

Chapter 2 Transit Vessels

2.1 Outline

Total number of vessels transiting the Canal fell to 13,490 vessels (average 37 vessels per day) in 1999 after peaking at 22,545 (average 62 vessels per day) in 1982 as shown in Table 2.1.1.

Total SCNT of vessels passing through the Canal fell to 385 million tons in 1999 after peaking at 426 million tons in 1991 as shown in Table 2.1.2. During this period, the share of Tankers in the total SCNT of vessels dropped significantly to 18% from 37%, while that of Container Ships rose sharply to 44% from 21%.

As for average SCNT per vessel transiting the Canal, Container Ships, Car Carriers and Bulk Carriers have been increasing in size as shown in Table 2.1.3.

Laden rates of Southbound for Tankers (number of vessels: 64%, SCNT traffic: 20%), Combined Carriers (52%, 39%), Car Carriers (60%, 63%) and Passenger Ships (50%, 50%) are relatively low level as shown in Table 2.1.4 and 2.1.5.

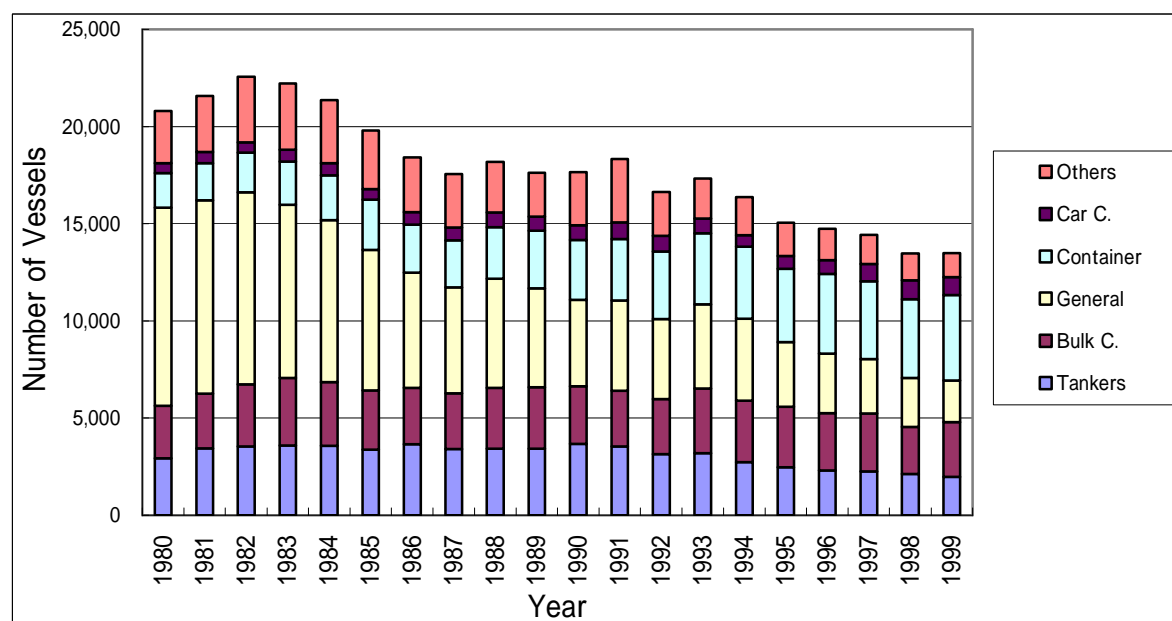
Southbound rates in terms of number of vessels and also SCNT traffic slightly exceed 50%.

Average SCNT per vessel in ballast of Southbound are larger than other vessel types for Tankers, Bulk Carriers and Combined Carriers as shown in Table 2.1.6.

Table 2.1.1 Number of Vessels Transiting the Canal

Year	Number of Vessels						Total
	Tankers	Bulk C.	General	Container	Car C.	Others	
1980	2,921	2,711	10,185	1,798	487	2,693	20,795
1981	3,438	2,809	9,952	1,926	581	2,871	21,577
1982	3,548	3,188	9,880	2,027	528	3,374	22,545
1983	3,602	3,465	8,910	2,232	600	3,415	22,224
1984	3,576	3,263	8,340	2,299	637	3,246	21,361
1985	3,374	3,058	7,224	2,582	541	3,012	19,791
1986	3,659	2,895	5,941	2,468	637	2,803	18,403
1987	3,402	2,872	5,454	2,419	671	2,723	17,541
1988	3,429	3,127	5,616	2,650	763	2,605	18,190
1989	3,424	3,158	5,094	2,957	731	2,264	17,628
1990	3,682	2,959	4,444	3,077	760	2,742	17,664
1991	3,549	2,872	4,631	3,175	834	3,265	18,326
1992	3,153	2,829	4,104	3,482	816	2,245	16,629
1993	3,193	3,329	4,335	3,656	752	2,053	17,318
1994	2,730	3,179	4,192	3,713	605	1,951	16,370
1995	2,473	3,114	3,326	3,765	660	1,713	15,051
1996	2,309	2,959	3,057	4,082	729	1,595	14,731
1997	2,255	2,994	2,790	4,012	870	1,509	14,430
1998	2,135	2,400	2,536	4,049	969	1,382	13,471
1999	1,987	2,805	2,153	4,375	930	1,240	13,490

Source) SCA



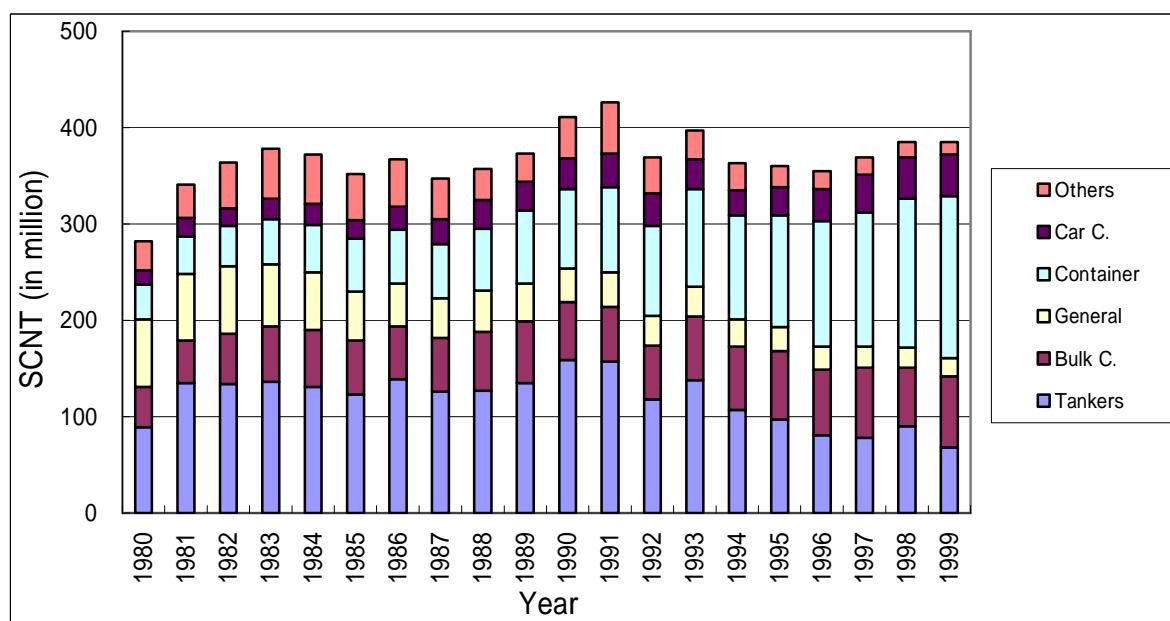
Source) SCA

Figure 2.1.1 Number of Vessels Transiting the Canal

Table 2.1.2 SCNT Traffic Transiting the Canal

Year	SCNT (in million)						Total
	Tankers	Bulk C.	General	Container	Car C.	Others	
1980	89	42	70	36	15	30	282
1981	135	44	69	39	19	35	341
1982	134	52	70	42	18	48	364
1983	136	58	64	47	21	52	378
1984	131	59	60	49	22	51	372
1985	123	56	51	55	19	48	352
1986	139	55	44	56	24	49	367
1987	126	56	41	56	26	42	347
1988	127	61	43	64	30	32	357
1989	135	64	39	76	30	29	373
1990	159	60	35	82	32	43	411
1991	157	57	36	88	35	53	426
1992	118	56	31	93	34	37	369
1993	138	66	31	101	31	30	397
1994	107	66	28	108	26	28	363
1995	97	71	25	116	29	22	360
1996	81	68	24	130	33	19	355
1997	78	73	22	139	39	18	369
1998	90	61	21	154	43	16	385
1999	68	74	19	168	43	13	385

Source) SCA



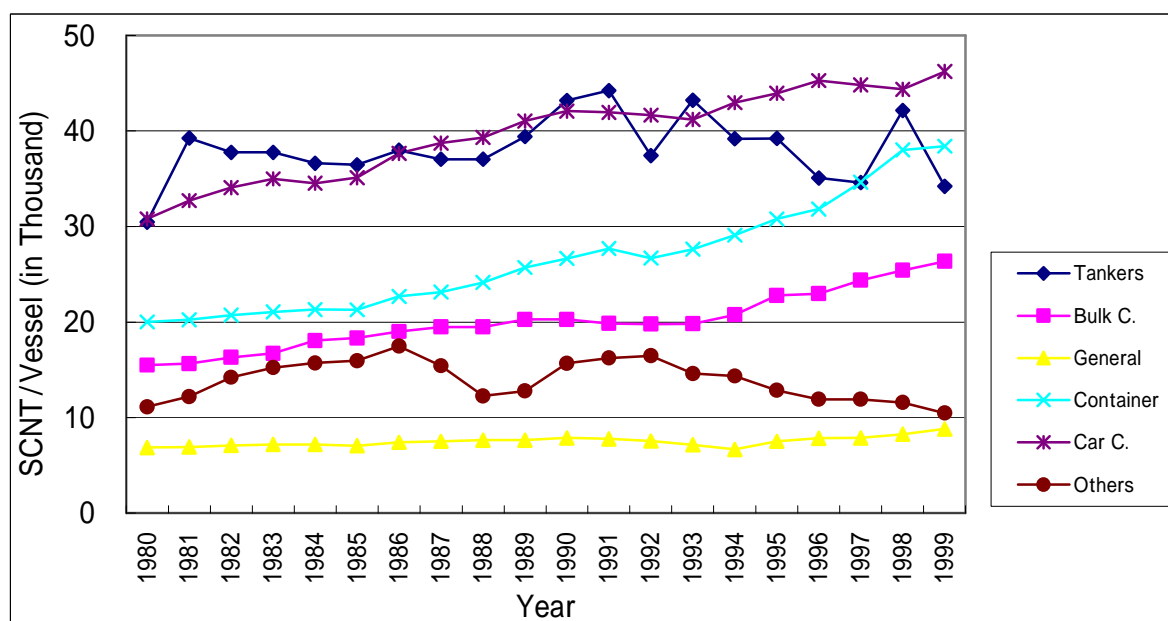
Source) SCA

Figure 2.1.2 SCNT Traffic Transiting the Canal

Table 2.1.3 Average SCNT per Vessel Transiting the Canal

Year	SCNT/Vessel (in thousand)						Total
	Tankers	Bulk C.	General	Container	Car C.	Others	
1980	30	15	7	20	31	11	14
1981	39	16	7	20	33	12	16
1982	38	16	7	21	34	14	16
1983	38	17	7	21	35	15	17
1984	37	18	7	21	35	16	17
1985	36	18	7	21	35	16	18
1986	38	19	7	23	38	17	20
1987	37	19	8	23	39	15	20
1988	37	20	8	24	39	12	20
1989	39	20	8	26	41	13	21
1990	43	20	8	27	42	16	23
1991	44	20	8	28	42	16	23
1992	37	20	8	27	42	16	22
1993	43	20	7	28	41	15	23
1994	39	21	7	29	43	14	22
1995	39	23	8	31	44	13	24
1996	35	23	8	32	45	12	24
1997	35	24	8	35	45	12	26
1998	42	25	8	38	44	12	29
1999	34	26	9	38	46	10	29

Source) SCA



Source) SCA

Figure 2.1.3 Average SCNT per Vessel Transiting the Canal

Table 2.1.4 Number of Vessel Transiting the Canal by Northbound/Southbound and Laden/in Ballast

(in 1999)

Vessel Type	Number of Vessels											
	Southbound			Northbound			Total (Southb.+Northb.)			Southbound Rate		
	Laden	in Ballast	Laden Rate	Laden	in Ballast	Laden Rate	Laden	in Ballast	Laden Rate	Laden	in Ballast	Total
Tankers	617	342	64%	757	271	74%	1,374	613	69%	45%	56%	48%
Bulk Carr.	1,626	26	98%	1,095	58	95%	2,721	84	97%	60%	31%	59%
Combined Carr.	14	13	52%	15	0	100%	29	13	69%	48%	100%	64%
General Cargo	1,136	47	96%	870	100	90%	2,006	147	93%	57%	32%	55%
Container Ships	2,155	28	99%	2,183	9	100%	4,338	37	99%	50%	76%	50%
Lash	20	1	95%	19	0	100%	39	1	98%	51%	100%	53%
Ro/Ro	101	13	89%	87	18	83%	188	31	86%	54%	42%	52%
Car Carr.	231	155	60%	540	4	99%	771	159	83%	30%	97%	42%
Pass. Ships	27	27	50%	46	18	72%	73	45	62%	37%	60%	46%
War Ships	80	0	100%	70	0	100%	150	0	100%	53%	-	53%
Others	315	57	85%	239	60	80%	554	117	83%	57%	49%	55%
Total	6,322	709	90%	5,921	538	92%	12,243	1,247	91%	52%	57%	52%

Source) "Suez Canal Report December 1999", SCA

Table 2.1.5 SCNT Traffic Transiting the Canal by Northbound/Southbound and Laden/in Ballast

(in 1999)

Vessel Type	SCNT (in thousand)											
	Southbound			Northbound			Total (Southb.+Northb.)			Southbound Rate		
	Laden	in Ballast	Laden Rate	Laden	in Ballast	Laden Rate	Laden	in Ballast	Laden Rate	Laden	in Ballast	Total
Tankers	8,987	36,879	20%	17,703	4,303	80%	26,690	41,182	39%	34%	90%	68%
Bulk Carr.	37,986	940	98%	33,477	1,207	97%	71,463	2,147	97%	53%	44%	53%
Combined Carr.	651	1,017	39%	592	0	100%	1,243	1,017	55%	52%	100%	74%
General Cargo	10,243	235	98%	7,961	435	95%	18,204	670	96%	56%	35%	56%
Container Ships	83,450	502	99%	84,165	128	100%	167,615	630	100%	50%	80%	50%
Lash	554	31	95%	544	0	100%	1,098	31	97%	50%	100%	52%
Ro/Ro	1,961	100	95%	1,696	133	93%	3,657	233	94%	54%	43%	53%
Car Carr.	11,278	6,751	63%	25,216	38	100%	36,494	6,789	84%	31%	99%	42%
Pass. Ships	397	398	50%	812	162	83%	1,209	560	68%	33%	71%	45%
War Ships	648	0	100%	721	0	100%	1,369	0	100%	47%	-	47%
Others	1,430	218	87%	816	229	78%	2,246	447	83%	64%	49%	61%
Total	157,585	47,071	77%	173,703	6,635	96%	331,288	53,706	86%	48%	88%	53%

Source) "Suez Canal Report December 1999", SCA

Table 2.1.6 Average SCNT per Vessel Transiting the Canal by Northbound/Southbound and Laden/in Ballast

(in 1999)

Vessel Type	SCNT (in thousand)											
	Southbound			Northbound			Total (Southb.+Northb.)					
	Laden	in Ballast	Total	Laden	in Ballast	Total	Laden	in Ballast	Total			
Tankers	15	108	48	23	16	21	19	67	34			
Bulk Carr.	23	36	24	31	21	30	26	26	26			
Combined Carr.	47	78	62	39	-	39	43	78	54			
General Cargo	9	5	9	9	4	9	9	5	9			
Container Ships	39	18	38	39	14	38	39	17	38			
Lash	28	31	28	29	-	29	28	31	28			
Ro/Ro	19	8	18	19	7	17	19	8	18			
Car Carr.	49	44	47	47	10	46	47	43	47			
Pass. Ships	15	15	15	18	9	15	17	12	15			
War Ships	8	-	8	10	-	10	9	-	9			
Others	5	4	4	3	4	3	4	4	4			
Total	25	66	29	29	12	28	27	43	29			

Source) "Suez Canal Report December 1999", SCA

2.2 Analysis of the SC transit database

2.2.1 Outline of the SC transit database

The Study Team was provided the SC transit database by SCA. The main contents of the database are as follows:

- Date of transit
- Vessel name
- Vessel type
- Origin
- Destination
- Cargo ton
- Cargo type
- DWT
- SCNT
- Laden or ballast
- TEU

Points of notice in analyzing the SC transit database provided by SCA are as follows:

- Vessel types of the SC transit database (see Table 2.2.1) are different from those of the tariff.
- Tankers in the database consist of Tankers of crude oil, Tankers of petroleum products, Chemical Carriers, LNG and LPG.
- Applied tolls including surcharge/discount are not mentioned.
- Reliability of information on origin and destination is not high.

