Chapter 5 Toll Structure and Rates, Other Dues and Charges

5.1 Toll structure and rates

5.1.1 Outline

Tolls for the Suez Canal transit are assessed on SCNT. The toll rates are determined on the basis of SDR units. Tolls calculated on this basis are payable in one of designated hard currencies according to its exchange rate in relation to SDRs declared by the IMF. Tariff of tolls in 2000 is shown in Table 5.1.1.

Table 5.1.1 Rates of Tolls to be Applied as from 1st January 2000

(SDR/SCNT)

	Vessel Type	SC Net Tonnage											
		First 5000		Next 5000		Next 10000		Next 20000		Next 30000		Rest	
		L	B	L	B	L	B	L	B	L	B	L	B
1	＊Tankers of Crude Oil Only ＊Combined Carriers of Crude Oil Only	6.49	5.52	3.62	3.08	3.25	2.77	1.40	1.19	1.40	1.19	1.21	1.03
2	＊Tankes of Petroleum Products ＊Combined Carriers carrying petroleum products ＊Combined Carriers carrying more than one kind of cargo	6.75	5.52	3.77	3.08	3.43	2.77	1.93	1.19	1.93	1.19	1.93	1.03
3	＊Dry Bulk Carriers ＊Combined Carriers carrying dry bulk cargo only	7.21	6.13	4.14	3.52	2.97	2.53	1.05	0.90	1.00	0.85	1.00	0.85
4	＊Other Bulk Liquid Carriers ＊LNG Carriers ＊Chemical Carriers (1) ＊Combined Carriers carrying other bulk liquid	7.50	6.38	4.14	3.56	3.81	3.24	2.68	2.28	2.68	2.28	2.68	2.28
5	＊Liquified Petroleum Gas LPG Carriers	6.75	5.75	3.77	3.21	3.43	2.92	2.42	2.06	2.42	2.06	2.42	2.06
6	＊Containerships ＊Vehicle Carriers	7.21	6.13	4.10	3.49	3.37	2.87	2.42	2.06	2.42	2.06	1.83	1.56
7	＊Special Floating Units	7.21	-	4.14	-	3.77	-	2.63	-	2.63	-	2.63	-
8	＊Other Vessels	7.21	6.13	4.14	3.52	3.77	3.21	2.63	2.24	2.63	2.24	2.63	2.24

(1) If in ballast, chemical/oil tankers are to be charged at the same rate of oil tankers.

Source) SCA Circular

Exemption of dues may be given for the following vessels:

- Vessels belonging to the Egyptian Government, on condition that it did not carry any cargo or passenger.
- Vessels belonging to United Nations, Multi- National Troops.
- Vessels under 300 tons SCGT in following condition:
  - She is not carrying any passengers or cargo.
  - She is not replacing any ship or any small craft subject to Canal dues.

- Motor boats belonging to Canal shipping agents, on condition that she is not carrying passengers.

A reduction of a quarter, half or three quarters of the tolls is allowed to vessels using only three quarters, half or one quarter of the Canal.

Additional tolls are levied on slow vessels as shown in Table 5.1.2

Table 5.1.2 Additional Tolls on Slow Vessels

Ship's speed is less than the speed of the vessels of her group in the convoy, by not more than	Additional Tolls
1 Km/H	10 % of the tolls
2 Km/H	20 % of the tolls
3 Km/H	30 % of the tolls
4 Km/H	40 % of the tolls
5 Km/H	80 % of the tolls
6 Km/H or more	160 % of the tolls

Source) Rules of Navigation, 1995, SCA

A surcharge of 25% of the tolls is to be applied for Navy and Auxiliary ships belonging to the Navy of different countries.

A surcharge of tolls is to be applied for container vessels or lash vessels carrying containers or lashes over weather deck based on SCA circular No.6/1993 as follows:

6%: up to 3 tiers of containers or lashes
8%: 4 tiers of containers or lashes
10%: 5 tiers of containers
14%: more than 5 tiers of containers

Tolls are to be revised and announced with SCA circular each year, while those have been remained almost unchanged since 1994. Prime Minister approves transit dues drafted by the Economic Unit and agreed by the tolls committee and board of directors within SCA.

5.1.2 Tolls reduction

(1) Rebates offered to long haul trips

SCA circular: Long haul tolls rebate circular of Apr. 1987
amended by No.4/1998
Content: Rebate is equal to surplus (and small incentive) of shipping cost through the Canal (including transit dues) deducted by that of via alternative routes
Objective: To provide individual competitive price against via alternative routes for all vessel types except Container Ships

(2) Reduction for VLCC in ballast coming from America to Arabian Gulf

SCA circular: No. 435615 (Dec. 1992)
Content: 45%: for VLCC coming from Gulf of Mexico (loop range)
55%: for VLCC coming from Caribbean zone
and the north coast of South America
Objectives: To provide competitive price against via Cape route in order to attract VLCC in ballast of 200,000 DWT and above

(3) SBT reduction

SCA circular: No. 6/1993
Content: 4%: for Segregated Ballast Tankers
2%: for Double Hull Tankers
Objectives: To favor environment friendly tankers

(4) Tolls for tankers that lighten part of crude oil in SUMED terminal at Sukhna

SCA circular: No.8/1995, amended by No7./1998
Content: Tolls of US$ 0.63 will be levied on each metric ton of crude oil.
Minimum transit dues are US$ 90,000.
SCA is to bear the charges of escorting tugboats.
Objective: To provide competitive price against the Cape

(5) Volume incentives for crude oil tankers

SCA circular: No.9/1995, amended by No.7/1996 and N0.3/1997
Content: Discount will apply on the round trip of the same tanker if crude oil quantities transported by one individual client during one year.
5%: 1 million ~ 2 million
10%: 2 million ~ 3 million
30%: 3 million ~
After the reductions have been effected, maximum payment for the round trip shall stand at SDR 330,000

Objective: To increase the number of vessels transiting the Canal

(6) Rebate to ships carrying wheat and heading to Aqaba harbour

SCA circular: No.5/1996
Content: 10% for ballast and loaded carrier
Objective: To provide competitive price against land-bridge transport

(7) LNG Reduction

SCA circular: No.7/1996, amended by No. 3/1997
Content: 35% regardless of destination for ballast and loaded carrier
Objective: To maintain competitive price of Arabian LNG in EU market

(8) Volume incentives for LNG

SCA circular: No.1/1999
Content: Discount will apply on the round trip of the same carrier if gas quantities transported by one individual client during one year.
5%: 0.5 million ~ 1 million
10%: 1 million ~ 2 million
15%: 2 million ~
Objective: To increase the number of vessels transiting the Canal

(9) Tolls for supertanker (mother) with Suez-max (daughter)

SCA circular: No3.1999
Content: Tolls of US$ 0.10/barrel for total volume of cargo by the two ships
Objective: To encourage the passage of supertankers that currently do not use the Canal and simultaneously to provide competitive price against SUMED

5.1.3 Historical changes of toll structure and rates

The historical changes of toll structure and rates for laden tankers as an example are shown in Table 5.1.3 and Table 5.1.4. Classification of laden vessels or vessels in ballast have been made since 1956.

Table 5.1.3 Historical Changes of Toll Structure

Year	Vessel type	Vessel size
1956-1965	No difference	No difference
1975	1. Tankers, Bulk carriers, Combined carriers 2. Other ships	No difference
1979	1. Tankers, Bulk carriers, Combined carriers	No difference
	2. Other Ships	First1000, Next4000, Rest
1981	4 types -Tankers of crude oil, -Bulk carriers -Combined carriers, -Other vessels	First5000, Next15000, Rest
1985	5 types -Tankers of crude oil, Tankers of petroleum products, -Bulk carriers, -Combined carriers -Other vessels	Ditto
1986	Ditto	First5000, Next15000, Next65000, Rest
1987	Ditto	First5000, Next15000, Next20000, Next45000, Rest
1989	Ditto	First5000, Nex15000, Next10000, Next20000, Next45000, Rest
1990	Ditto	First5000, Next5000, Next10000, Next20000, Next30000, Rest
1992	7 types -Tankers of crude oil, -Tankers of petroleum products, -Bulk carriers, -Combined carriers -Container vessels & Car carriers, -Con-Bulker, -Other vessels	Ditto
1994	8 types adding Other bulk liquid, LPG&LNG carriers	Ditto
1996	9 types with minor revising	Ditto
1997	8 types with minor revising	Ditto
1998	8 types with minor revising	Ditto
1999	8 types with minor revising	Ditto

Source) SCA Circulars

Table 5.1.4 Historical Changes of Toll Rates for Laden Tankers

Year	Unit		Rates of Transit Dues per SCNT							Example of Transit Dues	
		over		5,000	10,000	20,000	40,000	70,000	85,000		
		up to	5,000	10,000	20,000	40,000	70,000	85,000			100,000
1956	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1957	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1958	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1959	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1960	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1961	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1962	LE		0.340	0.340	0.340	0.340	0.340	0.340	0.340	LE	34,000
1963	LE		0.42449	0.42449	0.42449	0.42449	0.42449	0.42449	0.42449	LE	42,449
1964	LE		0.42874	0.42874	0.42874	0.42874	0.42874	0.42874	0.42874	LE	42,874
1965	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1966	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1967	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1968	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1969	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1970	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1971	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1972	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1973	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1974	LE		0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	0.43730	LE	43,730
1975	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1976	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1977	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1978	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1979	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1980	SDR		1.611	1.611	1.611	1.611	1.611	1.611	1.611	SDR	161,100
1981	SDR		3.50	2.10	2.10	1.30	1.30	1.30	1.30	SDR	153,000
1982	SDR		3.85	2.20	2.20	1.30	1.30	1.30	1.30	SDR	156,250
1983	SDR		4.10	2.30	2.30	1.25	1.25	1.25	1.25	SDR	155,000
1984	SDR		4.35	2.40	2.40	1.25	1.25	1.25	1.25	SDR	157,750
1985	SDR		4.55	2.50	2.50	1.25	1.25	1.25	1.25	SDR	160,250
1986	SDR		4.75	2.60	2.60	1.25	1.25	1.25	1.10	SDR	160,500
1987	SDR		5.10	2.70	1.25	1.25	1.20	1.20	1.10	SDR	147,000
1988	SDR		5.10	2.70	1.25	1.25	1.20	1.20	1.10	SDR	147,000
1989	SDR		5.50	3.10	2.90	1.30	1.30	1.30	1.10	SDR	173,000
1990	SDR		5.90	3.30	3.00	1.30	1.30	1.15	1.15	SDR	175,500
1991	SDR		6.26	3.50	3.18	1.38	1.38	1.22	1.22	SDR	186,200
1992	SDR		7.00	3.90	3.50	1.50	1.50	1.30	1.30	SDR	203,500
1993	SDR		7.21	4.02	3.61	1.55	1.55	1.34	1.34	SDR	209,950
1994	SDR		7.21	4.02	3.61	1.55	1.55	1.34	1.34	SDR	209,950
1995	SDR		7.21	4.02	3.61	1.55	1.55	1.34	1.34	SDR	209,950
1996	SDR		6.49	3.62	3.25	1.40	1.40	1.21	1.21	SDR	189,350
1997	SDR		6.49	3.62	3.25	1.40	1.40	1.21	1.21	SDR	189,350
1998	SDR		6.49	3.62	3.25	1.40	1.40	1.21	1.21	SDR	189,350
1999	SDR		6.49	3.62	3.25	1.40	1.40	1.21	1.21	SDR	189,350
2000	SDR		6.49	3.62	3.25	1.40	1.40	1.21	1.21	SDR	189,350

5.1.4 Toll revenue by vessel type

Table 5.1.5 shows toll revenue by vessel type in 1998 and 1999. Total toll revenue is 1,813 million US$ or 1,325 million SDR in 1999.

