for the equipment procured under the project have been introduced into the project cost stream. These costs are shown in Tables 1 and 2 below:

Table 1: LA GOULETTE  
(US\$'000s)

Year	Benefits				Costs		
	Reduced cargo-handling costs	Ship service-time-savings	Ship waiting-time-savings	Avoidable diversion costs	Land value	Total	Total
1980	-	-	-	-	-	-	10,600
1981	-	-	-	-	-	-	10,600
1982	-	-	-	-	-	-	14,400
1983	-	-	-	-	-	-	18,100
1984	107	420	935	-	7,500	8,962	7,190
1985	197	510	2,580	-	-	3,287	-
1986	210	360	3,275	-	-	3,845	-
1987	224	580	6,146	-	-	6,950	-
1988	238	610	11,580	-	-	12,428	-
1989	254	485	15,750	-	-	16,489	-
1990	270	↓	↓	80	-	16,585	4,550
1991	286	↓	↓	110	-	16,631	-
1992	300	↓	↓	130	-	16,665	-
1993	↓	↓	↓	166	-	16,701	-
1994	↓	↓	↓	192	-	16,727	-
1995	↓	↓	↓	596	-	17,131	-
1996	↓	↓	↓	1,232	-	17,767	-
1997	↓	↓	↓	2,437	-	18,972	4,550
1998	↓	↓	↓	5,252	-	21,787	-
1999	↓	↓	↓	15,716	-	32,251	-
2000-03	↓	↓	↓	↓	-	↓	-
2004	↓	↓	↓	↓	-	↓	4,550
2005-08	↓	↓	↓	↓	-	↓	-

NOTE: Arrow indicates that figures are frozen at the same level.

Table 2: SFAX  
(US\$'000s)

Year	Benefits				Costs	
	Reduced cargo-handling costs	Ship service-time-savings	Ship waiting-time-savings	Avoidable diversion costs	Total	Total
1980	-	-	-	-	-	3,700
1981	-	-	-	-	-	6,300
1982	-	-	-	-	-	7,300
1983	50	386	329	-	765	3,440
1984	101	992	820	-	1,913	-
1985	97	1,220	948	-	2,265	-
1986	102	1,285	1,128	-	2,515	-
1987	107	1,344	1,355	-	2,806	-
1988	112	1,410	1,640	-	3,162	-
1989	118	1,480	2,025	-	3,623	2,550
1990	123	1,553	2,535	-	4,211	-
1991	130	1,635	3,268	-	5,033	-
1992	136	1,710	4,330	-	6,176	-
1993	↓	1,794	5,975	-	7,905	-
1994	↓	↓	↓	296	8,201	-
1995	↓	↓	↓	616	8,521	-
1996	↓	↓	↓	936	8,841	2,550
1997	↓	↓	↓	1,264	9,169	-
1998	↓	↓	↓	1,616	9,521	-
1999	↓	↓	↓	1,976	9,881	-
2000	↓	↓	↓	2,424	10,329	-
2001	↓	↓	↓	2,944	10,849	-
2002	↓	↓	↓	3,594	11,499	-
2003	↓	↓	↓	4,224	12,129	2,550
2004	↓	↓	↓	4,984	12,889	-
2005-07	↓	↓	↓	5,824	13,729	-

NOTE: Arrow indicates that figures are frozen at the same level.

E. Economic Return and Sensitivity Analyses

4.35 The economic rate of return (ERR) on the project--at La Goulette, 16.5% and 16.5% at Sfax--indicates that the project is economically justified and eligible for Bank financing. Sensitivity of the ERR has been tested for higher project costs and lower benefits. Lower benefits are likely if traffic grows at less than the projected rates, which are conservative. Materially higher project costs are unlikely since these are based on bids received for civil works which form the major part of the project. Results of the sensitivity analyses summarized below indicate that the project is economically viable even under these conditions.

	<u>La Goulette</u>	<u>Sfax</u>
(a) Basic rate of return	16.5	16.5
(b) Project cost increase (10%)	15.5	15.5
(c) Reduction in project benefits (10%)	15.4	15.4
(d) Combination of (b) and (c)	14.4	14.4

4.36 An analysis of the impact of delaying the project at La Goulette by one to three years was made; the results show that with a delay of three years, the ERR and the net present value are 15.3% and US\$15.3 million, respectively, compared with 16.5% and US\$26.4 million if the project started in 1980. This is partly due to: (a) lower than normal dredging costs included in bids received as a result of the current market situation in the Middle East, whereby dredging capacity is in surplus: the cost would be at least US\$6 million more (at current prices) if the project were delayed and (b) the delay in starting the project would correspondingly delay the generation of benefits, since most of these, by their nature, are related to the project development and need a build-up period after the project is under way.

4.37 The dimensions of the project were also examined, particularly whether two of the six new berths at La Goulette should be built now or later; the analysis showed that it would be more economical to build them now (para. 3.15).