Table 2.2.1 Vessel Types of the SC Transit Database

Code	Vessel Type
1	Tankers
2	Bulk Carriers
3	Combined Carriers
4	General Cargo
5	Container Ships
6	LASH
7	Ro/Ro
8	Car Carriers
9	Passenger Ships
10	War Ships
11	Others

2.2.2 Number of vessels in 1999

Table 2.2.2 shows number of vessels by vessel type and size transiting the Canal from 01/01/1999 to 31/12/1999 for 1 year. Total number of vessels transiting the Canal during this period is 13,490 vessels.

Container Ships (share: 32.1%), Bulk Carrier (20.6%), General Cargo (15.8%), Tankers (14.6%) and Car Carrier (6.8%) are main vessel types and account for 89.9% of total number of vessels.

Figure 2.2.1 shows accumulation of number of vessels transiting the Canal by main vessel types. Transition points of these accumulation curves are as follows:

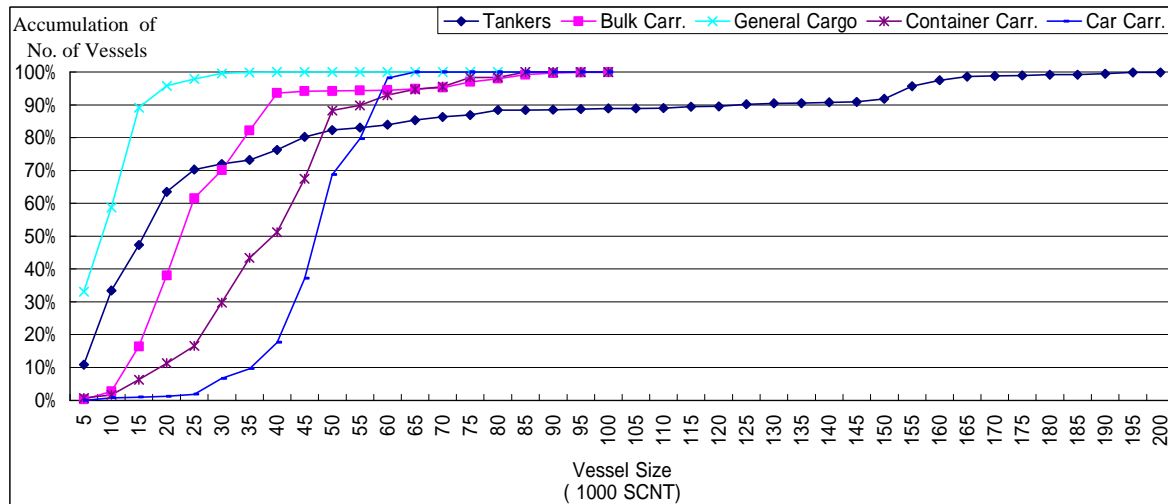
Tankers:	up to 25,000 SCNT account for 70%
	up to 80,000 SCNT account for 88%
	up to 150,000 SCNT account for 92%
	up to 165,000 SCNT account for 99%
Bulk Carriers	up to 25,000 SCNT account for 62%
	up to 40,000 SCNT account for 94%
	up to 70,000 SCNT account for 95%
	up to 90,000 SCNT account for 100%
General Cargo	up to 15,000 SCNT account for 89%
	up to 30,000 SCNT account for 100%
Container Sh.	up to 25,000 SCNT account for 17%
	up to 50,000 SCNT account for 88%
	up to 85,000 SCNT account for 100%
Car Carriers	up to 25,000 SCNT account for 2%
	up to 40,000 SCNT account for 18%
	up to 60,000 SCNT account for 98%

Table 2.2.2 Number of Vessels Transiting the Canal

(Number)

Vessel Size (up to) (1000 SCNT)	Tankers	Bulk Carr.	Combined Carr.	General Cargo	Container Ships	Lash	Ro/Ro	Car Carr.	Pass. Ships	War Ships	Others	Total	Total Accumulation
	1	2	3	4	5	6	7	8	9	10	11		
5	215	7		713	29		35		21	98	472	1,590	11.8%
10	449	69		552	43		51		10	21	151	1,357	21.8%
15	276	385	1	655	202	3	28		56	3	28	1,635	34.0%
20	322	606		143	219		8		2	13	6	1,325	43.8%
25	135	660	2	44	230		23		7	7	4	1,118	52.1%
30	33	240	3	36	581	32	33		2	7	8	1,020	59.6%
35	25	339	1	7	594	5	7		2	1	1	1,010	67.1%
40	61	319	2	3	343		34			1	1	841	73.4%
45	78	17	2		712				181	1		995	80.7%
50	42	1	2		910				294			1,251	90.0%
55	15	3	11		67				102			198	91.5%
60	17	4	3		139				172	1		336	94.0%
65	28	11	2		76				17	1		135	95.0%
70	19	11	2		35					2		67	95.5%
75	12	48			123				1			184	96.8%
80	29	28								1		58	97.3%
85	1	34	2		72					5		114	98.1%
90	2	15										17	98.2%
95	4	5										9	98.3%
100	4	2										6	98.3%
105												0	98.3%
110	2	1										3	98.4%
115	9											9	98.4%
120	1											1	98.4%
125	12											12	98.5%
130	7											7	98.6%
135	1											1	98.6%
140	5											5	98.6%
145	2		2									4	98.7%
150	19											19	98.8%
155	76											76	99.4%
160	36											36	99.6%
165	23											23	99.8%
170	3		1									4	99.8%
175	3											3	99.8%
180	5											5	99.9%
185												0	99.9%
190	6											6	99.9%
195	7											7	100.0%
200	1											1	100.0%
205												0	100.0%
210	1											1	100.0%
215	1											1	100.0%
220												0	100.0%
225												0	100.0%
230												0	100.0%
235												0	100.0%
240												0	100.0%
245												0	100.0%
250												0	100.0%
Total	1,987	2,805	42	2,153	4,375	40	219	930	118	150	671	13,490	
Share	14.7%	20.8%	0.3%	16.0%	32.4%	0.3%	1.6%	6.9%	0.9%	1.1%	5.0%	100.0%	

Source) Analyzed by the Study Team based on SC transit database from 01/01/1999 to 31/12/1999



Source) Analyzed by the Study Team based on SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.1 Accumulation of Number of Vessels Transiting the Canal

2.2.3 Total SCNT of vessels in 1999

Table 2.2.3 shows total SCNT of vessels by vessel type and size transiting the Canal from 01/01/1999 to 31/12/1999 for 1 year. Total SCNT of vessels transiting the Canal during this period is 385 million SCNT.

Container Ships (share: 43.7%), Bulk Carrier (19.1%), Tankers (17.6%), Car Carrier (11.2%) and General Cargo (4.9%) are main vessel types and account for 96.5% of total SCNT of vessels.

Figure 2.2.2 shows accumulation of total SCNT of vessels transiting the Canal by main vessel types. Transition points of these accumulation curves are as follows:

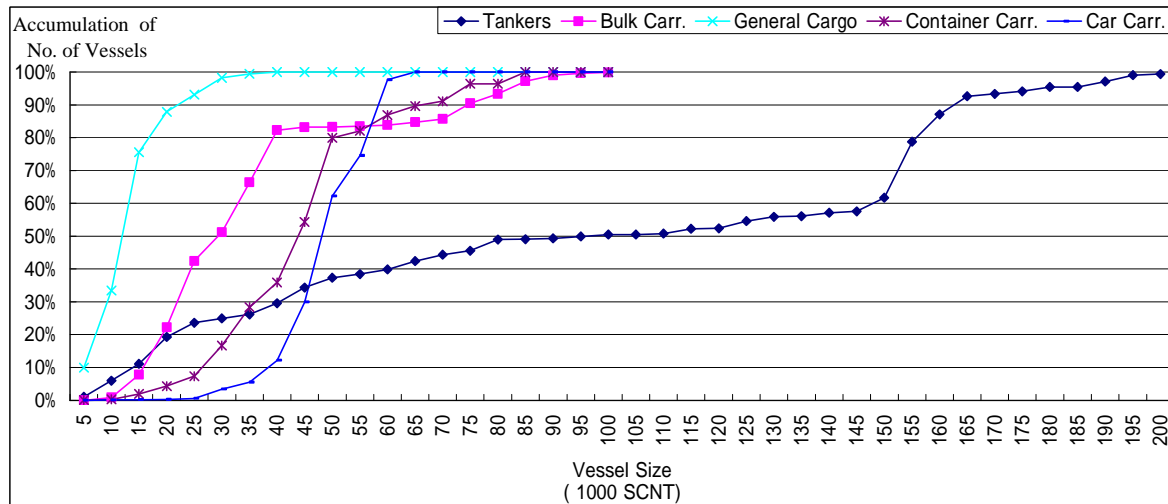
Tankers:	up to 25,000 SCNT account for 24%
	up to 80,000 SCNT account for 49%
	up to 150,000 SCNT account for 62%
	up to 165,000 SCNT account for 93%
Bulk Carriers	up to 25,000 SCNT account for 42%
	up to 40,000 SCNT account for 82%
	up to 70,000 SCNT account for 86%
	up to 90,000 SCNT account for 99%
General Cargo	up to 15,000 SCNT account for 76%
	up to 30,000 SCNT account for 98%
Container Sh.	up to 25,000 SCNT account for 7%
	up to 50,000 SCNT account for 80%
	up to 85,000 SCNT account for 100%
Car Carriers	up to 25,000 SCNT account for 1%
	up to 40,000 SCNT account for 12%
	up to 60,000 SCNT account for 98%

Table 2.2.3 Total SCNT of Vessels Transiting the Canal

(1000 SCNT)

Vessel Size (up to) (1000 SCNT)	Tankers	Bulk Carr.	Combined Carr.	General Cargo	Container Ships	Lash	Ro/Ro	Car Carr.	Pass. Ships	War Ships	Others	Total	Total Accumulation
	1	2	3	4	5	6	7	8	9	10	11		
5	718	22		1,869	91		102	58	45	187	792	3,825	1.0%
10	3,320	610		4,441	341		340	58	79	145	1,123	10,488	3.7%
15	5,491	5,081	10	7,948	2,795	21	359	26	714	33	313	20,758	9.1%
20	5,581	10,659		2,330	4,033		135	32	232	98	105	23,205	15.1%
25	2,943	14,871	47	984	5,031		537	134	156	157	84	24,944	21.6%
30	886	6,396	86	974	15,792	952	926	1,226	56	198	208	27,701	28.8%
35	797	11,211	32	222	19,575	157	226	914	66	30	33	33,263	37.5%
40	2,365	11,695	189	107	12,784		1,265	2,862		38	36	31,340	45.6%
45	3,231	705	301		31,013			7,693				42,943	56.7%
50	1,968	45	94		43,084			13,982				59,266	72.1%
55	791	159	581		3,578			3,344	92			10,454	74.9%
60	967	232	174		8,074			9,983	58			19,488	79.9%
65	1,712	675	123		4,635			1,029	62			8,235	82.1%
70	1,304	744			2,442				133			4,623	83.3%
75	874	3,467			8,956				75			13,372	86.7%
80	2,273	2,151								79		4,502	87.9%
85	85	2,818	167		6,023					405		9,496	90.4%
90	180	1,307										1,486	90.8%
95	373	462										835	91.0%
100	381	191										571	91.1%
105												0	91.1%
110	216	107										323	91.2%
115	1,009											1,009	91.5%
120	120											120	91.5%
125	1,470											1,470	91.9%
130	895											895	92.1%
135	131											131	92.1%
140	691											691	92.3%
145	288		288									576	92.5%
150	2,836											2,836	93.2%
155	11,563											11,563	96.2%
160	5,666											5,666	97.7%
165	3,747											3,747	98.7%
170	507		168									675	98.8%
175	511											511	99.0%
180	882											882	99.2%
185												0	99.2%
190	1,128											1,128	99.5%
195	1,358											1,358	99.8%
200	197											197	99.9%
205												0	99.9%
210	210											210	99.9%
215	211											211	100.0%
220												0	100.0%
225												0	100.0%
230												0	100.0%
235												0	100.0%
240												0	100.0%
245												0	100.0%
250												0	100.0%
Total	67,872	73,610	2,260	18,874	168,245	1,129	3,890	43,283	1,769	1,369	2,694	384,994	
Share	17.6%	19.1%	0.6%	4.9%	43.7%	0.3%	1.0%	11.2%	0.5%	0.4%	0.7%	100.0%	

Source) Analyzed by the Study Team based on SC transit database from 01/01/1999 to 31/12/1999

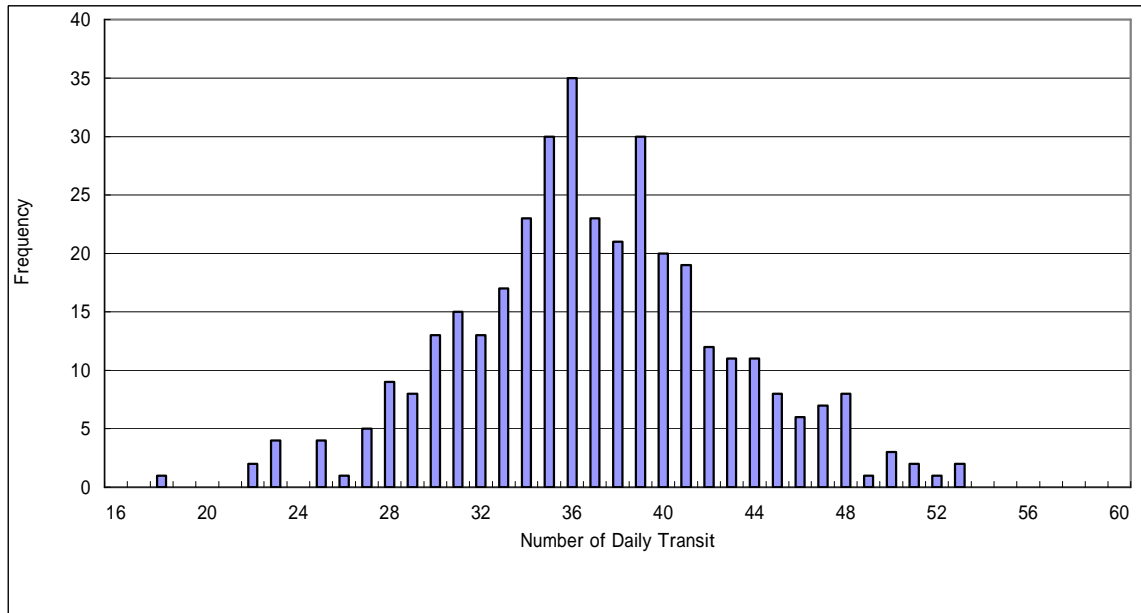


Source) Analyzed by the Study Team based on SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.2 Accumulation of Total SCNT of Vessels Transiting the Canal