Main vessel types are Container Ships (revenue:884 million US$, share:49%), Bulk Carriers (revenue:292 million US$, share:16%), Tankers (revenue:223 million US$, share:12%), Car Carriers (revenue:190 million US$, share:10%) and General Cargo Ships (revenue:142 million US$, share:8%), and the shares of other vessel types are 1% or below in 1999.

Table 5.1.5 Toll Revenue by Vessel Type

(1000 US$)

Vessel Type	Jan.-Dec. 1998		Jan.-Dec. 1999		99/98
	Revenue	Share	Revenue	Share	
Tankers	261,369	15%	223,429	12%	85%
Bulk Carriers	242,548	14%	291,944	16%	120%
Combined Carriers	11,587	1%	6,412	0%	55%
General Cargo Ships	157,449	9%	141,673	8%	90%
Container Ships	806,569	46%	883,730	49%	110%
LASH	4,662	0%	5,540	0%	119%
RoRo	32,377	2%	24,810	1%	77%
Car Carriers	187,343	11%	189,616	10%	101%
Passenger Ships	10,282	1%	10,904	1%	106%
War Ships	13,061	1%	10,743	1%	82%
Other Vessels	22,323	1%	23,817	1%	107%
Total (US$)	1,749,570	100%	1,812,618	100%	104%
Daily Average	4,793		4,966		
Total (SDR)	1,289,221		1,325,099		103%
SDR Rate (US$)	1.3571		1.3679		

Source) SCA

5.2 Other dues and charges

5.2.1 Towage dues

(1) Vessels towed or escorted in the Canal
Transit dues are to be calculated for vessels that transit under their own power. Extra dues of 100% are to be levied in case of engine and/or steering failure or in case of scrap vessels. Dues on scrap vessels are to be calculated on the basis of SCGT.

(2) Towed large floating units
Transit dues are collected on the basis of SCNT (SCGT for unmanned or scrapped vessels). The tug of the unit will be treated as conventional ship regarding dues. Towage dues are collected on the towed manned unit at a rate of 25 US Cent per SCNT (SCGT for unmanned or scrapped vessels). Other extra charges may be levied case by case.

5.2.2 Berthing dues

Vessels not intending to transit the Canal and anchoring or mooring in Port Said Harbour, Timsah Lake, GBL anchorage, have to pay berthing dues as follows:

1 st day till 10th.	5 US Cent /Net Ton /Day
11th day till 20th.	10 US Cent /Net Ton /Day
21st day till 30th.	20 US Cent /Net Ton /Day
Over 30 days.	30 US Cent /Net Ton /Day

Berthing dues are not payable by transiting vessels for the first 24 hours in harbor of arrival. If during the Canal transit, the vessel stops in any of the anchorages of Bitter Lake, Timsah Lake or the port of Port Said for reasons from the vessel herself, berthing dues will be paid as mentioned in above.

As for changing berths, pilotage dues as mentioned below will be levied. Changing berth on SCA's request is free of tug charge.

5.2.3 Pilotage dues

Pilotage dues are not payable by vessels transiting the Canal.

For vessels not transiting the Canal, pilotage is compulsory for vessels from Anchorage Area to Port of Port Said or from Port of Port Said to sea. The dues are shown in Table 5.2.1.

For vessels not transiting the Canal, pilotage is compulsory from Waiting Area to Port of Suez anchorages, from Port of Suez anchorage to Basins, also from Basins to Anchorage areas or sea. The dues are as per port of Suez Tariff.

For changing berth at Port Said, the pilotage rate mentioned in Table 5.2.1 is doubled, in

addition, the vessel will have to pay almost half of Day Pilotage mentioned in same Table.

Table 5.2.1 Pilotage Dues at Port Said

(US$)

Vessel SCT	Day Pilotage	Night Pilotage
Up to 2,500 ton	60	90
Up to 5,000 ton	90	130
Up to 10,000 ton	115	175
Up to 20,000 ton	150	220
Up to 30,000 ton	175	260
Up to 50,000 ton	200	300
Over 50,000 ton	230	350

Source) Rules of Navigation, SCA

In case of having an extra pilot on board, the vessel shall pay extra due of 300 US$ per Canal Pilot and 150 US$ per Roads Pilot. In case of bad view vessels, they will pay the dues for extra pilots.

5.2.4 Charges for SCA Tugboats

A unified Canal passage rate of 6,600 SDR is to be paid for each escorting tug in the following cases (by SCA Circular No.8/1996):

- Loaded vessels less than 70,000 SCNT will be escorted by one tug if for technical reasons SCA find it necessary or when the vessels draught is more than 47 feet.
- Loaded vessels from 70,000 SCNT to 90,000 SCNT will be escorted by one tug.
- Loaded vessels over 90,000 SCNT will be escorted by two tugs.
- Vessels in ballast over 130,000 SCNT will be escorted by one tug.
- LPG and LNG over 25,000 SCNT (except GF) will be escorted by one tug.
- Vessels in ballast with beam over 218 ft up to 233 ft will be escorting by one tug.
- Vessels in ballast with beam over 233 ft will be escorted by two tugs.
- Towed scrapped vessels in ballast 80,000 SCNT and over will be escorted by one tug.

As for harbor tugs applied at Port Said Harbor, vessels not intending to transit the Canal are payable for mooring or getting underway according to the last circular to be issued by SCA, while vessels transiting the Canal are free of charge.

5.2.5 Trial charges

For the safety of navigation, trials may be requested by SCA before entering the Canal or resuming the transit. A pilot will supervise the trials. A charge of 170 US$ is to be paid by the vessel for each pilot or Canal expert for each trial. If trials are made outside Canal

Waters, the charge will be 340 US$.

5.2.6 Additional dues

SCA sets in Rules of Navigation various additional dues including:

boat drill, booking for transit alteration of date or cancellation, changing berths or anchorages without authorization, erroneous declaration, change in payment currency, embarking or disembarking persons without authorization, firing shots, picking objects from water without authorization, throwing wastes, riveting without authorization.

5.2.7 Average payment

Average payment for transiting the Canal other than toll is said to be as follows;

(Average payment) = (Port dues) + (Agency fee, etc.) + (Escort tug charge)

(Port dues) = 0.13 US$/SCNT

(Agency fee, etc.) = 4,500 US$

(Escort tug charge) = 6,600 SDR/tug

Chapter 6 Management and Operation of the Suez Canal

6.1 Organization

6.1.1 General functions

The Suez Canal is managed and operated by the Suez Canal Authority.

According to the SCA Act, SCA is a public organization having an independent legal status and its own budget as follows. Most of the regulations of the Government which are applicable to public enterprises and private business firms do not apply to SCA, however, SCA's annual budget must undergo the examination of the Ministry of Finance and the Ministry of Planning and be approved as prescribed by Presidential Decree.

SCA has its head office in Ismailia, liaison offices in Cairo and Alexandria and branches in Port Said and Port Tewfik (Suez) for handling field works.

Law No. 30/1975: Regulation of the Suez Canal Authority

Article 1
The Suez Canal Authority is to be in charge of the Suez Canal, its management, utilization, maintenance and development. This authorization, however, covers the Canal proper with the status prevailing upon the issuance of law No. 285/1956 regarding the nationalization of the Suez Canal International Maritime Company. The SCA has the right to establish whatever projects that are deemed necessary to the Canal, and/or participate in such projects and promote them.

Article 2
The SCA is a public authority that enjoys an independent legal status subject to the provisions of this specific law, and not the provisions of law No. 60/1971 pertaining to public organizations.

Article 3
The SCA should have a Board of Directors that is appointed by decree from the President of the Republic, who may appoint the Chairman and the members of the Board, dismiss them, and specify their wages and bonuses.

Article 4
The SCA should adopt proper management and utilization systems as in commercial ventures, regardless of government regulations.

Article 5
The SCA should have an independent budget arranged in the manner adopted by other commercial ventures, with no violation to the control of the Central Agency for Accounts over the SCA final account.
The fiscal year at the SCA starts on the first of January and ends at the end of December of

each year, whereas the budget and the final account of the SCA are to be duly approved by decree from the president.

Article 6
It is solely the task of the SCA to issue regulations related to navigation, and other regulations related to the smooth operation of the Suez Canal.

Article 7
The SCA manages Port Said Harbor as an integral part of the Suez Canal, and SCA is to supervise all maritime operations therein.

Article 8
The SCA imposes the relevant transit dues, as well as pilotage, towing and berthing charges as per the relevant rules and regulations

Article 9
The SCA has all the necessary power to fulfil its obligations. It has the authority to own land and buildings in any possible way including expropriation for the common weal. It has the right to lease its lands and owned properties or rent land and properties from others either to achieve its objectives or for the welfare of its employees. It may also do so for its projects and facilities such as power stations, water plants, roads, and etc. to ensure smooth operation.

Article 10
SCA possessions (assets and properties) are to be considered private.

Article 11
To enable the SCA to honor its commitments and maintain quality performance, all the facilities and equipment that are imported by the SCA are exempted from regular procedures required by valid customs regulations, and are also exempted from required permits.

The President of the Republic issues a decree regulating the estimation and method of payment for the customs duty, and the relation between the SCA and the Customs Department.

Article 12
All SCA valid regulations, as well as financial, accounting and administrative rules are to remain unchanged provided they do not contradict with the provisions of this law, until either modified, cancelled or substituted.

Article 13
Within the scope of urgent requirement, the Board of Directors, or whoever delegated by the Board, has the necessary authority to recruit technical and administrative staff members, select them and determine their seniority and payment as well as assign them to different departments, sections and offices until personnel regulations have been duly

issued.

Article 14

The SCA is not authorized to take any action contrary to the provisions of October 29, 1988 Agreement regarding the unrestricted use of the Suez Canal.

It has no right to grant any ship or person any privileges or advantages not usually granted to others. It is not authorized to provide any sort of preferential treatment to certain users or deprive some of the advantages given to others.

Article 15

This law does not, in anyway, jeopardize the rights or commitments of the Arab Republic of Egypt based on the Constantinople Agreement of October 29. 1888.

Article 16

Law No 146/1957 regarding the SCA Regulation is to be cancelled.

Article 17

This law is to be published in the official paper, and takes effect as soon as published.

