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Appraisal of the Rehabilitation of the Suez Canal Arab Republic of Egypt

November 19, 1974

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

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International Development Association

CURRENCY EQUIVALENTS[1/]

Currency Unit	=	Egyptian Pound (LE)
US$2.40	=	LE 1.00
US$1.00	=	LE 0.42
US$2.40 million	=	LE 1 million

SYSTEM OF WEIGHTS AND MEASURES

Metric		British/US
1 meter (m)	=	3.28 feet (ft)
1 kilometer (km)	=	0.62 mile (mi)
1 metric ton (m ton)	=	2.20 pounds (lb)
1 cubic meter (m^3)	=	35.31 cubic feet (cu ft)

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1 Suez Canal Net Registered Ton	=	100 cubic feet (cu ft)
	=	2.83 cubic meters (m^3)

GLOSSARY OF ABBREVIATIONS

SCA	-	Suez Canal Authority
SCNRT	-	Suez Canal Net Registered Ton
dwt	-	deadweight ton
grt	-	gross registered ton

GOVERNMENT OF THE ARAB REPUBLIC OF EGYPT
FISCAL YEAR

January 1 - December 31

1/ Adjusted as of April 30, 1974.

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

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APPRAISAL OF

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SUMMARY AND CONCLUSIONS

i. The Suez Canal has been closed since July 1967 as a result of hostilities in the Middle East. With disengagement, the Egyptian Government has given first priority to reopening and rehabilitating the Canal. During hostilities mines and explosives were lodged in the channel, and most service and operational equipment was damaged or destroyed. Clearance of mines and explosives was carried out by naval personnel (Egyptian, French, UK, USSR and US) and is nearly completed so that the Canal can be reopened to traffic by the end of the first quarter of 1975. The Government has requested Bank assistance for rehabilitation, which will begin in the fall of 1974 and proceed until the end of 1977.

ii. The project will be the third Bank Group involvement in transport and the second for the Suez Canal. Under the project, equipment and material will be procured, and damaged or destroyed infrastructure and buildings will be rehabilitated. Technical assistance and studies also will be provided to the Suez Canal Authority (SCA) to improve planning and operations, to set dues, and to evaluate the optimum size and timing of future canal expansion.

iii. The project cost is estimated at US$288 million. This excludes naval contributions to canal preparations and interest during construction on external loans. But it includes customs duties, costs of shipping and handling, and fees for local agents, insurance companies, local fittings, and trials. The foreign exchange cost of the project is US$181 million, or 63%. Costs of the civil works have been derived largely from prices of similar works now being undertaken in the Canal Zone, and are reasonable. They are based on SCA using a high percentage of its labor force. Costs of equipment are based on recent suppliers' prices.

iv. A Bank loan to SCA of US$50 million is proposed for a 20-year term, including 4 years of grace, to cover 27.6% of the foreign exchange cost of the project. SCA has already obtained a US$33 million loan from the Kuwait Fund for Arab Economic Development and is negotiating for an additional loan of US$33 million. USAID has indicated that it intends, subject to congressional approval to contribute US$50 million towards the financing of the project and SCA and the Government are negotiating with other potential lenders another US$15 million to cover the foreign exchange cost of the project. The Government and SCA will finance the local cost. Retroactive financing up to US$3.5 million is recommended to cover expenditures by SCA after July 1, 1974 on urgently needed items proposed to be financed by the Bank.

v. SCA will be responsible for carrying out the project, and its staff is competent to do so. The Bank-financed items will be procured based on international competitive bidding in accordance with the Bank Group "Guidelines

for Procurement", with the exception of spare parts amounting to about US$4.3 million. SCA has a competent procurement department, which will prepare tender documents. Contracts will be grouped so as to attract foreign bidders. Local preferences to the extent of 15% of the CIF landed price of imported goods or the actual customs duty, whichever is lower, will apply to local bids. The construction period will be from the fall of 1974 to the end of 1977, but ships will be able to transit the Canal, possibly at reduced speed, from reopening.

vi. SCA intends to revise canal dues before reopening, and consultants were selected in July 1974 to study future traffic and recommend possible levels of dues. The financial evaluation was based on dues 37% higher than in 1967 and shows that SCA will be able to service its debt, contribute LE 30.8 million to the project, and retain a reasonable cash balance at the end of 1980. SCA has carried on its books at a nominal value of LE 1 fixed assets taken over upon nationalization in 1956; it has not been able to carry out a complete inventory of damages to assets resulting from hostilities. Revaluation of assets is essential and will be undertaken as part of the project. The audit of SCA's accounts by Government auditors is satisfactory and acceptable to the Bank.

vii. Reopening will greatly reduce the sea distance on a number of major trade routes and will generate savings in shipping costs of US$315 million in 1975 and US$1,250 million in 1980. The main beneficiaries will be SCA, ship owners, and shippers. Subsequently, Egypt will recoup part of the benefits through canal dues. Based on the 1967 tariffs increased by 37%, the project will yield a rate of return exceeding 50%.

viii. The project is suitable for a Bank loan of US$50 million to the Suez Canal Authority for a 20-year term, corresponding to the average life of the assets, including 4 years of grace, corresponding to the expected disbursement period.

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

I. INTRODUCTION

1.01 As a result of hostilities in the Middle East, the Suez Canal has been closed since 1967. With disengagement, the Egyptian Government has given first priority to reopening and rehabilitating the Canal. The Egyptian, French, US and UK Navies have almost completed removing mines and explosives, and removal of wrecks and other obstacles is well underway. The Canal is expected to be clear by the end of 1974, and reopened to traffic by the end of the first quarter of 1975.

1.02 Most service infrastructure and operational equipment for the Canal was damaged or destroyed during hostilities, and must be rehabilitated to permit ships to transit. The Suez Canal Authority (SCA) has prepared a project for this purpose, and the Egyptian Government has requested financial assistance from the Bank. A Bank mission visited Egypt in April 1974 to appraise the project.

1.03 Rehabilitation is expected to cost US$288 million, including a foreign exchange cost of US$181 million. To help finance the foreign exchange cost, a US$50 million Bank loan to SCA is proposed. The balance would be financed by a US$33 million loan from the Kuwait Fund for Arab Economic Development, and by borrowings of US$98 million from other sources (USAID, other Arab and external sources). The Government will finance local currency cost until SCA resumes earning sufficient revenue.

1.04 Other Bank Group involvement in transport includes a Bank loan of US$56.5 million (243-UAR, December 1959) to SCA and an IDA credit of US$30 million (284-UAR, February 1972) for a Railway Project. A second Railway Project was appraised recently.

1.05 This report is based on the findings of the April 1974 appraisal mission composed of Messrs. P.C. de Man (Division Chief), P. Bourcier (Economist), A.J. Carmichael (Ports, Shipping, Aviation, and Pipelines Adviser), and A.H. Clark (Financial Analyst) of the Bank, as well as Messrs. K. Strong of Hu Harries and Associates (Canada) and I. Englestadt of SC Shipping Consultants (Norway). Mrs. P. Valad (Editor) assisted in preparation of the report.

II. THE SUEZ CANAL

A. General

2.01 A navigable waterway connecting the Mediterranean and Red Seas was originally considered 40 centuries ago. The first canal was built in 2,000 B.C. joining the Nile River and Bitter Lake, which then opened into the Red Sea. The present Suez Canal was built between 1859 and 1869. Its length is 160 km and its permissible draft is 11.60 m, having been increased from the original 6.76 m. The Canal shortens the sea voyage between Western Europe and Asia by about 5,000 nautical mi. It was one of the most important waterways for international traffic until closure in 1967 as the result of hostilities in the Middle East.

2.02 The Compagnie Maritime Universelle du Canal de Suez operated the Canal until July 26, 1956, when it was nationalized. In 1957, the Government set up SCA, an autonomous legal entity, to be in charge of canal operations. The first task of SCA was to clear the Canal of sunken vessels. The United Nations provided assistance for this operation, and costs were recouped through a surcharge imposed on ships. In addition, the Bank provided a US$56.5 million loan (243-UAR, December 1959), to: widen and deepen the Canal; improve Port Said operations; and supply floating equipment to replace obsolete equipment and to meet future requirements. The project was carried out satisfactorily, and, despite closure in 1967 the loan was repaid on schedule.

2.03 Traffic through the Canal expressed in Suez Canal Net Registered Ton (SCNRT) (para 5.02) grew between the end of World War II and 1967 at an average annual rate of 12%, while the number of ships passages grew at 5%, reflecting the use of larger ships. Although traffic decreased slightly immediately after nationalization, it recovered quickly when confidence was established in the new SCA. The Canal became the principal route by which Middle East petroleum was transported to markets in Europe and the Western Hemisphere. In 1966, 36% of petroleum loaded in the Middle East and 14% of world seaborne traffic passed through the Canal. Dry cargo represented only 5% of the combined loadings and unloadings of European and American ports, but 41% of loadings and unloadings of Persian Gulf ports, 32% of Red Sea and African ports, and 24% of South and Southeast Asian ports. 1/

2.04 Canal operations under SCA were efficient and uninterrupted from 1956 to closure in 1967. SCA became the second largest foreign exchange earner after cotton. Proceeds from canal operations accrued directly to the Egyptian Government as royalties and taxes paid by SCA and as transfers of profits. Foreign exchange transfers from SCA to the Government grew from

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1/ United Nations Conference on Trade and Development, "The Economic Effects of the Closure of the Suez Canal", New York, 1973.

US$15.5 million in 1957 to US$195.5 million in 1967, the last full year of operation (Annex 1). In addition, the Canal generated service activities in the Canal Zone and provided most of the income of the three cities in the Zone (Ismaelia, Port Said, and Suez).

B. Past Traffic

2.05 Until World War II, dry cargo accounted for abou t 75% of canal traffic. This situation changed, however, in the late 1940's/early 1950's when petroleum traffic from the Middle East to Europe started to exceed dry cargo traffic (Annex 2). From 1955 to 1966, petroleum and dry cargo traffic grew at an average annual rate of 8.5%, with petroleum traffic growing at 10% and dry cargo at 5.8%. Petroleum products accounted for 63% of total tonnage in 1955 and 73% in 1966. The direction of trade was strongly imbalanced in terms of tonnage northbound, but was more balanced in terms of numbers of passages northbound and southbound. Most northbound traffic consisted of petroleum as well as agricultural products and raw materials from South and Southeast Asia, Australia, and the Middle East while southbound traffic consisted principally of cereals from North America and manufactured goods from Europe transported by conventional liners on fixed routes. Passenger traffic was important before and immediately after World War II, but was almost nonexistent by 1967 due to the competition of air travel.

2.06 During 1966, 99% of the petroleum passing through the Canal came from the Middle East, of which 93% went to Europe (Annex 3), 6% to North America, and 1% to Africa. While the average number of tankers passing through the Canal from 1962 to 1966 did not vary by more than 5.5%, the size distribution changed considerably. In 1964 tankers of over 50,000 dwt carried only 16% of petroleum traffic, but by 1966 they carried more than 40%. These changes reflected the world trend toward large tankers. The first tanker of over 100,000 dwt was built in 1965, and for the first time the permissible draft of the Canal became an obstacle to future traffic development.

2.07 SCA was aware of developments in tanker size, and had prepared an expansion program, the first phase of which would have brought the permissible canal draft to 14.60 m in 1972, enabling tankers of up to 200,000 dwt to pass in ballast and tankers of up to 125,000 dwt laden. Tenders for this stage had been received on June 5, 1967, the day hostilities broke out and the Canal was closed. It is the intention of SCA to proceed with the enlargement of the Canal as soon as the waterway is cleared. To that effect a letter of intent was given to a Japanese contractor to start dredging by mid-1975. In the meanwhile, SCA has decided to carry out a study of the optimum size and timing of the expansion and is in the process of selecting consultants. This study will be financed by the Bank loan (para 4.24), terms of reference have been reviewed by the Bank and are satisfactory. During loan negotiations, SCA and the Government agreed to afford the Bank an adequate opportunity to comment on the results of the study before deciding on the optimum dimensions and phasing of the enlargement (para 4.24).

C. Consequences of Closure of the Canal

2.08 Closure of the Canal lengthened many important trade routes, creating a shortage in the supply of ships for petroleum as well as dry cargo. In the short run, this affected a number of countries, as deliveries of goods were delayed, transport costs were increased, and alternative routes were required. For petroleum, the effect was limited to temporary shortages in Europe and substantial increases in freight costs reflecting longer distances. But for dry cargo, the effect was more complex. Shipping lines and conferences imposed a "special closure surcharge" (Annex 4) applicable to all commodities, which on average was 25% of prevailing tariffs. This surcharge still exists. Similarly, dry bulk shipping rates increased due to closure reflecting longer distances, higher costs of bunkering, and tight supply of ships. The UN Report (para 2.03) estimates that from 1967 to 1971 shipping cost increases resulting from closure of the Canal were US$4,355 million, of which US$2,860 million were for tanker shipping and US$1,495 million for dry cargo shipping (Annex 5).

2.09 Individual countries have felt the effects of closure of the Canal, with some having a marked decline in port traffic and others having a marked increase, necessitating improvement and expansion of port facilities to cope with diverted traffic. Egypt has lost the foreign exchange earnings from canal dues and some countries have experienced a temporary decline in exports of products which could not support higher transport costs. The main areas affected by closure were Southeast Asia and East Africa. The UN Report estimates net losses from 1968 to 1970 at about US$563 million.

2.10 Closure of the Canal changed the shipping industry. Reacting rapidly, the petroleum shipping industry caused additional tanker capacity to be built in the prospect of sustained high freight rates, and the number of very large crude carriers increased substantially. Tankers of over 125,000 ton accounted in 1966 for less than 1.5% of total fleet capacity, but in 1973 for more than 45%; most tankers built since closure are unable to use the Canal fully laden at its preclosure draft. In addition, a number of projects were prepared to provide alternative routes to Europe for Middle East petroleum. Among them are the Suez-Mediterranean (SUMED) Pipeline from Suez to Alexandria in Egypt, expected to be completed by 1976-77 and to have an initial annual capacity of 80 million ton, and the Eilat-Ashkalon Pipeline in Israel, operating with an annual capacity of 20 million ton. Technological developments regarding dry cargo were somewhat less spectacular. Specialized larger ships were built (bulk ore carriers and container ships), and most are able to use the Canal at its preclosure draft either in ballast or fully laden.

D. Damage to the Canal

2.11 Between 1967 and 1973, the Canal was the demarcation line between Egyptian and Israeli armed forces. Fortifications were built on its banks. Continuous artillery duels caused damage to the Canal, although its main

structures were unharmed, and to Ismaelia, Port Said, and Suez. The channel was mined, and many unexploded shells or bombs were lodged in it.

2.12 Most damage occurred in the southern part of the Canal Zone. Suez was almost entirely destroyed--most SCA facilities were heavily damaged and almost all floating equipment was sunk. Ismaelia was less seriously damaged, although the water supply plant was harmed and most of SCA's buildings were shelled. Port Said was lightly damaged and Port Fouad's shipyard was seriously damaged. Much of SCA's equipment in Ismaelia and Port Said was evacuated safely, but it now is obsolete because of lack of replacement.

E. Present Situation

2.13 Due to closure since 1967, the Canal has lost some importance, particularly for seaborne petroleum trade. However, it still has a large potential for tankers up to 150,000 dwt returning in ballast and for dry cargo vessels (Chapter VII and Annexes 6 and 7). Since disengagement in the Middle East has made reopening possible, the Egyptian Government has undertaken to do so, and has given first priority to the project.

2.14 The Government has also decided to construct the SUMED pipeline (para 2.10). The pipeline will not compete directly with the reopened Canal; however, it could provide an alternative to expansion of the Canal (paras 2.07 and 4.22). So far, the SUMED Company and SCA have done little to coordinate their development plans. The Government agreed to take all necessary actions to ensure proper coordination between the respective development plans of SCA and of the SUMED Company.

2.15 Since April 1974 the Egyptian, US, French, USSR, and UK Navies have been removing mines and explosives from the canal bed. This removal of mines is almost completed and the removal of wrecks and other obstacles is progressing satisfactorily. Meanwhile SCA personnel has started to salvage minor wrecks and to clear facilities at Ismaelia, Port Said, and Suez. Damaged or destroyed floating and fixed equipment (para 2.12) needs to be replaced if the Canal is to be reopened to traffic and to be operated at its 1967 efficiency. SCA has already obtained a loan of US$33 million from the Kuwait Fund for Arab Economic Development, and is negotiating for an additional loan of US$33 million. USAID has indicated that it intends, subject to congressional approval, to contribute US$50 million toward the financing of the project and SCA and the Government are negotiating with other potential lenders another US$15 million (para 4.07). SCA and the Government have requested a Bank loan of US$50 million equivalent to help finance the foreign exchange cost of the rehabilitation estimated at US$181 million.

III. THE SUEZ CANAL AUTHORITY

A. General

3.01 After the 1956 nationalization of the Compagnie Maritime Universelle du Canal de Suez, SCA was set up by Decree Law No. 146 of July 13, 1957 to manage, operate, maintain and improve the Canal. SCA's by-Laws provide that it is an autonomous legal entity administered by a Board of Directors. The President of the Republic appoints the Board, the Chairman, and the Director General. SCA is largely independent of Government rules and restrictions governing public and private enterprises, and is free to follow efficient commercial procedures. This broad delegation of power is somewhat limited, however, inasmuch as SCA's annual budget has to be reviewed by the Finance and Planning Ministries and approved by the Presidential decree (para 3.14).

3.02 Five years after the Government nationalized the Canal, it nationalized existing companies and created new ones to provide services to SCA, which previously had been provided by private local and foreign contractors. These companies dealt with shipbuilding and repair (Suez Maritime Arsenal, Timsah Shipbuilding Co., and Canal Naval Construction), ship repair and metallic construction (Port Said Engineering Co. and Canal Harbor Works) manufacturing of maritime equipment (Canal Rope Co.), and rental of equipment and ship services (Canal Mooring and Projector Co.). The Government owns the companies, but they are financially autonomous, with separate budgets and accounts and independent auditors. SCA appoints their Boards of Directors, which are responsible to SCA's Department for Affiliated Companies. SCA's financial liability is limited to channeling Government loans to these companies. SCA receives 10% of the companies' profits after deduction of reserves, and the balance is divided between SCA and the companies' workers in a 75:25 ratio. In 1967, SCA's income from affiliated companies amounted to LE 183,000 (US$440,000). During closure, all companies except the Canal Mooring and Projector Co. shifted to general contracting and remained profitable.