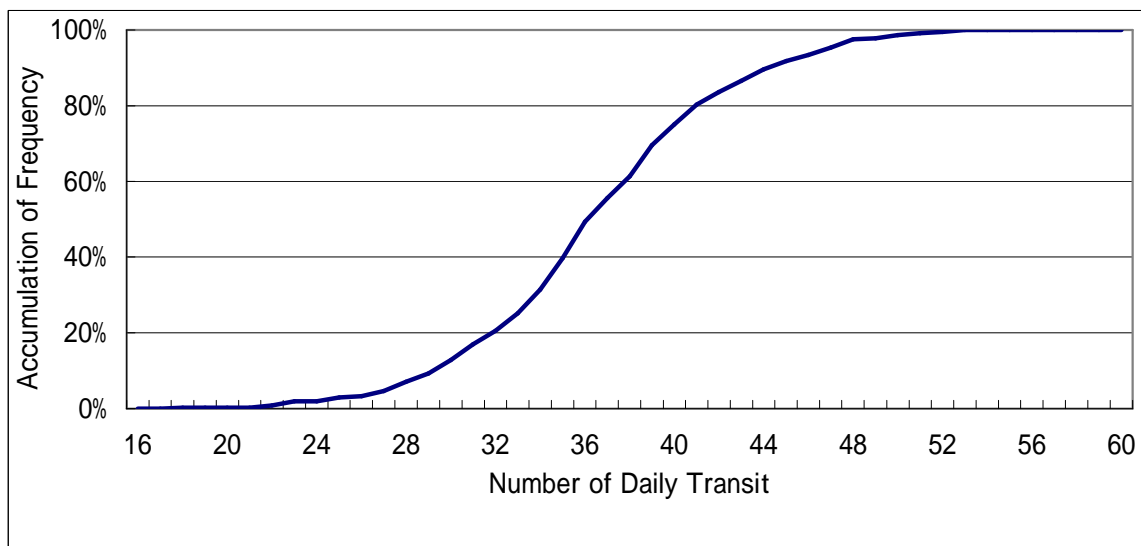
2.2.4 Daily transit in 1999

Figure 2.2.3 and 2.2.4 show number of daily transit through the Canal from 01/01/1999 to 31/12/1999 for 1 year. Average daily transit is 37 vessels. Daily transit of 29 to 44 vessels account for 90% of total, while minimum and maximum daily transit are 18 and 53 vessels respectively.



Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.3 Frequency of Daily Transit through the Canal



Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

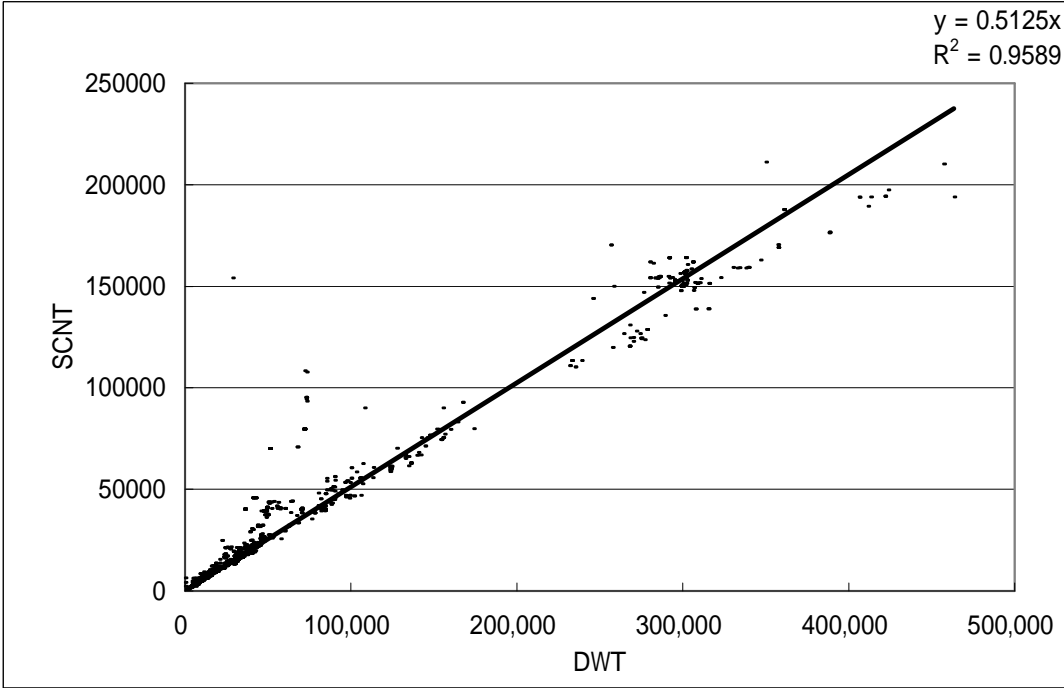
Figure 2.2.4 Accumulation of Frequency of Daily Transit through the Canal

2.2.5 Relation between DWT and SCNT in 1999

Figure 2.2.5, 2.2.6, 2.2.7 2.2.8 and 2.2.9 show relation between DWT and SCNT of Tankers, Bulk Carriers, General Cargo Ships, Container Ships and Car Carriers respectively.

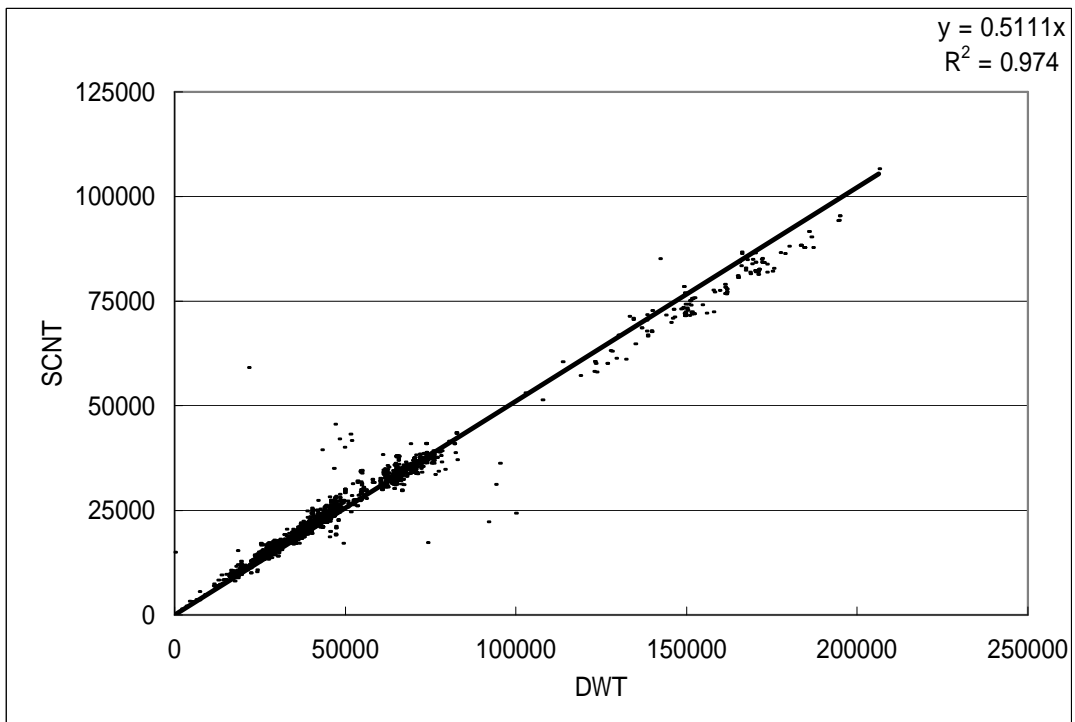
These relations can be approximated by the least square method with a condition of (DWT=0, SCNT=0) as follows:

- Tankers: SCNT = 0.5125DWT
- Bulk Carriers: SCNT = 0.5111DWT
- General Cargo Ships: SCNT = 0.6230DWT
- Container Ships: SCNT = 0.7956DWT
- Car Carriers: SCNT = 2.6743DWT



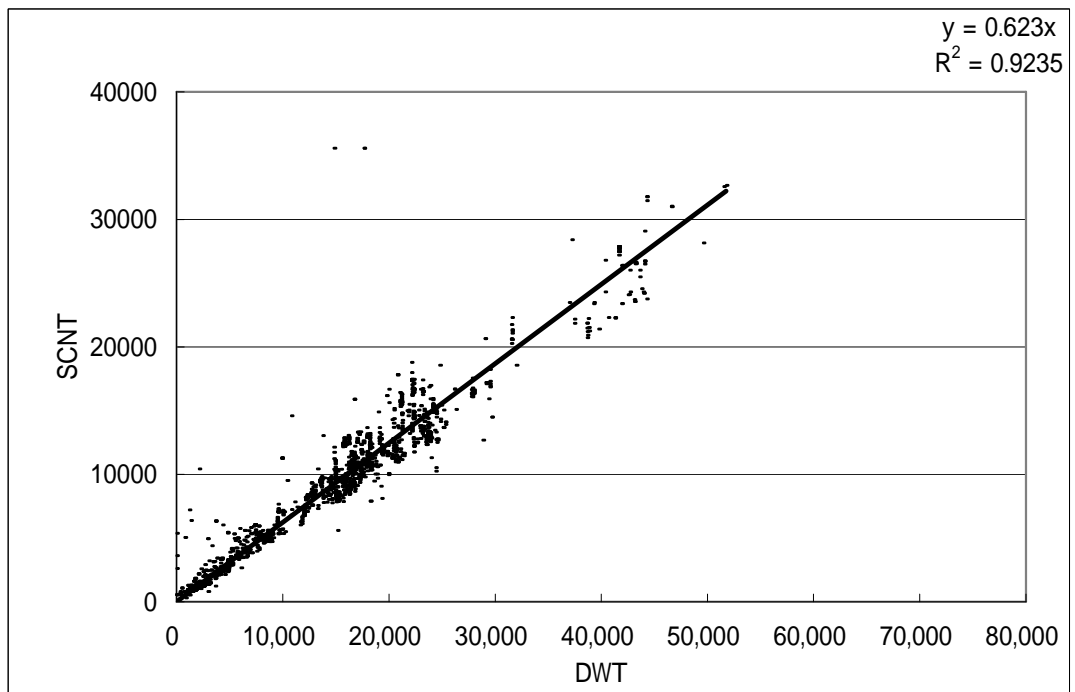
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.5 Relation between DWT and SCNT (Tankers)



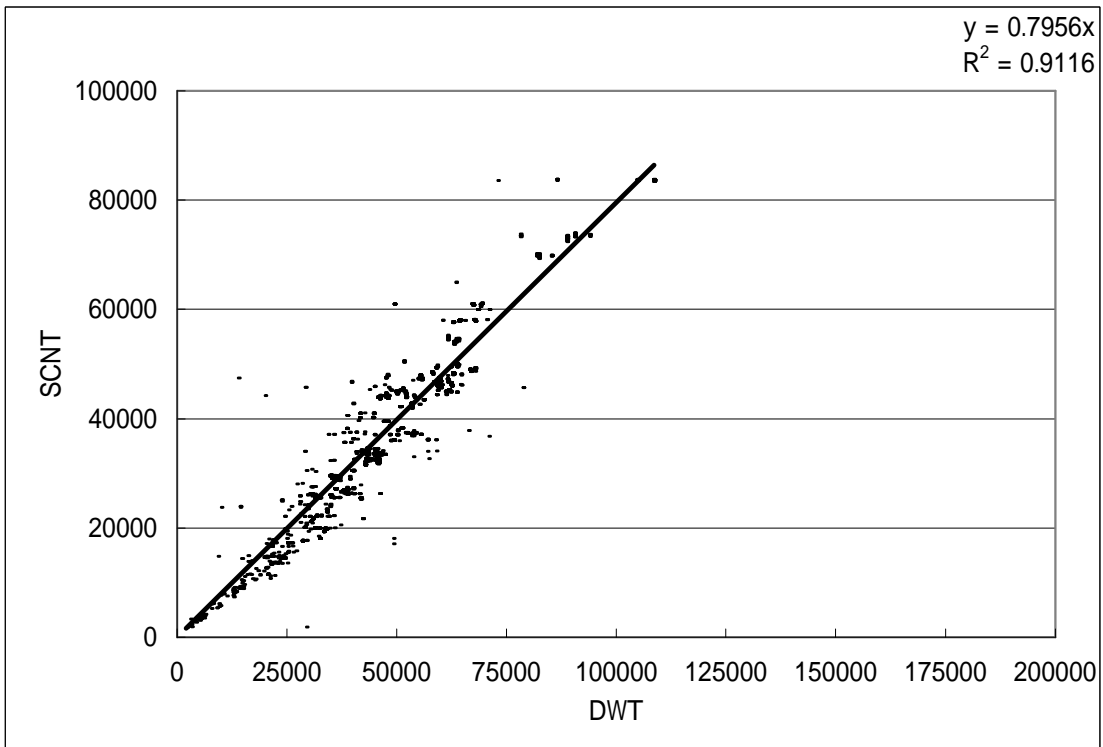
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.6 Relation between DWT and SCNT (Bulk Carriers)

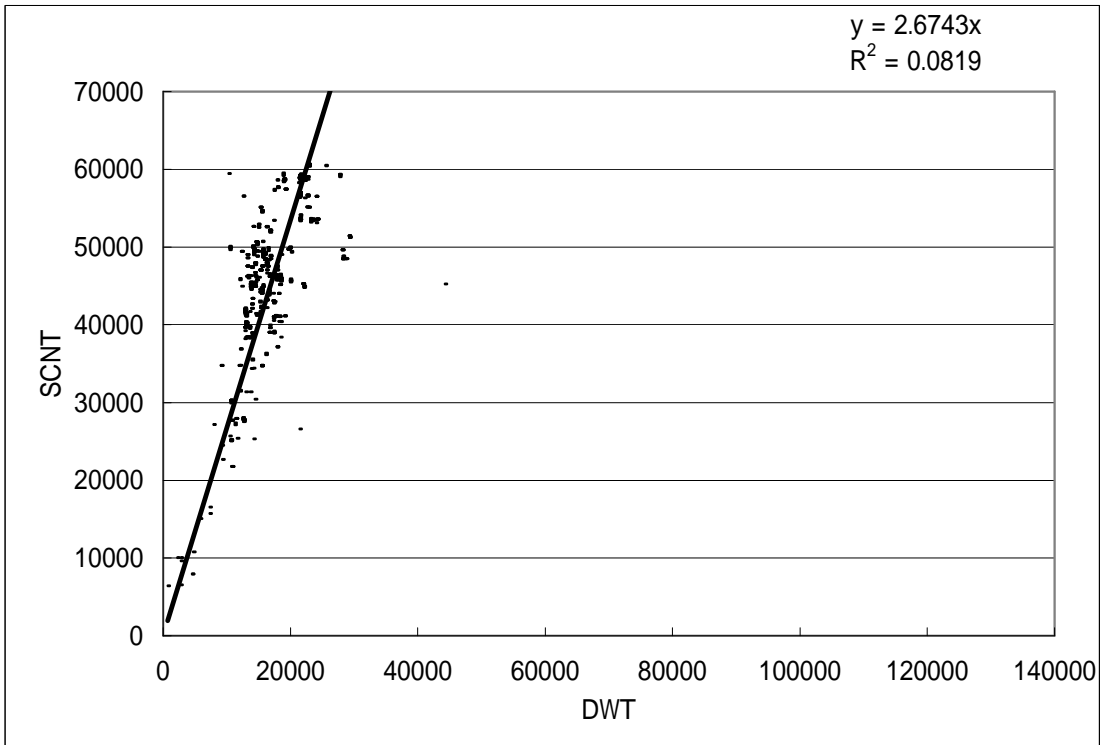


Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.7 Relation between DWT and SCNT (General Cargo Ships)



Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999
 Figure 2.2.8 Relation between DWT and SCNT (Container Ships)



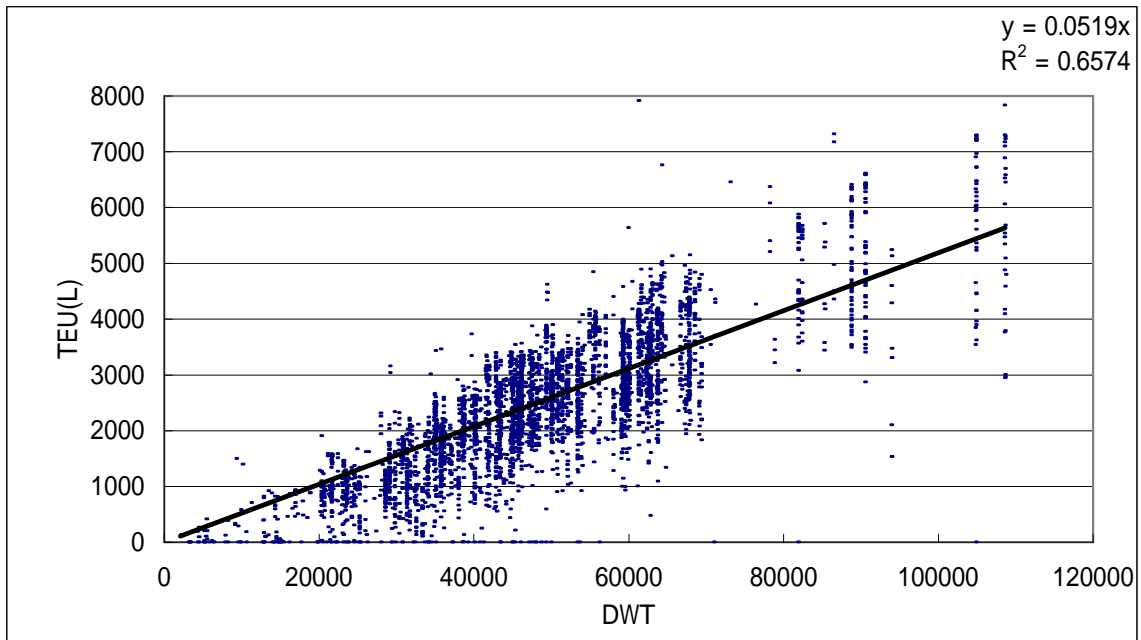
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999
 Figure 2.2.9 Relation between DWT and SCNT (Car Carriers)

2.2.6 Relation between DWT and carried containers in 1999

Figure 2.2.10, 2.2.11, 2.2.12, 2.2.13, 2.2.14 and 2.2.15 show relation between DWT and carried containers in TEU of Container Ships. Carried containers laden (TEU(L)) of Southbound are clearly less than those of Northbound at same DWT, while there is no remarkable difference between Northbound and Southbound in carried containers total (TEU(L+B)).

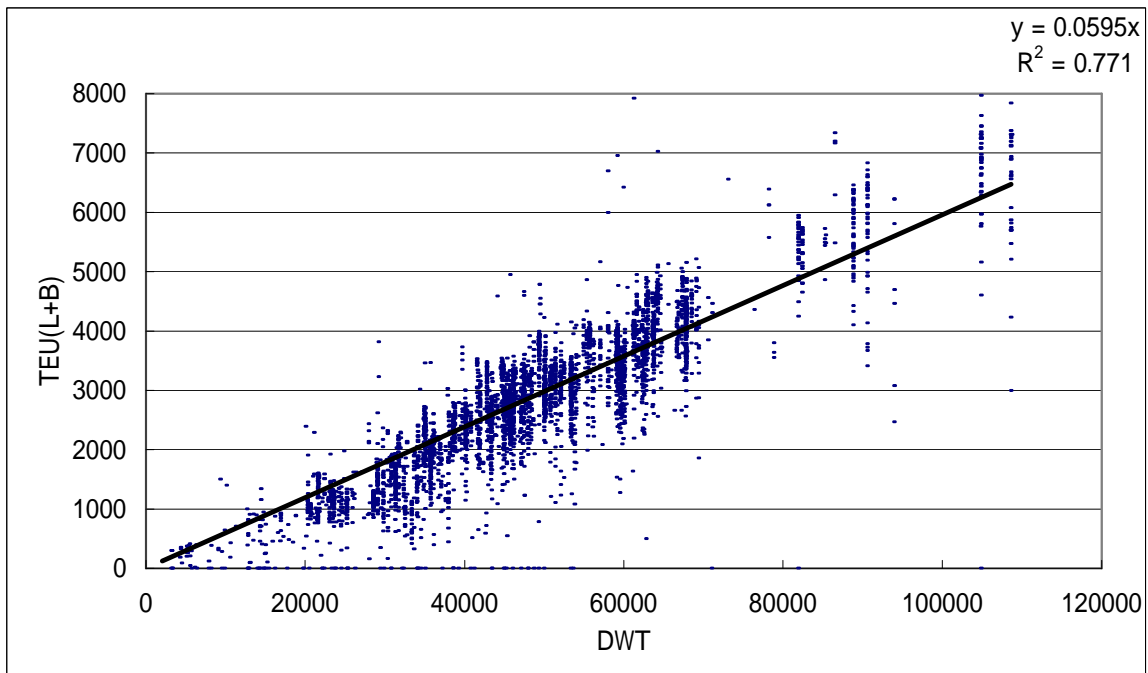
These relations can be approximated by the least square method with a condition of (DWT=0, TEU=0) as follows:

North+South	(laden only):	TEU(L)=	0.0519DWT
	(total):	TEU(L+B)=	0.0595DWT
Northbound	(laden only):	TEU(L)=	0.0596DWT
	(total):	TEU(L+B)=	0.0615DWT
Southbound	(laden only):	TEU(L)=	0.0442DWT
	(total):	TEU(L+B)=	0.0576DWT



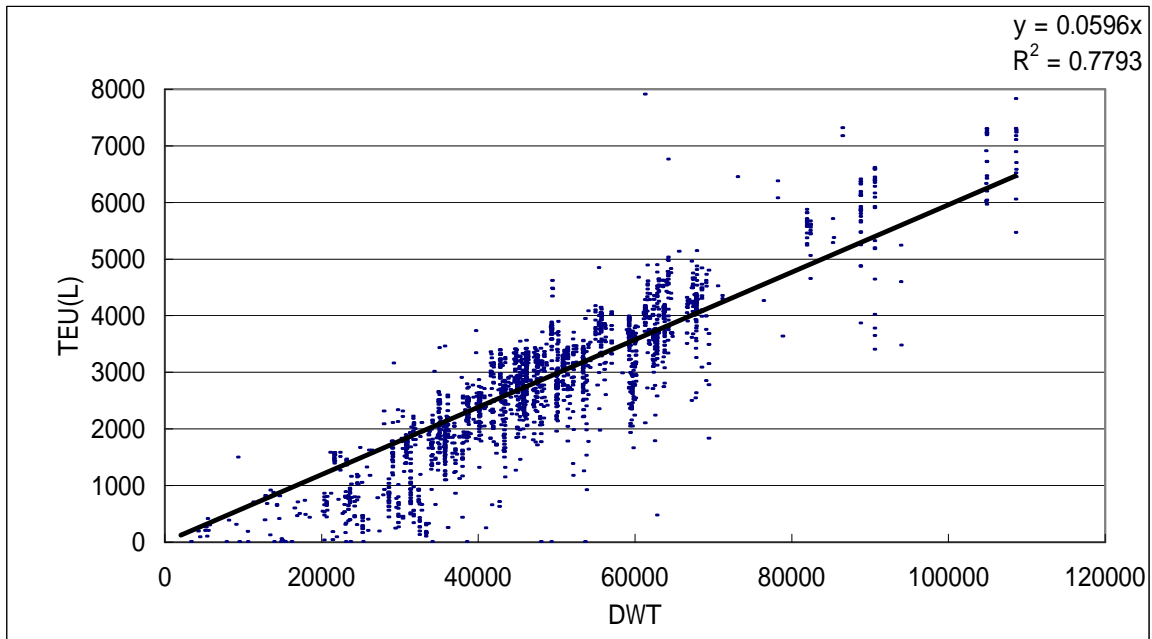
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.10 Relation between DWT and Carried Containers (Laden)



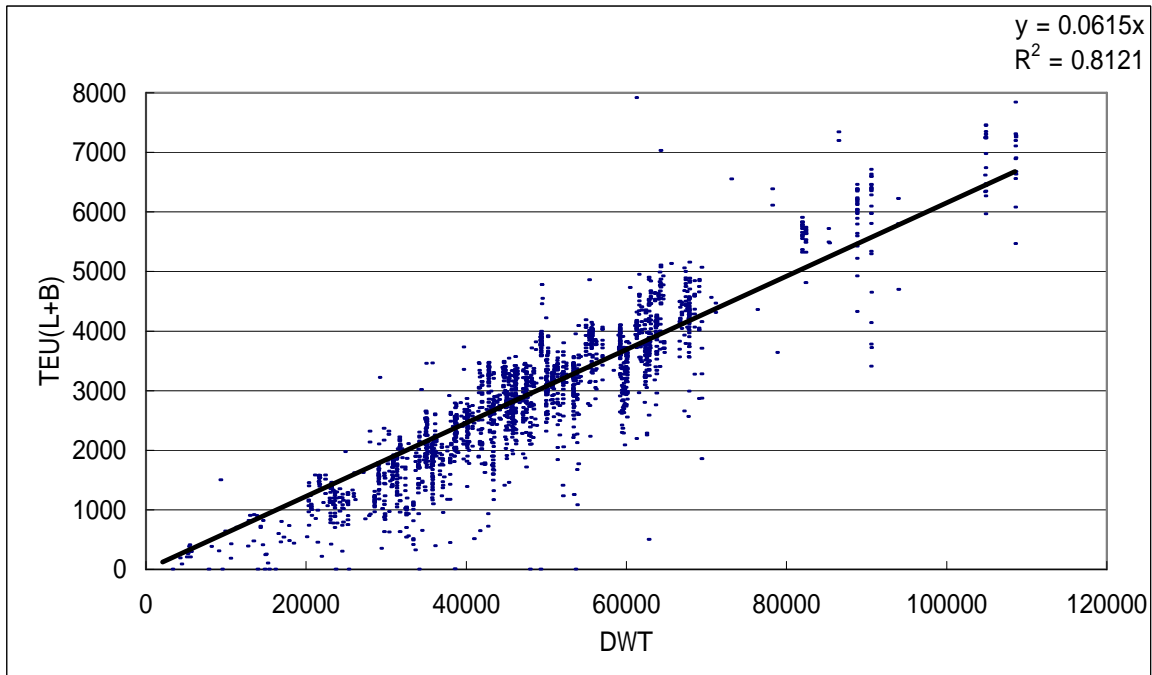
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.11 Relation between DWT and Carried Containers (Total)



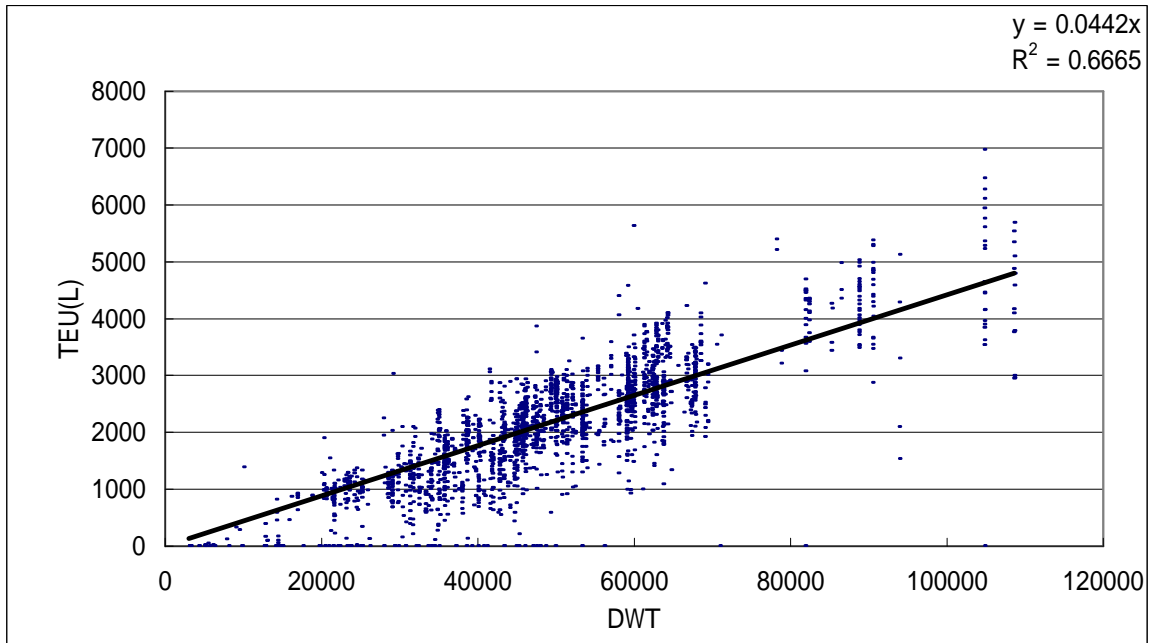
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.12 Relation between DWT and Carried Containers (Laden, Northbound)



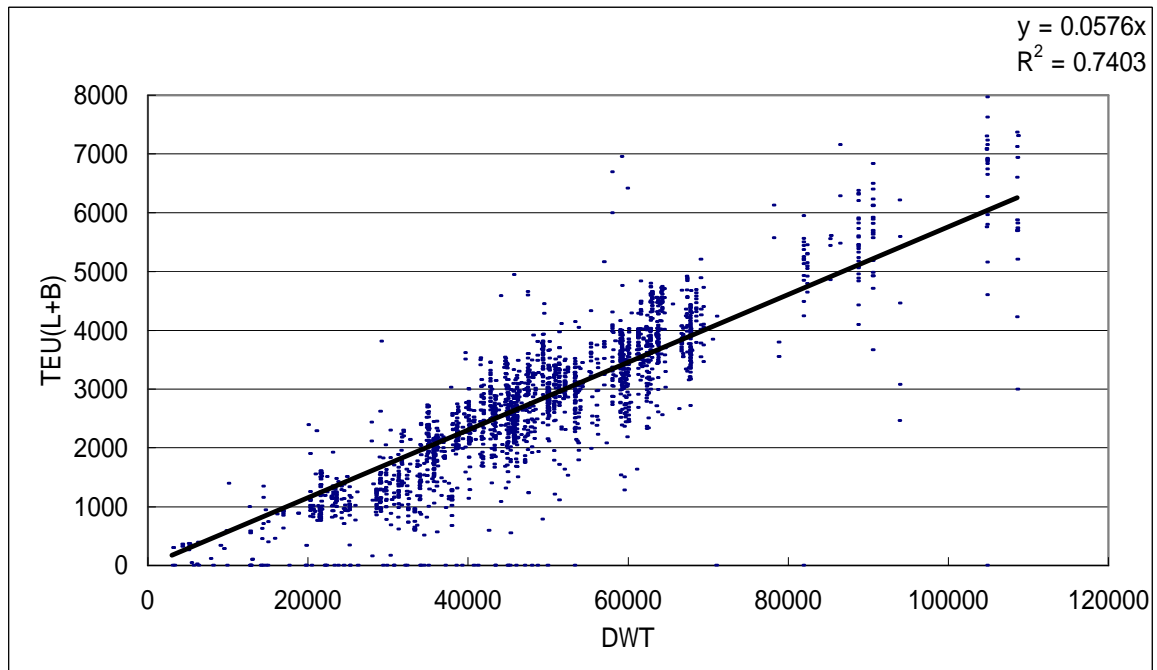
Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.13 Relation between DWT and Carried Containers (Total, Northbound)



Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.14 Relation between DWT and Carried Containers (Laden, Southbound)



Source) Analyzed by the Study Team based on the SC transit database from 01/01/1999 to 31/12/1999

Figure 2.2.15 Relation between DWT and Carried Containers (Total, Southbound)

Chapter 3 Goods Traffic thorough the Suez Canal

3.1 Outline

In the last twenty years, the number of vessels that transited through the Suez Canal has been decreasing, however, the number of tons of goods has been increasing. In some goods the way of doing business has changed, as in the case of containerships, the number of vessels, and their size, has increased and the tonnage also has increased.