Law No. 4/1988: Modification of some provisions of Law No. 30/1975 on the Regulation of the Suez Canal Authority

Article one

The following new paragraphs are to be added to Articles 2 and 3 of the Law No 30/1975 regarding the regulation of the Suez Canal Authority.

Article 2 (paragraph 2)

“and the Suez Canal Authority reports to the Prime Minister”

Article 3 (paragraph 2)

“and decisions taken by the SCA Board of Directors are to be reported to the Prime Minister for due approval and implementation. However, if there is no response from the Prime Minister the decisions are to be implemented after 15 days of notification.

Article two

The sentence reading “including expropriation for the commonweal” is to be cancelled from Article 9 of Law No 31/1975.

Article three

This law is to be published in the official paper, and takes effect as soon as published.

6.1.2 Organization and personnel

Figure 6.1.1 shows the organization of SCA. SCA is managed by a Board of Directors consisting of a Chairman and Directors.

Chairman concurrently assumes the managing directorship, assisted by thirteen directors of the various service and operational departments, and is responsible for day to day management and operations.

The organization of SCA consists of the following 13 departments which are directly responsible to the Chairman. At present, there are about 14,500 employees and workers with the SCA.

The duties of each department as of November 2000 are as follows.

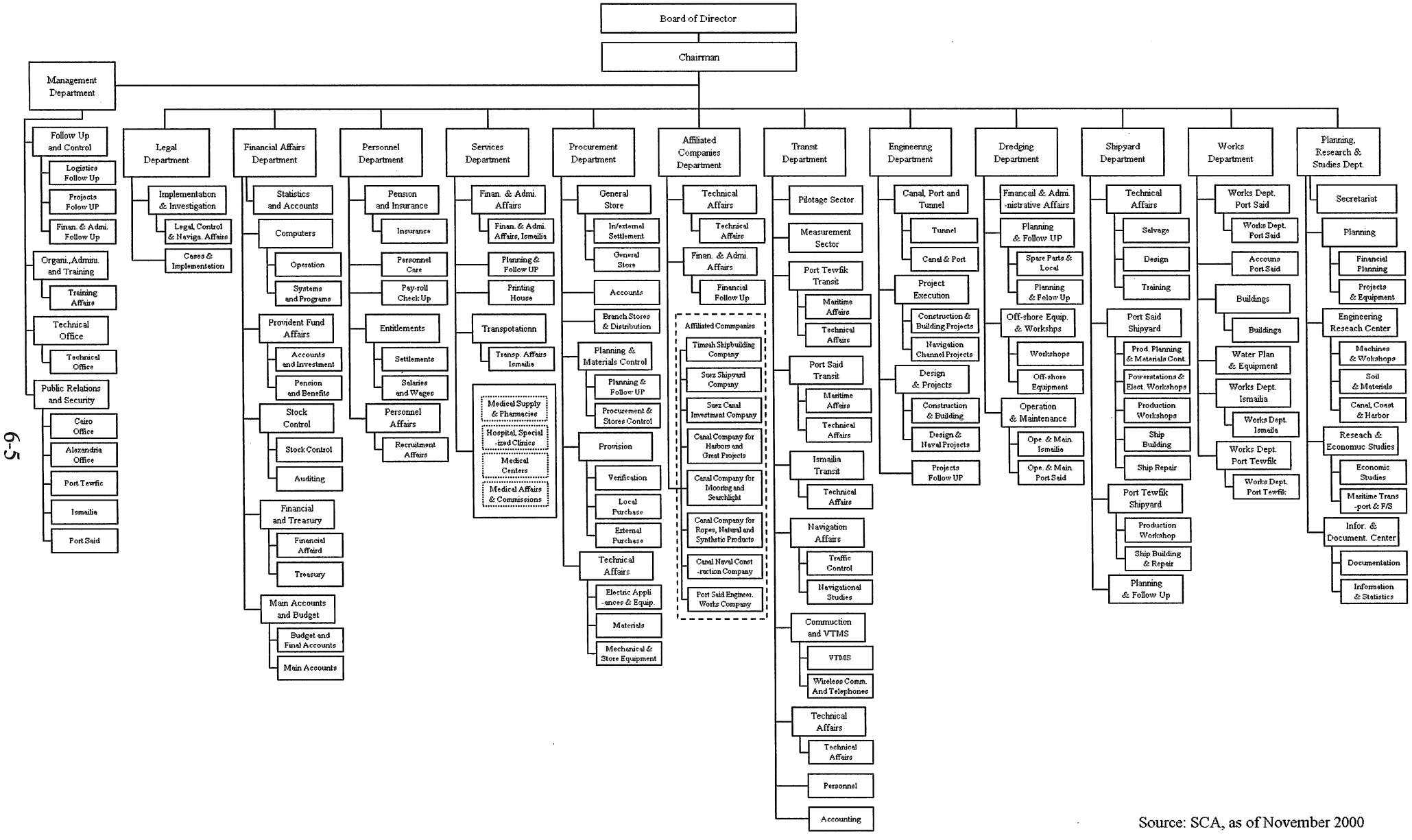
(1) Management Department

Management Dept. consists of one director, four deputy directors and four sub-directors.

The department inspects all that is submitted to SCA Chairman from different departments, and acts as the general secretariat that receives all issues from other SCA departments.

The Director of management is in charge of all the consultative activities such as activities of the technical office, public relations and security, follow up and control and organization, administration and training as follows.

The Technical Office is in charge of the following,
1) Receipt and preparation of the subjects that are to be submitted to SCA Chairman.
2) Preparation and data collection for special cases and studies as directed by SCA Chairman.
3) Preparation of administrative decrees initiated by SCA Chairman and circulation of such decrees with due follow up so that they get implemented.
4) Preparation of issues that will be submitted to the Board of Directors.
5) Preparation and distribution of the minutes of the Board meeting with due follow up of the implementation of the Board's decrees and recommendations.
6) Receipt of requests given by Board Members for issues to be submitted to SCA Chairman.
7) Preparation of the Board meeting agenda.
8) Addressing the relevant agenda.
9) Informing the concerned departments of the Board's decrees with due follow up of implementation.
10) Performing administrative procedures such as the formation of technical committees whether at the request of the Board or SCA Chairman.
11) Conducting studies and performing technical follow up for various subjects as requested by SCA Chairman.
12) Filing for documents related to the Board meetings.



Source: SCA, as of November 2000

Figure 6.1.1 Organization Chart of Suez Canal Authority

13) Translation of all foreign correspondences related to SCA Chairman.
14) Translation of various articles to be sent to concerned departments as recommended by the Chairman.
15) Receipt and investigation of complaints that are sent to the Chairman. By request from SCA Chairman such complaints are duly discussed and investigated with concerned departments and replies are sent in due course.
16) Analysis of complaints and reporting the results to SCA Chairman for recommendations.
17) Summarizing the correspondence coming to the office prior to submitting such issues to the chairman for due instructions.
18) Registration and distribution of in-coming correspondence as per directions from SCA Chairman.
19) Filing copies of out-going correspondence.
20) Performing secretarial works related to the Chairman.
21) Maintaining a personnel unit that acts in accordance with laws and regulations of the Personnel Dept.
22) Keeping administrative files for the staff related to the Chairman's office.
23) Preparation of Pay rolls for staff related to the Chairman's office.
24) Performing periodical statistics as requested by the Personnel Dept.

The Public Relations and Security Section are in charge of the following:
1) Disseminating knowledge of the role played by the SCA, as well as explaining the SCA objectives to the public. By providing accurate information the Public Relations staff can illustrate the importance of the Suez Canal to the world economy and can explain how the Canal is run with due consideration to the future Canal projects. Such targets can be achieved through the distribution of periodicals, documentary films, local newspapers and magazines and international exhibitions.
2) Providing good care for SCA staff through social and sports clubs and activities and recreational facilities.
3) The strategic location of the Suez Canal and the importance of the role it plays call for increased security procedures. Therefore plans are always set forth to protect the SCA installations in the 3 Canal Cities against sabotage.
4) The Public Relations Section is in fact a link between top management and SCA staff.

The Follow Up and Control Section is involved in the following,
1) Technical follow up and control on SCA projects during implementation.
2) Follow up of workshops operation and preparation of progress reports.
3) Follow up of technical operation budgets and preparation of relevant reports.
4) Follow up of logistics for all SCA sites.
5) Follow up of SCA assets.
6) Registration of supplies, equipment etc. and reporting on any violations.
7) Coordination with other departments on financial and administrative work in common.
8) Administrative and financial follow up for SCA projects and presentation of evaluation reports.

The Organization, Administration and Training Section is in charge of the following,

1) Preparation of the necessary studies on the organization of work as well as the simplification of procedures at SCA.
2) Providing organizational and administrative opinions.
3) Preparation of job descriptions.
4) Planning the manpower requirements.
5) Planning the policy of manpower training.
6) Preparing studies for the development of work procedures and regulations as suggested by various departments.

(2) Legal Department

Legal Dept. consists of one director, one deputy director and two sub-directors and is involved in the following.

1) Preparation of draft internal regulations and penalties, as well as other draft regulations and decrees.
2) Providing legal opinion to SCA companies.
3) Looking after all cases filed by or against SCA.
4) Follow up of procedures following a case won by SCA.
5) Giving legal counsel to SCA departments on various issues.
6) Conducting administrative investigations with SCA staff referred to the Legal Dept.
7) Revising laws and regulations of SCA to make sure they do not contradict applicable public regulations.
8) Designing the legal wording of adjudication and tenders and participation in related procedures.
9) Legal preparation of contracts and agreements between SCA and other parties.
10) Registration of SCA belongings.

(3) Financial Department

Financial Dept. consists of one director, five deputy directors and ten sub-directors and is in charge of the following.

1) Participation in setting the overall plan of the SCA and ways to achieve the set plan.
2) Performing all jobs related to financial affairs (accounts, costs, statistics, revenues, expenses, banks and treasuries).
3) Setting the finance policy of the SCA.
4) Participating in the preparation of SCA projects plan as well as preparing the necessary studies and find sources of finance in either local or hard currency.
5) Preparing financial and monetary balance in relation to SCA current activities and future projects
6) Preparing necessary financial and accounting studies to safeguard proper financial and accounting performance at SCA, as well as study the existing financial and accounting systems and develop them.
7) Participating in setting categories for transit dues, berthing dues and service charges.
8) Participating in specifying the hire value of SCA units.

9) Participating in specifying categories for the rent of land and building.
10) Participating in setting the policy for purchasing and storage.
11) Implementing financial and accounting regulations and instructions.
12) Setting programs for internal auditing and systems for internal control, as well as necessary inspection for all SCA activities.

(4) Personnel Department

Personnel Dept. consists of one director, three deputy directors and six sub-directors and is in charge of the following.

1) Setting administrative systems and programs, and supervising their implementation by SCA departments.
2) Setting programs and instructions for the implementation of personnel affairs regulations and solving problems that may stand in the way.
3) Specifying the manpower requirements at different levels in coordination with the concerned departments
4) Preparation of the estimated job balance with relevant incurred expenses.
5) Regulating recruitment at SCA departments.
6) Regulating the payment of wages and financial entitlements for officials and workers.
7) Implementing the laws and regulations of social insurance.
8) Studying and regulating increments prior to decision-making.