B. Organization and Management

3.03 At nationalization, the Government appointed a number of top civil servants and military personnel to take over the Canal; most have remained in office. At present, the Board of Directors consists of eight Directors and a Chairman, who is also the Managing Director. The Government is not represented on the Board. The eight Directors are also the heads of the main departments, dealing with works, transit, procurement, shipyard, administration, affiliated companies, engineering, and planning. In addition, three offices (Legal, Public Relations, and Follow-Up) report directly to the Chairman.

3.04 Before closure, SCA's headquarters was in Ismaelia and each department had a branch in Port Said and Suez. Annex 8 shows the organization of SCA. Departments are autonomous, with their own accounting and personnel sections, and appear to be working independently within their own field budget. While this system did not create any particular problems in the past, it could become a major obstacle when major rehabilitation work is to be undertaken and close coordination between departments is required. Responsibility for coordinating the tasks of various departments lies with the Planning Department and Follow-Up Office. The Planning Department, which is also responsible for long-term development has neither the staff nor the ability to perform usefully. Recent studies conducted by SCA, and more particularly those related to the future expansion of the Canal show SCA's lack of expertise in economic and financial evaluation of large investment projects. SCA agreed to employ consultants satisfactory to the Bank to assist SCA's staff in developing and strengthening its capabilities in financial and economic planning and project evaluation.

C. Operations

3.05 Before closure, SCA controlled operations of the commercial port of Port Said but not those of Suez. It also controlled the approach of vessels at both ends of the Canal. Navigation in the Canal was governed by Rules of Navigation, published and enforced by SCA, which defined procedures to be followed for approaching the entrance, forming convoys, and transitting. These Rules were complex and strictly enforced by pilots provided on board. Transitting vessels were organized in convoys, two northbound and one southbound every 24 hours. SCA also operated all tugs, signal stations, navigational aids, etc. At closure, SCA employed about 13,500 workers, staff, and labor including about 260 pilots, 60 tug masters, and 30 harbor masters.

3.06 During closure, SCA decided to retain most of its personnel. This decision was justified since it was not known when the Canal could be reopened. Most pilots, however, left SCA to work for other agencies in Egypt or abroad. SCA personnel was evacuated from the Canal Zone during hostilities, and only now is returning gradually.

3.07 As soon as the Canal is reopened, SCA intends to reintroduce its former operating procedures. SCA has contacted many former pilots and has asked them to return to Ismaelia. The response has been favorable. SCA also has started minor salvage and rehabilitation work. Now that SCA personnel is returning to the Canal Zone, no shortage of skilled labor is expected. SCA is confident that, despite heavy destruction in Port Said and Suez, it will be able to keep the Canal in operation without interruption. The magnitude of work, however, calls for qualified labor and supervisors who may not be readily available in all disciplines. The Government has given informal assurances to the Bank that it will encourage any reasonable steps, including appropriate incentives, SCA may consider it necessary to attract and retain the services of skilled and qualified staff.

3.08 SCA staff will provide a program to train and refresh all staff required for handling the forecast traffic of the reopened Canal. The program is expected to begin as soon as suitable buildings are available in Ismaelia (probably before the end of 1974) and will cover 300 pilots, 58 tug masters, and 28 harbor masters. Recruits will be given training courses and existing staff will be given refresher courses. Recruits will be personnel from the Egyptian Merchant Navy and Navy as well as civilians. Training will be three to six months, depending on the candidates' proficiency. Pilots will have a probationary period of at least one year after training. These arrangements were confirmed by SCA and are satisfactory. SCA agreed to employ consultants satisfactory to the Bank to assist SCA's staff in improving operational procedures and has given informal assurances to the Bank that it will establish and maintain performance indicators to control its efficiency (Annex 9).

3.09 SCA's main workshop and repair facilities are at Port Fouad and auxiliary workshops are at Port Said, Ismaelia, and Port Tewfik where SCA's floating equipment is maintained and repaired. SCA also operates water treatment plants in the three Canal cities and electricity generating plants at Port Fouad and Port Said.

D. Insurance

3.10 SCA has third party liability coverage for damage caused by its personnel or equipment. According to international practice, shipmasters are responsible for damage caused to moving vessels.

E. Finance

3.11 Before closure, the main source of SCA's revenues was canal dues, which until 1967 were set according to the terms of the Egyptian Government's Declaration of April 24, 1957 to the United Nations (Annex 10). Some subsidiary income was also derived from affiliated companies and public distribution of electricity and water. SCA pays 5% of its gross income from canal dues to the Government as a royalty and pays income tax (para 5.04), as well as transfers the surplus after payment of royalty, taxes, and interest on outstanding debt to the Government, although its By-Laws do not require such transfer.

3.12 Despite SCA's autonomy, its annual budget for current and capital expenditures has to be reviewed by the Finance and Planning Ministries and approved by Presidential decree (para. 3.01). The annual budget is based on the past year's results and includes SCA's local and foreign currency requirements for the next year. Within the limit of the approved budget, SCA can draw foreign exchange from the Central Bank without further approval. This procedure appears to have worked smoothly when the Canal was in operation. Since closure, however, Government interference with SCA's management has been increasing and SCA's autonomy has been somewhat limited. The Government has given informal assurances to the Bank that it will ensure that SCA

carries out its operations and conducts its business without any diminution of autonomy.

3.13 Until 1967, SCA was continuously profitable (para 5.04); transfers to the Government were substantial, amounting to US$195.5 million equivalent in 1967. With the exception of the 1959 Bank loan (US$56.5 million) and a 1964 Kuwait Fund loan (US$33 million), SCA has financed its investments from internally generated funds. During closure, when SCA lost its main source of income, the Government subsidized it and assumed debt service, contributing US$163 million as loans from the Central Bank (para 5.05). The Government has stated that it will continue to provide the necessary local and foreign currency to cover operating costs and debt service until SCA resumes earning sufficient revenue (para 4.08).

F. Canal Dues

3.14 After nationalization in 1956, the Government did not change the level of canal dues. The Declaration to the United Nations (para 3.11) stated that "any increase in the current rate of tolls within any twelve months, if it takes place, shall be limited to 1%; any increase beyond that level to be the result of negotiations". Dues were increased by 1% three times between 1957 and 1967 (para 5.02). SCA intends to revise dues before reopening to reflect changes in shipping patterns and costs and inflation. For this purpose SCA has hired consultants (Englestadt Shipping Consultants, Norway; Westinform, UK; ASCOT, France) to carry out a study of the potential traffic through the Canal after reopening. Terms of reference for the study are satisfactory and the Consultants' interim report should be available before the end of 1974 in time for SCA to decide on new tariffs before reopening of the Canal.

3.15 Revised canal dues will have wide economic and political consequences. While the shipping community expects future dues to be considerably higher than those prevailing in 1967 (most current shipping studies are based on dues two to three times higher), shippers would expect some savings to be passed on to them. SCA and the Government confirmed that they were considering several tariff setting alternatives, including direct negotiations with users and that a commission had been appointed to review this question and make recommendations on the form of consultation that should take place before new tariffs are published.

G. Audit

3.16 Auditors from the Government's Central Organization for Accounting and Auditing audit SCA's accounts. The Audit is satisfactory and acceptable to the Bank.

IV. THE PROJECT

A. Objectives

4.01 The objective of the project is to enable ships to transit the Suez Canal.

B. Description

4.02 The project is to rehabilitate the Canal and restore navigation in the reopened Canal to its pre-1967 level of efficiency. It includes: (i) clearing and reopening the channel, (ii) procuring materials and equipment, (iii) reconstructing auxilliary facilities, and (iv) technical assistance and studies. The major elements are:

(a) Preparation of the Channel:

(i) Provision of light salvage equipment to remove about 100 minor wrecks and a causeway. This equipment will be used later for routine salvage and maintenance operations.

(ii) Provision of navigational aids (buoys, radar reflectors, beacons, and marking lights) and telecommunications, radar, and radio systems for monitoring and safety of vessels in transit.

(b) Repairs to the Channel -- Provision of dredgers as well as earth-moving, quarry, and repair equipment to replace that destroyed during closure. The equipment will be used initially for repairs and subsequently for routine maintenance.

(c) Services to the Channel -- Provision of floating equipment (tug-boats, pilot vessels, motorboats, ferry boats, floating cranes, tankers, barges, and antipollution equipment).

(d) Workshop and Shipyards Rehabilitation -- Reconstruction and reequipment of workshops and shipyards, thus permitting SCA to build small vessels and to maintain and service floating equipment.

(e) Services -- Provision of land transport (vehicles, garages, and service stations), field equipment, cranes, oxygen and compressed air plants, medical services, water purification and power plants, and office equipment to replace damaged and obsolete facilities.

(f) Stores -- Replenishment of depleted stores, and provision of materials and spare parts to maintain and service the Canal as well as shipbuilding and structural steel, pipes, ropes, cables, timber, paint, and small tools.

(g) Buildings, Houses, and Roads -- Rehabilitation of damaged buildings and houses as well as damaged service roads.

(h) Local Work -- Relocation of evacuated workshops, repairs to electric transmission lines, and resettlement of SCA's staff.

(i) Technical Assistance and Studies:

(i) strengthening SCA's capabilities, through technical assistance and training, in financial and economic planning, project evaluation and operational procedures;

(ii) provision of a short-term study of traffic expected to use the Canal and of the possible level of dues (para 3.15); and

(iii) provision of a long-term study of optimum size and timing of future canal enlargement.

Annex 11 gives the justification for SCA's equipment program.

C. Cost Estimate

4.03 The project cost is estimated at US$288 million, of which the foreign exchange component is US$181 million or 63%. The cost excludes contributions to canal preparation by the Egyptian, UK, and US Navies (paras 1.01 and 2.15) and interest during construction on external loans. But, as the Government does not intend to waive any taxes or duties, the cost includes customs duties up to 40%, costs of shipping and handling, and fees for local agents, insurance companies, local fittings, and trials. Annex 12 gives details of the cost estimates which is summarized on page 12.

4.04 Costs of civil works have been derived largely from prices of similar works that were being undertaken in the Canal Zone at appraisal time. SCA confirmed these prices. They are based on SCA using a high percentage of its labor force, which is competent, to repair revetments and construct workshops, signalling stations and minor buildings, with local contractors augmenting SCA's force account as necessary. Costs of equipment are based on recent suppliers' prices, and are reasonable.

Project Element	Project Cost				Cost of Items Proposed for Bank Financing /1							
	Local	Foreign	Total	Foreign Exchange Component	Local	Foreign	Total	Local	Foreign	Total	Foreign Exchange Component	Total Project Cost
	------US$ million------			%	------LE million------			------US$ million------			%	%
Preparation of Channel	7.05	19.87	26.92	74	0.65	0.70	1.35	1.56	1.68	3.24	52	8
Repairs to Channel	10.85	39.34	50.19	78	1.10	0.75	1.85	2.64	1.80	4.44	40	5
Services to Channel	14.20	51.24	65.44	78	1.39	5.70	7.09	3.34	13.68	17.02	80	27
Workshop Rehabilitation	2.90	10.25	13.15	78	1.12	3.50	4.62	2.69	8.40	11.09	76	82
Services	7.90	9.22	17.12	54	2.47	1.30	3.77	5.93	3.12	9.05	34	34
Stores	2.40	14.59	16.99	86	0.90	4.66	5.56	2.17	11.18	13.35	84	77
Buildings, Houses, and Roads	20.20	7.44	27.64	27	2.62	1.10	3.72	6.29	2.64	8.93	29	35
Local Work	19.75	4.40	24.15	18	0	0	0	0	0	0	0	0
Technical Assistance and Studies	0.30	0.96	1.26	76	0.13	0.40	0.53	0.30	0.96	1.26	76	100
Subtotal	85.55	157.31	242.86	65	10.38	18.11	28.49	24.91	43.46	68.37	64	27
Contingencies												
Foreign Exchange 15%	0	23.69	23.69	100	0	2.72	2.72	0	6.54	6.54	100	28
Local Currency 25%	21.45	0	21.45	0	2.60	0	2.60	6.23	0	6.23	0	0
Subtotal	21.45	23.69	45.14	52	2.60	2.72	5.32	6.23	6.54	12.77	52	28
Total Project Cost (Numbers May Have Been Rounded)	107.00	181.00	288.00	63	12.98	20.83	33.81	31.14	50.00	81.14	62	28

1/ Within the limit of US$50 million changes between project elements may occur depending on the source of finance attached to specific items. All such changes will be between items suitable for Bank financing.

4.05 Bearing in mind SCA's current information on costs of most items required for the project and the quick disbursement expected for the proposed Bank-financed items (para 4.16), a total price contingency allowance of 15% on the foreign exchange component and 25% on the local currency component is considered appropriate. The 25% local currency contingency allowance over the project construction period is considered realistic and in keeping with the forecast of SCA. Physical contingencies have not been included since the project will finance only procurement of equipment. During loan negotiations, SCA and the Bank confirmed the project cost estimate.

D. Items Proposed for Bank Financing

4.06 The Bank proposes to finance the foreign exchange cost of items suitable for international competitive bidding excluding those readily identifiable and suitable for bilateral lending such as dredgers, dredging equipment, spare parts and floating cranes. The cost of the items to be financed by the Bank is US$81 million, of which US$50 million is the foreign exchange cost. Page 12 shows a summary of these items and Annex 13 shows details. During loan negotiations, the types of items to be financed by the Bank loan were reviewed and agreed upon by SCA.

E. Financing Plan

4.07 The financing plan is summarized below:

Source of Finance	Local	Foreign	Total
	-----US$ million-------		
Kuwait Fund (loan already obtained)	0	33	33
IBRD (proposed)	0	50	50
SCA (expected from internally generated funds)	74	0	74
Minimum Government contribution	33	0	33
Other assumed Foreign borrowing (second loan from the Kuwait Fund, USAID and other Arab and external sources)	0	98	98
Total	107	181	288

The Kuwait loan is for 17 years including 2 years of grace at 4.5% interest. USAID has indicated that it intends to contribute US$50 million towards the financing of the project, subject to satisfactory congressional approval. The terms and conditions of the USAID loan are expected to be for 40 years including 10 years of grace at 3% interest. Other Arab and/or external sources are expected to be on the same terms and conditions as the Kuwait loan. The proposed Bank loan will be for 20 years including 4 years of grace at 8% interest. Local currency costs will be financed by the Government and by SCA's internally generated funds. The Government has agreed to authorize SCA to retain that part of its earnings necessary to complete the project

and it has also agreed to guarantee cost overruns. Execution of satisfactory agreements between SCA, the Government, the Kuwait Fund, USAID and other external sources is a condition of effectiveness of the proposed loan.

4.08 Under these provisions (para 4.07), the Government will finance the local costs of the project until SCA starts to generate its own funds from canal dues in 1975. According to the financial forecasts (Chapter 5), the minimum Government contribution will be US$33 million (LE 13.8 million) in 1974 to cover local currency costs. In addition the Government agreed to provide SCA with some LE 10 million (US$24 million) in 1974 as working capital to cover operating deficits and debt service.

4.09 SCA is presently using the Kuwait Fund loan for the most urgently needed items. Some items to be financed under the Bank loan also are urgently needed. Retroactive financing up to US$3.5 million is, therefore, recommended to cover expenditures by SCA incurred after July 1, 1974 on items proposed to be financed by the Bank. The need for retroactive financing was reviewed during loan negotiations and the amount agreed upon by SCA.

F. Implementation

Responsibility

4.10 SCA will be responsible for carrying out the project. Its well qualified and competent engineering staff and experienced procurement department is capable of preparing specifications and contract documents suitable for international competitive bidding for procurement of the items proposed for Bank financing. However, SCA has agreed to employ consultants, satisfactory to the Bank, to modernize its workshops and to assist in the procurement and installation of telecommunication systems.

Procurement

4.11 Procurement of Bank-financed items will be on the basis of international competitive bidding in accordance with the Bank Group's "Guidelines for Procurement". Most items are replacements for existing equipment, and SCA is familiar with the specifications required. Some spare parts will be procured directly from manufacturers, based on negotiated prices (about US$4.3 million). All equipment will be provided with spare parts as recommended by the manufacturers' guidelines for running and maintenance. Items financed by USAID would be procured from the US, in accordance with USAID procurement procedures. It is not yet known whether other lenders would require SCA to follow particular procurement procedures. It is likely that SCA would use its own procurement procedures of calling competitive bids from an established list of suppliers for items to be financed under the Kuwait loan.

4.12 The major items financed under the Bank loan will be procured abroad. Egypt has no regional preference treaties, and bids will be compared on a CIF basis net of custom duties. Local manufacturers are not expected to contribute substantially to procurement of Bank-financed items. However, for the

purpose of bid comparison, preference will be given to local manufacturers to the extent of 15% of the CIF landed price of imported goods or the actual customs duty, whichever is lower.

4.13 SCA will undertake building and repair mainly on a force account basis, augmented by local contractors as required. SCA's shipyards are expected to build small motorboats, ferry boats, tankers, and barges at competitive prices; provision for these items has been allowed in calculating the foreign exchange component.

Construction Schedule

4.14 The construction period will be from the fall of 1974 to the end of 1977. However, ships will be able to transit, though possibly at reduced speed, from the reopening date (end of April 1975). Rehabilitation of facilities essential to navigation will have priority, and some temporary facilities will be used in the early months of operation. The construction schedule was confirmed during loan negotiations.

G. Disbursements

4.15 Disbursements under the Kuwait Fund loan have started and are expected to be completed by mid-1975. Disbursements under the proposed Bank loan are scheduled to start in the first half of 1975 and to be largely completed by the end of 1977, with some minor payments of guarantee and retention monies in early 1978. The outstanding amount to be provided by other donors (US$98 million) must be available in the first half of 1975, and should be fully distributed by the end of 1977. Annex 14 shows disbursements under the Bank loan. Any surplus funds in the loan account after the project has been completed should be allocated to similar items.