In 1999, the total goods traffic thorough the Canal is 306,670 thousand tons, about half of which was northbound and the rest was southbound traffic. (Table 3.1.1, Figure 3.1.1)

Though the total tonnage was balanced in each direction, the commodity types were different.

According to SCA yearly reports, the largest commodity of northbound cargo except “Others” in 1999 is Coal & Coke whose volume was 23,967 thousand tons. This volume was only 2,676 thousand tons in 1980. (Table 3.1.2)

Oil & Products decreased to 18,166 thousand tons in 1999 while it was 28,474 thousand tons in 1980.

“Others” was 27,663 thousand tons in 1980 and was smaller than Oil & Products, but has increased to 76,073 thousand tons and has become the largest cargo.

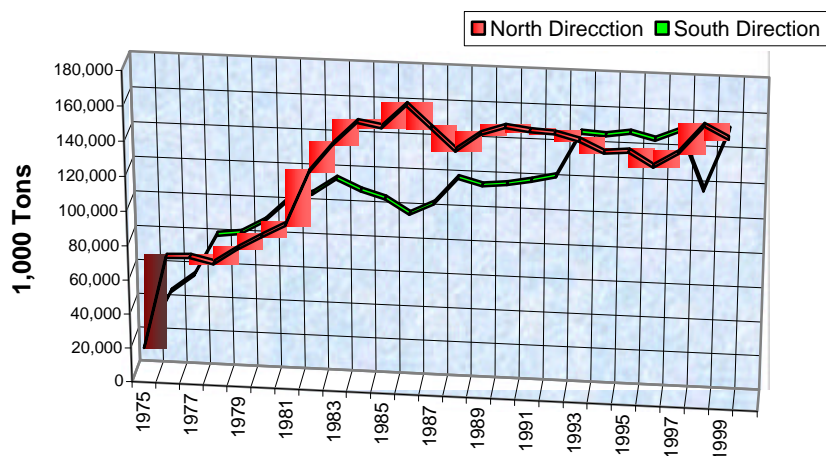
Main commodities of southbound cargo in 1999 are Fabricated Metals, Cereals and Fertilizers. These cargos were also main commodity in 1980. Cement that was one of main cargos in early 80’s has decreased dramatically and has become only 92 thousand tons in 1999.

Oil & Products has also decreased. “Others” has been growing similarly to the northbound cargo.

Table 3.1.1 Goods Traffic (Thousand Tons)

Year	North Direction	South Direction	Grand Total
1975	18,480	19,140	37,620
1976	72,020	45,633	117,653
1977	72,630	56,063	128,693
1978	69,597	80,182	149,779
1979	78,730	81,919	160,649
1980	86,547	89,729	176,276
1981	93,896	102,532	196,428
1982	124,805	106,588	231,393
1983	141,002	115,703	256,705
1984	154,237	109,491	263,728
1985	151,901	105,695	257,596
1986	165,048	97,404	262,452
1987	152,591	103,984	256,575
1988	140,401	119,093	259,494
1989	150,348	115,471	265,819
1990	155,045	116,836	271,881
1991	153,220	119,322	272,542
1992	152,522	122,505	275,027
1993	149,027	147,887	296,914
1994	142,872	147,083	289,955
1995	144,024	149,100	293,124
1996	136,092	145,674	281,766
1997	144,448	151,456	295,904
1998	160,368	118,107	278,475
1999	153,582	153,088	306,670
AV. YEAR	121,671	104,603	226,274

Source) SCA Yearly Report



Source) SCA Yearly Report

Figure 3.1.1 Goods Traffic Overview 1975-1999

Table 3.1.2 Northbound Cargo Ton by Cargo Type (1980-99)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OIL & PRODUCTS:																				
CRUDE OIL	19,077	25,625	49,074	63,753	64,248	54,782	65,386	48,756	35,011	35,355	41,885	50,405	50,503	41,269	33,235	19,294	12,819	13,001	16,380	9,256
PRODUCTS:																				
Motor Spirit	424	523	249	184	351	1,397	1,701	2,095	1,141	1,519	1,612	2,017	1,449	443	467	249	877	905	2,523	2,825
Kerosene	112	80	275	278	111	131	368	166	316	349	206	55	78	177	70	5	-	7	3	105
Gas & Diesel Oil	1,475	927	1,003	1,784	3,181	4,348	5,022	4,431	2,911	2,398	2,668	1,981	1,345	1,910	1,424	268	254	368	631	2,314
Fuel Oil	1,867	1,911	5,020	7,975	11,425	14,594	10,152	8,962	7,180	7,855	7,531	6,483	10,517	8,194	7,046	6,643	4,739	3,311	2,803	629
Naphtha	-	-	-	-	2,654	2,187	2,841	4,307	4,545	4,745	4,449	2,653	2,361	3,869	3,574	1,378	2,039	420	401	14
LPG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	736	2,526	3,287	2,554	2,983	1,348
LNG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	1,363	1,299	1,055	1,506	1,259
OTHERS	5,519	7,501	7,518	7,259	4,658	4,353	6,701	7,077	5,976	6,156	7,445	6,941	5,030	4,640	3,505	334	522	443	861	416
TOTAL OIL	28,474	36,566	63,139	81,233	86,628	81,792	92,180	75,794	57,080	58,377	65,796	70,535	71,283	60,502	50,120	32,360	25,836	22,064	28,091	18,166
OTHER GOODS:																				
Ores & Metals	11,989	10,377	11,383	9,144	12,216	11,272	10,130	9,250	10,900	12,759	10,303	7,946	7,467	8,649	9,931	14,015	15,374	17,171	16,659	13,404
Coal & Coke	2,676	3,370	3,996	4,251	7,315	8,172	6,584	11,597	12,785	12,034	12,018	11,542	9,949	10,718	13,221	24,990	20,089	22,102	21,180	23,967
Chemicals	691	494	553	1,747	1,696	1,330	1,636	1,679	2,704	3,515	3,887	2,626	3,545	4,825	4,866	5,092	4,495	4,378	5,019	4,068
Starch & Farinas	2,546	3,572	4,742	2,941	5,068	5,475	3,337	4,219	5,858	7,594	6,386	5,126	4,817	5,169	4,504	2,338	2,758	2,861	1,015	1,982
Veg. Oils	1,195	1,131	1,343	1,514	1,193	1,488	1,689	2,601	2,788	3,328	3,818	3,074	3,079	2,841	3,426	3,445	3,637	4,288	4,322	4,238
Molasses	726	902	1,153	1,596	1,732	1,685	1,692	1,331	1,530	2,053	2,140	1,821	2,193	1,950	2,075	2,152	2,384	2,193	1,713	1,628
Machinery & Parts	1,489	1,596	1,426	1,540	1,604	1,588	1,755	1,814	2,043	2,484	2,122	2,496	2,397	2,213	1,703	1,727	1,884	2,453	2,839	2,886
Cereals	4,745	3,350	4,563	3,331	3,280	3,509	3,881	3,181	2,247	2,076	1,374	1,484	1,706	2,106	1,578	684	1,876	2,549	1,647	2,122
Fertilizers	1,840	2,011	1,911	2,223	2,542	2,959	3,245	3,578	3,750	3,816	1,860	1,552	1,471	1,351	1,457	1,175	1,659	2,155	1,719	1,427
Fab. Metals	2,513	1,817	2,804	1,922	2,063	2,069	2,046	1,840	1,498	1,226	1,359	837	764	1,027	1,190	3,009	1,223	1,730	5,321	3,621
OTHERS	27,663	28,710	27,792	29,560	28,900	30,562	36,873	36,067	37,218	41,086	43,982	44,181	43,851	47,676	48,801	53,037	54,877	60,504	70,843	76,073
TOTAL OTHER	58,073	57,330	61,666	59,769	67,609	70,109	72,868	77,157	83,321	91,971	89,249	82,685	81,239	88,525	92,752	111,664	110,256	122,384	132,277	135,416
OVER TOTAL	86,547	93,896	124,805	141,002	154,237	151,901	165,048	152,951	140,401	150,348	155,045	153,220	152,522	149,027	142,872	144,024	136,092	144,448	160,368	153,582

Source) SCA Yearly Report

Table 3.1.3 Southbound Cargo Ton by Cargo Type (1980-99)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
OIL & PRODUCTS:																				
CRUDE OIL	2,541	4,269	6,353	2,831	2,022	4,125	3,169	2,863	2,762	2,839	3,290	3,960	1,609	896	720	1,124	266	452	1	343
PRODUCTS:																				
Motor Spirit	737	1,237	1,020	1,156	841	565	1,085	1,248	1,496	1,472	689	301	530	1,203	923	744	413	1,615	386	190
Kerosene	1,772	2,288	2,443	3,313	2,914	2,932	3,111	1,338	1,582	1,728	1,403	722	266	306	335	656	648	164	-	-
Gas & Diesel Oil	6,455	8,251	7,373	5,323	3,031	1,938	2,225	3,541	6,628	4,554	4,700	4,838	6,165	9,806	5,578	4,735	5,540	3,320	55	402
Fuel Oil	854	684	1,052	1,874	582	1,081	980	702	907	398	1,409	1,994	1,275	2,249	577	337	703	606	820	1,111
Naphtha	-	-	-	-	-	161	489	232	169	167	177	202	114	36	64	50	-	1,647	1,342	1,564
LPG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	106	888	583	963	664	1,313
LNG	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	49	-	-	-
OTHERS	1,635	1,482	2,071	2,513	1,666	1,460	1,732	2,322	2,306	1,860	2,176	2,325	2,028	1,044	985	1,230	1,013	888	355	436
TOTAL OIL	13,994	18,211	20,312	17,010	11,056	12,262	12,791	12,246	15,850	13,909	13,844	14,342	11,987	15,540	9,288	9,835	9,215	9,655	3,623	5,359
OTHER GOODS:																				
Fertilizers	11,204	11,013	11,575	11,547	14,386	12,847	9,477	12,119	15,149	15,767	14,716	15,239	17,835	12,039	13,769	20,199	17,174	17,336	12,243	17,493
Fab. Metals	5,973	7,324	6,059	10,413	8,540	9,800	9,068	10,347	12,499	11,180	13,134	13,111	17,244	39,408	32,094	23,817	27,647	26,306	11,828	21,847
Cereals	6,066	8,825	9,091	11,383	9,702	3,610	8,238	10,824	13,837	13,578	9,879	12,929	11,949	6,868	11,213	13,632	9,433	11,274	14,110	20,131
Cement	11,797	12,569	12,107	13,180	11,182	5,545	4,072	2,550	1,484	1,336	2,828	1,726	2,670	3,838	4,200	2,923	2,565	1,183	535	92
Chemicals	2,351	2,805	2,646	3,352	3,364	3,345	3,590	3,974	4,937	3,918	4,578	4,726	5,267	4,992	6,362	5,908	5,467	6,108	5,476	6,629
Food Stuffs	1,883	2,017	3,095	3,246	3,533	3,610	3,630	4,219	4,287	3,889	3,427	1,687	1,472	2,643	3,298	2,393	1,195	1,604	1,265	1,019
Ores & Materials	571	735	1,068	788	827	1,240	609	1,200	957	470	684	986	913	1,832	1,708	2,297	2,756	4,722	1,852	1,956
Machinery & Parts	1,155	1,156	1,220	1,354	877	942	861	924	943	847	966	937	993	1,266	1,208	1,336	1,415	1,379	942	1,056
Coal & Coke	194	333	446	399	307	264	490	335	738	948	652	654	347	550	77	211	108	45	116	276
OTHERS	34,541	37,544	38,969	43,031	45,717	52,230	44,578	45,345	48,412	49,629	52,128	52,985	51,828	58,911	63,866	66,549	68,699	71,844	66,117	77,230
TOTAL OTHER	75,735	84,321	86,276	98,693	98,435	93,433	84,613	91,837	103,243	101,562	102,992	104,980	110,518	132,347	137,795	139,265	136,459	141,801	114,484	147,729
OVER TOTAL	89,729	102,532	106,588	115,703	109,491	105,695	97,404	104,083	119,093	115,471	116,836	119,322	122,505	147,887	147,083	149,100	145,674	151,456	118,107	153,088

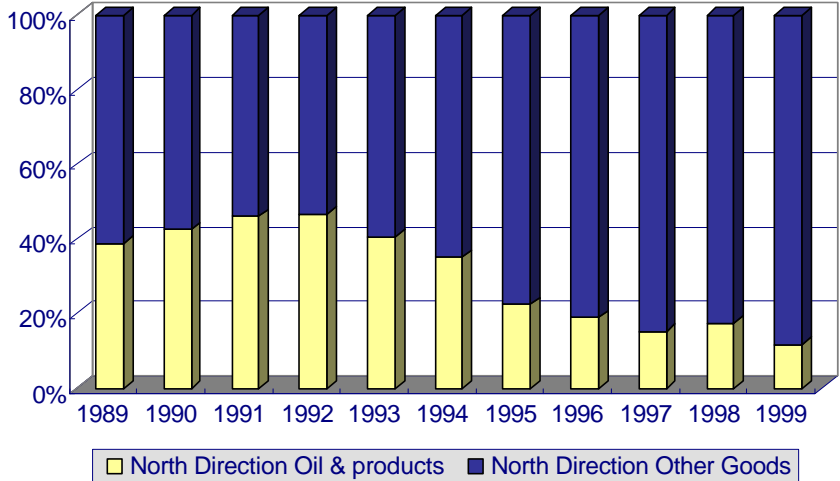
Source) SCA Yearly Report

3.2 Time Series of Goods Traffic

3.2.1 Northbound traffic

(1) Oil & Products

The share of Oil & Products in the northbound traffic is decreasing as of Figure 3.2.1