(5) Services Department

Services Dept. consists of one director, two deputy directors, four sub-directors and four medical sectors and is in charge of the following:

1) Providing medical supervision and treatment to SCA personnel.
2) Setting the budget of the sector
3) Setting a work plan for the sector and defining its requirements (workmanship and supplies).
4) Follow up and implementation of treatment programs.

(6) Procurement Department

Procurement Dept. consists of one director, four deputy directors and twelve sub-directors and is involved in the following.

The Procurement Dept. is concerned with all purchasing transactions. It stores and provides all row materials and production requirements as well as equipment needed by the SCA such as,
1)Floating units: Dredgers, tug boats. motor boats, cranes, ferry boats, barges and floating docks
2)Mechanical equipment which include excavation equipment, cranes, lifts, road maintenance machines and pile sheet drivers.

3)Electric equipment needed for power stations along the Suez Canal and the telecommunication supplies, radar, telephones and lighting fixtures.
4)Miscellaneous: This includes mobile generation groups, welding machines, towing equipment, items needed for the workshops, the oxygen plant, compressed air, in the 3 Canal Cities, as well as all other items needed for the operation of the Suez Canal in order to maintain regular traffic of ships.

Purchases have to be made in accordance with required standards and specifications and at competitive prices either through general adjudication or direct orders as per valid regulations. Items have to be supplied at proper times and have to be properly stored in order to avoid accumulation.

This department has to make sure to satisfy and meet all requirements and has to look after customs clearance on provisions.

(7) Affiliated Companies Department

Affiliated Dept. consists of one director, two deputy directors and two sub-directors and is in charge of the following.

The department can well be considered an advisory office through which the Chairman (SCA Chairman) can implement and follow up the general policy of the state so far as the companies affiliated to SCA are concerned as follows.

1) Supervision over the planning and execution of various works at technical units, as well as the execution of projects at SCA companies to achieve better performance and increased productivity.
2) Coordination between the SCA companies and government authorities on various ways.
3) Supervision of the progress achieved in works executed by SCA companies, and solving any kind of problems that may arise during implementation.
4) Participation in studying any agreements that may be concluded between SCA companies and third parties, whether local or foreign, for any new projects entailing commitments on the part of SCA companies.
5) Coordination of execution to meet time limits
6) Follow up of overall production at SCA companies and investigation of relevant problems that may affect production and progress. Design of the companies performance in accordance with set standards with due consideration of quality control.
7) Follow up of building and repair of floating units specially those belonging to SCA, and participation in setting programs in line with the production capacity for affiliated companies.
8) Supervision on the planning and follow up of the execution of administrative and financial works, and coordination among SCA companies for the optimum use of allocated budgets.
9) Study of the proposals of recruitment and relocation at the SCA companies in accordance with organizational structures.
10) Supervision and coordination of the distribution of financial allocations to various

SCA companies.
11) Supervision on the auditors reports and reports presented by the Central Agency for Accounting regarding the accounts of SCA companies.
12) Supervision on the implementation of all financial regulations and instructions.
13) Assisting SCA companies with procedure to facilitate the company's use of hard currency as stipulated and planned.
14) Assisting SCA companies with procedures to enable the companies to use their investment allocations so as to implement their development programs.
15) Follow up of the minutes of Board Meetings of SCA companies, and checking the decisions that have been made, and how far such decisions are compatible with set rules and regulations.

(8) Transit Department

Transit Dept. consists of one director, two sectors chiefs, six deputy directors and twelve sub-directors and is involved in the following.

1) Planning and coordination of vessel traffic, and the arrangement of convoys transiting the Canal, berthing location and all matters related to the good operation of the waterway.
2) Implementing the pilotage regulations.
3) Planning and implementing safety program for transiting ships of different tonnage, specially for ships carrying dangerous cargo.
4) Inspecting the transiting ships and registering all particulars and details, determining the ship's tonnage and deciding the transit dues payable upon transit, and collecting the dues in accordance with set regulations.
5) Providing navigational services and trouble shooting assistance for transiting ships that suffer any sort of problems, thus keeping and maintaining regular and smooth traffic.
6) Planning and implementing salvage works for damaged floating units due to accidents, and combating pollution along the waterway.
7) Supervising work related to the lifting of sunken units and equipment.
8) Planning and implementing the installation, maintenance and operation of telecommunication sets for all SCA facilities.
9) Installing and operating the VTMS for ship-to-ship communication.

(9) Engineering Department

Engineering Dept. consists of one director, three deputy directors and seven sub-directors and is in charge of the following:

1) Preparation of documents and implementation of drawings for the Suez Canal development projects (dry excavation works, building of new revetments, dredging works).
2) Design and implementation of the projects related to the operation of the navigable channel (quays, platforms, ferry berths, signal stations, pilotage towers).
3) Design, implementation and maintenance of the service quays at the SCA shipyards and workshops in the three canal cities.

4) Architectural and structural design as well as supervision over various projects necessary for the operation of the Suez Canal (workshops, stores, training centers, offices etc.)
5) Maintenance works for canal revetments, quays, platforms and berths along the Canal.
6) Design and implementation of various projects for the extension of high power and communication cables as well as siphons under the canal to serve the development projects in Sinai.

(10) Dredging Department

Dredging Dept. consists of one director, four deputy directors and six sub-directors and is in charge of the following.

1) The Dredging Dept. is in charge of executing the Suez Canal Development projects, as well as work related to the Canal waiting areas and berths.
2) Maintenance work for the navigational channel.
3) Looking after the annual schedule for the operation of SCA dredgers and follow up of such schedules.
4) Follow up of day-to-day reports on dredgers' operation, and drawing necessary plans that illustrate the work which has been carried out.
5) Participation in dredging works for third parties where the department prepares the relevant studies, design and technical specifications prior to implementation by using SCA dredgers.
6) Carrying out the necessary maintenance and minor over-hauls for dredgers and floating units, as well as works for schools and clubs that can be done at the department's work shops.
7) Operation and maintenance works for ferry boats along the Canal.
8) Preparation of necessary over-hauls schedule for the dredgers to be carried out at various shipyards with due supervision and follow up.
9) Preparation and implementation of over-hauls schedules for tug boats, floating cranes sand barges, water tankers etc. either at the department's workshops in Ismailia or the SCA companies and shipyards.
10) Supporting the on-shore equipment by introducing new units such as bulldozers, pipe and sand carriers etc. and maintaining such equipment.

(11) Shipyards Department

Shipyards Dept. consists of one director, four deputy directors and ten sub-directors and is in charge of the following.

1) Maintenance and repair of SCA floating units.
2) Maintenance and repair of SCA mechanical and electrical equipment.
3) Manufacture of special items/spare parts for SCA units and facilities.
4) Repair works for various departments of SCA.
5) Shipbuilding including tugs, dredgers and cranes for both the SCA and third parties.
6) Ship repair for third parties.

7) General repair works for third parties
8) Management and operation of ferry boats between Port Said and Port Fouad.
9) Management and operation of the 2 power plants in Port Fouad and Raswa.
10) Management and operation of the high pressure networks in Port Fouad.
11) Management and operation of the floating units belonging to the shipyards.
12) Management of the SCA vocational training center.
13) Conducting studies for the mechanical and electrical projects provided by the SCA.
14) Supervision over the maintenance and repair of SCA equipment sent to SCA companies in Port Said.

(12) Works Department

Works Dept. consists of one director, five deputy directors and five sub-directors and is in charge of the following.

1) Implementation of all civil, architectural and offshore construction works needed by SCA such as projects of Port Said Harbor, revetments of the Canal banks, roads and bridges and housing projects.
2) Maintenance for all SCA installations and facilities.
3) Setting all operation and maintenance programs and implementing them for various facilities such as the power plants, potable water plants, machinery and equipment as well as services rendered to quarries and Port Said Harbor.
4) Effecting laws and regulations related to lands owned by the SCA and keeping relevant documentation and registration.
5) Supervision and maintenance of SCA gardens and green areas.

(13) Planning, Research and Studies Department

Planning, Research and Studies Dept. consists of one director, one secretariat, four deputy directors and nine sub-directors and is involved in the following.

1) The Engineering Research Center
a) Coastal engineering and protection works
b) Testing of navigation
c) Testing of soil and material
d) Hydraulic studies related to Suez canal navigation and feasibility of SC development projects
2) Planning section
a) Preparation of investment budget (equipment and projects)
b) Maintaining contract with the Ministry of International Cooperation to manage any finance deficit through loans
c) Preparing reports to the Cabinet and the National Investment Bank
3) The Economic Unit
a) Conducting studies on the economics of maritime transport and the world market
b) Conducting studies on the SCA toll structure
c) Conducting feasibility studies on the SC development projects

d) Participation in conducting the feasibility studies for some national projects
4) Information and Documentation Center
(Information and statistics)
a) Setting & updating the statistical database of the canal traffic:
- Transiting ship and goods traffic.
- Historical statistical data.
b) Setting the following periodical and non-periodical reports:
- Monthly and annually Suez Canal reports (English & Arabic).
- Statistical reports required by the SCA departments.
- Delivering the necessary information required by the different bodies inside or outside the SCA.
c) Contacting the following local and foreign databases:
- Egyptian Maritime Transport Information bank (Ministry of Maritime Transport).
- National Information Net (ENSTINET).
- Internet.
d) Documentation & Library
Documentation: The Microfilm section undertakes these processes;
- Microfilm Documentation: Arranging, filing of documents and determining the way of their photocopy.
- Microfilm Production : Films photocopy, developing and packing in jackets.
- Microfilm Library : Preserves and updates the original films, to make use of them when required.
Libraries: They consist of one main library and 11 subsidiary ones distributed at different departments in the Canal three cities (Port Said, Ismai1ia & Suez). These libraries contain 20,000 books, in addition to 100 periodicals covering medical, engineering, maritime and economic topics. They also contain some of the studies conducted by the international consulting houses regarding the SCA projects and maritime transportation. Moreover, the main library contains 793 rare books about the history of Egypt and the Suez Canal. Researchers are allowed to benefit from these references inside the library.

6.2 Management of SCA and the Canal

6.2.1 Management of SCA and the Canal

Main functions of SCA relating to the management of the Canal are the transit control in the Canal and the maintenance and improvement of the Canal and ports.

Vessels transiting the Canal organize convoys at Port Said or Suez, in accordance with the Rules of Navigation, the schedule set by SCA, and the directions of the SCA officials (harbor master, port officer, pilot, signalman etc.). When navigating in the two Ports and the Canal, they take on a SCA pilot for obtaining advice on maneuvering. Operation of a convoy is controlled by the transit control in Ismailia.

The maintenance work for the Canal consists mainly of maintenance dredging. In addition to the management of the Canal itself, equally important is the management of Port Said.
Being in a close relation with the transit control of the Canal, the management of this port

has been treated on a unified basis.

SCA sets the committees for the effective management of SCA and the Canal as follows.