H. Safety Measures

4.16 Because all types of ships and cargoes will transit the reopened Canal, safe and unrestricted transit will be a first priority of SCA. Grounding of a single ship in any narrow stretch of the Canal will completely stop transit. Collisions of ships with dangerous cargoes could cause fire, noxious fumes, or pollution in any sector of the Canal and its environment. Removal of oil and dangerous cargoes from crippled ships as well as collection and treatment of oil slicks caused by transitting ships will be provided for under the project. SCA's safety record over the years has been excellent, and its experienced pilots and other operating staff are expected to perform adequately when the Canal is reopened. The channel is stable under normal working conditions, and the equipment to be provided under the Bank loan will insure that first-class services on land and water are available for all SCA operations. Continuation of SCA's good performance in handling ships will result in minimum insurance premiums for ships transitting the Canal.

I. Ecology and Urban Development

4.17 Reopening the Canal will not be harmful to the region's ecology. The tidal ranges at the eastern end of the Mediterranean and the northern end of the Red Sea are too small to induce any sizable movement of water along the Canal. The existing sweet water canal distributing fresh water from the Nile River and brackish water from Lake Timsah, Great Bitter Lake, and Little Bitter Lake has existed for many years, and reopening the Canal will not interfere with natural conditions.

4.18 Silt will be dredged, pumped to embankments east of the waterway, and allowed to settle. Clear water will percolate away or return to the Canal.

4.19 Although the Canal is virtually a complete water separation between Africa and Asia and a barrier to the passage of any non-swimming animals, few animals in the area wish to make the journey.

4.20 The Ministry of Development is considering many schemes to develop or exploit human and transit resources of the Canal Zone. These schemes include: industrial, urban, or tourism development; free trade zones; and water and power supplies. They are not yet sufficiently advanced to be described in this Report.

J. Future Expansion of the Canal

4.21 As explained in para 2.10, the average size of petroleum tankers has been growing constantly during the closure of the Canal and is expected to continue to do so until 1980. While almost all tankers in service could use the Canal in 1966, it is projected that only 57% and 40% would do so in 1975 and 1978 respectively, if the Canal is not enlarged. At 1967 dimensions, petroleum shipment would account for 47% and 30% of total traffic in 1975 and 1980 respectively, compared to 75% in 1966. The potential loss of revenues based on the 1967 tariffs increased by 37% (para 5.03) would be about US$150 million annually and the potential loss to the world shipping community would be of the order of US$250 million annually. SCA is fully aware of this and has decided to proceed with dredging for the first stage of the enlargement as soon as the channel is reopened. To that effect SCA has recently signed a letter of intent with Japanese contractor for dredging on the most difficult part of the Canal to start by mid-1975. The letter covers only part of the total dredging required for the first phase of the enlargement.

4.22 The first stage of the enlargement, as now envisaged, consists of increasing the permissible draft and wet section of the channel from 11.5 m to 16 m and from 1800 m^2 to 3200 m^2 respectively, by dredging some 350 million m^3. This is expected to be completed in four years at a total cost presently estimated at US$720 million 1/, including additional works and facilities.

1/ Excluding interest during construction estimated at US$60 million.

4.23 The first stage of the enlargement will make it possible for tankers of 150,000 dwt and of 250,000 dwt to use the Canal laden and in ballast respectively. It would increase potential petroleum traffic in 1980 from about 100 million dwt to about 300 million dwt, of which 200 million would be in ballast. According to SCA's plans, further expansion would be required after 1980, to accommodate VLCC's of 200,000 ton laden and of almost any size in ballast. Details of the two cross sections are given on Map IBRD 8794.

4.24 There is little doubt that the first phase of the enlargement is justified. A preliminary study shows that under conservative tariff (para 5.03) and traffic assumptions the project would yield a rate of return of about 15%, and therefore SCA's decision to proceed immediately with the initial dredging is understandable. However, there is a need for further studies to determine the optimum size and timing of the proposed expansion. This was reviewed during loan negotiations and SCA agreed to hire consultants to carry out a study which among other things would: (i) review traffic projections; (ii) determine savings in shipping costs achieved by the users of the enlarged Canal under different levels of dues; and (iii) recommend the optimum size and phasing of the enlargement. Terms of reference were reviewed by the Bank and are satisfactory. The study should be completed by mid-1975. It was also agreed that the Government and SCA will consult with the Bank, when the results of the study are available, before deciding on the optimum size and phasing of the enlargement.

4.25 Although from a technical point of view it would have been preferable to wait until the study is completed before letting any dredging contract, SCA's decision not to wait until the final results of the study is acceptable, bearing in mind that the dredging contract provides for only part of the dredging required for the first stage and can be adjusted to accommodate dredging to the dimensions finally decided. Any expansion would require extensive dredging and in view of the incremental revenues to be derived from the expansion it is reasonable to start as soon as possible.

V. FINANCIAL EVALUATION

A. General

5.01 SCA is a revenue earning entity whose income before 1967 was mostly derived from dues levied on ships transitting the Canal. Additional income was derived from berthing, towing, supplying electricity and water to Canal Zone cities, shipbuilding and repairing, and renting of equipment.

B. Canal Dues

5.02 Between 1957 and 1967, canal dues were levied on ship tonnage expressed in Suez Canal Net Registered Ton (SCNRT) equivalent to 2.83 m^3; they were not based on canal operating costs and were not charged on cargo. Sur-

charges, called "improvement dues", also were imposed on ships with drafts exceeding 11.60 m and/or with dimensions exceeding standards established in the Rules of Navigation as a means of recovering costs of previous expansion programs and of additional maintenance requirements created by large ships. A 55% discount was granted to promote ships transitting in ballast, mainly tankers. Dues were payable in advance in Egyptian pounds, acquired by selling convertible foreign exchange to the Central Bank. In 1967, dues were LE 0.4373/SCNRT.

5.03 For the financial evaluation, 1967 dues were escalated by 37% to account for: (i) past inflation (29%); and (ii) annual increases in dues of 1% between 1967 and 1975 (8%). However, a sensitivity analysis was carried out to test SCA's financial viability against the 1967 level of dues increased by only 8% (para 5.09).

C. Operating Results to 1967

5.04 Except for a decline after nationalization, SCA's earnings increased consistently to reach LE 98 million in 1967. Operating costs were mainly salaries, materials, and depreciation, and were essentially fixed costs. From 1965 to 1967, they remained almost constant while revenues grew by 10% in real terms. In 1967, SCA's net income after payments of royalty and income tax to the Government was about LE 58 million, or 59% of its revenue. Up to 1967, SCA serviced its debt, contributed substantially to financing relatively minor expansion programs, and accumulated substantial cash reserves (LE 37 million by 1967).

D. Operating Results After 1967

5.05 During closure, SCA lost income from canal dues and incurred large operating losses because of continued salary payments to retained staff (para 3.07). These losses ranged from LE 7.1 million in 1968 to LE 5.2 million in 1973. The losses and SCA's debt service requirements were covered partly by Government loans from the Central Bank (4.5% interest, repayment period not determined) and partly by SCA cash reserves. By the end of 1973, the Government had contributed LE 67.9 million to SCA, and SCA had used up all its internal funds. Annexes 15 and 16 show Income and Cash Flow Statements.

5.06 At December 31, 1973, SCA had an accumulated deficit of LE 27 million and long-term debt of LE 76.7 million. The long-term debt was divided between loans from the Kuwait Fund (LE 7.0 million), and Government (LE 67.9 million). During loan negotiations, the Government has indicated its willingness to forgive its loans.

E. Balance Sheets

5.07 Annex 17 shows balance sheets for 1965-67 (actual) and 1973 (estimated). No meaningful balance sheets are available for 1967-73 because some records were destroyed and SCA has not been able to carry out a complete inventory of damages to assets resulting from hostilities. Also, fixed assets taken over upon nationalization in 1956 are still being carried on the books at a nominal value of LE 1. A detailed inventory and revaluation of existing assets is necessary. But this would take over one year because of staff assignments to priority reconstruction work, and could not be completed before the projected date of reopening. Therefore, SCA gave informal assurances that it will, not later than December 31, 1976: (i) carry out a complete revaluation of fixed assets; (ii) adopt realistic depreciation rates reflecting the economic life of these assets. SCA's accounting and engineering staff is competent to do this work, and technical assistance is not likely to be required.

F. Financial Forecasts

5.08 Financial forecasts are based on canal dues as defined in para 5.03 and Annex 18. Costs have been projected at 1973 levels on the assumption that future dues will be adjusted to account for inflation. No provision has been made for transfers of revenue surpluses to Government. Annex 19 gives other assumptions.

5.09 Forecast Income Statements (Annex 20) show that annual surpluses after payment of royalty, income tax, and interest will grow from LE 13.4 million in 1975 to LE 60.7 million in 1980; in 1967, the surplus was LE 58 million. Forecast Cash Flow Statements (Annex 21) also show that SCA will generate sufficient funds to service its debt, to contribute LE 30.8 million to the project (about 25% of the total project cost and 69% of the local cost), and to retain a substantial cash balance of LE 208 million at the end of 1980. However, even if tariffs were only to be raised by 8% (i.e. 1% p.a. from the 1967 level to 1975) and no adjustment made for devaluation (para 5.03), SCA would still be financially viable; there would be annual cash surpluses from 1975 onwards and an accumulated surplus of LE 139 million at the end of 1980. The financial forecasts make provision for an investment of LE 300 million to finance the first phase of the enlargement (para 4.22). It has been assumed that SCA would borrow the entire amount from external sources on relatively soft terms i.e. 25 years including 5 years of grace at 6% interest. Two other alternatives were also considered to test the sensitivity of SCA's financial results against different financing terms: (i) 100% borrowing for 15 years including five years of grace at 10%; and (ii) 60% borrowing for 25 years including five years of grace at 6%. Both alternatives show that SCA's financial viability would not be impaired by the enlargement of the canal and that SCA would be able to cover its costs and service its debts.

G. Financial Covenants

5.10 For reasons explained in para 5.07, the usual financial covenants (debt equity ratio and return on net fixed assets) will not be sought for the project. SCA agreed that, except as the Bank shall otherwise agree it would not incur any debt, unless it is shown that its net revenues for the fiscal year in which such debt is incurred and for any succeeding fiscal year shall be not less than 1.5 times the maximum debt service requirement for such year on all debts of the Borrower outstanding in each such year including the debt to be incurred.

VI. ECONOMIC EVALUATION

A. General

6.01 Before 1967, the Suez Canal was one of the world's most important shipping routes. Closure disrupted the shipping community and the economies of a number of countries, and cost the world about US$4,355 million from 1967 to 1971 (para 2.08). Reopening will greatly reduce the sea distance on a number of major trade routes and reduce shipping costs accordingly. It also will generate some activities in countries having an export potential for products which cannot support high transport costs. These benefits will not materialize rapidly, however, because of the time lag involved in promoting new agricultural and industrial schemes. Also, they may be offset by losses in countries which benefited from closure. Therefore, only benefits derived from savings in shipping costs were taken into account in the economic evaluation.

B. Savings in Shipping Costs

6.02 Savings in shipping costs are mainly in: (i) fixed operating costs (personnel, insurance, etc.) and capital costs per unit of cargo resulting from faster ship turnaround time; and (ii) fuel. They were estimated for different trade routes, cargoes (petroleum, bulk, general, and containerized), and ship sizes. Annex 7 summarizes the assumptions.

6.03 Global savings in shipping costs are an adequate way of measuring benefits generated by the project, but they do not adequately reflect the distribution of benefits among shipowners, shippers, and SCA. Theoretically, SCA could retain all benefits by charging dues equal to the savings of any particular ship. This, however, would not give any incentive to shipowners to divert traffic. To attract traffic, SCA will have to set dues which make use of the Canal competitive with use of alternative routes. Such dues will bring in revenues enabling SCA and Egypt to recoup part of the global savings; shipowners will recoup the balance. Whether part of the savings will be passed on to shippers depends on the structure of the market and competition between

shipowners. In the tanker market, shipowners will have little incentive to pass on savings to consumers since the volume of petroleum transitting the Canal will be limited and alternative routes will be used for most shipments (Annex 7). The situation might be different for general and bulk cargo shipping since competition on similar routes is keen and shippers will exert pressure on shipping companies and conferences to obtain reduced freight rates.

C. Methodology

6.04 The economic evaluation is based on comparison of the benefits (savings in shipping costs) and the cost of carrying out the project. Cost related to the enlargement of the canal or benefits according to SCA as a result of the enlargement (para 4.21) were not taken into account.

6.05 The evaluation of global savings in shipping costs was based on studies prepared by SC Shipping Consultants (Norway) and Petroleum Economics Limited (UK) and reports from the Organization for Economic Cooperation and Development (Energy) and the United Nations Conference on Trade and Development (Shipping). It was carried out as follows:

(a) Traffic Projections (Annex 6). Since access to the Canal is limited to ships of a certain tonnage, the percentage of each trade transported on ships capable of passing through the Canal had to be determined. Separate determinations were made for petroleum, bulk cargo, general cargo, and containerized cargo. Movements of goods were projected by main trade routes as much as possible to relate them with statistical observations on the size of ships traditionally plying the routes.

(b) Savings in Shipping Costs (Annex 7). Savings in shipping costs through use of the Canal instead of alternative routes were calculated for each of the main trade routes and for representative size groups of ships (tankers, bulk carriers, liners, and container ships). In the case of tankers, savings were calculated assuming that shipowners will only attempt to recover fixed operating costs. This assumption was made to take into account the prospect of depleted freight rates in the near future as a combined result of excess tanker capacity and of a relative decline in demand for petroleum.

(c) Traffic Build Up. The Canal is assumed to reopen by April 1975, and traffic to be progressively diverted to reach the potential level by the end of 1976. This assumption was made to take into account: (i) the reluctance of shipowners to change their way of operation; (ii) some uncertainties as to the safety of navigation through the Canal; (iii) the time required to reorganize and reequip port installations and agencies abandoned during closure.

D. Traffic Projections and Saving in Shipping Costs

6.06 With future dues 37% higher than in 1967 (para 5.03), traffic in terms of SNCRT is expected to grow from 55 million ton in 1975 to about 170 million ton in 1977 and then level off to 175 million ton by 1980. The reason for traffic remaining almost constant is the decrease in petroleum traffic, reflecting the progressive disappearance of small tankers, which offsets the growth in dry cargo traffic. The share of petroleum traffic (in ballast and laden) is expected to decrease from 47% in 1975 to less than 30% in 1980, with about 75% of the tankers passing southbound.

6.07 Net savings in shipping costs after deduction of canal dues would amount to US$315 million in 1975 and US$1,250 million in 1980. They would be divided between tankers and dry cargo ships in a 40:60 ratio in 1975 and 30:70 ratio in 1980. Under the assumption for dues (para 5.03), revenues to SCA would amount to about US$80 million in 1975 and to US$250 million in 1980.

E. Rate of Return

6.08 Savings achieved as a result of the project are so large that no doubt exists about its justification. Since most of the savings would be achieved by dry cargo ships (para 6.07), the size of which is expected to remain for a long time within the limits imposed by the present cross-section of the Canal, the risk is minimum of savings being offset by rapid technological changes as affected tankers in the 1960's.

6.09 Assuming tariffs at the level referred to in para 6.06, SCA's income will amount to about 15% of global savings. The economic evaluation shows that the project would, under this assumption, yield a rate of return well in excess of 50%, which is extremely satisfactory (Annex 23).

F. Sensitivity Analysis

6.10 Higher dues than those taken into account (para 6.06) would result in a reduction in global savings (gross and net) since: (i) shipowners on certain routes would no longer have any incentive to divert traffic to the Canal; and (ii) SCA would recoup a higher percentage of gross savings through higher canal dues. The analysis shows that:

(a) A flat rate of US$3.3/SCNRT, or three times the 1967 level, would result in a 15% reduction in gross savings. Petroleum traffic would be more affected than dry cargo traffic and savings for tankers would decrease by 36% while savings for dry cargo ships would decrease by only 5%. This shows that the dry cargo market and, more particularly liners and tramp ships, is much more inelastic than the tanker market.

(b) Net savings, after deduction of dues, would decrease by about 30%. Income to SCA would increase 1.5 times compared to the assumption in the financial evaluation, and gross SCA earnings would amount to about 45% of gross savings.

Setting such a rate for tankers would almost certainly make future expansion of the Canal unfeasible since dues would exceed savings to be achieved by tankers over 200,000 dwt using the Canal instead of the Cape of Good Hope route.

VII. AGREEMENTS REACHED AND RECOMMENDATION

7.01 Agreement has been reached on the principal issues referred to in the preceding chapters and more particularly on the study of the enlargement of the Canal (para 4.24). Subject to the conditions of effectiveness described in para 4.07, the proposed project is suitable for a Bank loan of US$50 million to SCA for a term of 20 years corresponding to the economic life of the equipment, including a period of grace of 4 years corresponding to the disbursement period.

ANNEX 1

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Government Receipts from the Suez Canal Authority, 1956-67
(LE million)

Year	Royalty	Income Tax	Profit	Total
1956/57	0.70	1.75	4.00	6.45
1957/58	2.00	5.00	14.00	21.00
1959	2.30	4.50	15.00	21.80
1960	2.40	9.40	16.50	28.50
1961	2.60	8.20	22.00	32.80
1962	2.70	8.80	22.00	33.50
1963	3.30	12.30	35.20	50.80/1
1964	3.90	16.10	37.80	57.80
1965	4.30	18.10	46.90	63.30
1966	4.70	23.10	51.60	79.40
1967	4.90	23.35	53.20	81.45

/1 Devaluation of the Egyptian pound by 25%.