4.38 The project is generally free from any major risk. The traffic projections used in the analysis are conservative, and any change therein is reflected in the sensitivity analysis which still shows an acceptable return. A further analysis shows that project benefits have to be reduced by 36% or costs increased by 57% to give a rate of return of less than 12%.

V. FINANCIAL EVALUATION

A. General

5.01 The present financial situation of OPNT and the quality of the financial management are good and are likely to remain so in the future. Increases in tariffs, estimated to increase revenues by 30% in a full year, were introduced on July 16, 1979; and certain changes in the tariff structure as proposed by the consultants BCEOM have been incorporated. Assets are valued at cost and at the takeover value from the old Regie des Ports de Commerce.

5.02 However, since the facilities to be provided by the project will be largely for the benefit of shipowners, OPNT agreed at negotiations to undertake a further review of the tariff structure not later than December 31, 1981 to ensure that an adequate share of these benefits are captured by the country and that a satisfactory return on this investment is obtained.

B. Finances - Present and Projected

5.03 The Balance Sheet for 1978 is summarized below together with estimates for 1979 to 1985:

	<u>1978</u> (Actual)	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
	(TD'000s)							
Gross fixed assets	42,871	44,875	48,195	49,295	51,895	65,685	102,475	103,195
Less depreciation	15,763	17,363	19,063	20,913	22,913	25,113	27,768	30,498
Net fixed assets	27,108	27,512	29,132	28,382	28,892	40,572	74,707	72,697
Work-in-progress	3,150	3,320	9,740	19,960	31,310	33,430	720	-
Investments	5,475	5,475	4,975	4,975	3,475	1,500	4,500	8,000
Net current assets	2,126	3,468	3,291	2,908	2,641	1,151	3,136	3,345
<u>Capital employed</u>	<u>37,859</u>	<u>39,775</u>	<u>47,138</u>	<u>56,225</u>	<u>66,318</u>	<u>76,653</u>	<u>83,063</u>	<u>84,042</u>
Represented by								
Long-term debt	10,376	9,989	13,410	18,935	26,008	33,005	35,806	34,171
Equity	27,483	29,786	33,728	37,290	40,310	43,648	47,257	49,871
	<u>37,859</u>	<u>39,775</u>	<u>47,138</u>	<u>56,225</u>	<u>66,318</u>	<u>76,653</u>	<u>83,063</u>	<u>84,042</u>
Debt/Equity Ratio	27/73	25/75	28/72	34/66	39/61	43/57	43/57	41/59

5.04 The revenue and expenditure accounts for 1978, together with the estimates for 1979 to 1985, are summarized below:

	<u>1978</u> (Actual)	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
----- (TD' 000s) -----								
Revenues	6,268	7,850	10,370	10,890	11,440	13,010	13,800	14,590
Operating expenses	3,181	3,382	3,860	4,270	4,774	5,310	5,970	6,715
Depreciation	<u>1,367</u>	<u>1,600</u>	<u>1,700</u>	<u>1,850</u>	<u>2,000</u>	<u>2,200</u>	<u>2,655</u>	<u>2,730</u>
Operating surplus	1,720	2,868	4,810	4,770	4,666	5,500	5,175	5,145
Interest paid	507	440	738	1,073	1,506	2,012	2,416	2,681
Net surplus	1,213	2,428	4,072	3,697	3,160	3,488	3,759	2,864
Non-operating expenses (net)	144	125	130	135	140	150	150	150
Net revenues	1,069	2,303	3,942	3,562	3,020	3,338	3,609	2,714
Cash flow (gross)	2,436	3,903	5,642	5,412	5,020	5,538	6,264	5,444
Operating ratio %	73	64	54	56	59	58	63	66
Interest coverage x	3.4	6.5	6.5	4.4	3.1	2.7	2.1	1.8
Debt service coverage x	3.3	5.6	5.6	4.4	3.4	2.4	2.1	1.7
Return on average net fixed assets %	5.8	10.5	17.0	16.6	16.3	15.8	9.0	7.0

5.05 The main assumptions used in the forecasts shown in para. 5.04 are as follows:

Revenues: The income is based on the estimated increases in traffic and includes, from July 16, 1979, 150% increase in ship dues; 50% in pilotage; 30% in wharfage; 25% in passenger dues; and 75% in storage charges. Hire of equipment includes the estimated rents on equipment proposed to be leased to STAM. It also has been assumed that following the introduction of a new tariff structure on January 1, 1983, dues on ships and wharfage would be increased by 10%.