(1) The Long-haul Committee

SCA has a special committee to treat the rebate of Long-haul called “Long-haul Committee head by the Director of the transit dept. and comprising representative from SCA departments. The committee aims at attracting ships which do not use the Suez Canal due to lack of incentives. A comparison is thus made between the Suez Canal and other alternative routes such as the Cape of Good Hope or Panama Canal and incentives are then given to owners and operators of such ships to encourage them use the Suez Canal.

A rebate request form has been designed and distributed to ship owners and ship agents. The said form includes all the ship particulars as follows,

1) Name of ship, date of building and its call sign
2) DWT and SCNT (dead weight tonnage and Suez Canal net tonnage)
3) Speed: , from to
4) Time charter
5) Fuel consumption
6) Fuel price: Diesel Oil and IFO
7) Average SDR rate
8) Weather conditions
9) Distance between Ports of loading and discharge via Suez Canal and other alternative routes
10) Date of sailing, date of deviation point and date of arrival

The committee studies the case in accordance with the data sent by the owner (base case). Other cases are similarly studied by SCA with due consideration to market factor for old ships. The best possible rebate is then decided and the decision becomes final.

The agent/owner is then notified of the rebate. The ship then transits the Canal with full dues, and the rebate is later refunded once the relevant documents have been verified by SCA. The verification of documents usually covers such information as origin, destination, cargo quantity that had been loaded at the port of origin and discharged at the port of destination. However, if the ship stops at any ports between O/D, the rebate is restudied.

Certificates form both the port of origin and the port of destination specifying the date of departure and date of arrival, quantity of loaded and discharged cargo at each port.

Documents should be presented not later than 6 months from the date of transit, otherwise the rebate will be cancelled.

The case can be restudied after the elapse of 2 months from the first response of SCA

regarding the suggested rebate.

(2) Purchase Planning Committee

Each department specifies its requirements of capital goods (dredgers, tugs boats, motor boats, cranes, etc.). Such requirements are submitted to a special committee called "Purchase Planning Committee" headed by the director of the procurement dept., and comprising representatives from all SCA departments.

Once the committee is satisfied with the feasibility study enclosed with the purchasing request, approval is duly given and the value is estimated. A time table is then estimated for the supply of the required equipment and allocations are suggested to cover the period of time needed.

The purchase planning committee presents its report to SCA chairman for approval.

Once approved by SCA chairman, the requesting department sets forth detailed specifications. The specifications are to be sent to the procurement Dept. to be duly revised prior to purchasing.

The procurement Dept. specifies the proper way of purchase either through a general adjudication to be published in local and international newspapers, or a limited adjudication, or through direct order to a specific company.

In case of adjudication two committees are formed by decree from the SCA chairman as follows,

1) Envelope opening committee
2) Study and decision making committee

The first committee gets the bids (technical and financial) and refers them to the second committee for necessary study.
The second committee produces a report to the relevant authority (Director of procurement - Chairman or Board of Directors)

Once approved the procurement dept. signs the relevant contract with the company of the best bid.

(3) Computer Committee

The committee undertakes the following tasks: Setting a general time plan for the optimum use of computers and development of such plan, as well as distributing computer terminals among SCA departments and automation of administrative and technical work. Providing information services and maintaining the communication network for the complete connection of the computers; Setting regulations for the exchange of data among SCA departments with due consideration to confidentiality; Maintaining a library for keeping

documents and software and adding whatever deemed necessary by heads of departments; Making a full inventory of required equipment, and the best method for maintenance, and providing such requirements in coordination with the “Purchase Planning Committee”, and following up of the latest developments in such equipment.

Description of the required staff for operation and maintenance works in coordination with the organization and training section.

The committee may add other tasks to its activities and may seek the assistance of certain individuals to achieve its objectives.

Recommendations of the committee should be presented to the Chairman for approval.

6.2.2 Additional and other SCA activities

(1) Additional SCA activities

1) Marine salvage section

As mentioned above both Port Said and Port Tewfik shipyards have a “Marine Salvage Section” manned with a team of engineers and divers. Each section is equipped with a floating crane of 500ton capacity and is credited with undertaking various marine salvage works, in addition to under water inspection, welding and cutting operations.

2) SCA Engineering Research Center

This center is under the Planning, Research and Studies Dept. as mentioned above and is in charge of conducting studies and researches connected with the development of the Canal itself, beaches, harbors, in addition to conducting experiment on traffic in general, testing of materials and soil mechanics.

It is equipped with the specialized laboratories necessary for its researches including a reduced dredging volume model in the Canal.

In recent years, this center has carried out a study on the measurement of siltation at Damietta port.

(2) Other SCA activities

Other services necessary for ship operation are provided by private companies. Fresh water supply, garbage collection and service are executed by ship chandler, fuel supply, etc. are provided by private firms under the permission of the Ministry of Transport. SCA is only managed these ships enter the Canal area for its services.

Other activities which SCA is extending over the Canal zone cover a wide range of businesses, such as the management of Port Tewfik, provision of sweet water to Port Said,

Ismailia and Suez, 3 cities located along the Canal, management of schools and hospitals, and operation of ferry services crossing the Canal.
Further, SCA has affiliated companies which are engaged in shipbuilding, ship-repairing, port services and/or other businesses and to which SCA is extending investment, and joint-venture or dispatch of a supervisor or director. These affiliated companies are as follows:
In Ismailia,
- Timsah Shipbuilding Co.
- Suez Canal Investment Co.
- The Canal Company for Harbors and Great Projects.

In Port Said,
- The Canal Company for Mooring and Searchlights.
- The Canal Company Ropes, Natural and Synthetic Fiber Products.
- The Canal Naval Construction Co.
- The Port Said Engineering Works Co.

In Suez,
- The Suez Shipbuilding

6.3 Financial Status of SCA

Current data on the financial status of SCA (financial statements) are not provided by the SCA. Therefore, analysis here based on the past data in 1976, 77, 78 (JICA study report) and 1990 (NEDECO report) and the available data from the statistics of the Central Bank.

6.3.1 Outlook on the Financial System

Fiscal year of SCA start from July 1 and end at June 30 and financial procedures are regulated by the "Unified Accounting System" introduced by the Government in 1969.

Although SCA is a public organization having an independent legal status and its own budget, most of the Government's regulations that are applicable to public enterprises and private business firm do not apply to SCA. Annual budget, however, must undergo the examination of the Ministry of Finance and Ministry of Planning and be approved as prescribed by Presidential Degree.

Operating revenue of SCA is composed of the toll revenue collected from transiting vessels and miscellaneous revenues such as rentals for estate, charges for water supply, charges for ship repairing and rentals for equipment.

Operating expenses are composed of general administration expenses, public service expenses, expenses for maintenance of equipment, Canal and Port Said expenses, and Canal and Port Said maintenance expenses.

Royalty fee from the toll revenue and industrial and commercial tax levied on net profit before interest and tax is paid to the central government (a part of it is transferred to local government). The surplus is also transferred to the central government as SCA is not allowed to reserve funds.

6.3.2 Income Statement

Table 6.3.1 shows the income statement of SCA (the figures for 98/99 are estimated by the Study Team).

According to the estimation by the Study Team, operating revenue amounted to US$ 1,948.8 million of which toll revenue accounted for about 91%. Toll revenue increased steadily since 1990 up to 1994, but decreased gradually after 1995.

Direct operating expenses are estimated as US$ 64.4 million and then operating profit in 98/99 is estimated as US$ 1,842.4 million. Net profit before tax and interest is estimated as US$ 1,826.2 million.

Table 6.3.1 Income Statement of SCA (estimated)

	1978		98/99	
	million LE	million US$	million LE	million US$
Transit Tolls	285.3	413.5	6,015.6	1,771.0
Miscellaneous	7.1	10.3		177.8
Operating Revenues	292.4	423.8		1,948.8
General Adiministration	5.7	8.3		16.5
Public Services	4.8	7.0		13.9
Maintenance of Equipment	5.3	7.7		15.4
Canal & Port Said Expense	4.8	7.0		13.9
Canal & Port Said Maintenance	1.7	2.5		4.9
Direct Operating Expenses	22.3	32.3		64.6
Depreciation	14.4	20.9		41.7
Operating Profit	255.7	370.6		1,842.4
Other Income	1.8	2.6		5.2
Other Expenses	3.8	5.5		11.0
Net Profit before Interest & Tax	250.1	362.5		1,826.2
Interest	9.9	14.3		28.7
Royalty	14.3	20.7		88.6
Industrial & Commercial Tax	89.7	130.0		767.0
Extraordinary Expenses	29.0	42.0		84.1
Surplus	107.2	155.4	2,914.0	857.9

Notes) 1. Foreign Exchange Rates: in 1978: 1US$= 0.69 LE
98/99: 1US$= 3.40 LE
2. Royalty is 5% of Transit Tolls Revenue.
3. Industrial & Commercial Tax is 42% of Net Profit before Interest & Tax.

6.3.3 Assets Composition

Table 6.3.2 shows the balance account of book year 1990 derived from the report "Development of the Suez Canal" produced by NEDECO group. All amounts were set in million US$ using 0.7 for conversion factor from US$ to LE.

According to this table, the book value of the canal in 1990 amounted to M$ 1,348 and this included the value of canal improvement works. The value of the roads and the Ahmed Hamdi tunnel had been totalized, and were referred to as roads. Their total value amounts to M$ 77. The value of land and land under estimation had been totalized, and are referred to as land. Their total value amounted to M$ 3. The value of buildings is the sum of buildings and buildings in progress. It amounted to MS$ 116. Water plant is included as a separate balance item. It amounted to M$ 134. The value of floating equipment is the sum of the floating equipment and a share of equipment in progress. It amounted to M$ 380.
The value of equipment heavy is the sum of the heavy equipment and a share of equipment in progress. It amounted to M$ 189. The value of equipment others is the sum of lighting, mooring equipment, buoys and beacons, small tools, furniture, counting, typing machines and precision instruments and a share of the equipment in progress. The value of working capital is the sum of the former current assets; stores, investments, subscription in the capital of affiliated companies and subscription in the capital of other companies. All together this amounted to M$ 380. Banks and safes are referred to as liquidities, with a total sum of M$ 167.

Table 6.3.2 Balance Account for 1990

(million US$)

Assets july1,1990		Liabilities	
Canal present	1,348	Equity capital	80
Canal project	0	Equity affiliated	223
Roads	77	Provisions+reserve	1,866
Land	3	Equity project	0
Buildings	116	Foreign loans	598
Waterplant	134	Local loans	175
Equipment floating	380	New loans	0
Equipment heavy	189		
Equipment other	26		
Working capital	380		
Liquidities	167		
Balance total	2,942	Balance total	2,942

Source) “Development of The Suez Canal” Suez Canal Study Consortium

Chapter 7 Previous Studies on the Suez Canal

7.1 Technical Cooperation Program to Planning and Research Department of SCA

7.1.1 Outline

JICA had a project of "technical cooperation program to Planning and Research Department of SCA" from 1978 to 1980. The purposes of this project were technical transfer of System Analysis to newly established Economic Unit of the Planning and Research Department of SCA, and assistance to the Unit to achieve the functions expected by SCA.