Source: SCA

November 1974

ANNEX 2

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Traffic Data, 1955-66

Traffic	1955	1960	1965	1966	Annual Rate of Increase 1955-66
	Million ton				%
Number of Transit	14,666.0	18,734.0	20,289.0	21,250.0	3.7
Net Tonnage	115.7	185.3	246.8	274.2	9.0
Total Traffic	107.5	168.8	225.4	241.9	8.9
of which Northbound:					
Petroleum Products	66.9	114.4	155.1	166.7	9.5
Cereals	2.5	2.7	2.7	1.8	0
Ores and Metals	5.3	8.2	7.1	6.5	0
Oil Seeds	1.8	1.9	1.4	1.6	0
Textiles	1.7	1.8	1.9	1.8	0
Others	9.2	10.6	15.2	15.8	5.5
Total	87.4	139.6	183.4	194.2	8.3
	%				
	81.0	82.0	81.5	80.0	
Southbound:					
	Million ton				%
Petroleum Products	1.9	3.0	7.9	8.9	16.7
Cement	2.7	1.1	1.2	1.4	0
Fertilizers	2.5	4.0	5.2	6.7	0
Metals	3.8	5.6	4.7	5.0	0
Others	9.2	15.5	23.0	25.7	10.9
Total	20.1	29.2	42.0	47.7	9.0
	%				
	19.0	18.0	18.5	20.0	

Source: SCA Annual Report, 1966

November 1974

ANNEX 3

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Major Importers of Middle East Oil, 1968, 1970, and 1972
(Million ton)

Importer	1968	1970	1972
North America	19.0	16.0	36.3
Other Western Hemisphere	9.0	12.0	52.5
Western Europe	253.0	309.0	426.8
Africa	22.8	20.8	22.9
South East Asia	31.5	39.8	62.6
Japan	132.2	173.0	185.8
Australasia	17.8	17.3	12.7
Other Eastern Hemisphere	16.8	21.0	29.5
Others	16.9	22.1	13.9
Total	519.0	631.0	843.0

Source: BP, "Statistical Review of the World Oil Industry 1968, 1970 and 1972".

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APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Suez Canal Special Closure Surcharge[1]

%

Country/Area	Increase on Gross Tariffs
India, Pakistan and Sri Lanka	17.5
Persian Gulf	25.0
Aden	35.0
Djibouti, Assab, Massawa	40.0
Jeddah	45.0
Port Sudan	50.0
Far East	10.0
Aqaba	50.0
Burma	17.5
East Africa	15.0
Madagascar, Comores, Reunion, Mauritius	15.0
Indonesia	10.0
Australia	5.0

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[1] United Nations Conference on Trade and Development, "The Economic Effects of the Closure of the Suez Canal", New York, 1973

Source: Journal pour le transport international (Basel), No. 24 (16 June 1967), p. 2485

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ARAB REPUBLIC OF EGYPT

Economic Consequences of Closure of the Suez Canal, 1967-71
(US$ million)

Shipping	Total 1967-71
Tanker	
Longer hauls	590
Higher freight rates	1,160
"Short-haul" premium	200
Increased tanker investment	910
(Total added investment: $2,600 million)	
Subtotal	2,860
Dry cargo	
Liners-longer hauls	890
Bulk carrier	
Longer hauls	495
Higher freight rates	110
Subtotal	1,495
Total	4,355

Source: United Nations Conference on Trade and Development, "The Economic Effects of the Closure of the Suez Canal", New York, 1973

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APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Suez Canal

A. Introduction

1. In 1967, the Suez Canal was a major feature in international seaborne trade. Its closure, since July 1967, created a number of disruptions and encouraged technological changes which would probably have been postponed otherwise. The evaluation of future traffic through the Canal cannot, therefore, be a simple extrapolation of the past; it has to take into account the changes in vessel size in main trade routes, in commodity trading and in shipping costs which occurred over the past seven years. Also, to a certain extent, future traffic will be affected by the level of Suez Canal dues and a sensitivity analysis has to be carried out to determine the elasticity of traffic to dues for different types of trade (oil, dry bulk, general cargo and containers) since savings are different for each trade.

B. Tanker Traffic

2. In 1967, about 275 million ton of goods passed the Canal, and oil cargo accounted for about two-thirds of this amount. Over the past ten years, oil traffic had been growing at an average rate of over 10% p.a. and it was expected that future growth will at least maintain the same pace. Changes in the size of tankers had occurred over the past five years and mainly since 1964/65, reflecting the world wide trend for larger size ships. It was expected that the number of tankers of over 70,000 dwt, which could not pass the Canal fully-laden, would increase rapidly and SCA was considering an expansion program to accommodate tankers of 125,000 tons fully laden.

3. The Canal has now been closed for seven years and a number of important changes occurred in world supply and demand for oil and in oil transportation. An evaluation of the future role of the Canal and of potential traffic through the Canal should, therefore, be based on: (i) projected energy supply and demand to determine the main trade routes and volumes to be transported along these routes; (ii) changes in the composition and size of the world tanker fleet to determine the number of tankers that could physically pass the Canal fully or partially laden or in ballast; and (iii) the relative cost advantage to ship owners in using the Canal rather than alternative routes.

Projected Oil Supply and Demand

4. In the later months of 1973 and early in 1974, the world oil supply and demand picture has been shaken by a number of unprecedented events. First, oil prices, which until the early 1970's had been declining in real terms, started to increase at a very fast pace and second, the oil embargo imposed by Arab producers led consuming countries to revise their attitude towards the consumption of oil, and to adopt conservation programs to reduce the cost of imported oil supplies. Consuming countries reappraised their future needs for oil in the light of much higher prices and decided to develop and/or maintain local production of fuel, which, before the crisis, were not deemed feasible. The present evaluation is based on: (i) supply and demand projections prepared by the Organization for Economic Cooperation and Development; and (ii) an analysis of past oil movements between producing and consuming countries. The main results are given in Tables 1 and 2 for Western Europe and North America. These tables show that the annual volume of oil to be transported by tankers from the Middle East to Europe and North America after local production and supply from other sources (North and Western Africa and Carribean) and/or by other modes (pipelines between the Middle East and the Mediterranean) have been used, should decrease from 700 million ton in 1975 to 600 million ton in 1980. Should any of these other sources fail to provide the required volumes or should the consumption in Europe and North America increase more rapidly than presently contemplated, then the difference would have to be made up by additional supply from the Middle East and potential traffic through the Canal would increase accordingly.

The Evolution of the Tanker Fleet

5. The composition and size distribution of the tanker fleet is given in Table 3 for the years 1973 and 1978. It is based on existing tankers and on orders which have been registered with ship yards. Over the next four years, it is expected that total tanker capacity will almost double with the larger increase in sizes of over 250,000 ton. This situation results from large orders placed during the second and third quarter of 1973 following the abrogation of the import quota system in the US and resumption of growth in oil consumption in Europe. Although it is expected that some orders will be cancelled or delayed, it is currently accepted that there will be a large excess of tanker capacity over the next few years which could be as much as 50 million dwt despite accelerated scrapping and laying up. The number of tankers under 125,000 dwt that could pass through the Canal laden or in ballast is expected to account for 35% of the total tanker fleet capacity component to 53% in 1973.

Tanker Costs

6. The cost of shipping oil is made up of: (i) capital costs of the tanker which depend on the initial construction costs and of the return on investment expected by the ship owner; (ii) fixed operating costs including maintenance, manning and insurance; and (iii) voyage costs including fuel costs, port charges etc. The main assumptions used in calculating the cost

of shipping oil are given in Table 4 for different sizes of tankers. They are based on studies prepared recently (Spring 1974) by Petroleum Economics (Consultants UK) and SC Shipping Consultants (Norway).

Potential Traffic

7. Potential traffic through the Canal has been estimated on the basis of the size distribution of tankers on the major trade routes. This distribution results from technical parameters such as draft limitation at certain ports of entry (US east coast) size of refineries and possible mix of crude oils. The estimates rely on studies carried out by SC Shipping Consultants (Norway) who have been following the tanker market for a number of years. The consultants' results have been achieved by tracing and counting tankers on various routes and are considered reasonable. It has been assumed that tankers under 70,000 dwt would pass the Canal laden and in ballast, that tankers between 70,000 dwt and 100,000 dwt would pass the Canal in ballast only and that 75% of tankers between 100,000 dwt and 125,000 dwt would pass in ballast.

8. Potential traffic estimates are given in Table 5 and show that potential tanker traffic for crude oil will decrease from 40.5 million dwt in 1975 to 3.0 million ton in 1980 for laden tankers and from 143.0 million ton to 44.0 million ton for tankers in ballast. The main reasons for the decline are: (i) the progressive disappearance of small size tankers (35,000 dwt to 70,000 dwt) which are gradually replaced by very large crude carriers; (ii) the relative decline of Middle East exports to Europe; Middle East supply which in 1975 is expected to cover some 70% of total European demand would only account for 55% in 1980; and (iii) the construction and/or expansion of pipelines connecting Middle East producers with the Mediterranean. However, while crude oil traffic is expected to decline, products traffic is expected to grow following the construction of large refining capacities in the Middle East (Iran, Saudi Arabia...). Products traffic is expected to grow from 11.0 million ton in 1975 to 25.0 million ton in 1980 for laden cargo and from 11.0 million dwt to 30 million dwt for tankers in ballast.

C. Bulk Traffic

9. Bulk cargo shipping has undergone important changes since the closure of the Canal. The improvement of mechanical handling equipment, the specialization of ports as well as increasing volumes of trade have promoted different methods of shipping. Specialized bulk carriers are more and more frequent and are plying on definite routes. The analysis of future development in bulk commodity trading is based on studies carried out by various consultants, Westinform (UK) and principally SC Shipping Consultants (Norway). The results arrived at by these two firms are close and are considered reasonable. In both cases, they are based on surveys made along different routes and on ship tracking along these routes in order to determine the most likely pattern of trade and the size of vessels most likely to be used on these routes.

10. The analysis was carried out as follows:

(i) identification of the major commodities (iron ore, pig iron, steel manganese, bauxite, phosphate, sulphur, fertilizers, salt, grain, soya beans, hogs and lumber, bulk and paper and pulp);

(ii) estimates of inter area trade from 1975 to 1980 for each commodity by origin and destination;

(iii) estimates of the percentage of each trade which would be affected by the reopening of the Canal; and

(iv) estimates of the distribution of bulk carriers by size groups on each trade route and for the main commodities based on physical observation of past ship movements.

11. The results of the analysis summarized in Tables 6 and 7, show that at the 1967 level of dues, bulk cargo traffic would grow from 33 million ton in 1975 to about 40 million ton in 1980. Northbound and southbound traffic would be divided in the ratio 60:40 in 1975 and 55:45 in 1980. No important changes are expected in the type of commodities. Traffic in ballast would be minimum since bulk carriers often operate on a triangular route to reduce in ballast time. Total savings to shipowners would amount to US$53 million in 1975 and US$50 million in 1980.

D. Potential General Cargo Traffic

Liners and Tramp Vessels

12. The evaluation of future liner and tramp vessel traffic presents some problems since it cannot be based on the evaluation of the movement of goods as for oil or bulk cargo. These vessels carry mixed general cargo which is not identifiable and, therefore, the estimate of future traffic is based on the expected number of ships passing the Canal. As for other cargo, it was derived from actual ship movements in 1973 on routes that would be affected by the reopening of the Canal (Europe - South East Asia, North America - Middle East and Asia, S.E. Africa - Europe and North America).

13. The results arrived and have subsequently been escalated at 6% p.a. until 1980. This rate of growth does reflect pre-closure growth through the Canal and post-closure growth on alternative routes. Although no detailed forecast was made for individual routes, because of the lack of reliable basic data, traffic has been projected by direction of trade i.e. southbound and northbound. The results are summarized in Table 8 and show that liner trade and tramp trade would account for respectively about 80% and 20% of total general cargo trade and be about equally distributed between northbound and southbound. The results are expressed in terms of Suez Canal Net Registered

Tons (SCNRT) and were derived from a statistical analysis of the equivalence in SCNRT of various types of liners and tramp ships.

Container Ships

14. Container transport appeared after the Canal was closed. There is, therefore, no experience in dealing with that particular form of transport. An analysis was made by consultants of container traffic on various routes which would benefit from the reopening of the Canal. The main trade routes affected are from northern or southern Europe to the Far East, Australia, India, Pakistan and the Middle East. The main problem in entrusting container carrier traffic is to find an equivalence between the standard type measurement (dwt and grt) and the Suez Canal measurement system. Since container ships did not exist in 1967, such equivalent cannot be estimated by statistical methods and for the purpose of the analysis, it has been assumed that on gross registered ton would be equivalent to 0.60 SCNRT. The results of the analysis are summarized in Table 9 and show that container traffic is expected to increase from 16 million SCNRT in 1975 to 26 million SCNRT in 1980, the traffic being equally balanced between northbound and southbound.

E. Others

15. It has been estimated that about 15% of the traffic will be vessels which have not been accounted for. This has been added to the total potential traffic which is summarized in Table 9.

F. Traffic Build Up

16. It is expected that the Canal will be reopened at the end of the first quarter of 1975. It would, however, take some time for traffic to be diverted to the Canal since shipowners may feel a certain apprehension as to the safety of navigation and also because arrangements have to be made to obtain new bunkering facilities, offices, etc. in the new ports of call. It has, therefore, been estimated that traffic in the first year would be 40% of the potential traffic and 80% the second year. The results are given in Table 10.

ANNEX 6
Table 1

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Projected Oil Demand and Supply for Europe, 1975-80
(Million ton)

Demand and Supply	1975	1976	1977	1978	1979	1980
Demand						
Western Europe						
Total internal demand	770	790	805	825	850	875
Reexport of products (imports)	10	5	—	(5)	(10)	(20)
Net Demand	780	795	805	820	840	855
Eastern Europe (Net)	10	10	15	20	20	25
Total Europe	790	805	820	840	860	880
Supply						
Indigenous	40	70	100	135	175	225
Imports						
North Africa	120	110	105	100	95	80
Western Africa	80	80	85	85	85	85
Carribean	10	5	5	5	5	5
Eastern Africa	15	15	10	10	5	
Total	225	210	205	200	190	170
Middle East						
Of which						
Pipe lines	65	90	110	110	110	110
Tankers						
N.Europe	280	265	245	225	195	165
S. Europe	180	170	160	170	190	210
Total	525	525	515	505	495	485

Source: Mission Estimates

November 1974

ANNEX 6
Table 2

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Projected Oil Demand and Supply for North America, 1975-80
(Million ton)

Demand and Supply	1975	1976	1977	1978	1979	1980
Demand	940	965	990	1,015	1,040	1,065
Supply						
Indigenous	610	640	670	705	735	775
Imports						
Europe	10	5	0	0	0	0
Caribbean	150	140	130	120	110	100
Total	160	145	130	120	110	100
Africa and Middle East Pipelines	35	45	55	60	60	60
Caribbean	40	40	40	35	30	30
Total	75	85	95	95	90	90
Middle East Tankers						
U.S. East Coast	85	85	85	85	95	90
Caribbean/1	90	75	50	45	40	25
Total	175	160	135	130	135	115

/1 For reexport of products to U.S. East Coast.

Source: Mission Estimates

November 1974

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

World Tanker Fleet, 1966, 1973, and 1978

Size	1966		1973		1978 /1	
	No.	Million dwt	No.	Million dwt	No.	Million dwt
10,000/34,999 dwt	1,888	39.6	1,690	37.5	1,896	42.8
35,000/69,999 dwt	738	36.2	786	38.4	875	42.2
70,000/124,999 dwt	230	19.9	426	38.2	659	60.5
Over 125,000 dwt	8	1.2	447	99.2	1,090	265.8
Total	2,864	96.9	3,349	213.3	4,520	411.3
Average size:	33,850 dwt		63,600 dwt		91,000 dwt	

/1 Does not take into account scrapping of ships more than 20 years old.

Source: John I Jacobs and Co. Ltd., "World Tanker Fleet Review," December 31, 1973

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APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Tanker Operating Costs
(US$ thousand)

Cost	DWT			
	50,000	70,000	90,000	120,000
Fixed Annual Cost				
Capital Cost /1	1,376	1,493	1,584	1,755
Fixed Operating Cost /2	2,168	2,673	2,974	3,790
Total	3,544	4,166	4,558	5,545
Average Daily Cost				
Capital Cost	3,930	4,265	4,525	5,015
Fixed Operating Cost	6,190	7,635	8,500	10,830
Total	10,120	11,900	13,025	15,845
Fuel Cost/Day /3				
At sea	4,070	4,634	5,246	5,858
At port	1,000	1,434	1,778	2,118
Port Charges/Voyage	23,000	34,000	40,000	50,000

/1 Based on a 12% DCF return over 17 years.
/2 Includes manning, maintenance, and insurance.
/3 Based on prices of US$68/ton for Bunker C and US$107 for diesel oil and unit consumptions.