Expenditures

- (a) Wages and salaries, which account for about 70% of direct operating costs, are assumed to increase by 10% per annum to cover anticipated inflation costs and include additional staff required.
- (b) Repairs and maintenance and other expenditures have been increased by 5% per annum.
- (c) Depreciation is 2-4% for civil works, 5% for floating craft and 5-15% for cargo-handling equipment.
- (d) Interest charges have been calculated at existing rates on current Bank loans of 5-1/2% and 6-1/2%, and 1-1/2% on government loans. For the proposed Bank loan the current Bank rate of 7.95% has been used. Interest charges for export credits have been taken at 8.5% and for commercial credits at 12%.

5.06 Cash flow estimates indicate that OPNT will be able to contribute about 53% of the investment program 1979-85. A summary of the 1979-85 cash flow is given below:

<u>Funds Required</u>	<u>(TD '000s)</u>
Bank-financed project	50,350
Other capital expenditures	8,000
Debt service	<u>16,640</u>
	<u>74,990</u>
<u>Funds Available</u>	<u>(TD '000s)</u>
Internally generated	45,370
Loans - IBRD	17,000
Loans - Others	<u>12,620</u>
	<u>74,990</u>

5.07 The financing plan assumes that, in addition to the proposed Bank loan of TD 17.0 million (US\$42.5 million equivalent), the balance of the foreign exchange requirement for the project and other capital expenditures will be obtained from export credit guarantees and commercial bank credits in accordance with the financing plan agreed at negotiations (paras. 3.40 and 3.42). These financing arrangements are satisfactory to the Bank. The prior conclusion of agreements securing the necessary foreign exchange finance will be a condition of effectiveness.

C. Financial Covenants

5.08 As will be seen from the preceding paras. 5.03 to 5.06, OPNT will be able to maintain satisfactory operating ratios and has a strong financial position with satisfactory rates of return on its net operational fixed assets, and adequate debt service coverage. Debt/equity ratios are also well within the limits of a sound capital structure, reaching a peak of 43/57 in 1983 and 1984.

5.09 During negotiations, the following matters were discussed and agreed as conditions of Bank lending:

- (a) A further review of the tariff structure, particularly those charges on vessels and for storage, not later than December 31, 1981 to ensure an adequate return on the proposed investment in port facilities. Appropriate new tariffs should be introduced on or before January 1, 1983 (paras. 2.41 and 5.02).
- (b) The generation of revenues sufficient
  - (i) to produce an annual return on net average revalued fixed assets in operation of not less than 7% before tax and interest (Loan Agreement 573-TUN for the Second Port Project provided for a return of 7% by 1973); and
  - (ii) to meet, out of internally generated funds, debt service payments, taxation, and to provide adequate working capital and make a reasonable contribution to capital expenditures.

5.10 To ensure continuation of OPNT's sound financial position, agreement was reached during negotiations that OPNT will not incur any further debt, without the agreement of the Bank, unless its net income for the fiscal year next preceding the date of such incurrence, or for the later period of twelve consecutive months ending prior to such incurrence, whichever amount is the greater, is not less than 1.5 times the maximum debt service requirements for any succeeding fiscal year.

5.11 During negotiations OPNT agreed not to change materially the investment program shown in para. 3.04. However, they should be allowed to expend, in addition to the agreed expenditures under the investment program, up to US\$2.5 million equivalent per annum until the completion of the project.

VI. AGREEMENTS REACHED AND RECOMMENDATION

6.01 The Government has agreed to guarantee cost overruns (para. 3.42). As recorded in the draft Guarantee Agreement (Section 2.02).

6.02 OPNT and the Bank have agreed on the following:

- (a) outline Plan of Action to improve operational efficiency (para. 2.34);
- (b) the investment program for 1979-84 and an annual capital expenditure allowance of not more than US\$2.5 million until the completion of the project (paras. 3.04 and 5.11);
- (c) appointment of consultants for reorganization of repair and maintenance services and for training program implementation. Consultants' recommendations for the workshops reorganization are to be reviewed with the Bank (paras. 3.19(c), 3.30, 3.31 and 3.44);
- (d) cargo-handling equipment to be leased to cargo-handling companies on terms and conditions satisfactory to the Bank. Materials for the manufacture of pallets by STAM will be transferred under arrangements, satisfactory to the Bank, which will cover the full costs of such materials (para. 3.29);
- (e) the preparation of the Project Completion Report (para. 3.46);
- (f) a further review of the tariff structure not later than December 31, 1981, and the introduction of cost-related tariffs on or before January 1, 1983 (paras. 4.33, 5.02 and 5.09);
- (g) the maintenance of revenues at a level sufficient:
  - (i) to generate a return on average revalued net assets in operation of not less than 7% (para. 5.09);
  - (ii) to meet, out of internally generated funds, debt service payments, and to provide adequate working capital and make a reasonable contribution to capital expenditures (para. 5.09); and
- (h) no further debt to be incurred unless it is shown that OPNT's net revenue is not less than 1.5 times the maximum debt service required for any succeeding fiscal year (para. 5.10).

As recorded in the draft Loan Agreement (Sections 3.02, 3.04(c), 3.06-07, 4.04 and 5.06-08).