Mitsubishi Research Institute, Inc. (MRI) and Japan Maritime Research Institute (JMRI) conducted the study under the contract with JICA and under the supervision by the Steering Committee, whose members were from Ministry of Transport of Japan and Kyoto University.

In the first two years, most of the work was to develop the forecasting system of the Suez vessel transits and revenues and to transfer them to Economic Unit. In the third year, most of work was technical transfer of managing the Unit.

The report of the demand forecasting was printed in March 1979. This report was written on techniques and methods that were necessary for the work of systems analysis and the forecasting.

This study report describes 7 parts.

Part 1 is the summary of the study.

Part 2 is the introduction of the study that includes the objective and the scope of the work.

Part 3 is the analysis of current trends and transportation costs. This part contains the analysis of Suez Canal Traffic, World Economy/Resources, Sea-borne Trade, World Fleet, Maritime Transportation Cost, and Freight Market.

Part 4 is a basic system for short term forecasting. The short term means yearly and monthly in this report. The purposes of Part4 are:

(1) To describe the systems analysis techniques required by the staff of the Economic Unit of SCA to perform the short-term forecasting of Canal traffic and other related items
(2) To explain in a simple manner the procedure for the short-term forecasting performed by the Unit.

Part 5 is a basic system for long term forecasting. The purposes of Part 5 are:
(1) To describe the information for the Economic Unit of the SCA to understand and to

acquire basic techniques of the long-term forecasting
(2) To explain elementarily and plainly the method for the Unit's personnel to forecast the canal traffic volume and the revenues.

Part 5 report deals with only petroleum tankers among various types of ships because it was estimated that this type of vessel accounts, for most part, for the increase in traffic volume after the Suez Canal would be expanded. Another reason is that the traffic volume of ships other than tankers can be forecast in a simple manner similar to the forecasting method for tankers.

Part 6 is the summary of previous feasibility studies. "Suez Canal Development Feasibility Study by JICA (1975)" was reviewed here. Feasibility studies are carried out to evaluate a given project economically or financially by estimating various benefits (revenues) and costs (expenses).

Part 7 is the review of previous studies on shipping. Several reports on dry bulk trades or tanker trades were reviewed here.

Part 8 is the data handbook that describes the source of data for forecasting.

This study gives us essential ideas for forecasting the Suez transits and revenues. We will here review this report for our modeling.

According to this study report, the following points should be noted when using the report:

(1) The report explains basic methods.
Several other methods are available for practical forecasting. The method actually used will differ from case to case, and the selection of a method requires a considerable degree of analysis and forecasting experience. Therefore, knowledge concerning method selection will be acquired after accumulating practical analysis and forecasting experience.

(2) Forecasting always involves uncertainty, and values will naturally change with changes in preconditions.
This fact should be kept in mind when utilizing the basic forecasting system. A forecasting and evaluation system taking uncertainly into consideration is one of the most sophisticated techniques, and should be learned only after sufficient experience in analysis and forecasting.

For our study we will review the basic idea of forecasting methods in this study report.

7.1.2 Short term forecasting method

At first, we review short term forecasting that is described in part 4 in the report. Two kinds of forecasting methods are described there. In the first one, the traffic in the future is forecast directly from the traffic data. In the second one, the traffic in the future is forecast indirectly on the basis of the trends in world sea-borne trade.

The first methods uses time series analysis. The number of vessel transits is described as a sum of 4 values.

$$X(t)=P(t)+C(t)+S(t)+I(t)$$

Where X (t) is a number of vessel transits at period t, P (t) is trend, C (t) is cyclic variation, S (t) is seasonal variation, and I (t) is random variation.

This method is simple but very suitable especially when the world trade and maritime transportation are stable.

After variation is adjusted by taking average of the past vessel transit data, the seasonally adjusted time series (trend) is obtained. Then this adjusted time series is formulated as a function of time (month) by using regression analysis. By this procedure, the number of vessel transit can be formulated as a function of time, and the future transits can be forecast.

After transits are forecast, goods tonnage and revenues can be obtained by using coefficient between transits and goods tonnage or between transits and revenues.

Goods tonnage T(t) and revenue R(t) in the future can be calculated by the following equation.

$$T(t)=Y(t)\alpha_1$$

$$R(t)=Y(t)\alpha_2$$

Where t is the target time of forecasting, Y(t) is estimated transits at t, and α_1 and α_2 are coefficients.

The flow of this procedure is shown in Figure 7.1.1

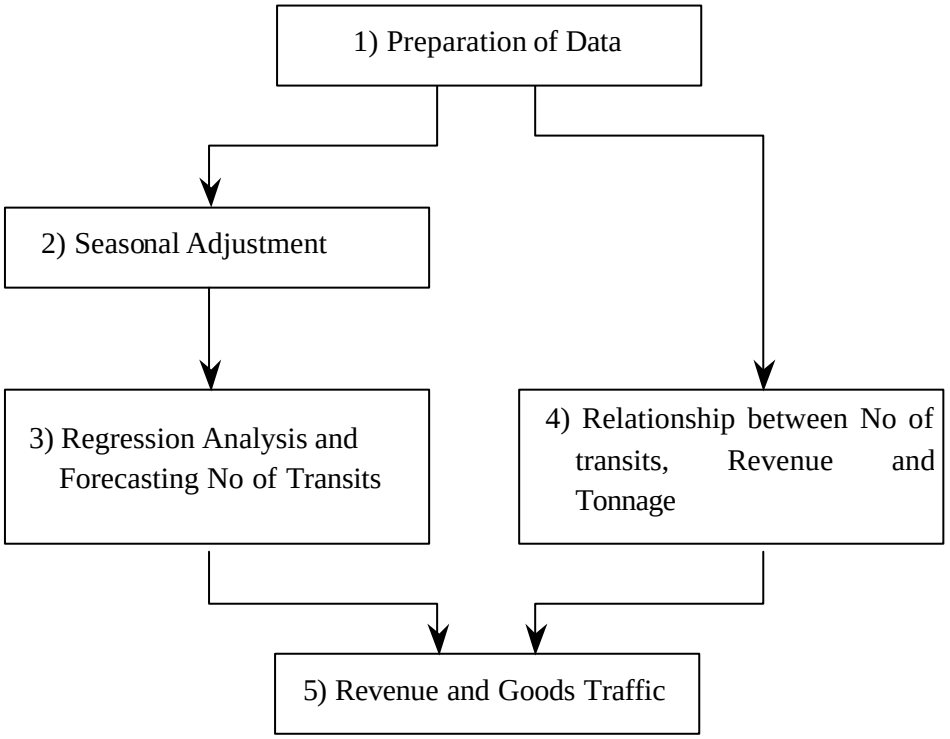


Figure 7.1.1 Forecasting Procedure for Short Term Forecasting Based on Traffic Results

The second short-term forecasting method uses the fact the Canal goods tonnage is a part of world sea-borne movement.

A certain ratio of world movement will pass through the Canal. This method is said to have the following advantage:

(1) It is important for management of the Canal that changes in the world trade volume are forecast and monitored continuously
(2) It becomes possible to forecast the goods tonnage through the Canal as a part of the world trade.

In the first stage of this method is to forecast world sea-borne movements. Total movement is forecast for each commodity. In the study report, goods are classified into oil and non-oil products for simple explanation.

The equation of oil movement is:

$$O(t) = O(78) \quad (1 + Eo \times RG^{1/3\ (t-78)})$$

where O(t) is the sea-borne movement of oil in the future and O(78) is the sea-borne movement of oil in 1978

Eo is elasticity of oil movement, RG is GDP growth rate (in three years, in the case shown), and t is the year for which forecasting is made.

Non-oil products movement is forecast with using similar equation.

$$N(t) = N(78) \quad (1 + En \times RG^{1/3 \quad (t-78)})$$

After world sea-borne trade is forecast, relation between this trade and goods tonnage through the Canal is analyzed in the second stage. In this stage, a ratio of goods tonnage to world sea-borne movements is determined.

Then, the future goods tonnage through the Canal can be calculated with the following equations:

$$Os(t) = O(t) \times \alpha_3$$

$$Ns(t) = N(t) \times \alpha_4$$

where Os(t) is the volume of oil transported through the Canal, O(t) is sea-borne trade movements that is forecast in the first stage, and a_3 is the ratio of goods tonnage to world sea-borne movements.

Ns(t), N(t), and a_4 are non-oil products.

The last stage is forecasting number of vessels and revenues. The number of vessels T(t) and revenue from the Canal R(t) in the future can be calculated from the goods tonnage Os(t) and Ns(t) and coefficients a_5 and a_6.

$$T(t) = (Os(t) + Ns(t)) \times \alpha_5$$

$$R(t) = (Os(t) + Ns(t)) \times \alpha_6$$

a_5 is a coefficient between goods tonnage and number of vessels.
Because a_5 is a ratio of number of vessels to goods tonnage, it can be calculated from coefficient a_1.

$$\alpha_5 = \frac{1}{\alpha_1}$$

a_6 is a coefficient between goods tonnage and revenue.
Because a_6 is a ratio of revenue to goods tonnage, it can be calculated from coefficient a_1 and a_2 (obtained previously) by the equation:

$$\alpha_6 = \frac{\alpha_2}{\alpha_1}$$

As known from the equations mentioned above, this method is basically based on the fact that variables are correlative to each other.