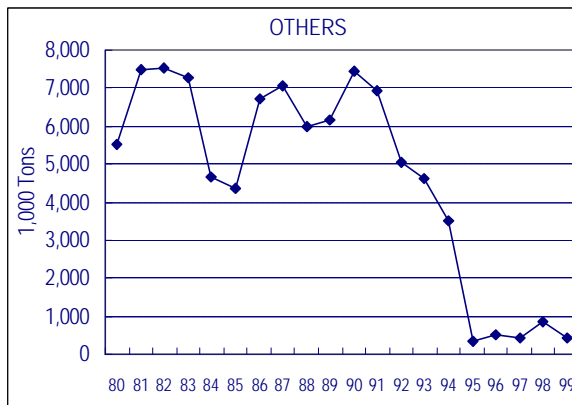
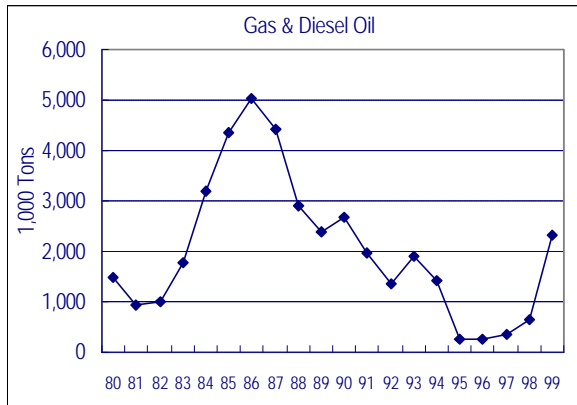
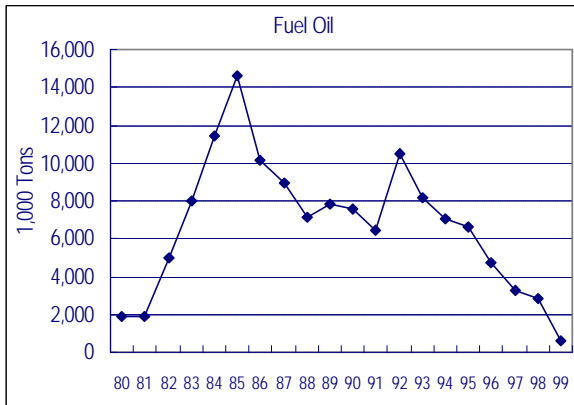
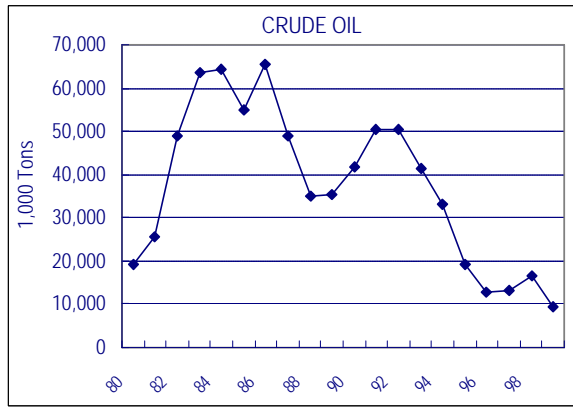


Source) SCA Yearly Report

Figure 3.2.1 The Share of Oil & Products in Northbound Goods Traffic 1989-1999

Major commodity of the northbound “Oil & Products” is Crude Oil. Crude Oil has decreased over the last 5 years. The Cape of Good Hope route and SUMED pipeline will be competitors. Its volume in 1999 is only 1/6 of the peak volume in mid 1980s.

The volumes of other commodities have been relatively small, and they have also decreased. (Figure 3.2.2)

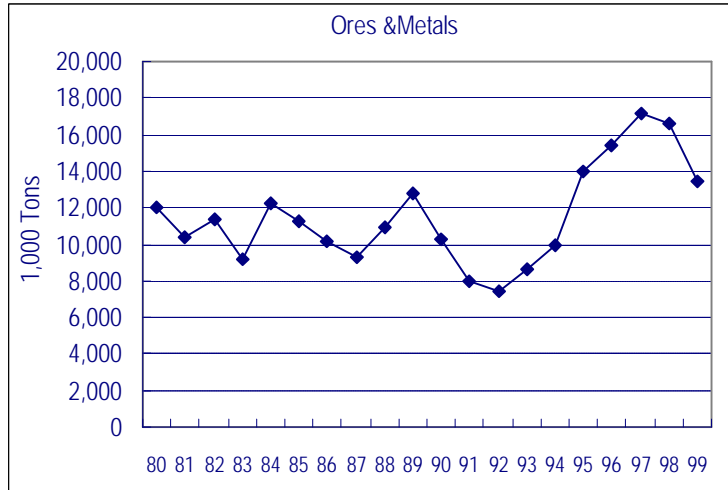


Source) SCA Yearly Report

Figure 3.2.2 Oil & Products 1980-1999

(2) Ore & Metals

“Ore & Metals” is almost stable in 1980s and increased in mid 1990s. The volume of this cargo is 13,404 thousand tons in 1999.

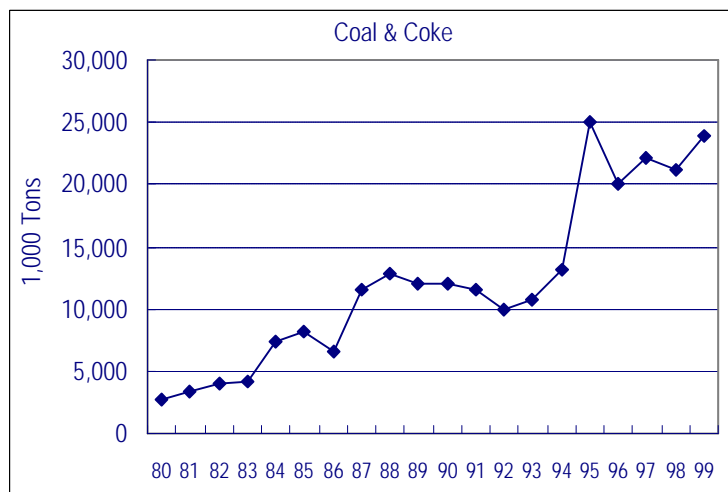


Source) SCA Yearly Report

Figure 3.2.3 Ore & Metals 1980-1999

(3) Coal & Coke

“Coal & Coke” increased in 1980s. It has become a largest cargo except “Others”. The volume of this cargo is 23,967 thousand tons in 1999.

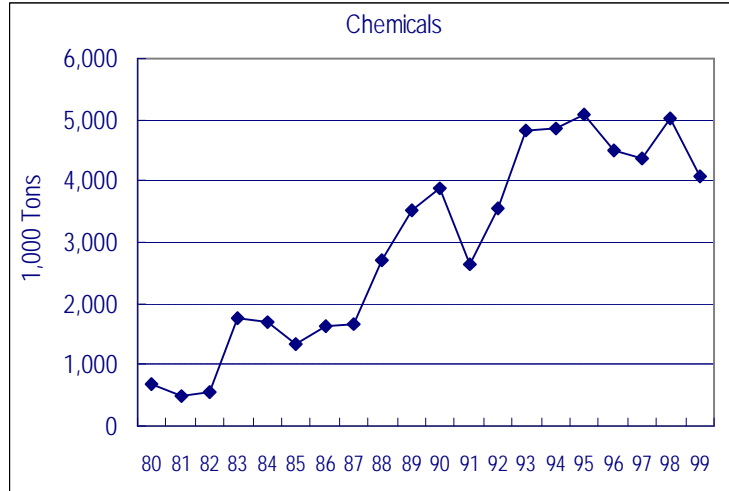


Source) SCA Yearly Report

Figure 3.2.4 Coal & Coke 1980-1999

(4) Chemicals

“Chemicals” was small in early 1980s, but has increased to 4,000 to 5,000 thousand tons in 1990s.

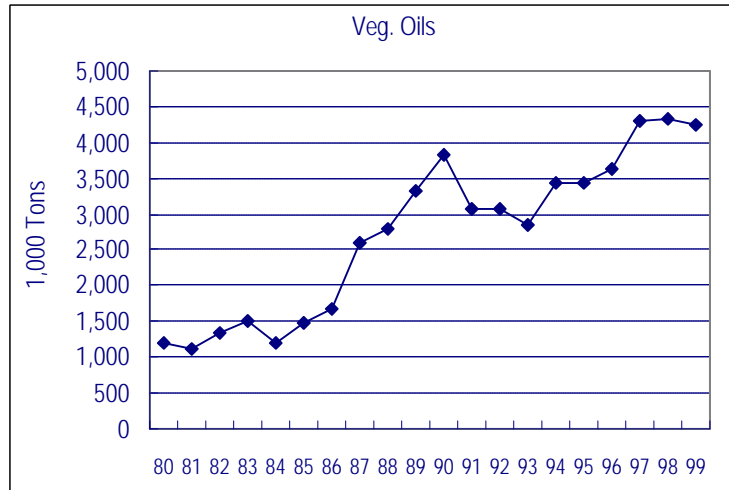


Source) SCA Yearly Report

Figure 3.2.5 Chemicals 1980-1999

(5) Veg. Oils

“Veg. Oils” is increasing but is still only less than 4,500 thousand tons in 1999.

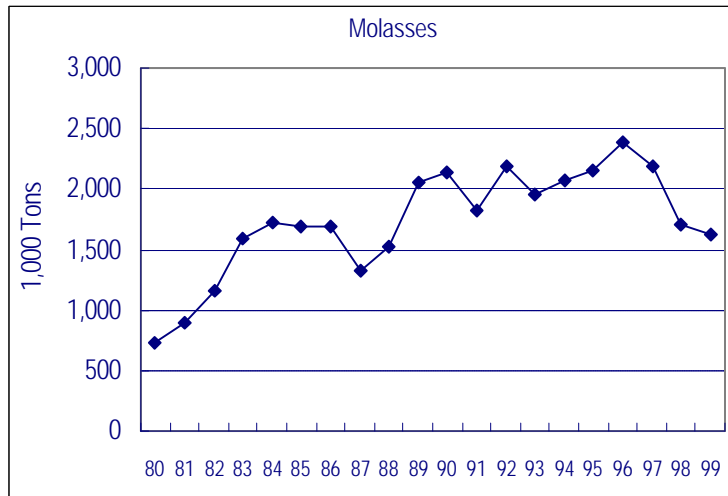


Source) SCA Yearly Report

Figure 3.2.6 Veg.Oils 1980-1999

(6) Molasses

“Molasses” was increasing but remains in low volume.

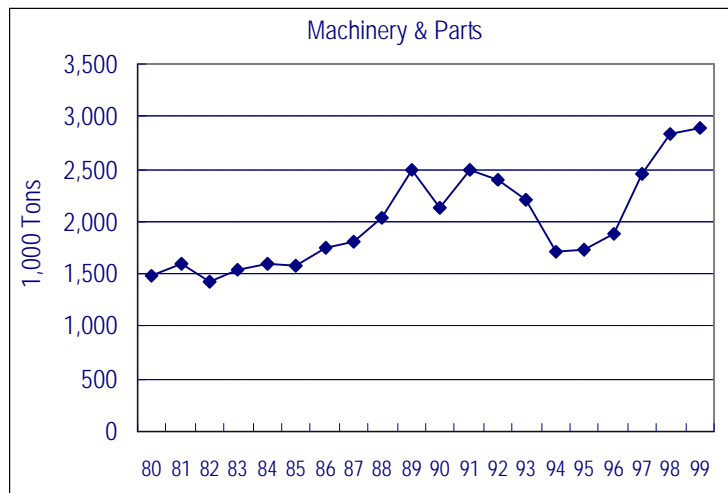


Source) SCA Yearly Report

Figure 3.2.7 Molasses 1980-1999

(7) Machinery & Parts

“Machinery & Parts” has a trend of increasing, but the volume remains very small.

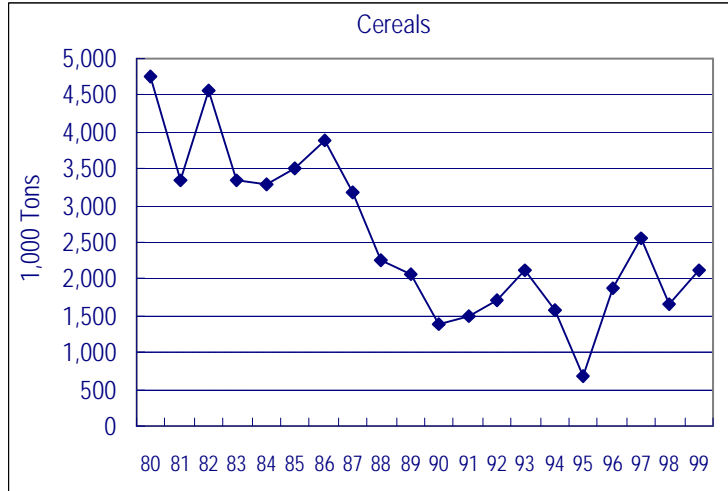


Source) SCA Yearly Report

Figure 3.2.8 Machinery & Parts 1980-1999

(8) Cereals

“Cereals” was 4,745 thousand tons in 1980 and has decreased. The volume is about only 2,000 thousand tons in recent years.

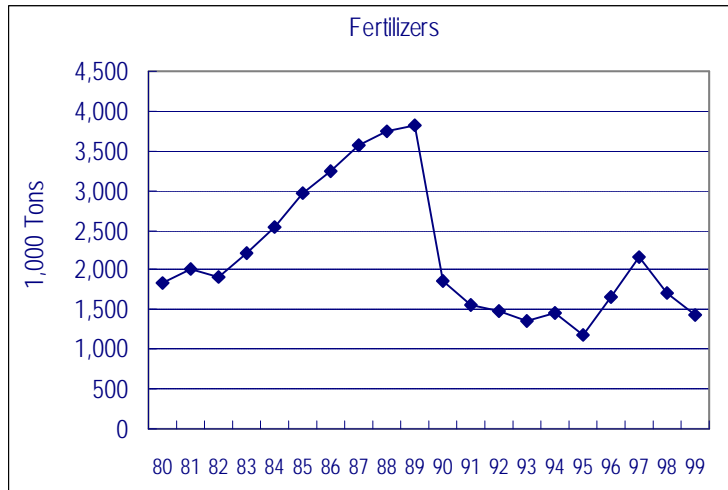


Source) SCA Yearly Report

Figure 3.2.9 Cereals 1980-1999

(9) Fertilizers

“Fertilizers” has been small volume.



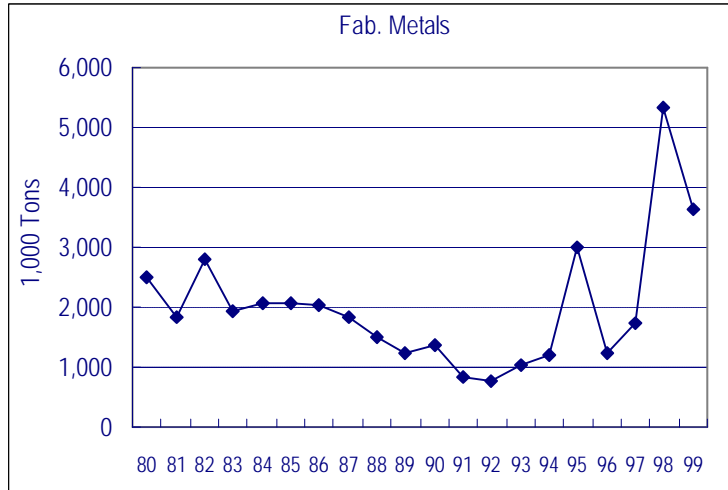
Source) SCA Yearly Report

Figure 3.2.10 Fertilizers 1980-1999

(10) Fabricated Metals

“Fabricated Metals” was relatively stable in 1980s.