6.03 A condition of effectiveness of the proposed loan should be the prior conclusion by the Government and OPNT of agreements, satisfactory to the Bank, with other parties for the financing of the foreign exchange costs of the project not covered by the Bank loan (paras. 3.42 and 5.07). As recorded in the draft Loan Agreement (Sections 7.01 and 7.02).

6.04 Based on the agreements reached and subject to the foregoing condition of effectiveness, the project is suitable for a Bank loan to OPNT of US\$42.5 million for 17 years, including a grace period of three and one-half years.

STAFF APPRAISAL REPORT

TUNISIA

THIRD PORT PROJECT

Transport Sector Projects Previously Financed by the Bank

1. Loan 380-TUN (1964, US\$7.0 million, Republic of Tunisia, First Port Project) was for a project, the major components of which were dredging and refilling at La Goulette, the construction of berths, transit sheds and other infrastructure and consulting services. The project was satisfactorily completed.
2. Loan 573-TUN (1969, US\$8.5 million, Office des Ports Nationaux Tunisiens, Second Port Project) was for a project, the major components of which were dredging, the provision of dredges and cargo handling equipment, provision of a grain berth, training and consulting services. The project was satisfactorily completed.
3. Loan 606/Credit 150-TUN (1969, US\$17.0 million SNCFT, Railway Project) was for a project, the major components of which were the renewal of 352 km of track, purchase of rolling stock, improvement of workshops and consulting services. The project was delayed by about two years due to the disastrous floods of 1969 and 1971 and shortages of funds resulting from slow payments by the railway's principal customer (SFAX/GAFSA Phosphate Co.) prior to 1973, when the Government assumed the debts of the phosphate company. The project was satisfactorily completed.
4. Loan 52-TUN (1969, US\$0.8 million) was for engineering studies for highways included in the First Highway Project. It was satisfactorily completed.
5. Loan 724-TUN (1971, US\$7.5 million, Societe Tunisienne de l'Electricite et du Gaz, Gas Pipeline Project) was for a project, the major components of which were procurement and installation of pipelines, compressors, and auxiliary facilities. The project was satisfactorily completed.
6. Loan 746-TUN (1971, US\$24.0 million, First Highway Project) was for partial financing of construction and improvement of 274 km of highways, resurfacing and rehabilitation of 1920 km of roads, reconstruction of 51 bridges and consulting services. The project encountered difficulties with the rise in costs at the time of the oil crisis. In addition, further studies showed that the Tunis-Turki section should be constructed as a four-lane freeway rather than as the three-lane road included in the project. The Board therefore approved exclusion of the Tunis-Turki road from the project; this road was later financed by the Kuwait Fund. The disbursement rate was reduced on the remaining items. All other construction items and consulting services have now been satisfactorily completed.

7. Loan 1188-TUN (1976, US\$28.0 million, Second Highway Project) was for the improvement of about 225 km of primary and secondary roads, and consulting services to assist in the updating of the 1968 Transport Survey and to assist with the preparation of a Rural Roads Program. Construction has been completed on one lot of highway G.P.8, Tunis-Bizerte, and is well advanced on the second lot. Construction is also in progress on the single lot for improvement of a road in Nabeul. However, works on the remaining three lots of the project have not started because of local budgetary constraints. The Rural Roads Study has been completed, but the updating of the 1968 Transport Survey is behind schedule due to Government delays.

8. Loan 1601-TUN (1978, US\$32 million, Rural Roads Project) was for the improvement of about 1,000 km of rural roads, maintenance equipment and training. This loan became effective on March 30, 1979 and is proceeding satisfactorily.

STAFF APPRAISAL REPORT

TUNISIA

THIRD PORT PROJECT

Documents Available in Project Files

I. Consultants' Studies

1. Plan Directeur des Ports de Commerce (BCEOM), February 1975,  
9 vols. with Plans.  
Terms of Reference for Plan Directeur des Ports de Commerce.
2. La Manutention portuaire en Tunisie (BCEOM), July 1970. 2 vols.
3. Plan Directeur des transports maritimes (CECOTRAT), June 1978,  
6 vols.
4. Computerization of OPNT Accounting Procedures (SIGMA), July 1977  
and March 1978, 3 vols.
5. Car Ferry Study (CTN), August 1976, 1 vol.
6. Agricultural Areas Study (SETEC), October 1977, 1 vol.

II. Government Publications

Ministere du Plan

1. 5th Development Plan 1977-1981, 1 vol.
2. Budget d'Equipment 1978, Institut National de la Statistique, 1 vol.
3. Enquete Nationale sur le Budget 1975, Institut National de la  
Statistique, 1 vol.
4. Recensement des Activites Industrielles, Institut National de la  
Statistique, Tableaux Statistiques, 1975, 1 vol.
5. Annuaire Statistique de la Tunisie 1974/75, Institut National de la  
Statistique, 1 vol.
6. Bulletin Mensuel de Statistique, fevrier 1978, Institut National  
de la Statistique, 1 vol.
7. Recensement General de la Population et des Logements, 1975, 1 vol.