The flow of the procedures is shown in Figure 7.1.2

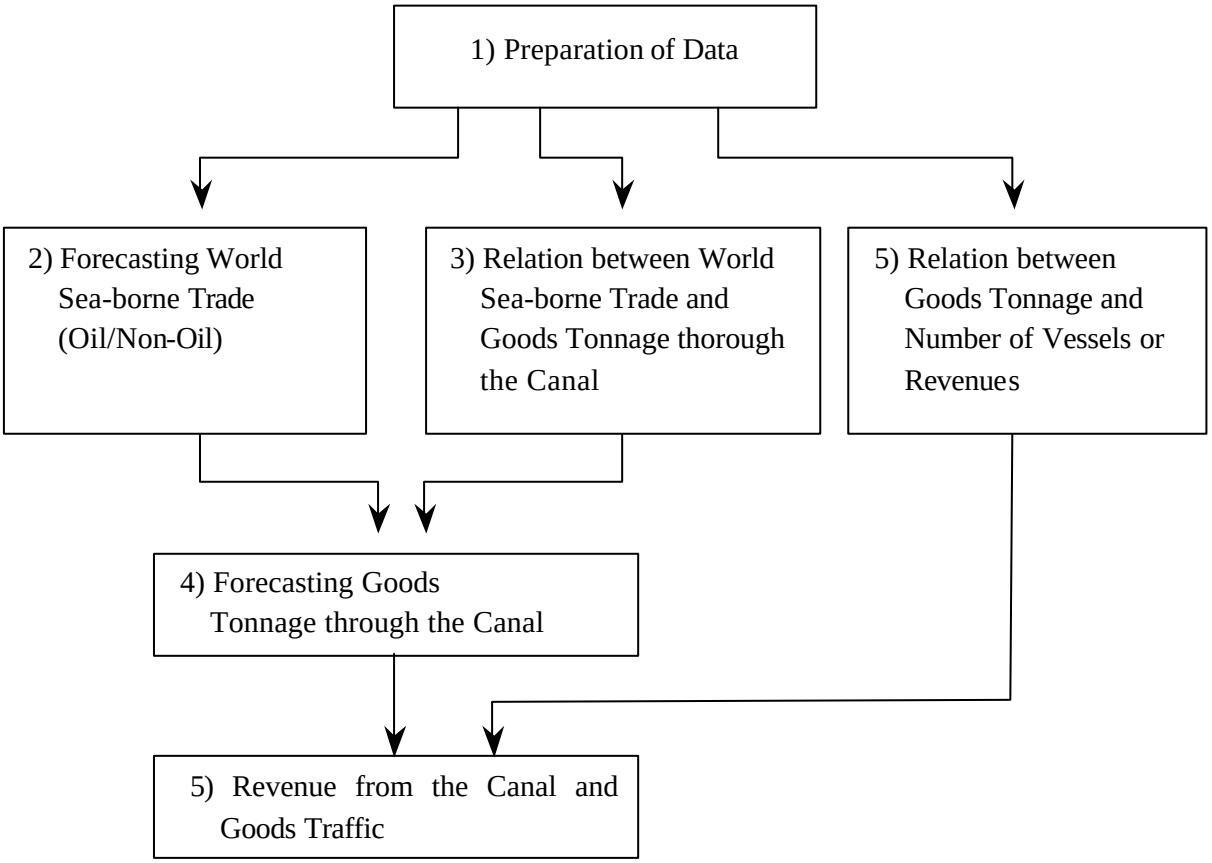


Figure 7.1.2 Forecasting Procedures for Short Term Forecasting Based on Step-by-step Procedures

7.1.3 Long term forecasting method

Let us proceed to the long term forecasting method that is described in Part 5 in the study report. As previously stated, this study describes only forecasting of tankers.

The following items are analyzed and used in forecasting.

1) World energy and oil trade
2) World tanker fleet
3) Tanker shipping costs
4) Tanker traffic through the Canal
5) Canal revenue from tankers

The relationships among these 5 items are in Figure 7.1.3.

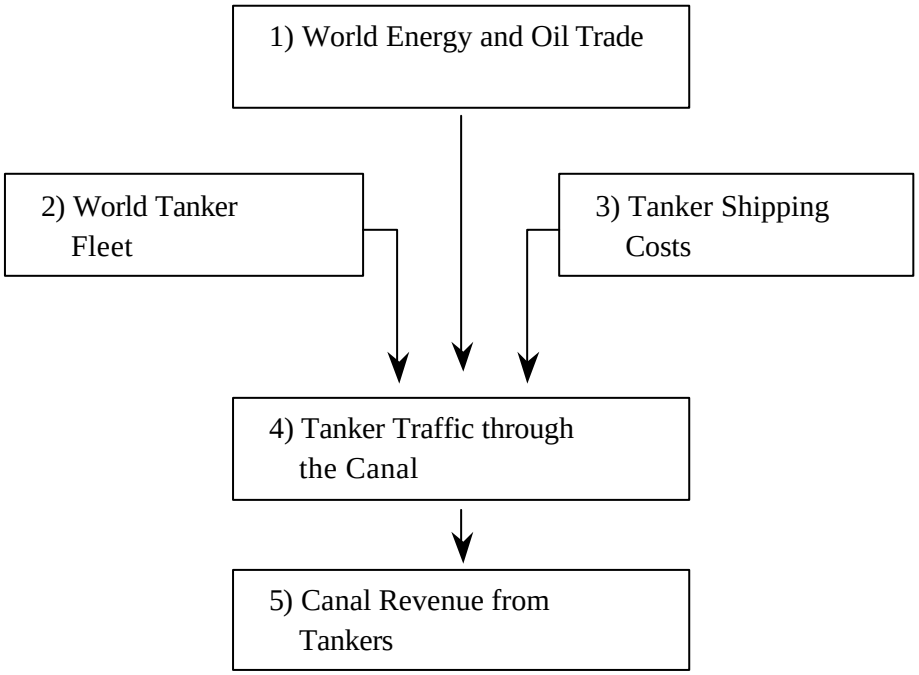


Figure 7.1.3 Long Term Forecasting Process of Tanker Traffic thorough the Canal

The First step is forecasting World Energy and Oil trade.

Oil is broken down to crude oil and oil products. Then the origins and the destinations are identified for each commodity. Next is the calculation of amount of trade. Here, scenario for world economy is developed and oil consumption/production is forecast by using the scenario. Then imports and exports of oil are estimated. If production is greater than consumption in an area, the surplus is exported. Otherwise, oil is imported. After imports and exports are estimated, world trade flows are estimated by using mathematical methods.

Then trade flow relating to the Canal is derived. Here the routes from exporting regions to

importing regions are identified, and routes that pass through the Canal are picked up. Sea-borne trade is calculated by summing up the trades those are picked up above and then by subtracting the oil movement through pipelines from the sum.

By above calculation, Sea-borne oil movement that may pass thorough the Canal ("Suez Potential Cargo") can be obtained.

The Second step of the forecasting is the analysis of tanker size.
In this step production of tankers and vessel life are analyzed. The future fleet mix is forecast here.

The Third step of the forecasting is the analysis of shipping cost.
An average shipping cost per tonnage is calculated with a following equation.

$$\text{Shipping Cost / ton} = \frac{\text{Annual Shipping Cost (\$)}}{\text{Annual Shipping Volume (ton)}}$$

$$= \frac{\text{Annual Shipping Cost (\$)}}{\text{Annual Carrying Capacity (ton / DWT)} \times \text{Ship Size (DWT)}}$$

This shipping cost is estimated for each vessel size and formulated as a function of voyage distance.

The forth step of the forecast is route analysis. At first in this step, route choice behaviors without Canal size restriction are estimated with a mathematical model. In roughly saying, the cheapest route is selected with an error of normal distribution.
The next step is route choice with Canal restriction. Even if a tanker wants to pass through the Canal that is the cheapest, the Canal limits the maximum vessel size. The vessel that exceeds the Canal size should be subtracted. By this stage, volume of oil that pass through the canal is obtained.
The last step of the forecasting is to estimate the canal revenues from tankers. The procedure has three elements.
The first one is estimation of SCNT by using regression of DWT.
The second one is calculation of number of tankers through the canal. The number is obtained by dividing traffic volume by volume that one vessel transports.
The last one is calculation of revenue. The revenue is the sum of tolls of vessels.

7.2 The study on the Safety improvement of the Suez Canal

This study was carried out by JICA study team headed Mr. Takashi Hazama, Senior Executive Director of the Overseas Coastal Development Institute of Japan, from August through October, 1983 and also October through November, 1984.

The objective of the study was to suggest measures to prevent Canal accidents which are likely to occur under the present situation of the Canal, during the Second Stage Development Project of the Canal and after the completion of the above.

The outline of the study was as follows:

(1) Review of current canal conditions.
   1) Canal topography.
   2) Natural conditions.
   3) Traffic flow.
   4) Traffic and anchorage conditions.
   5) Current safety measures.
   6) Survey of canal user
   7) Environment in and around the canal.

(2) Analysis of accidents.

(3) Evaluation of canal conditions.
   1) Existing risk level
   2) Topographical conditions.
   3) Traffic and anchorage conditions.-
   4) Aids to navigation.
   5) Canal traffic control and regulations.
   6) Canal maintenance.
   7) Resources against fire and pollution.

(4) Risk analysis.

(5) Risk evaluation.

(6) Measures for safety improvement

The study team consisted of the Overseas Coastal Development Institute of Japan (OCDI) and the Japan Association for Preventing Marine Accidents (JAPMA).

The team concluded as follows:

(1) Considering the overall evaluation of the current topography, navigation system, counter measures against accidents and frequency of accidents in other canals throughout the world, the Suez Canal can generally be judged safe. However, taking into account the important role of the canal in the world economy, safety measures in the canal should be improved and the level of risk reduced.

(2) Considering the types, sizes, and traffic volume of transiting vessels at present and those estimated in future, the team recommend that 0.40×10^{-3} be considered as the acceptable risk level .

(3) In order to clear the above mentioned risk level, all the following safety measures would be indispensable.

1) The width of the canal should be expanded between Km 85 and Km 88 (additional 53 m to 55 m) and Km 115 and Km 134(additional 40 m to 190 m) beyond the planned width in Second Stage Development Project.
2) The navigation system should be improved with reinforcement of aids to navigation (Lighthouse, Racon, Raymark, Power generator, etc) updating traffic communication system, and others.
3) An efficient system controlling emergency (institutionalization, facilities and equipment) should be provided, and task force should be trained.

7.3 Previous development plans of the Suez Canal

7.3.1 Feasibility Study on the Second Stage Development Project of the Suez Canal

This study was carried out by JICA study team headed Mr. Takashi Hazama, Executive Director of the Overseas Coastal Area Development Institute of Japan (OCDI), from 1979 to 1980.

The objective of the study was to prepare a feasibility report on the Second Stage Development Project of the Suez Canal to be implemented continuously after the completion of the First Stage Development Project.

The components of the study were as follows:

- Forecast of Canal traffic
- Formulation of master plan
- Preparation of phased plans of the Second Stage Development Project
- Study of transit capacity
- Study on technical aspects
- Construction plan and cost estimates
- Analysis of Canal toll
- Economic analysis
- Financial analysis

Conclusion of the study is as follows.

(1) The two plans of the Second Development Project to be implemented continuously after the First Development Project are studied as follows:

- A Canal doubling plan geared to handle the increasing vessel traffic
- A Canal doubling and widening plan not only to handle the increasing vessel traffic but also very large tankers in ballast up to 500,000DWT by widening the west cannel

Doubling Plan

(2) The purpose of the doubling plan, as different from a deepening and widening plan of the Canal to accommodate large tankers, is to increase the transit capacity of the Canal to meet the future increases. As this doubling will not modify the maximum possible size of transiting vessels, the vessels using the Canal under the doubling plan alone are the same size as in the First Stage Development Project, that is, 150,000DWT tankers fully laden and 350,000DWT tankers in ballast.

(3) The outline of the study on doubling the Canal is as follows:

Table 7.3.1 Forecast of Traffic Demand

(Ships/day)

	1978	1981	1985	1990	1995	2000
Real Ships	58	72	84	103	120	140
Standard Ships	53	66	75	93	107	123

Notes) Standard ships are converted from real ships in terms of a time interval of 10 minutes.