The volume fluctuated in 1990s, but it is only about 4,000 thousand tons.



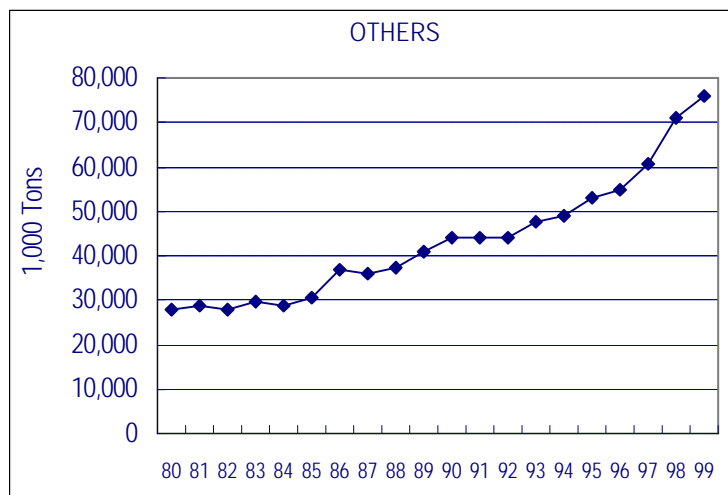
Source) SCA Yearly Report

Figure 3.2.11 Fabricated Metal 1980-1999

(11) Others

“Others” is the largest category and the volume is still increasing.

This category includes “General Cargo” and “Containerized Cargo”



Source) SCA Yearly Report

Figure 3.2.12 Others 1980-1999

3.2.2 Southbound traffic

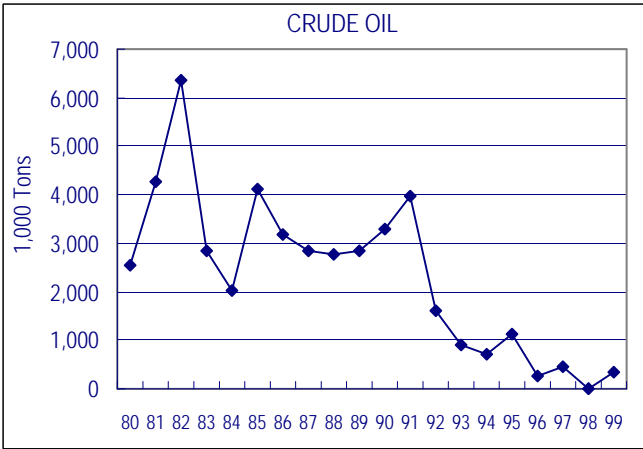
(1) Oil & Products

Oil & Products is not a major cargo for the southbound traffic.

Major commodity of “Oil & Products” in the Southbound traffic was “Gas & Diesel Oil” until 1997, but naphtha and LPG has become larger in recent years.

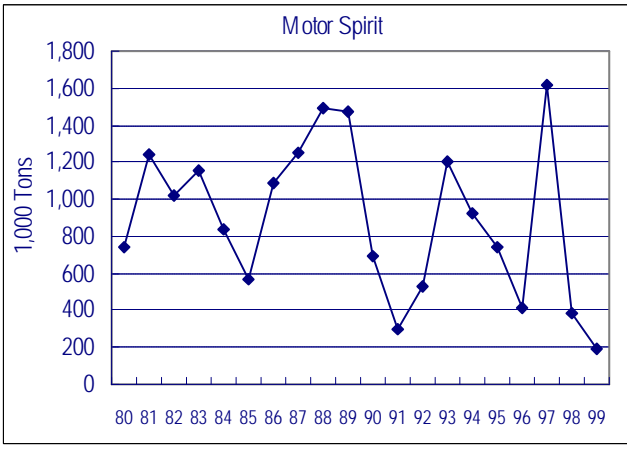
“Crude Oil” transits the Canal in a southbound direction though the most of oilfield is located to the south of the Canal. This motion from the north to the south will be short-term adjustment between the demand and the supply.

The volume has declined to very small and can be negligible in recent years.



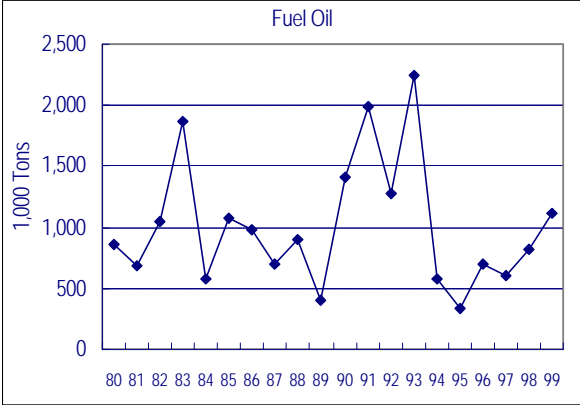
Source) SCA Yearly Report
 Figure 3.2.13 Crude Oil 1980-1999

For “Motor Spirit”, the volume indicates a strong cyclical pattern that may be linked to production issues in the main consuming countries in the south of Egypt. But the volume is small and can be negligible.



Source) SCA Yearly Report
 Figure 3.2.14 Motor Split 1980-1999

“Fuel Oil” reached a peak in years 1993, due to high prices of oil, the same behavior noticeable after 1997 when the oil prices began to improve. Both of “Fuel Oil” and “Gas & Diesel Oil” are small volume and can be negligible in recent years.



Source) SCA Yearly Report

Figure 3.2.15 Fuel Oil 1980-1999

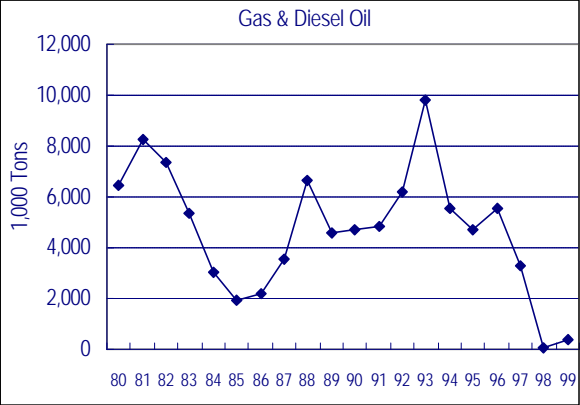
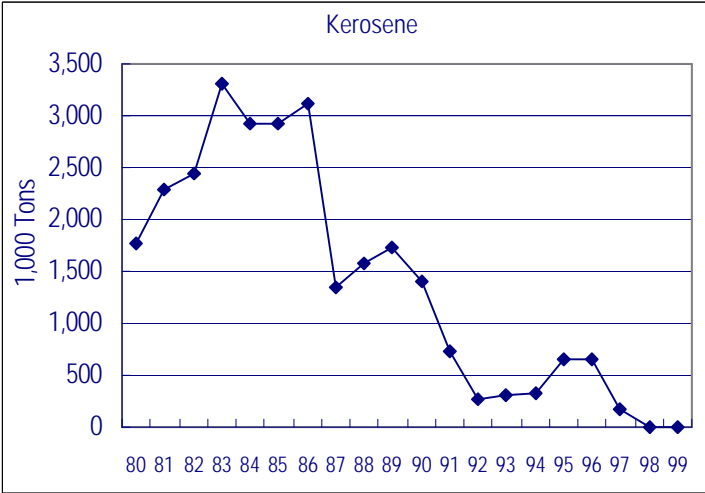


Figure 3.2.16 Gas & Diesel Oil 1980-1999

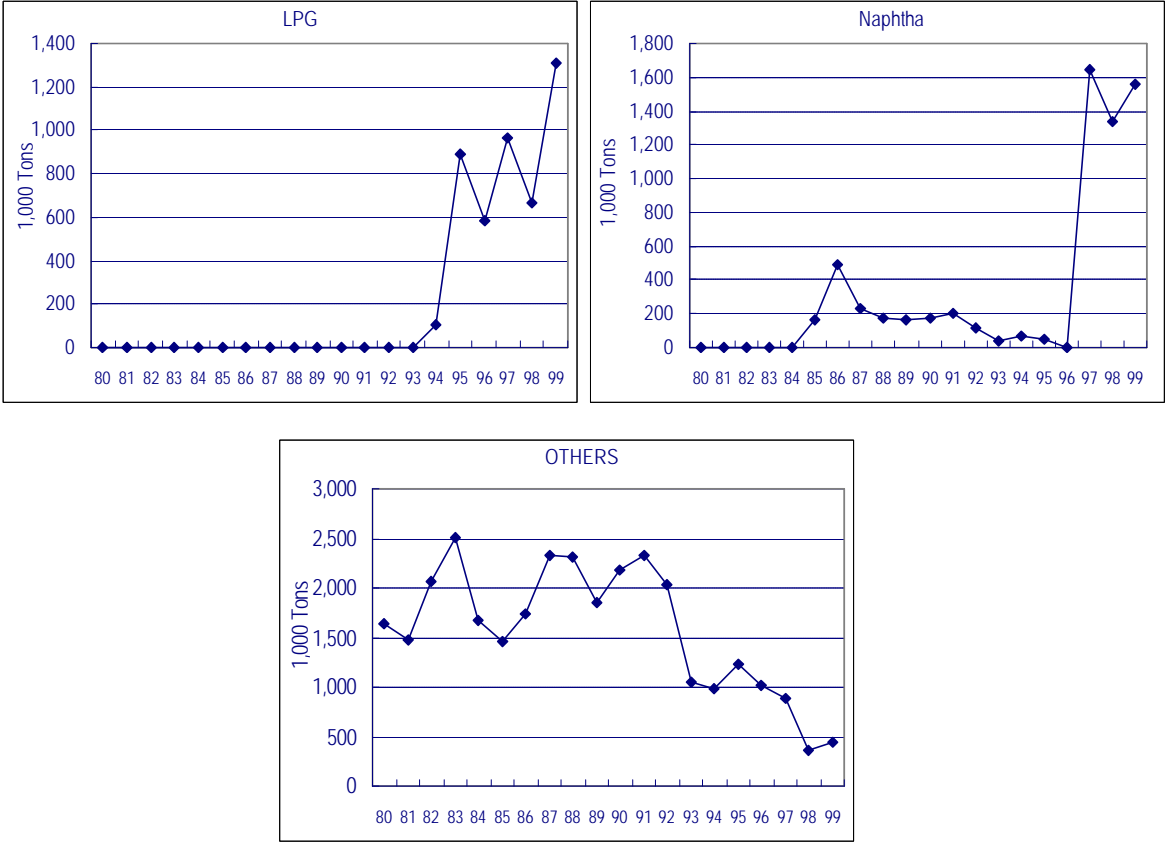
Kerosene has shown a different behavior than “Fuel” and “Diesel”. It has been decreasing and can be negligible today.



Source) SCA Yearly Report

Figure 3.2.17 Kerosene 1980-1999

LPG and naphtha shows a similar development during 1996-99, both products have increased their volume, whereas LNG shipments appear to have made temporary use of the Canal in 1995-96. But anyway, the volumes remain in a small level. “Other” oil products has a constantly decrease and can be negligible.

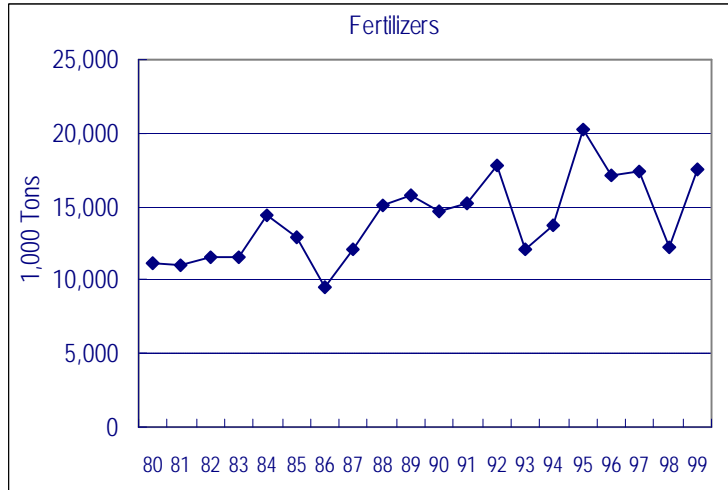


Source) SCA Yearly Report

Figure 3.2.18 LPG/LNG and Other Oil Products 1980-1999

(2) Fertilizers

“Fertilizers” is almost stable in 1980-1999 and has remained as main cargo. The volume of this cargo is 17,493 thousand tons in 1999.

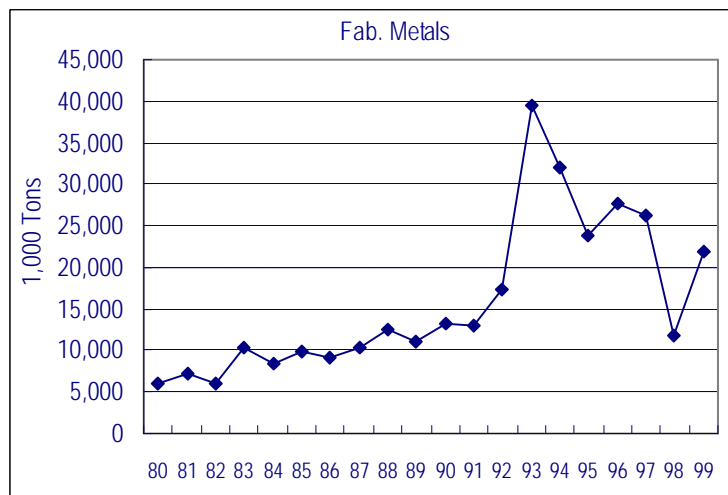


Source) SCA Yearly Report

Figure 3.2.19 Fertilizers 1980-1999

(3) Fabricated Metals

“Fabricated Metals” increased in 1980’s. It has become a largest cargo except “Others”. The volume of this cargo is 21,847 thousand tons in 1999.

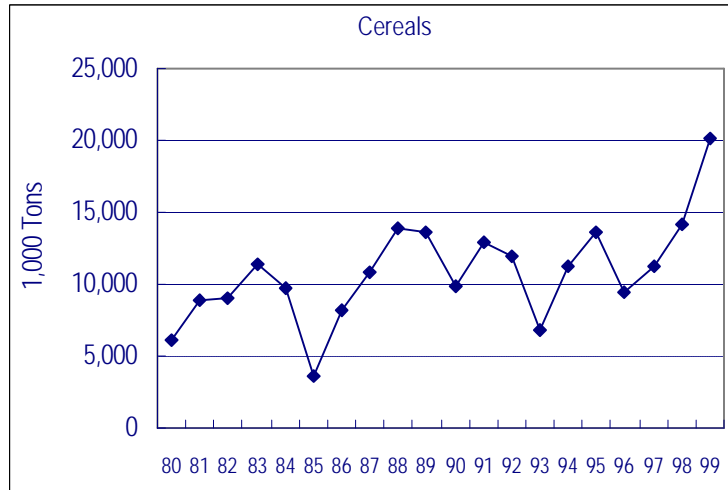


Source) SCA Yearly Report

Figure 3.2.20 Fabricated Metals 1980-1999

(4) Cereals

“Cereals” was less than 10,000 thousand tons in early 1980s, but has increased to be one of main cargos. The volume of this cargo is 20,131 thousand tons in 1999.