II. Government Publications (Cont'd.)

8. Ministere de l'Equipement  
Elements pour une decentralisation industrielle en Tunisie 1976,  
2 vols.
9. Ministere de l'Equipement  
Plan Directeur de Sfax, Etudes Preliminaires, March 1976.
10. Note on No. 9 above. Source unknown.
11. Ministere des Affaires Sociales  
Collective Agreement - Port Works, 1975.
12. Ministere des Transports et des Communications  
Merchant Marine Seminar, November 1976.

III. Documents received from OPNT

1. Law No. 65/2 of February 12, 1965, as modified February 25, 1972,  
creating OPNT.
2. Decree No. 70-589 of October 30, 1970 - Purchasing Regulations.
3. Port Regulations - Tunis/La Goulette 1950/51.
4. Port Regulations - Sfax 1950/51.
5. Personnel Regulations.
6. Employee Classification Tables (3).
7. Tariff - 1978.
8. New Tariff - 1979.
9. Proposed Revision of Tariffs, December 1977.
10. Operations Reports, 1977 and 1978 - Tunis/La Goulette.
11. Operations Report, 1977 - Sfax.
12. Budgets, 1978 and 1979.
13. Port Handbook, 1977.
14. Audited Accounts, 1977.
15. Statistics, 1977 - all ports.
16. Study of Port Traffic and Customs' Procedures.

III. Documents received from OPNT (Cont'd.)

17. Statistics, 1st Quarter 1978.
18. Administration Report, 1978.
19. Traffic Projections 1979/85
  - (a) Note de Presentation
  - (b) Projection Tunis/La Goulette
  - (c) Unitised Traffic
20. Traffic Projections 1976-85
  - (a) All ports - Imports
  - (b) " " - Exports
  - (c) Tunis
  - (d) La Goulette
  - (e) Sfax
21. Monthly Statistics, 1976.
22. Monthly Statistics, 1977.
23. Monthly Statistics, March and April 1979.
24. Ships' Waiting Time, 1977, Tunis/La Goulette.
25. Ships' Waiting Time, 1977, Sfax.
26. Traffic - Origin and Destination 1983, 1985 and 1990.
27. List of Equipment at Tunis/La Goulette and Sfax.

IV. Documents received from STAM

1. Articles of Association.
2. Personnel Regulations, July 1973.
3. Note on Palletization.
4. Training Center Proposal, Tuniso-Belge Cooperation Technique.
5. Balance Sheets, 1976 and 1978.
6. 1977 Operations Report.
7. 1978 Budget.
8. 1979 Budget.
9. Administration Reports, 1976 and 1977.

V. Engineering Data

1. Preliminary Engineering (BCEOM, France; STUDI, Tunisia):
  - (a) La Goulette
  - (b) Sfax
2. Bidding Documents (BCEOM, France; STUDI, Tunisia):
  - (a) La Goulette
  - (b) Sfax

File 1

3. Prequalification Documents for ICB.
4. Etudes de factibilite: Amenagement des Berges du Lac de Tunis, 3 vols.
5. STAM: Budget d'Equipement (1978); actualise (1979).
6. STAM: Inventaire General du material.
7. STAM: Prevision d'Equipement 1979-1983 (1st draft).
8. La Tunisie economique, September 1978 issue - (Cours des materiaux in center pages).
9. Plan d'Amenagement de la Commune de Tunis, January 1978.
10. OPNT: Politique d'Equipement, June 1979.
11. STAM: Projet d'Equipement, June 1979 - Port de la Goulette et Port de Sfax.
12. STAM: Training requirements.
13. Mecasol (Soil mechanics, consulting engineers, France): Technical analysis of alternative designs: La Goulette.
14. OPNT: Preliminary comparison tables of La Goulette and Sfax bids for civil works.
15. Nippon Steel Corporation's (NSC) letter of June 6, 1979: Proposition de la part de NSC concernant le credit en Yen pour l'extension du port de la Goulette et de Sfax (public financing).
16. The Industrial Bank of Japan, Limited's letter of June 1, 1979 (private financing offer for No. 15).