Table 7.3.2 Outline of the Second Stage Project

Phase	Section Doubled	Year of Completion	Transit Capacity (Standard ships/day)
Phase I, Step 1	Km.61 - 73.4 West channel Km.73.4 - 95 East channel	1984 at the latest	87
Phase I, Step 2	Km.16 - 51 East channel Km.122 - 135 West channel	1987 at the latest	98
Phase II	Km.135 - 144 West channel Km.144 - 162 East channel Km.0 - 16 West channel West approach channels (Suez, Port Said)	1994 at the latest	248

Note) The transit capacity of existing Canal after the First Stage Project is 65 standard ships/day.

Table 7.3.3 Construction Cost of the Second Stage Project

Phase	Work Volume ($10^6 m^3$)		Construction Cost		
	Dredging	Dry Excavation	Local Currency 10^6LE	Foreign Currency 10^6US$	Total 10^6US$
Phase I, Step 1	141.8	99.0	157	183	411
Phase I, Step 2	187.5	48.0	119	124	296
Phase II	226.5	79.0	164	236	473
Total	555.8	226.0	440	543	1,180

Notes) 1. The construction cost includes the cost of civil works, navigation aids and tug boats.

2. Cost as of Sep. 1979, 1US$=0.69LE=240JP¥, no price escalation is included.

Table 7.3.4 Canal Revenue

(10^6US$)

	1980	1985	1990	2000
a) existing	785.2	833.1	833.1	833.1
b) Phase I	785.2	1,021.6	1,290.6	1,290.6
(Total doubling project)	(785.2)	(1,021.6)	(1,290.6)	(1,730.3)
c) Increase (b-a) Phase I	0	188.5	457.5	457.5
(Total doubling project)	(0)	(188.5)	(457.5)	(897.5)

Table 7.3.5 Evaluation of the Project

EIRR for Phase I	24.2% (National Economy), 49.8% (World Economy)
EIRR for Total Project	23.8% (National Economy), 49.0% (World Economy)
FIRR for Phase I	17.3%

Doubling and Widening Plan

(4) The doubling and widening plan combines doubling the Canal with widening the west channel of the Canal to accommodate up to 500,000DWT tankers in ballast.

(5) The outline of the doubling and widening plan is as follows:

- Traffic forecast

  Widening the west channel permits the southbound transit of up to 500,000DWT tankers in ballast and increases the number of transiting ships by 0.16 ships/day in 1985, 0.24 ships/day in 1990, 0.28 ships/day in 1995 and 0.30 ships/day in 2000 compared with the doubling plan alone. The above values are the potential number of transiting ships.

- Outline of the Doubling and Widening Plan

  Under Phase I of the Second Stage Development Project, some sections of the existing channel which become the west channel after the Canal is completely doubled are widened, however the other sections of the channel will not be widened until Phase II. Therefore, no large tankers over 350,000DWT in ballast can transit, until the construction is completed in 1988.

Table 7.3.6 Outline of the Second Stage Project

Phase	Section Doubled	Section Widened	Year of Completion
Phase I, Step 1	Km.61-73.4 West channel Km.73.4-95 East channel	Km.16-61 West channel Km.73-122 West channel Km.145-162 West channel	1984 at the latest
Phase I, Step 2	Km.16-51 East channel Km.122-135 West channel		1987 at the latest
Phase II	Km.135-144 West channel Km.144-162 East channel Km.0-16 West channel West approach channels (Suez, Port Said)	Approach channel (Suez)	1994 at the latest and the completion of widening the west channels in 1988

Table 7.3.7 Construction Cost of the Second Stage Project

Phase	Work Volume ($10^6 m^3$)		Construction Cost		
	Dredging	Dry Excavation	Local Currency 10^6LE	Foreign Currency 10^6US$	Total 10^6US$
Phase I, Step 1	175.8	99.0	161	217	450
Phase I, Step 2	189.7	48.0	133	131	323
Phase II	234.9	79.0	164	241	479
Total	600.4	226.0	458	589	1,252

Notes) 1. The construction cost includes the cost of civil works, navigation aids and tug boats.

2. Cost as of Sep. 1979, 1US$=0.69LE=240JP¥, no price escalation is included.

- Canal Revenue

  Additional revenue expected by over 350,000DWT tankers in ballast is forecasted to be 29 million US$ in 1989, 30 million US$ in 1990 and 38 million US$ in 2000.

Table 7.3.8 Evaluation of the Project

EIRR for Phase I	22.7% (24.2% doubling alone)
EIRR for Total Project	23.4% (23.8% doubling alone)
FIRR for Phase I	15.8% (17.3% doubling alone)

(6) Judging from the above, it is concluded that the doubling plan as well as doubling and widening plan is, if they are implemented step by step, very feasible.

(7) According to the traffic demand forecast, after the completion of the First Stage Development Project, some transiting ships will be required to wait from 1981, and delays in entering the Canal will reach a chronic state in 1984. Accordingly, it will be necessary to complete the doubling of the section Km.51-122 by 1984, and section Km.0-135 by 1987 at the latest. This shall be pursued as Phase I can be completed at an early stage for the unexpected increases of demand in the future, the occurrence of a ships waiting may be reduced or avoided and, at the same time, the risk of decline in the Canal revenue due to the diversion of large-sized vessels to the Cape route may also be prevented.

(8) Good investment effects also may be expected from the plan to implement the total doubling scheme at the earliest possible time if the world economy grows in stable condition. Early implementation of the doubling will lead to the reduction in waiting hours at both ends of the Canal, and in addition will result in such uncalculated effects as the prevention of the Canal closure due to marine accidents.

7.3.2 Current development plan of SCA

(1) The 56 and 58 Feet Plan

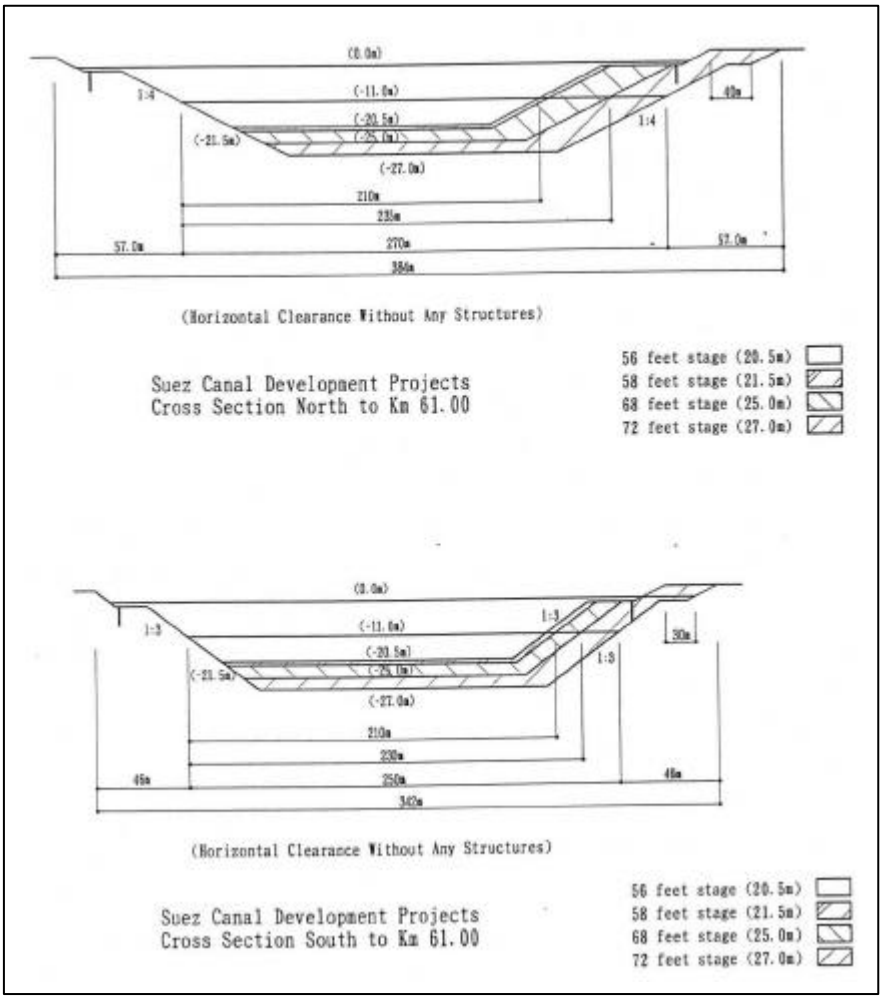
The 56 Feet Plan was completed in 1994 by which the Canal was deepened from -19.5m to -20.5m, and widened from 160m to 185m/225m at the level of -11.0m. The 58 Feet Plan was started after the completion of the 56 Feet Plan and was completed in 1996. The Canal was deepened from -20.5m to -21.0m.

(2) The 62 Feet Plan

The 62 Feet Plan was started after the completion of the 58 Feet Plan and will be completed in 2001.

(3) The 72 Feet Plan

SCA is considering the 72 Feet Plan with -27.0m depth to accept 300,000 DWT tankers fully laden and 500,000 DWT tankers in ballast.



Source) SCA

Figure 7.3.1 Cross Section of Current Development Plan of SCA

7.3.3 Deversoir By-Pass Extension Plan

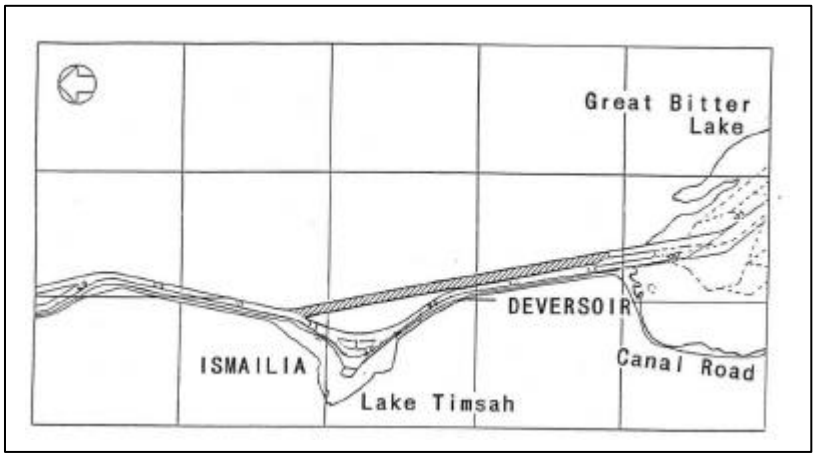
Deversoir By-Pass Extension Plan is straightly extending northward the existing Deversoir By-Pass, from northern end of the existing by-pass (Km.95.000) up to north of the Timsah Lake (KM.72.000). The route of the plan is same route as a part of Step 1 of Phase I proposed in Feasibility Study on the Second Stage Development Project of the Suez Canal mentioned at section 7.3.1.

The objectives of the plan are:

- to shorten the total transit time including waiting time
- to increase the transit capacity
- to improve navigational safety by straightening the curve section at around the Timsah Lake

The construction works consist of dry excavation of earth, which highest point is 19m above sea level, bank works and dredging.

Total cost and the period of construction works of the plan are estimated by SCA at about US$ 500 million and five years respectively. The Plan is now under detailed investigation.



Source) SCA

Figure 7.3.2 Deversoir By-Pass Extension Plan