Source: Petroleum Economics, SC Shipping Consultants, and Mission Estimates

November 1974

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Potential Tanker Traffic through the Suez Canal, 1975-80

(Million dwt)

Year	Products		Crude Oil	
	Laden	Ballast	Laden	Ballast
1975				
N.W. Europe	11.0	11.0	6.0	36.0
S. Europe			9.0	45.0
	11.0	11.0	15.0	81.0
U.S. East Coast	0	0	19.0	37.0
Caribbean			6.5	25.0
			25.5	62.0
Total	11.0	11.0	40.5	143.0
1976				
N.W. Europe	13.0	13.0	2.5	25.0
S. Europe			7.0	39.0
	13.0	13.0	9.5	64.0
U.S. East Coast	0	0	15.0	31.0
Caribbean			5.0	20.0
			20.0	51.0
Total	13.0	13.0	29.5	115.0
1977				
N.W. Europe	15.0	15.0	0	17.5
S. Europe			5.0	33.0
	15.0	15.0	5.0	50.5
U.S. East Coast	0	0	11.0	25.0
Caribbean			3.0	12.0
			14.0	37.0
Total	15.0	15.0	19.0	87.5
1978				
N.W. Europe	18.0	20.0	0	11.0
S. Europe			3.5	27.0
			3.5	38.0
U.S. East Coast	0	0	7.5	19.0
Caribbean			3.0	10.0
			10.5	29.0
Total	18.0	20.0	14.0	67.0
1979				
N.W. Europe	20.0	25.0	0	9.0
S. Europe			2.0	25.0
	20.0	25.0	2.0	34.0
U.S. East Coast	0	0	6.0	17.0
Caribbean			2.0	9.0
			8.0	26.0
Total	20.0	25.0	10.0	60.0
1980				
N.W. Europe	25.0	30.0	0	6.0
S. Europe			0	20.0
	25.0	30.0	0	26.0
U.S. East Coast	0	0	2.0	13.0
Caribbean			1.0	5.0
			3.0	18.0
Total	25.0	30.0	4.0	44.0

Source: Mission Estimates

November 1974

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THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Projected Bulk Commodity Trading on Main Routes
Affected by Reopening of the Suez Canal, 1975-80
(Million ton)

Route	1975	1976	1977	1978	1979	1980
Northbound						
Asia - Northern Europe						
Iron ore	2.0	2.0	2.0	2.0	2.0	2.0
Manganese	0.2	0.2	0.3	0.3	0.3	0.4
Australia - Mediterranean						
Iron ore	1.0	1.2	1.4	1.7	2.1	2.5
Manganese	0.1	0.1	0.1	0.2	0.2	0.2
Coal	2.0	2.3	2.6	3.0	3.5	4.0
Australia - Northwestern Europe						
Iron ore	14.0	15.0	16.1	17.3	18.6	20.0
Manganese	0.2	0.2	0.3	0.3	0.4	0.5
Bauxite	3.1	3.3	3.4	3.6	3.8	4.0
Coal	5.0	5.4	5.7	6.1	6.6	7.0
Grain	2.3	2.3	2.4	2.4	2.4	2.4
Salt	0.3	0.4	0.5	0.7	0.9	1.1
Japan - Europe						
Steel	3.2	3.4	3.6	3.9	4.1	4.4
Middle East - Europe						
Phosphate	0.8	0.8	0.8	0.9	0.9	0.9
Fertilizer	0.1	0.1	0.1	0.2	0.2	0.2
S.E. Asia - Europe						
Lumber	1.5	1.5	1.5	1.4	1.4	1.4

Route	1975	1976	1977	1978	1979	1980
Southbound						
Black Sea - Asia						
Iron ore	1.1	0.7	0.5	0	0	0
Grain	0.5	0.5	0.5	0.5	0.5	0.5
Baltic Sea - Asia						
Pig iron	0.5	0.5	0.5	0.5	0.5	0.5
Coal	2.0	2.2	2.4	2.6	2.8	3.0
Northern Europe - Asia						
Pig iron	0.1	0.1	0.1	0.1	0.1	0.1
Steel	1.0	1.1	1.1	1.2	1.3	1.3
Sulphur	0.1	0.1	0.1	0.1	0.1	0.1
Fertilizers	4.5	4.4	4.3	4.2	4.1	4.0
Cars (000 units)	125	122	119	116	113	110
Northern Europe - Middle East						
Steel	1.1	1.2	1.3	1.3	1.4	1.5
Fertilizers	2.1	2.1	2.2	2.3	2.4	2.5
Eastern Europe - Asia						
Fertilizers	0.5	0.6	0.7	0.9	1.1	1.4
Eastern Europe - Middle East						
Fertilizers	0.6	0.6	0.6	0.7	0.7	0.7
Mediterranean - Middle East						
Fertilizers	0.7	0.8	0.9	1.0	1.1	1.2
Mediterranean - Asia						
Fertilizers	0.8	1.1	1.6	2.1	3.0	4.0
North Africa - Asia						
Phosphates	3.3	3.4	3.5	3.8	3.9	4.0
North America - Asia						
Phosphate	0.8	0.8	0.8	0.9	0.9	0.9
Steel	0.6	0.6	0.6	0.7	0.7	0.8
Grain	1.2	1.2	1.2	1.2	1.2	1.2
Paper	0.3	0.3	0.3	0.3	0.3	0.3
North America - Middle East						
Fertilizers	0.1	0.1	0.1	0.2	0.2	0.2
Grain	1.4	1.4	1.4	1.5	1.5	1.5
Beans	0.1	0.1	0.1	0.1	0.1	0.1

Source: Consultant Report

November 1974

ANNEX 6
Table 7

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Potential Bulk Traffic through the Suez Canal, 1975-80/1

(Million ton)

Traffic	1975	1976	1977	1978	1979	1980
Northbound Laden						
Iron ore	11.70	11.00	10.40	9.80	9.20	8.50
Steel	.35	.50	.70	.90	1.10	1.20
Manganese	.20	.35	.50	.70	.90	1.05
Bauxite	3.00	3.10	3.20	3.30	3.40	3.50
Coal	3.30	3.60	3.90	4.20	4.50	4.70
Salt	0.25	0.35	0.45	0.55	0.65	0.75
Grain	1.35	1.35	1.35	1.35	1.35	1.35
Logs	0.10	0.10	0.10	0.15	0.15	0.15
Timber	0.15	0.20	0.25	0.30	0.30	0.30
Phosphate	0.35	0.40	0.45	0.50	0.60	0.65
Total	20.75	20.95	21.30	21.75	22.15	22.15
Ballast	0.60	0.65	0.70	0.75	0.80	0.90
Southbound Laden						
Iron ore	1.10	0.70	0.50	-	-	-
Pig iron	0.60	0.60	0.60	0.60	0.60	0.60
Steel	0.40	0.45	0.50	0.60	0.65	0.75
Coal	2.20	2.30	2.40	2.45	2.50	2.60
Phosphate	2.80	3.00	3.20	3.45	3.65	3.90
Sulphur	0.05	0.05	0.05	0.05	0.05	0.05
Fertilizers	2.80	3.60	4.40	5.20	6.00	6.85
Grain	2.05	2.05	2.10	2.10	2.15	2.15
Soyabeans	0.05	0.05	0.05	0.05	0.05	0.05
Car	0.15	0.15	0.15	0.15	0.15	0.15
Total	12.20	12.95	13.90	14.65	15.80	17.10
Ballast	1.05	1.05	1.05	1.05	1.05	1.05
Total Northbound and Southbound						
Laden	32.95	33.90	35.20	36.40	37.95	39.25
Ballast	1.65	1.70	1.75	1.80	1.85	1.95

/1 Assuming canal dues at 1967 levels.

Source: Consultant Report and Mission Estimates

November 1974

ANNEX 6
Table 8

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Potential Liner and Tramp Ship Traffic through the Suez Canal, 1975-80
(Million SCNRT)

Traffic	1975	1976	1977	1978	1979	1980
Northbound						
Tramp ships	1.60	3.40	4.50	4.75	5.05	5.35
Liners	6.20	13.00	17.30	18.35	19.45	20.60
Subtotal	7.80	16.40	21.80	23.10	24.50	25.95
Southbound						
Tramp ships	2.00	4.00	5.25	5.55	5.90	6.25
Liners	7.40	15.60	20.70	21.95	23.30	24.65
Subtotal	9.40	19.60	25.95	27.50	29.20	30.90
Total	17.20	36.00	47.75	50.60	53.70	56.85

Source: **Consultant** Report and Mission Estimates

November 1974

ANNEX 6
Table 9

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Potential Oil and Oil Products, Dry Bulk, and General Traffic through the Suez Canal, 1975-80
(Million SCNRT)

Traffic	1975	1976	1977	1978	1979	1980
Oil and Oil Products						
Laden	23.0	19.0	15.0	14.0	13.0	12.5
Ballast	64.0	57.0	45.0	38.0	37.5	33.0
Subtotal	87.0	76.0	60.0	52.0	50.5	45.5
Dry Bulk	19.0	19.5	20.0	20.5	21.5	22.5
General						
Tramps	8.7	9.2	9.8	10.3	11.0	11.6
Liners	33.8	35.9	38.0	40.3	42.8	45.3
Containers	16.0	18.0	20.5	22.0	24.0	26.0
Subtotal	58.5	63.1	68.3	72.6	77.8	82.9
Total	164.5	158.6	148.3	145.1	149.8	150.9

Note: Rounded to nearest 100,000 SCNRT

Source: Consultant Report and Mission Estimates

November 1974

ANNEX 6
Table 10

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Summary of Potential Traffic through the Suez Canal, 1975-80
(Million SCNRT)

Traffic	1975 /1	1976 /2	1977	1978	1979	1980
Oil and Oil Products	26.0	61.0	60.0	52.0	50.5	45.5
Dry Bulk	6.0	16.0	20.0	20.5	21.5	22.5
General	17.0	50.0	68.3	72.6	77.8	82.9
Subtotal	49.0	127.0	148.3	145.1	149.8	150.9
Other 15%	6.0	19.0	22.2	21.9	22.2	22.6
Total	55.0	146.0	170.5	167.0	172.0	173.5

/1 40% of potential traffic.
/2 80% of potential traffic

Source: Mission Estimates

November 1974

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Savings in Shipping Costs through Reopening the Suez Canal

A. Introduction

1. The reopening of the Suez Canal will considerably shorten sea routes between North America, the Caribbean, Europe and countries located southeast of Suez. Shorter distances will result in savings in shipping costs: (i) by reducing capital and fixed operating costs per unit of cargo due to faster turnovers of ships; and (ii) by reducing voyage costs and mostly fuel costs. Savings, however, would be different for various type of ships and various routes and have to be estimated separately (para. B).

B. Savings in Shipping Costs

Tankers

2. Savings have been calculated on the basis of ship operating costs (Annex 6, Table 4) and voyage parameters for the most representative size groups and routes. The results are summarized in Table 1. Two assumptions were made:

(i) Tanker market will remain stable over the next few years and supply and demand would be balanced. Freight rates would then reflect full cost recovery (capital and fixed operating costs).

(ii) The tanker supply will exceed the demand and freight rates will be low for the next 3 to 5 years, and could be based, at least for a while, on fixed operating costs recovery only.

As explained in Annex 6, it is likely that there would be an excess in the tanker supply, if growth in oil demand slow down as it is presently expected. However, any increase in oil demand would result in additional shipments from the Middle East and would absorb some of the foreseen excess capacity.

Bulk Carriers, Liners, Tramps and Container Carriers

3. Savings have been calculated on the basis of calculations made by consultants (SC Shipping Consultants (Norway)) that are considered reasonable. A summary of savings on the main trade routes for liners and tramp ships and container carriers are given in Table 2 and 3 respectively.

Global Savings

4. Global gross savings (before payment of any Canal dues) are summarized on Table 4 for each of the main categories. For tankers, savings based on fixed operating costs have been taken into account. Table 4 also shows global net savings after payment of Canal dues under the assumptions spelled out in para 6 of Annex 19. They have been calculated taking into account the reduction in the volume of traffic which would be induced by higher Canal dues.

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THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Savings in Shipping Costs/Round-trip Tanker Voyage
(US$/ton)

Cost and Route	dwt 50,000	70,000	90,000	120,000	150,000
Full Cost					
Northern Europe					
Suez/Suez	0	6.0	0	0	0
Cape/Suez	0	2.8	2.3	2.1	2.0
Southern Europe					
Suez/Suez	0	8.1	0	0	0
Cape/Suez	0	4.0	3.6	3.2	3.1
U.S. East Coast					
Suez/Suez	4.8	4.6	0	0	0
Cape/Suez	0	2.4	1.8	1.5	1.3
Caribbean					
Suez/Suez	0	2.0	0	0	0
Cape/Suez	0	0.9	0.7	0.7	0.7
Capital Cost Excluded					
Northern Europe					
Suez/Suez	0	3.2	0	0	0
Cape/Suez	0	1.7	1.3	1.1	1.1
Southern Europe					
Suez/Suez	0	4.6	0	0	0
Cape/Suez	0	2.2	1.8	1.6	1.5
U.S. East Coast					
Suez/Suez	0	2.4	0	0	0
Cape/Suez	0	1.6	1.0	0.8	0.7
Caribbean					
Suez/Suez	0	1.1	0	0	0
Cape/Suez	0	0.5	0.5	0.4	0.4

Source: Consultant Report
November 1974

ANNEX 7
Table 2

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Savings in Shipping Costs for Liners and Tramp Ships
(US$/SCNRT)

Savings and Route	Liners		Tramp Ships	
	dwt			
	3,000-10,000	10,000-18,000	3,000-10,000	10,000-18,000
Individual Savings by Trade Route (US$ million)				
Europe - East Africa/Red Sea	19.25	15.80	23.00	15.50
Europe - Indian Ocean	15.70	12.15	19.00	12.50
Europe - Far East	12.20	10.10	14.75	9.75
Europe - Australia	4.95	4.05	6.00	4.00
Mediterranean - East Africa/ Red Sea	23.75	19.60	28.50	19.00
Mediterranean - Indian Ocean	20.20	16.70	24.50	16.50
Mediterranean - Far East	16.80	13.75	20.00	13.50
Mediterranean - Australia	9.50	7.75	11.40	7.70
North Africa - Far East	16.10	13.10	19.30	13.00
North Africa - Indian Ocean	19.70	16.00	23.50	15.80
North America - East Africa	14.20	11.65	17.00	11.40
North America - Indian Ocean	10.60	8.75	12.80	8.60
Caribbean - Indian Ocean	5.40	4.45	6.50	4.30
Global Savings (US$ million)				
Northbound	50.50	113.40	8.50	22.00
Southbound	49.70	134.20	8.25	22.80
Total	100.20	247.60	16.75	44.80

Source: **Consultant** Report

November 1974

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Savings in Shipping Costs for Containerized Ships, 1975-80
(US$ Million)

Route		1975 /1	1976 /1	1977 /1	1978 /1	1979 /1	1980
Northern Europe -	Far East	47.0	0	0	0	0	75.0
	Australia	9.0	0	0	0	0	12.0
	Arabian Gulf	0	0	0	0	0	10.0
	Red Sea	0	0	0	0	0	10.0
North-Eastern Europe -	Far East	0	0	0	0	0	14.0
	Arabian Gulf	0	0	0	0	0	11.0
	Red Sea	0	0	0	0	0	8.0
South-Western Europe -	Far East	30.0	0	0	0	0	39.0
	Australia	8.0	0	0	0	0	11.0
	Arabian Gulf	0	0	0	0	0	13.0
	Red Sea	0	0	0	0	0	7.0
South-Eastern Europe -	Far East	0	0	0	0	0	47.0
	Arabian Gulf	0	0	0	0	0	18.0
Others		3.0	0	0	0	0	33.0
Total		97.0	140.0	185.0	230.0	270.0	308.0

/1 Figures for individual routes are not available.

Source: Consultant Report

November 1974

ANNEX 7
Table 4

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

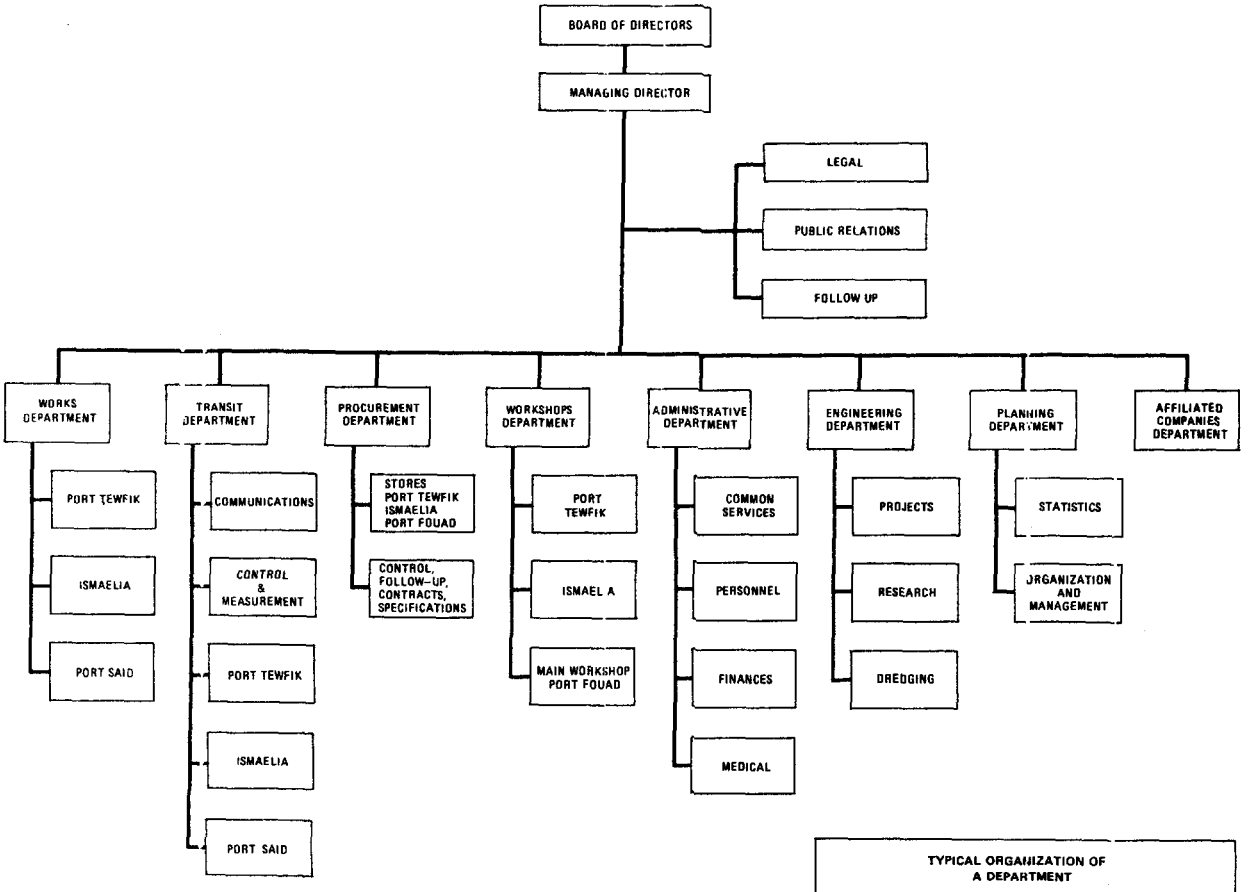
Global Savings in Shipping Costs, 1975-80
(US$ million)

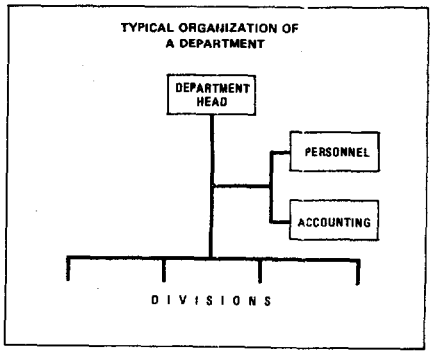
Global Savings	1975	1976	1977	1978	1979	1980
Gross Savings						
Tankers	390	480	490	420	410	360
Dry bulk	50	50	50	50	50	50
General						
Liner tramps	440	465	490	520	555	585
Containerized ships	97	140	185	230	270	308
Subtotal	537	605	675	750	825	893
Others	150	170	180	185	190	195
Total	1,127	1,305	1,395	1,405	1,475	1,498
Net Savings Assuming dues at LE 0.60/SCNRT						
Gross savings	1,127	1,305	1,395	1,405	1,475	1,498
Less Canal dues	79	210	246	240	248	250
Total	1,048	1,095	1,149	1,165	1,227	1,248
Net Savings Assuming Dues at three times the 1967 level						
Gross savings	950	1,085	1,165	1,205	1,300	1,340
Less Canal dues	128	331	415	424	450	468
Total	824	754	750	781	850	870

Source: Mission Estimates

November 1974

APPRAISAL OF THE REHABILITATION OF THE SUEZ CANAL
ARAB REPUBLIC OF EGYPT
SUEZ CANAL AUTHORITY. ORGANIZATION CHART





Source: Suez Canal Authority November 1974.