V. Engineering Data (Cont'd.)

File 2

17. Indexed working papers.

File 3

18. Other working papers.

VI. Operational, Financial and Economic Data

A. Operational

1. Report of Port Operations by Francis Lefebvre, Consultant, October 24, 1978.
2. Memorandum prepared on assignment by Francis Lefebvre, Consultant, September 24, 1978.
3. Aide-Memoire prepared on assignment by Francis Lefebvre, Consultant, September 27, 1978.
4. STAM Daily Report to the President/Director General, January 5, 1978.
5. STAM - Reorganization of Personnel at La Goulette, September 18, 1978.
6. Notes on various meetings with:
  - (a) Harbor Master, Tunis/La Goulette, September 22, 1978.
  - (b) Operations Committee, September 20, 1978.
  - (c) Importers and Exporters, September 22 and September 23, 1978.
7. Stevedoring Tariff
  - (a) February 15, 1952 - JORT (Official Gazette).
  - (b) March 3, 1975 - STAM.
  - (c) Proposed revised tariff - STAM.
8. Daily wage rate, May 1, 1978 - STAM.
9. Maritime Traffic Regulations - JORT (Official Gazette) July 9, 1952, effective December 29, 1955.

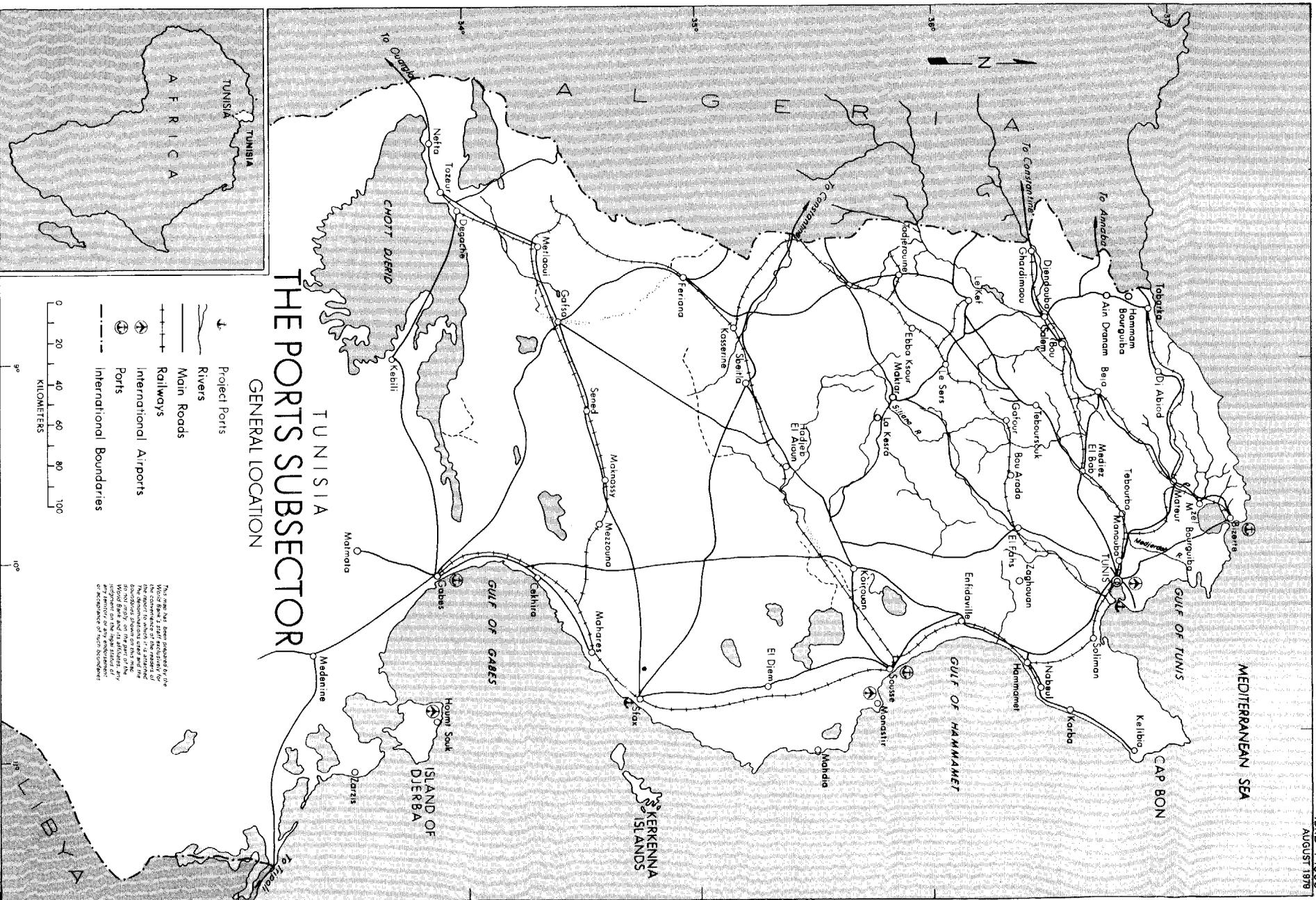
VI. Operational, Financial and Economic Data (Cont'd.)

B. Financial

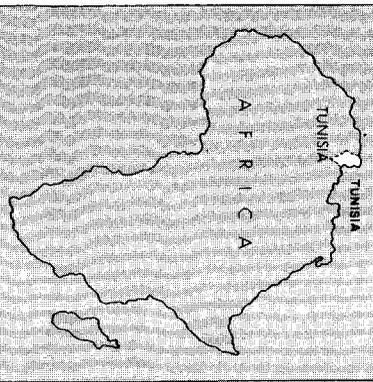
1. Forecast Balance Sheets, 1979/85.
2. Revenue and Expenditure Accounts, 1979/85.
3. Cash Flow forecast, 1979/85.

C. Economic

1. Tunis/La Goulette - Revised Traffic Forecasts.
2. Tunis/La Goulette - Allocation of Traffic between the ports.
3. 1978 Traffic - all ports.
4. 1978 and 1977 Traffic Comparison - all ports.
5. Cargo Traffic, Tunis/La Goulette, January/April 1977, 1978 and 1979.
6. Cargo Traffic - roll-on/roll-off, January/April 1979.
7. Cargo Traffic - car ferry, January/April 1979.
8. Ships - all ports, 1978.
9. La Goulette - Analysis of traffic forecasts by commodity.
10. Sfax - Cargo traffic forecasts, 1978/1985.
11. Data assumptions and calculations of the economic return for La Goulette and Sfax.

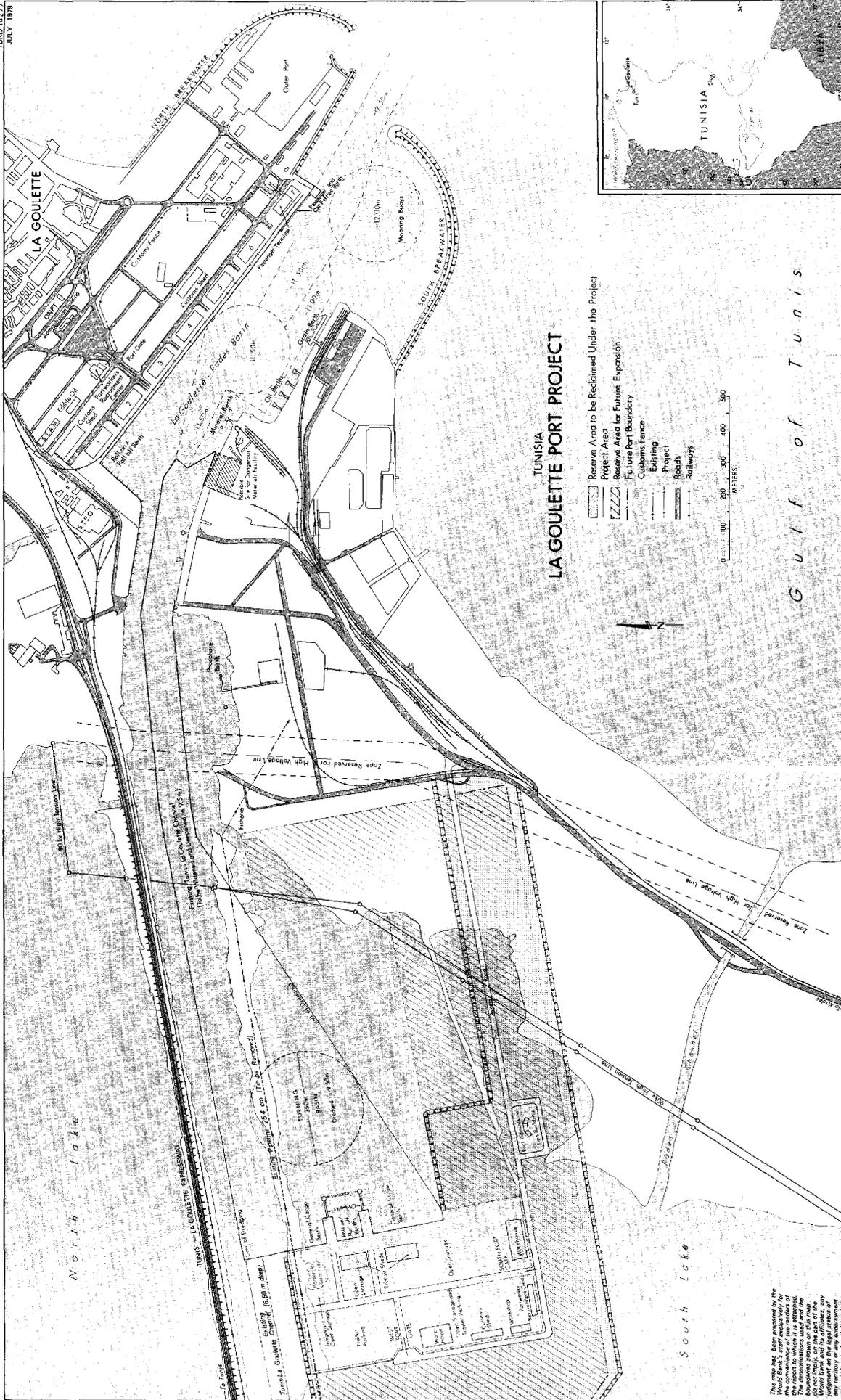


# TUNISIA THE PORTS SUBSECTOR GENERAL LOCATION



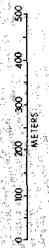
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TUNISIA  
**LA GOULETTE PORT PROJECT**