World Bank—8813(R)

APPRAISAL OF

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ARAB REPUBLIC OF EGYPT

Performance Indicators to be Maintained by SCA

During loan negotiations the following was agreed by SCA:

(1) SCA will provide the Bank with performance indicators by June 30 of each year commencing from June 30, 1976. These indicators will be set out in reports covering:

(i) actual performance for the previous year, compared to forecast performance,

(ii) projected performance for the current year (with amendments, if any), and

(iii) projected performance for the following year.

(2) For the year 1975 actual performance will be compared to 1966 performance. Any substantial deviations will be explained in the report.

(3) The reports will in particular cover the following items:

I. Personnel

(i) Breakdown of staff by department and by category (Senior Management, Engineers, Administrative Financial Officers, Pilots, Technicians, skilled, semi-skilled and unskilled labor) at the end of each calendar year.

(ii) Number of the Authority's personnel who have undertaken training during the past calendar year, by department and type of training.

II. Traffic

(i) Statistical data similar to those provided in the 1966 annual report of the Authority.

(ii) Number of incidents which involved damages to the Suez Canal or to transitting vessels and/or caused a delay in the transit of vessels.

III. Equipment

(i) List of floating equipment in use at the end of each calendar year and more particular dredgers, floating cranes, tugs and pilot launches.

(ii) Availability factor (number of days in service during the past calendar year) for the equipment referred to in III(i) above and breakdown of the down time for each type of equipment.

(iii) Total volume of maintenance dredging and of capital dredging for access channels and the Suez Canal during the past calendar year.

IV. Shipyards

Activity report of the shipyards for ship building maintenance and repair.

V. Studies

List of studies related to the Suez Canal or to the transit vessels carried out during the past calendar year by the Authority or its external agencies.

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

No. 3821. Declaration 1/ Made By The Government of Egypt On the Suez Canal And The Arrangements For Its Operation. Cairo, 24 April 1957.

24 April 1957

In elaboration of the principles set forth in their memorandum dated 18 March 1957, the Government of the Republic of Egypt, in accord with the Constantinople Convention of 1888 2/ and the Charter of the United Nations, makes hereby the following Declaration on the Suez Canal and the arrangements for its operation.

1. Reaffirmation of Convention

It remains the unaltered policy and firm purpose of the Government of Egypt to respect the terms and the spirit of the Constantinople Convention of 1888 and the rights and obligations arising therefrom. The Government of Egypt will continue to respect, observe and implement them.

2. Observance of the Convention and of the Charter of the United Nations

While reaffirming their determination to respect the terms and the spirit of the Constantinople Convention of 1888 and to abide by the Charter and the principles and purposes of the United Nations, the Government of Egypt are confident that the other signatories of the said Convention and all others concerned will be guided by the same resolve.

3. Freedom of Navigation, Tolls, and Development of the Canal

The Government of Egypt are more particularly determined:

(a) To afford and maintain free and uninterrupted navigation for all nations within the limits of and in accordance with the provisions of the Constantinople Convention of 1888;

(b) That tolls shall continue to be levied in accordance with the last agreement, concluded on 28 April 1936, between the Government of Egypt and the Suez Canal Maritime Company, and that any increase in the current rate of tolls within any twelve months, if it takes place, shall be limited to 1 per cent,

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1/ Came into force on 24 April 1957, the date on which the Declaration was made.

2/ De Martens, Nouveau Recueil general de Traites, deuxieme serie, torne XV, p. 557.

any increase beyond that level to be the result of negotiations, and, failing agreement, be settled by arbitration according to the procedure set forth in paragraph 7 (b).

(c) That the Canal is maintained and developed in accordance with the progressive requirements of modern navigation and that such maintenance and development shall include the 8th and 9th Programmes of the Suez Canal Maritime Company with such improvements to them as are considered necessary.

4. Operation and Management

The Canal will be operated and managed by the autonomous Suez Canal Authority established by the Government of Egypt on 26 July 1956. The Government of Egypt are looking forward with confidence to continued cooperation with the nations of the world in advancing the usefulness of the Canal. To that end the Government of Egypt would welcome and encourage cooperation between the Suez Canal Authority and representatives of shipping and trade.

5. Financial Arrangements

(a) Tolls shall be payable in advance to the account of the Suez Canal Authority at any bank as may be authorized by it. In pursuance of this, the Suez Canal Authority has authorized the National Bank of Egypt and is negotiating with the Bank of International Settlement to accept on its behalf payment of the Canal tolls.

(b) The Suez Canal Authority shall pay to the Government of Egypt 5 per cent of all the gross receipts as royalty.

(c) The Suez Canal Authority will establish a Suez Canal Capital and Development Fund into which shall be paid 25 per cent of all gross receipts. This Fund will assure that there shall be available to the Suez Canal Authority adequate resources to meet the needs of development and capital expenditure for the fulfillment of the responsibilities they have assumed and are fully determined to discharge.

6. Canal Code

The regulations governing the Canal, including the details of its operation, are embodied in the Canal Code which is the law of the Canal. Due notice will be given of any alteration in the Code, and any such alteration, if it affects the principles and commitments in this Declaration and is challenged or complained against for that reason, shall be dealt with in accordance with the procedure set forth in paragraph 7 (b).

7. Discrimination and Complaints Relating to the Canal Code

(a) In pursuance of the principles laid down in the Constantinople Convention of 1888, the Suez Canal Authority, by the terms of its Charter, can in no case grant any vessel, company or other party any advantage or favor not accorded to other vessels, companies or parties on the same conditions.

(b) Complaints of discrimination or violation of the Canal Code shall be sought to be resolved by the complaining party by reference to the Suez Canal Authority. In the event that such a reference does not resolve the complaint, the matter may be referred, at the option of the complaining party or the Authority, to an arbitration tribunal composed of one nominee of the complaining party, one of the Authority and a third to be chosen by both. In case of disagreement, such third member will be chosen by the President of the International Court of Justice upon the application of either party.

(c) The decisions of the arbitration tribunal shall be made by a majority of its members. The decisions shall be binding upon the parties when they are rendered and they must be carried out in good faith.

(d) The Government of Egypt will study further appropriate arrangements that could be made for fact-finding, consultation and arbitration on complaints relating to the Canal Code.

8. Compensation and Claims

The question of compensation and claims in connection with the nationalization of the Suez Canal Maritime Company shall, unless agreed between the parties concerned, be referred to arbitration in accordance with the established international practice.

9. Disputes, Disagreements or Differences Arising out of the Convention and this Declaration

(a) Disputes or disagreements arising in respect of the Constantinople Convention of 1888 or this Declaration shall be settled in accordance with the Charter of the United Nations.

(b) Differences arising between the parties to the said Convention in respect of the interpretation or the applicability of its provisions, if not otherwise resolved, will be referred to the International Court of Justice. The Government of Egypt would take the necessary steps in order to accept the compuslory jurisdiction of the International Court of Justice in conformity with the provisions of Article 36 of its Statute.

10. Status of this Declaration

The Government of Egypt make this Declaration, which re-affirms and is in full accord with the terms and spirit of the Constantinople Convention of 1888, as an expression of their desire and determination to enable the Suez Canal to be an efficient and adequate waterway linking the nations of the world and serving the cause of peace and prosperity.

This Declaration, with the obligations therein, constitutes an international instrument and will be deposited and registered with the Secretariat of the United Nations.

LETTER FROM THE MINISTER FOR FOREIGN AFFAIRS OF EGYPT
TO THE SECRETARY GENERAL OF THE UNITED NATIONS

MINISTERE DES AFFAIRES ETRANGERES
CABINET DU MINISTRE 1/

24th April 1957

Your Excellency,

The Government of Egypt are pleased to announce that the Suez Canal is now open for normal traffic and will thus once again serve as a link between the natios of the world in the cause of peace and prosperity.

The Government of Egypt wish to acknowledge with appreciation and gratitude the efforts of the States and peoples of the world who contributed to the restoration of the Canal for normal traffic, and of the United Nations whose exertions made it possible that the clearance of the Canal be accomplished peacefully and in a short time.

On 18 March 1957, the Government of Egypt set forth in a memorandum basic principles relating to the Suez Canal and the arrangements for its operation. The memorandum contemplated a further detailed statement on the subject. In pursuance of the above, I have the honor to enclose a copy of the Declaration made today by the Government of Egypt in fulfillment of their participation in the Constantinople Convention of 1888, noting their understanding of the Security Council resolution of 13 October 1956 2/ and in line with their statements relating to it before the Council.

I have the honor to invite Your Excellency's attention to the last paragraph of the Declaration which provides that it will be deposited and registered with the SEcretariat of the United Nations. The Declaration, with the obligations therein, constitutes an international instrument and the Government of Egypt request that you kindly receive and register it accordingly.

1/ Ministry for Foreign Affairs.
Office of the Minister.

2/ United Nations, Official Records of the Security Council, Eleventh Year, Supplement for October, November and December 1956, p. 47.
No. 3821

I avail myself of this opportunity to renew to Your Excellency the assurances of my highest consideration.

Yours sincerely,

Mahmoud FAWZI
Minister of Foreign Affairs of Egypt

His Excellency M. Dag Hammarskjold
Secretary-General of the United Nations
New York

APPRAISAL OF

THE REHABILITATION OF THE SUEZ CANAL

ARAB REPUBLIC OF EGYPT

Justification of the Suez Canal Authority's Equipment Program

A. General

1. Since 1967 SCA has lost, because of the hostilities in the region, some 6 dredgers, 10 tugs, 2 salvage vessels, 2 water barges, 3 floating cranes, 6 ferry boats, 2 floating hammers, 19 open barges, 15 pilot boats, and 25 service boats.

2. Today, SCA has available for work or likely to be made available, by suitable rehabilitation, the following floating equipment: 14 dredgers, 7 hopper barges, 3 water barges, 2 floating hammers, 6 open barges, 10 tug boats, 6 ferry boats, 6 pilot boats and 6 floating cranes.

3. SCA sustained damage or loss of the following navigational aids: 33 long-tail light buoys, 76 spherical buoys, 189 light beacons, 402 bi-conic buoys with lights, 15 bi-conic buoys with reflectors and 60 cylindrical buoys with lights. In addition some 370 lanterns of various colors and flashing sequences and 4,200 lead acid accumulators were lost.

B. Land Equipment

4. SCA's land based equipment was as follows:

Equipment	Existing 1967	Lost or Damaged
Trucks, 3 - 14 tons	45	4
Mobile cranes, 2.5 - 60 tons	44	15
Passenger cars	182	31
Ambulances	15	4
Lorries	48	14
Buses	35	9
Fire-fighting pumps	70	17
Pumps for other uses	71	16
Bulldozers	23	14
Scrapers	32	4
Portal quai cranes, 3-ton	14	1
Electric generators	36	13

The program provides for a replacement of destroyed equipment and that which is beyond economic repair either because of excessive damage or old age.

C. Dredgers

5. The dredgers in the program will not be required for (nor could they be made available in time) for the reopening of the canal. However, the new dredgers would be available for dealing with the increased silt deposits that will accrete when vessels again transit the canal. SCA intends to use three new vessels, as available, for the soft digging of any canal expansion and to leave the larger portion and the excavation in calcified rock to be done by dredging equipment provided by contractors. Any surplus dredging capacity over the above SCA's needs could be utilized on dredging the port of Alexandria and reclamation works in the canal zone. The three new dredgers, would in fact, replace the six lost dredgers and be more appropriate to SCA's future needs.

D. Ferry Boats

6. The ferry boats to be procured in the program will replace the six vessels lost and three that are too old to be economically repaired.

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ARAB REPUBLIC OF EGYPT

Total Project Cost[1] and Detail of Foreign Exchange Financing
(US$ 000)

ITEM NO.		PROJECT ELEMENT	Total Project Cost: Local Cost	Total Project Cost: Foreign Exchange Cost	Total Project Cost: Total	Foreign Exchange %	Source of Foreign Exchange: IBRD	Source of Foreign Exchange: Kuwait Fund, USAID and other External Sources	Source of Foreign Exchange: Total
1		PREPARATION OF CHANNEL							
	10	Mine Disposal		336	336	100		336	336
	20	Heavy Salvage		8,880	8,880	100		8,880	8,880
	30	Light Salvage	260	1,680	1,940	86	960	720	1,680
	40	Removal of Deversoir Obstruction	3,690	720	4,410	16		720	720
	50	Navigational Aids (Buoys & Accessories, etc.)	1,200	720	1,920	37	360	360	720
	60	Transit Telecommunication & Electrical Equipment	1,900	7,030	8,930	79	360	6,670	7,030
	70	Instruments (Echo sounders ... etc.)		504	504	100		504	504
		Subtotal	7,050	19,870	26,920	74	1,680	18,190	19,870
2		REPAIRS TO CHANNEL							
	10	Dredgers & Dredging Equipment & Spares	3,480	33,600	37,080	91		33,600	33,600
	20	Earth Moving Equipment & Spares	110	1,680	1,790	94	480	1,200	1,680
	30	Revetment Repairs	7,140	3,700	10,840	39	1,200	2,500	3,700
	40	Quarry Equipment	120	360	480	75	120	240	360
		Subtotal	10,850	39,340	50,190	78	1,800	37,540	39,340
3		SERVICE TO CHANNEL							
	10	Tug and Pilot Vessels	490	20,400	20,890	98	11,280	9,120	20,400
	20	Motor Boats	2,160	3,600	5,760	63	2,160	1,440	3,600
	30	Floating Cranes	5,000	21,600	26,600	81		21,600	21,600
	40	Ferry Boats	3,500	5,100	8,600	59		5,100	5,100
	50	Water Tankers, Barges and Miscellaneous	3,000	300	3,300	9		300	300
	60	Anti-pollution equipment and Chemicals	50	240	290	80	240		240
		Subtotal	14,200	51,240	65,440	78	13,680	37,560	51,240
4		REHABILITATION OF WORKSHOP							
	10	Workshop Facilities	1,000	5,040	6,040	83	3,960	1,080	5,040
	20	Field Equipment	1,050	2,520	3,570	59	2,400	120	2,520
	30	Cranes (Mobile - Fork Lifts - Overhead)	500	2,040	2,540	80	1,680	360	2,040
	40	Oxygen Plant	90	360	450	80	240	120	360
	50	Compressed Air Plant	60	240	300	80	120	120	240
	60	Port Fouad Power Station	200	50	250	20	-	50	50
		Subtotal	2,900	10,250	13,150	78	8,400	1,850	10,250
5		SERVICE TO CANAL							
	10	Land Transport	2,570	1,440	4,010	36	960	480	1,440
	20	Medical Services	1,770	4,850	6,620	73		4,850	4,850
	30	Water Plant and Accessories	3,360	2,160	5,520	39	2,160		2,160
	40	Office Equipment	200	770	970	79		770	770
		Subtotal	7,900	9,220	17,120	54	3,120	6,100	9,220
6		STORES							
	10	Materials	1,440	8,410	9,850	85	6,860	1,550	8,410
	20	Spare Parts	540	3,600	4,140	87	1,920	1,680	3,600
	30	Fittings and Miscellaneous	180	1,200	1,380	87	1,200		1,200
	40	Small Tools	240	1,380	1,620	85	1,200	180	1,380
		Subtotal	2,400	14,590	16,990	86	11,180	3,410	14,590
7		ADMINISTRATION BUILDINGS							
	10	Roads Repairs (canal road - Equip. & Misc...)	3,600	1,200	4,800	25	1,200		1,200
	20	Ferdan Bridge					-		
	30	Other Bridges	2,700	1,440	4,140	35	1,440		1,440
	40	Administration Buildings and Service Buildings	9,800	3,360	13,160	25		3,360	3,360
	50	Housing	4,100	1,440	5,540	26		1,440	1,440
		Subtotal	20,200	7,440	27,640	27	2,640	4,800	7,440
8		LOCAL WORK							
	10	Retransfer of evacuated Workshops and Re-erection	3,000		3,000				
	20	Dredging Work and Reforming of Settling Basins	12,000		12,000				
	30	Repairs of Electric Transmission	2,000		2,000				
	40	Re-mooring of Floating Dock	750	120	870	14		120	120
	50	Repairs of Workshops in Three Towns Excluding Bldgs.	2,000		2,000				
	60	Miscellaneous		4,280	4,280	100		4,280	4,280
		Subtotal	19,750	4,400	24,150	18		4,400	4,400
9		TECHNICAL ASSISTANCE AND STUDIES	300	960	1,260	76	960		960
		Subtotal	85,550	157,310	242,860	65	43,460	113,850	157,310
10		PRICE CONTINGENCIES [2]	21,450	23,690	45,140	52	6,540	17,150	23,690
		TOTAL PROJECT COST	107,000	181,000	288,000	63	50,000	131,000	181,000

[1] Removal of mines and explosives not included.

[2] Contingencies have been estimated at 15% on foreign exchange and 25% on local currency.

Sources: SCA and Mission's Estimates.

November 1974

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ARAB REPUBLIC OF EGYPT

Cost Estimate for Bank-Financed Project Items

Item No.	Project Element	Project Cost						Foreign Exchange Component
		Local	Foreign	Total	Local	Foreign	Total	
		-----LE million----			-----US$ million---			%
1	Preparation of Channel							
30	Light salvage equipment	0.100	400	0.500	0.240	0.960	1.200	80
50	Navigational aids	0.500	0.150	0.650	1.200	0.360	1.560	23
60	Radar and radio	0.050	0.150	0.200	0.120	0.360	0.480	75
		0.650	0.700	1.350	1.560	1.680	3.240	52
2	Repairs to Channel							
20	Earthmoving equipment and spares	0.050	0.200	0.250	0.120	0.480	0.600	80
30	Revetment repairs	1.000	0.500	1.500	2.400	1.200	3.600	34
40	Quarry equipment	0.050	0.050	0.100	0.120	0.120	0.240	50
		1.100	0.750	1.850	2.640	1.800	4.440	40
3	Services to Channel							
10	Tugboats	0.470	4.700	5.170	1.128	11.280	12.408	91
20	Motor boats	0.900	0.900	1.800	2.160	2.160	4.320	50
60	Anti-pollution equipment & chemicals	0.020	0.100	0.120	0.048	0.240	0.288	83
		1.390	5.700	7.090	3.336	13.680	17.016	80
4	Workshop Rehabilitation							
10	Workshop facilities	0.400	1.650	2.050	0.960	3.960	4.920	80
20	Field equipment	0.440	1.000	1.440	1.056	2.400	3.456	70
30	Cranes (mobile, overhead, forklifts)	0.215	0.700	0.915	0.516	1.680	2.196	77
40	Oxygen Plant	0.040	0.100	0.140	0.096	0.240	0.336	73
50	Compressed air plant	0.025	0.050	0.075	0.060	0.120	0.180	67
		1.120	3.500	4.620	2.688	8.400	11.088	76

Item No.	Project Element	Project Cost						Foreign Exchange Component
		Local	Foreign	Total	Local	Foreign	Total	
		-----LE million----			-----US$ million---			%
5	Services							
10	Land transport: vehicles, garages and service stations	1.070	0.400	1.470	2.568	0.960	3.528	27
30	Water purification plant and accessories	1.400	0.900	2.300	3.360	2.160	5.520	39
		2.470	1.300	3.770	5.928	3.120	9.048	34
6	Stores							
10	Materials	0.515	2.860	3.375	1.236	6.860	8.100	85
20	Spare parts	0.225	0.800	1.025	0.540	1.920	2.460	78
30	Fittings and miscellaneous	0.075	0.500	0.575	0.180	1.200	1.380	87
40	Small tools	0.090	0.500	0.590	0.216	1.200	1.416	85
		0.905	4.660	5.565	2.172	11.180	13.356	84
7	Buildings, Houses, and Roads							
10	Road repairs	1.500	0.500	2.000	3.600	1.200	4.800	25
30	Bridge repairs	1.120	0.600	1.720	2.688	1.440	4.128	35
		2.620	1.100	3.720	6.288	2.640	8.928	29
8	Local Work	0	0	0	0	0	0	
9	Technical Assistance and Studies	0.125	400	0.525	0.300	0.960	1.260	76
	Sub-total	10.380	18.110	28.490	24.912	43.460	68.376	64
10	Contingencies							
	15% on foreign exchange component	0	2.720	2.720	0	6.540	6.540	100
	25% on local currency component	2.595	0	2.595	6.228	0	6.228	0
	Total	12.975	20.830	33.805	31.140	50.000	81.140	62

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Estimated Schedule of Disbursements
(US$ thousand)

IBRD Fiscal Year and Quarter	Cumulative Disbursements at end of Quarter (US$ '000)
1974/75	
December 31, 1974	600
March 31, 1975	4,000
June 30, 1975	12,000
1975/76	
September 30, 1975	20,000
December 31, 1975	26,000
March 31, 1976	32,000
June 30, 1976	38,000
1976/77	
September 30, 1976	40,000
December 31, 1976	42,000
March 31, 1977	44,000
June 30, 1977	46,000
1977/78	
September 30, 1977	48,000
December 31, 1977	49,000
March 31, 1978	50,000

Source: Mission Estimates

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Suez Canal Authority's Income Statements, 1965-72 (Actual) and 1973 (Estimated)
(LE million)

Item	Actual								Estimated
	1965	1966	1967	1968	1969	1970	1971	1972	1973
Revenue									
Transit Tolls	83.1	91.3	94.5						
Other	3.2	3.0	3.3	2.0	2.5	1.7	3.0	4.2	4.0
Subtotal	86.3	94.3	97.8	2.0	2.5	1.7	3.0	4.2	4.0
Less Operating Expenses									
Canal and Port Said Working Expenses	2.1	2.1	2.1	1.3	1.2	1.0	0.8	1.2	1.0
Canal and Port Said Maintenance Expenses	0.8	0.9	0.7	0.3	0.3	0.3	0.3	0.5	0.3
Maintenance of Equipment	1.9	2.1	2.2	1.8	1.7	1.3	1.7	2.7	2.3
Public Service Activities	1.6	1.8	1.6	1.6	1.6	1.3	1.3	1.9	1.6
Administration and General Expenses	1.7	2.1	1.7	1.7	1.8	1.8	1.8	2.9	1.9
Miscellaneous	1.6	0	0	0	0.1	0.2	0.2	0.3	0.1
Depreciation	2.4	1.9	2.2	2.4	2.2	2.1	2.3	3.0	2.0
Subtotal	12.1	10.9	10.5	9.1	8.9	8.0	8.4	12.5	9.2
Operating Income (Loss)	74.2	83.4	87.3	(7.1)	(6.4)	(6.3)	(5.4)	(8.3)	(5.2)
Expenses Relating to War	0	0	0	0.5	0.3	0.9	1.1	1.4	1.0
Income Before Interest Expenses	74.2	83.4	87.3	(7.6)	(6.7)	(7.2)	(6.5)	(9.7)	(6.2)
Less Interest Expense	1.3	1.3	1.3	1.3	1.1	2.0	2.7	4.6	3.2
Net Income (Loss)	72.9	82.1	86.0	(8.9)	(7.8)	(9.2)	(9.1)	(14.3)	(9.4)
Less Appropriations to Government:									
Royalty (5% of Transit Tolls)	4.3	4.7	4.9	0	0	0	0	0	0
Income Taxes	18.1	23.1	23.4	0	0	0	0	0	0
Profit	46.9	51.6	53.2	0	0	0	0	0	0
Subtotal	69.3	79.4	81.5	0	0	0	0	0	0
Net Income (Loss) to Equity	3.6	2.7	4.5	(8.9)	(7.8)	(9.2)	(9.1)	(14.3)	(9.4)
Ratios									
Operating Ratio(%)	14	12	11						
Times Interest Covered	57.1	64.2	67.2						

Note: 1965-71 - years ended June 30.
1972 - eighteen months ended December 31.
1973 - year ended December 31.

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Suez Canal Authority's Cash Flow Statements
1968-72 (Actual) and 1973 (Estimated)
(LE million)

Item	Actual					Estimated	
	1968	1969	1970	1971	1972	1973	Total
Funds Applied							
Losses							
Net Loss Before Interest Expense	7.6	6.7	7.2	6.5	9.7	6.2	43.9
Less Depreciation	2.4	2.2	2.1	2.3	3.0	2.0	14.0
Subtotal	5.2	4.5	5.1	4.2	6.7	4.2	29.9
Purchase of Fixed Assets (Net)	2.9	1.4	2.2	0.5	1.2	0.7	8.9
Other Net Working Capital Increase (Decrease)	15.0	4.4	0.2	6.6	4.6	(4.9)	25.9
Other Non-Current Assets Increase (Net)	0.0	0.0	0.2	0.1	0.3	0.0	0.6
Debt Services							
Interest	1.3	1.1	2.0	2.7	4.6	3.2	14.9
Principal	2.2	2.6	2.7	3.5	5.5	4.2	20.7
Subtotal	3.5	3.7	4.7	6.2	10.1	7.4	35.6
Total Funds Applied	26.6	14.0	12.4	17.6	22.9	7.4	100.9
Funds Available							
Redemption of Long-Term Investment	0.0	0.0	0.0	0.0	1.0	0.0	1.0
External Borrowings	1.7	0.5	0.7	0.3	1.6	0.0	4.8
Government Loans	8.4	6.2	11.8	13.6	16.8	11.1	67.9
Total Funds Available	10.1	6.7	12.5	13.9	19.4	11.1	73.7
Excess (Deficiency) of Cash	(16.5)	(7.3)	0.1	(3.7)	(3.5)	3.7	(27.2)
Cash at Beginning of Year	37.0	20.5	13.2	13.3	9.6	6.1	37.0
Cash at End of Year	20.5	13.2	13.3	9.6	6.1	9.8	9.8

Notes: 1968-71 - year ended June 30
1972 - eighteen months ended December 31
1973 - year ended December 31

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Suez Canal Authority's Balance Sheets
1965-67 (Actual) and 1973 (Estimated)

(LE million)

Item	Actual 1965	Actual 1966	Actual 1967	Estimated 1973
Assets				
Current Assets				
Cash	43.3	41.6	37.0	9.8
Stores	8.0	9.5	12.7	9.9
Other	8.2	14.5	13.7	11.6
Subtotal	59.5	65.6	63.4	31.3
Fixed Assets				
Canal Improvements	32.2	34.2	36.8	37.0
Other Fixed Assets	22.1	25.1	28.3	34.6
Subtotal	54.3	59.3	65.1	71.6
Less Accumulated Depreciation	21.9	23.7	25.9	39.6
Net Fixed Assets	32.4	35.6	39.2	32.0
Work in Progress	2.2	2.3	2.5	4.6
Subtotal	34.6	37.9	41.7	36.6
Long-Term Investments	4.3	4.3	4.3	3.3
Total Assets	98.4	107.8	109.4	71.2
Liabilities and Equity				
Current Liabilities				
Income Taxes Payable	9.2	22.3	32.6	0.0
Other	30.4	23.5	10.8	10.3
Subtotal Current Liabilities	39.6	45.8	43.4	10.3
Long Term Debt				
IBRD	20.7	19.0	17.3	1.8
Kuwait Fund	1.2	3.9	7.4	7.0
Government Loans	0.0	0.0	0.0	67.9
Total Long-Term Debt	21.9	22.9	24.7	76.7
Reserve for Renewals	11.2	11.2	11.2	11.2
Equity	25.7	27.9	30.1	(27.0)
Total Liabilities and Equity	98.4	107.8	109.4	71.2
Ratios				
Current Assets to Current Liabilities	1.5	1.4	1.5	3.0
Current Assets (less inventories) to Current Liabilities	1.3	1.2	1.2	2.0
Debt to Equity	46/54	45/55	45/55	-

Note: 1965-67 - at June 30.
1973 - at December 31.

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APPRAISAL OF

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Suez Canal Dues and Future Revenue

A. General

1. As explained in Chapter VII and Annex 6 and 7 a number of important changes occured in the shipping industry since 1967. While most of the changes occured in the transport of oil, dry bulk and general cargo were affected as well. The future role of the canal has, therefore, to be evaluated in the light of existing and potential markets which could be affected by its re-opening. The volume of traffic which would pass the canal in the future depends on two main parameters: (i) the physical condition of the canal, draft, width, permissible length and speed; and (ii) the level of canal dues to be paid by shipowners. Since this project is only concerned with the restoration of the canal to its preclosure conditions, the physical conditions are well defined (Chapter IV). Regarding the level of dues to be collected the question is more complex since it is the first time that canal dues would have to be set up after a long interruption of canal operations.

B. Unit of Measurement

2. SCA has traditionally applied a single rate per Suez Canal Net Registered Ton (SCNRT), a unit of measurement equivalent to 100 c.ft. of space, whatever the type of the ship. Discounts were offered for ship in ballast and surcharges were imposed to account for ship specifications over and above Suez Canal permissible dimensions (beam, draft, length...). While this approach had the advantage of simplicity; once a ship is measured and on records, billing was quite easy, it does present a number of difficulties for the future. Traffic projections are derived from movements of goods and expressed in metric tons, long tons, or deadweight tons, which have later to be converted into SCNRT. This is uneasy since there are no real equivalence between the various units. For the purpose of the study the following conversion factor derived from statistical analysis has been used.

	Equivalent of 1 SCNRT
Oil Cargo	2.26 dwt
Dry Cargo	
Bulk	1.85 dwt
General cargo	
Tramp Vessels	
3/10,000 dwt.	1.70 dwt
10/18,000 dwt.	1.75 dwt
Linear vessels	
3/10,000 dwt.	1.30 dwt
10/18,000 dwt.	1.95 dwt
Container vessels	0.6 grt

These factors are approximate and indicate an order of magnitude. It is considered, however, that pending the results of more detailed studies they will not introduce significant distortions in the evaluation of possible levels of dues and of SCA's income.

C. Tariff Policy

3. Traditionally transport rates are based on cost plus a reasonable return on the capital invested and it has been the Bank policy to promote such mechanisms in transport pricing policies all over the world. In most cases, the Bank was concerned that, if tariffs were not based on costs: (i) the agency would not be financially viable and, therefore, would have to be subsidized by the Government and/or the community; and (ii) the allocation of scarce resources would be less than optimum. In the case of SCA, the problem is quite different, tariffs (canal dues) are not related to costs and the agency has not only been financially viable but transferred to the Government important amounts of foreign exchange while financing a large part of its expansion.

4. To relate canal dues to costs would in this particular case be impractical since SCA operates and maintains the canal but does not own the waterway. A cost based tariff would, therefore, only reflect the cost of operations, as it would in railways if infrastructure were not accounted for in the determination of tariffs. This could be remedied by valuing the canal and accounting for its depreciation and a fair return on investment in the determination of tariffs, but such an approach would not be practical, since it would be extremely difficult to arrive at a fair value of the waterway.

5. Another approach which appears to be more manageable would be to set canal dues at level(s) that would make the canal competitive with other routes. Such an approach would be based on: (i) an analysis of the various trades which could pass the canal either laden or in ballast (Annex 6); (ii) of the savings achieved by shipowners (Annex 7); and (iii) of the future prospects of the shipping markets. This approach, however, raises a number of issues:

(i) since future prospects and saving might be different for various type of shipping (tanker, bulk cargo and liner trade), it might not be practical to have a uniform rate per SCNRT as previously;

(ii) savings in shipping costs would be different depending on the route and basing canal dues on marginal savings would maximize traffic but not necessarily SCA's income; and

(iii) what percentage of the savings should be appropriated by SCA, and subsequently Egypt, what part should be kept by the shipowner as an incentive to divert traffic and what part should be passed on to shippers.

These questions are presently being investigated by SCA, which has decided to hire consultants to carry out a traffic/tariff study.

D. Methodology Used

6. For the purpose of the appraisal, the second approach was used and two different cases were considered:

(i) traffic and SCA's income were estimated on the basis of 1967 dues reevaluated by 1% p.a. according to the U.N. Delcaration of April 24, 1957 and expressed in 1967 monetary value. This is a conservative approach that will indicate the lower limit of SCA's income;

(ii) dues were estimated at three times, their 1967 level to reflect the current opinion of the shipping community.

However, in each case, no distinction was made between transit laden or in ballast voyage.

E. Projected Revenues

7. The results are summarized in Table 1 which shows that in the first case, traffic will be maximum and SCA's income will grow from LE 33 million (US$82.5 million) in 1975 to LE 104 million (US$260 million) in 1980. In the second case, traffic will be lower since on some routes shipowners would not have any incentive to divert traffic to the canal but SCA's income will be much higher growing from LE 53.3 million (US$133 million) in 1975 to LE 195 million (US$487.5 million) in 1980. The first assumption was retained for the purpose of the financial evaluation.

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Suez Canal Authority's Forecast Income, 1975-80

Cases	1975	1976	1977	1978	1979	1980
Case 1: Escalated 1967 Canal Dues						
Total traffic (SCNRT million)	55.00	146.00	170.05	167.00	172.00	173.05
Rate per SCNRT (LE)	0.60	0.60	0.60	0.60	0.60	0.60
Total income (LE million)	33.00	87.06	102.03	100.02	103.02	104.01
US$ equivalent (million)	79.00	210.00	246.00	240.00	248.00	250.00
Case 2: LE 1.3/SCNRT (three times the 1967 level)						
Total traffic (SCNRT million)	41.00	106.00	133.00	136.00	144.00	150.00
Rate per SCNRT (LE)	1.30	1.30	1.30	1.30	1.30	1.30
Total income (LE million)	53.30	137.80	172.90	176.80	187.30	195.00
US$ equivalent (million)	128.00	331.00	415.00	424.00	450.00	468.00

Source: Mission Estimates

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Assumptions on which Suez Canal Authority's Financial Forecasts are Based

The financial projections are based on the following principal assumptions:

1. Revenues have been derived using the traffic and tariff assumptions discussed in Annexes 6 and 18.

2. Constant 1973 prices for operating costs are assumed. Salaries and wages have been increased by 50% from 1975 to 1977, to allow for normal increases which were not made during the closure of the Canal.

3. The Government will take the necessary action to forgive the Government and Central Bank loans amounting to about LE 67.9 million at December 31, 1973.

4. The existing fixed assets have not been further depreciated due to the necessity of a complete revaluation. Depreciation on fixed assets to be acquired has been calculated using the estimated economic lives of the assets.

5. The proposed Bank loan of US$50 million (LE 20.8 million) will have an interest rate of 8% p.a. for a period of 20 years, including four years of grace.