- ▨ Reserve Area to be Reclaimed Under the Project
- ▨ Project Area
- ▨ Reserve Area for Future Expansion
- ▨ Future Port Boundary
- ▨ Customs Fence
- ▨ Existing
- ▨ Project
- ▨ Roads
- ▨ Railways



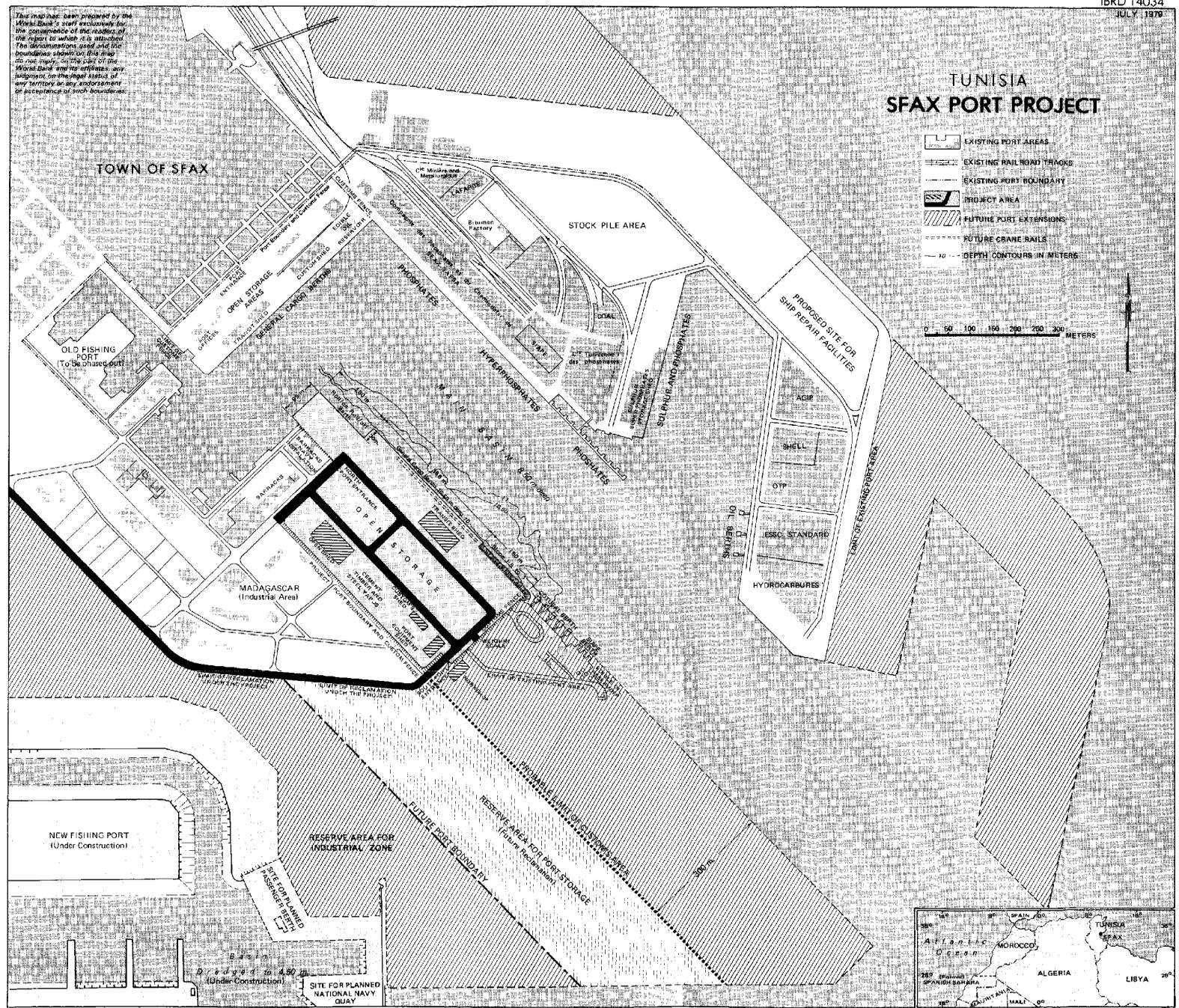
Gulf of Tunis

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# TUNISIA SFAX PORT PROJECT



Scale  
0 50 100 150 200 250 300 METERS  
Designed in 4.50 m  
(Under Construction)  
SITE FOR PLANNED NATIONAL NAVY QUAY