6. Other foreign exchange required will be borrowed at an interest rate of 4.5% and 3% (Kuwait Loan and USAID Loan, respectively) for period of 17 years and 40 years respectively including two years of grace.

7. Local currency borrowings in 1974, which include LE 10 million to meet operating and debt service requirements, will be made through the Central Bank at an interest rate of 4.5% p.a. for a period of 20 years, including four years of grace.

8. Local currency requirements for the project in 1975 and subsequent years will be met from internal cash generation.

9. Royalties paid to the Government will continue at 5% of transit tolls revenue, and income taxes will continue to be assessed at the present rate of 39.7% of net income. No income taxes will be payable in 1975 due to the application of losses from the previous three years.

10. No attempt has been made to allocate the cash shown to be accumulated on the forecast cash flow statements (Annex 20). It is a matter of annual negotiation between SCA and the Government and will be either held internally by SCA for future capital investments or distributed to the Government.

11. The first phase of the future expansion was included in the forecasts which assume 100% borrowing for 25 years including 5 years of grace at 6%, the first revenue from the expansion accruing in 1980.

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Suez Canal Authority's Forecast Income Statements 1974-80
(LE million)

Item	1974	1975	1976	1977	1978	1979	1980
Revenue							
Transit Tolls:							
Oil	0.0	15.6	36.6	36.0	31.2	30.3	77.3
Dry Cargo	0.0	17.4	51.0	66.3	69.0	72.9	86.8
Others	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Subtotal	3.0	36.0	90.6	105.3	103.2	106.2	167.1
Less Operating Expenses							
Canal and Port Said Working Expenses	1.0	3.0	3.4	3.8	3.8	4.6	4.6
Canal and Port Said Maintenance Expenses	1.0	1.3	1.4	1.6	1.6	1.7	2.0
Maintenance of Equipment	2.5	3.2	3.5	3.9	4.0	4.1	5.0
Public Service Activities	1.8	2.1	2.3	2.5	2.5	2.5	2.5
Administration and General Expenses	2.1	2.6	2.8	3.1	3.1	3.1	3.7
Miscellaneous	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Depreciation	0.0	3.8	5.7	6.1	6.1	6.1	16.6
Subtotal	8.5	16.1	19.2	21.1	21.2	22.2	34.5
Operating Income (loss)	(5.5)	19.9	71.4	84.2	82.0	84.0	132.6
Less Royalty to Government	0.0	1.7	4.4	5.1	5.0	5.2	8.2
Net Income (loss) Before Interest Expense and Income Taxes	(5.5)	18.2	67.0	79.1	77.0	78.8	124.4
Interest Expense	1.3	4.8	9.2	13.7	18.4	22.8	23.8
Income Taxes	0.0	0.0	22.9	26.0	23.3	22.2	39.9
Net Income (loss)	(6.8)	13.4	34.9	39.4	35.3	33.8	60.7
RATIOS							
Operating Ratio (%)	0	45	21	20	20	21	21
Times Interest Covered	0	4.1	7.8	6.1	4.5	3.7	5.6

Note: Years ended December 31.

Source: Mission estimates

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Suez Canal Authority's Forecast Cash Flow Statements, 1974-80
(LE million)

Item	1974	1975	1976	1977	1978	1979	1980	Total
Application of Funds								
Canal Reopening Project								
Repairs to the Canal	17.9	11.0	5.0	3.4	0.0	0.0	0.0	37.3
Fixed Assets	13.2	32.3	20.9	7.5	0.0	0.0	0.0	73.9
Stores	1.4	2.5	3.3	1.6	0.0	0.0	0.0	8.8
Subtotal	32.5	45.8	29.2	12.5	0.0	0.0	0.0	120.0
Canal Expansion Project	0.0	30.0	60.0	60.0	90.0	60.0	0.0	300.0
Debt Service								
Interest	1.3	4.8	9.2	13.7	18.4	22.8	23.8	94.0
Principal	2.8	1.0	1.2	1.6	2.1	9.5	18.1	36.3
Subtotal	4.1	5.8	10.4	15.3	20.5	32.3	41.9	130.3
Income Taxes	0.0	0.0	22.9	26.0	23.3	22.2	39.9	134.3
Total Application of Funds	36.6	81.6	122.5	113.8	133.8	114.5	81.8	684.6
Sources of Funds								
Internally Generated Funds								
Net Income Before Interest Expense and Income Taxes	(5.5)	18.2	67.0	79.1	77.0	78.8	124.4	439.0
Depreciation	0.0	3.8	5.7	6.1	6.1	6.1	16.6	44.4
Subtotal	(5.5)	22.0	72.7	85.2	83.1	84.9	141.0	483.4
Loans								
IBRD Project								
IBRD	5.4	8.8	5.4	1.2	0.0	0.0	0.0	20.8
Kuwait Fund	10.8	2.9	0.0	0.0	0.0	0.0	0.0	13.7
Other Foreign Borrowings	2.5	18.3	12.9	7.2	0.0	0.0	0.0	40.9
Local	23.8	0.0	0.0	0.0	0.0	0.0	0.0	23.8
Subtotal	42.5	30.0	18.3	8.4	0.0	0.0	0.0	99.2
Expansion Project	0.0	30.0	60.0	60.0	90.0	60.0	0.0	300.0
Total Sources of Funds	37.0	82.0	151.0	153.6	173.1	144.9	141.0	882.6
Excess (Deficiency) of Funds	0.4	0.4	28.5	39.8	39.3	30.4	59.2	198.0
Cash at Beginning of Year	9.8	10.2	10.6	39.1	78.9	118.2	148.6	9.8
Cash at End of Year	10.2	10.6	39.1	78.9	118.2	148.6	207.8	207.8
Debt Service Coverage	0.0	3.8	7.0	5.6	4.1	2.6	3.4	3.7

Note: Years ended December 31.

Source: Mission Estimates

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Rate of Return Calculation
(US$ million)

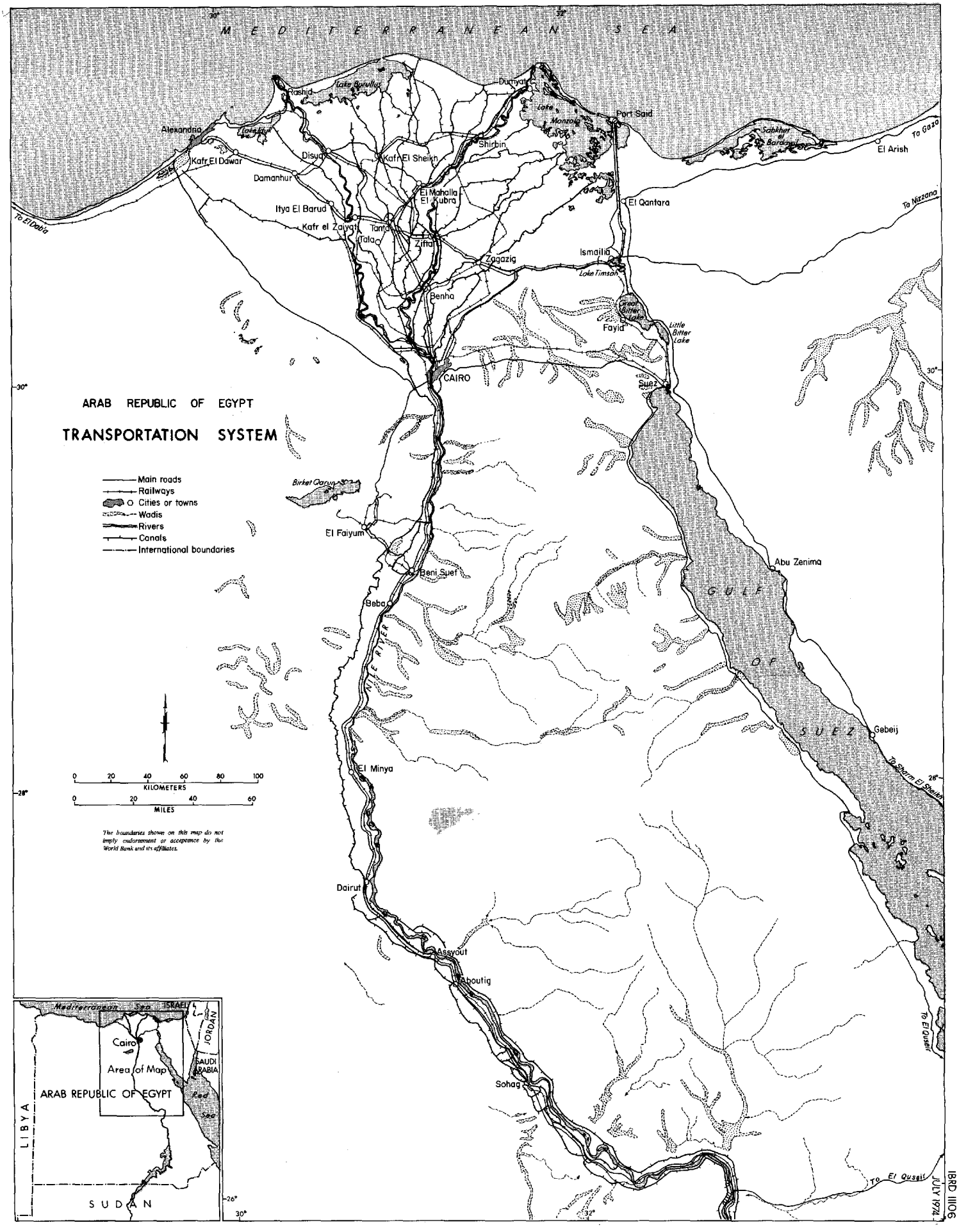
Year	Capital costs /1	Operating Costs	Total	Gross Income	Net Income
1974	58.0	20.0	78.0	0	(78.0)
1975	95.0	30.0	125.0	79.0	(46.0)
1976	60.0	33.0	93.0	210.0	117.0
1977	25.0	36.0	61.0	245.0	184.0
1978	-	36.0	36.0	240.0	204.0
1979	-	36.0	36.0	248.0	212.0
1980	-	36.0	36.0	250.0	214.0
⋮		⋮	⋮	⋮	⋮
1994		36.0	36.0	250.0	214.0

Calculation shows a rate of return in excess of 50%

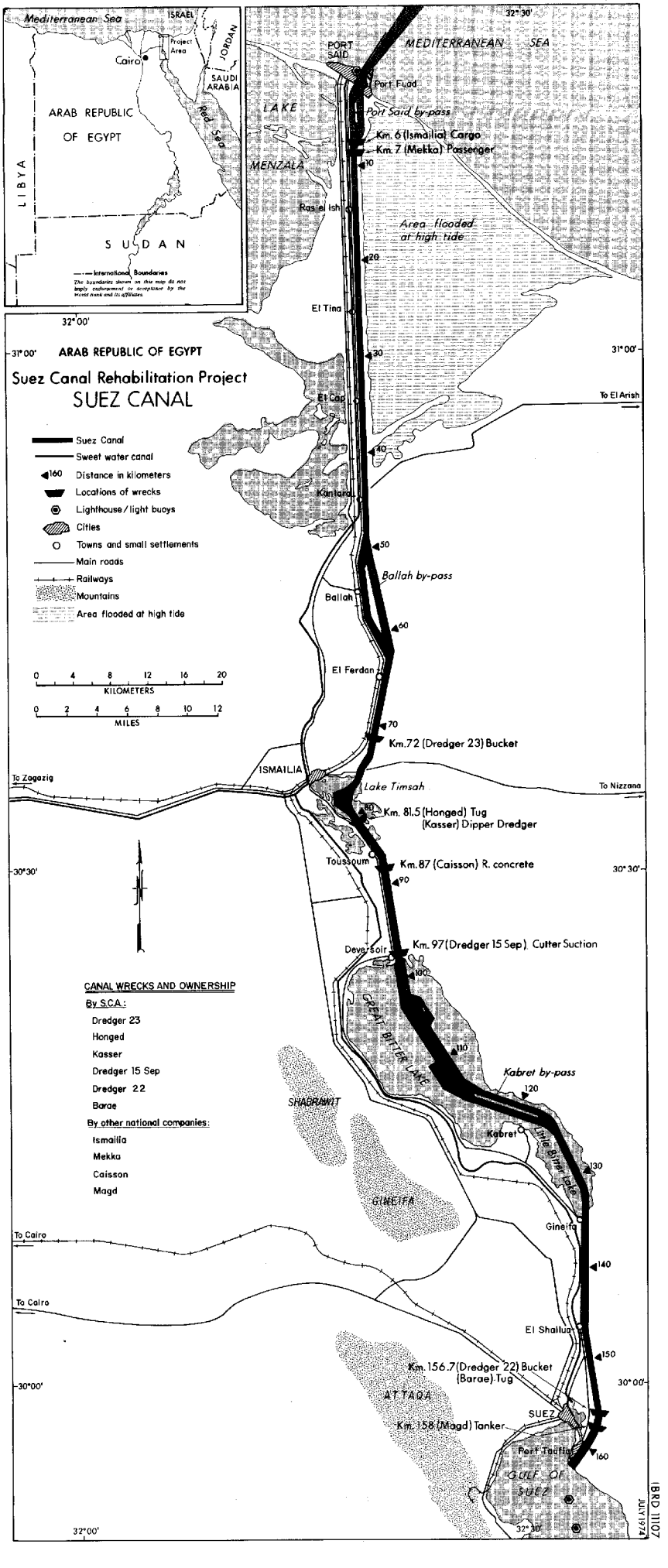
/1 Net of customs duty

Source: Mission Estimates

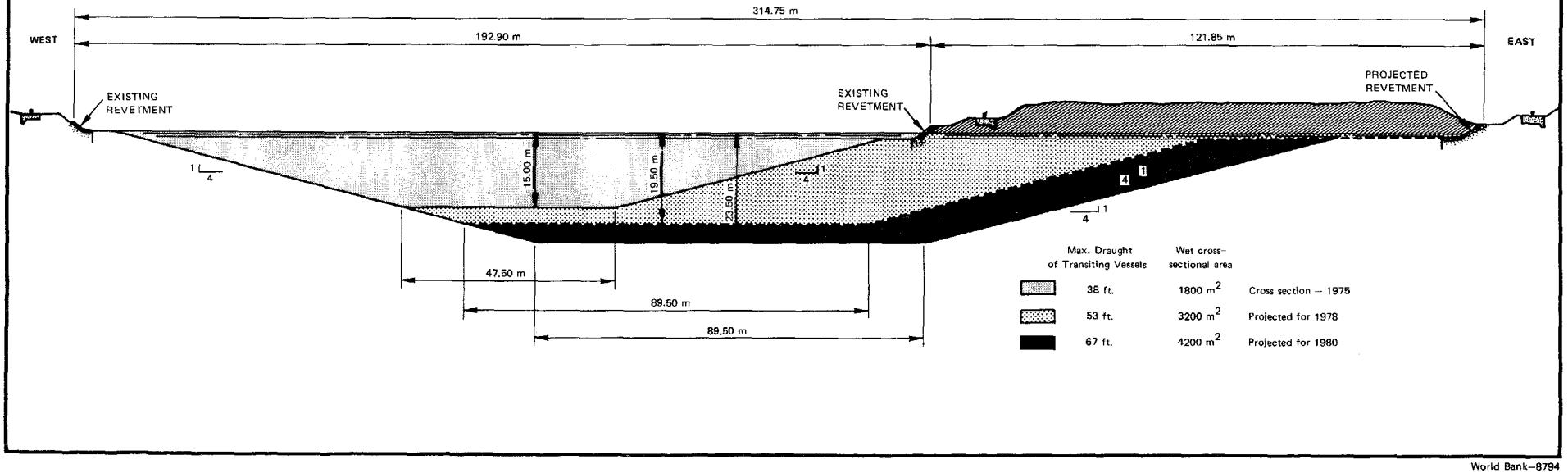
November 1974



IBRD 11106
JULY 1974


Mediterranean Sea
ISRAEL
JORDAN
Project Area
Cairo
SAUDI ARABIA
ARAB REPUBLIC OF EGYPT
Red Sea
LIBYA
SUDAN
International Boundaries
The boundaries shown on this map do not imply endorsement or acceptance by the World Bank and its affiliates.
32°30'
32°00'
31°00'
ARAB REPUBLIC OF EGYPT
Suez Canal Rehabilitation Project
SUEZ CANAL
MEDITERRANEAN SEA
PORT SAID
Port Fuad
Port Said by-pass
Km. 6 (Ismailia) Cargo
Km. 7 (Mekka) Passenger
LAKE MENZALA
Ras el Ish
Area flooded at high tide
El Tina
El Cap
To El Arish
Kantara
Ballah by-pass
Ballah
El Ferdan
Km.72 (Dredger 23) Bucket
ISMAILIA
To Zagazig
To Nizzana
Lake Timsah
Km. 81.5 (Honged) Tug
(Kasser) Dipper Dredger
Toussoum
Km. 87 (Caisson) R. concrete
Deversoir
Km. 97 (Dredger 15 Sep) Cutter Suction
GREAT BITTER LAKE
Kabret by-pass
SHAGRAWIT
Kabret
Little Bitter Lake
GINEIFA
Gineifa
To Cairo
To Cairo
El Shallufa
Km. 156.7 (Dredger 22) Bucket
(Barae) Tug
ATTAQA
SUEZ
Km. 158 (Magd) Tanker
Port Tawfiq
GULF OF SUEZ
Legend
Suez Canal
Sweet water canal
160 Distance in kilometers
Locations of wrecks
Lighthouse / light buoys
Cities
Towns and small settlements
Main roads
Railways
Mountains
Area flooded at high tide
0 4 8 12 16 20
KILOMETERS
0 2 4 6 8 10 12
MILES
CANAL WRECKS AND OWNERSHIP
By S.C.A.:
Dredger 23
Honged
Kasser
Dredger 15 Sep
Dredger 22
Barae
By other national companies:
Ismailia
Mekka
Caisson
Magd
IBRD 11107
JULY 1974

ARAB REPUBLIC OF EGYPT
SUEZ CANAL DEVELOPMENT
Typical Cross Section at km. 30



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