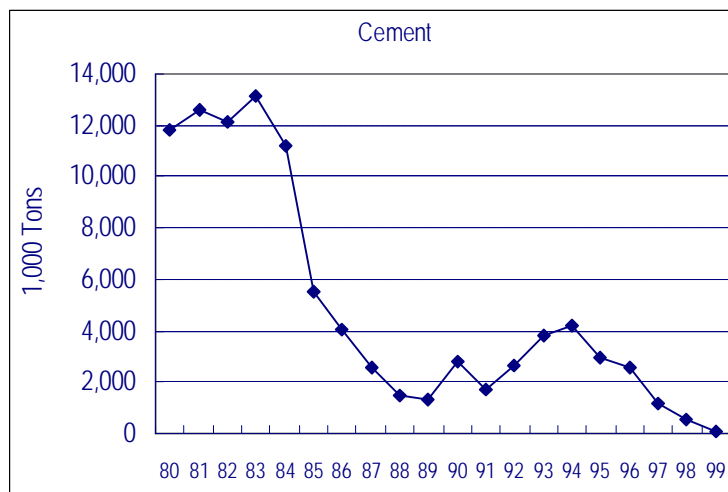


Source) SCA Yearly Report

Figure 3.2.21 Cereals 1980-1999

(5) Cement

“Cement” was 11,797 thousand tons in 1980 and has been decreasing. The volume can be negligible in recent years.

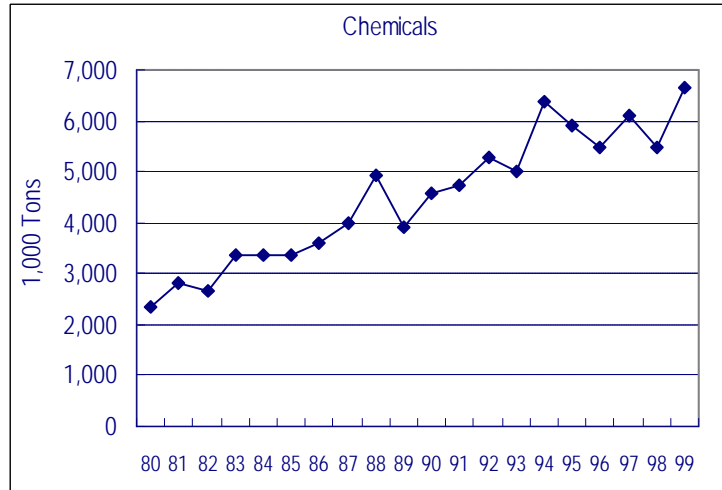


Source) SCA Yearly Report

Figure 3.2.22 Cement 1980-1999

(6) Chemicals

“Chemicals” has been increasing for 20 years. The volume is still 6,629 thousand tons in 1999, but has a trend of possibility to become one of main cargos.

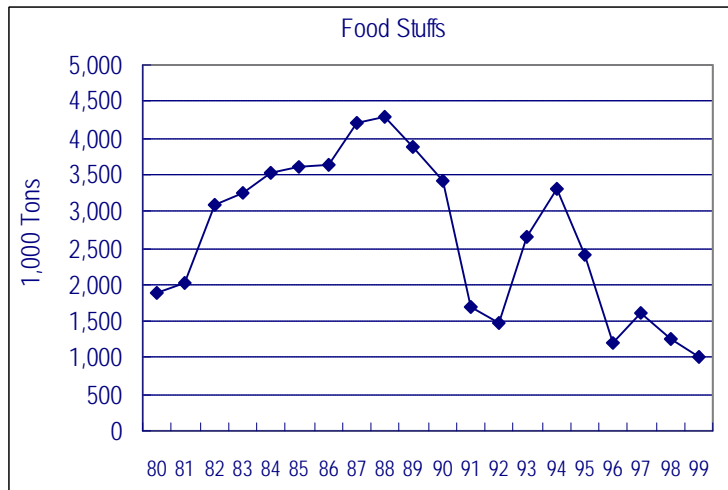


Source) SCA Yearly Report

Figure 3.2.23 Chemicals 1980-1999

(7) Food Stuffs

“Food Stuffs” has been remaining in a small volume and can be negligible.

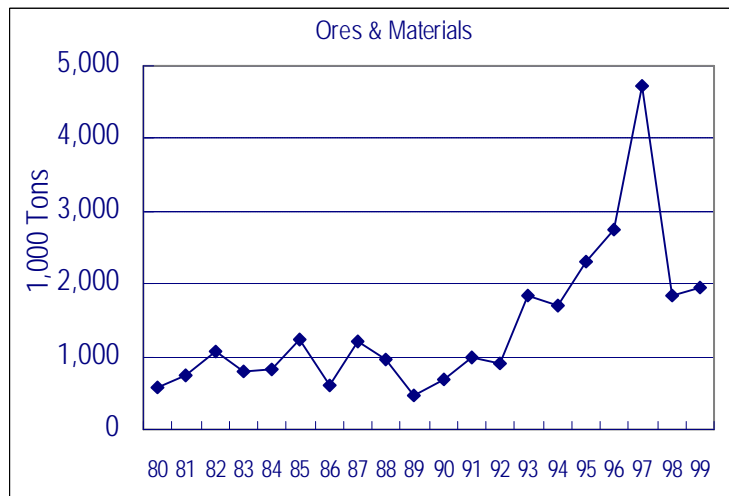


Source) SCA Yearly Report

Figure 3.2.24 Food Stuffs 1980-1999

(8) Ores & Materials

“Ores & Materials” shows fluctuation in late 1990s, but it remains in a small volume.

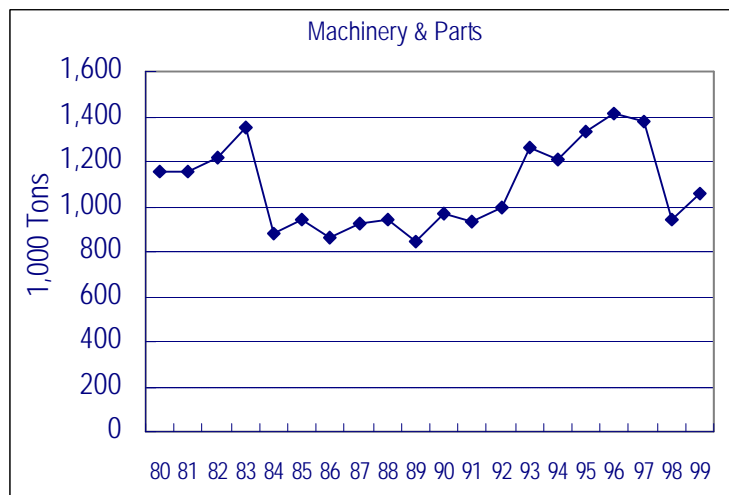


Source) SCA Yearly Report

Figure 3.2.25 Ores & Materials 1980-1999

(9) Machinery & Parts

“Machinery & Parts” has been almost constant and remains in a small volume.

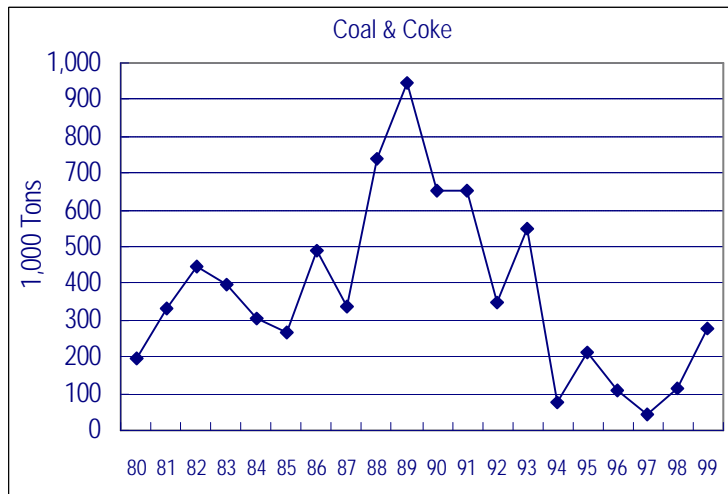


Source) SCA Yearly Report

Figure 3.2.26 Machinery & Parts 1980-1999

(10) Coal & Coke

“Coal & Coke” has been a very small volume and can be negligible.



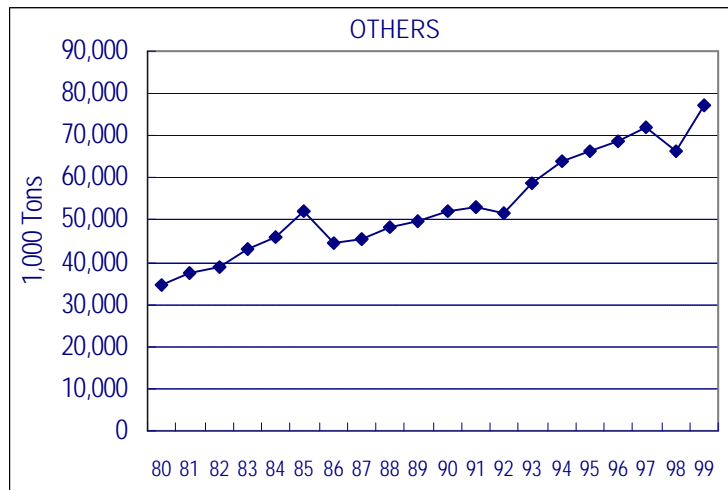
Source) SCA Yearly Report

Figure 3.2.27 Coal & Coke 1980-1999

(11) Others

“Others” has been increasing for 20 years.

This category is the largest and includes “General Cargo” and “Containerized Cargo”.



Source) SCA Yearly Report

Figure 3.2.28 Others 1980-1999

3.3 Origins and Destination of the Suez Canal Cargo

3.3.1 Loading and Unloading Regions

Suez Canal Yearly Reports list importing and exporting regions of cargo. They are loading and unloading regions in the strict sense.

At first, we will check the important regions for the Suez Canal cargo by viewing cargo volumes to/from the regions.

Table 3.3.1 is a time series of loading and unloading regions.

In the north regions from the Canal, North, West Europe & UK has had a largest share, about 30-40%. The second largest region is North Mediterranean whose share is about 20%. As a whole, the shares of each region are stable for these 10 years.

In the south regions from the Canal, the largest one has been South East Asia & Far East. Its share is about 40-50%. The second largest area has been Red Sea. Red Sea region includes Saudi Arabia and the Red Sea side of Egypt in the SCA statistics.

Table 3.3.2 and Table 3.3.3 are regions of northbound cargo and southbound cargo, respectively.

South East & Far East Asia is the largest origin of the northbound cargo as well as the largest destination of the southbound cargo. Red Sea, which is the second as a origin of the northbound, is also the second destination of the southbound.

Table 3.3.1 Loading and Unloading Regions

Region	1990		1991		1992		1993		1994		1995		1996		1997		1998		1999		Average	
	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%	Cargo Ton (1,000)	%
East & Mediterranean	22,615	8%	30,980	11%	34,540	13%	40,693	14%	42,503	15%	47,404	16%	41,489	15%	43,898	15%	36,567	13%	45,934	14.98%	38,662	13.51%
North Mediterranean	59,808	22%	57,948	21%	57,664	21%	52,754	18%	47,540	16%	57,378	20%	56,064	20%	66,190	22%	64,902	23%	71,798	23.41%	59,205	20.68%
West & S.W. Mediterranean	21,227	8%	20,338	7%	21,720	8%	30,900	10%	26,899	9%	20,252	7%	21,122	7%	29,901	10%	28,255	10%	29,976	9.77%	25,059	8.75%
Black Sea	29,511	11%	22,767	8%	22,455	8%	26,634	9%	26,235	9%	28,842	10%	29,912	11%	27,769	9%	16,727	6%	28,247	9.21%	25,910	9.05%
North, West Europe & U.K.	106,357	39%	112,979	41%	114,200	42%	116,383	39%	123,781	43%	110,683	38%	105,145	37%	97,653	33%	88,819	32%	103,626	33.79%	107,963	37.72%
Baltic Sea	6,652	2%	4,420	2%	4,231	2%	7,746	3%	5,682	2%	7,702	3%	9,060	3%	9,177	3%	5,052	2%	7,972	2.60%	6,769	2.36%
America	21,393	8%	19,413	7%	17,165	6%	17,719	6%	14,726	5%	17,153	6%	16,007	6%	17,362	6%	35,155	13%	14,829	4.84%	19,092	6.67%
Others	4,318	2%	3,697	1%	3,052	1%	4,085	1%	2,589	1%	3,710	1%	3,216	1%	3,954	1%	2,998	1%	4,288	1.40%	3,591	1.25%
TOTAL	271,881		272,542		275,027		296,914		289,955		293,124		282,015		295,904		278,475		306,670		286,251	100%
Red Sea	64,479	24%	71,566	26%	64,066	23%	62,714	21%	63,908	22%	74,436	25%	66,237	23%	63,862	22%	64,889	23%	67,667	22.07%	66,382	23.19%
East African & Aden	8,895	3%	3,621	1%	3,236	1%	3,700	1%	4,559	2%	6,452	2%	5,611	2%	6,465	2%	4,389	2%	6,363	2.07%	5,329	1.86%
Arabian Gulf	40,351	15%	41,114	15%	46,928	17%	41,433	14%	35,139	12%	25,518	9%	46,661	17%	30,283	10%	25,730	9%	36,150	11.79%	36,931	12.90%
South Asia	34,403	13%	28,994	11%	26,102	9%	22,858	8%	27,171	9%	41,643	14%	25,996	9%	46,760	16%	39,486	14%	44,778	14.60%	33,819	11.81%
South East Asia & Far East	104,453	38%	118,284	43%	127,906	47%	152,829	51%	146,795	51%	121,966	42%	116,127	41%	124,406	42%	101,150	36%	128,623	41.94%	124,254	43.41%
Australia	17,955	7%	8,928	3%	6,512	2%	13,315	4%	12,383	4%	23,109	8%	21,383	8%	24,128	8%	42,831	15%	23,089	7.53%	19,363	6.76%
Others	1,345	0%	35	0%	277	0%	65	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0.00%	172	0.06%
TOTAL	271,881		272,542		275,027		296,914		289,955		293,124		282,015		295,904		278,475		306,670		286,251	100%

Source) SCA Yearly Report

Table 3.3.2 Northbound Cargo ton by Region (1980-1999)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
ORIGINS:																				
Red Sea	12,447	17,218	27,304	40,507	39,171	40,726	42,699	39,041	34,273	38,677	41,230	46,960	39,549	40,290	34,996	32,702	27,433	25,859	34,355	25,074
East Africa, Aden	4,509	5,052	5,644	4,983	9,341	5,842	4,003	5,509	6,294	5,569	6,294	2,012	2,012	1,473	3,062	5,482	4,528	5,329	3,945	4,858
Arabian Gulf	17,320	22,511	36,692	44,423	44,295	41,214	53,406	43,405	29,697	27,370	30,369	30,787	38,006	28,532	25,214	22,209	13,235	13,934	16,333	17,518
South Asia	12,951	11,560	13,937	11,735	16,459	13,756	14,276	13,058	12,428	17,213	14,395	10,110	8,370	9,850	12,610	15,185	24,437	25,985	23,914	19,597
South East Asia & Far East	30,508	29,588	32,628	30,656	33,944	38,311	41,351	40,365	43,310	46,381	46,956	54,573	58,100	59,026	54,965	45,890	45,807	50,570	61,146	64,863
Australia	8,753	7,907	8,568	8,485	10,794	11,754	9,843	13,015	15,134	14,378	15,348	8,369	6,264	9,823	12,025	22,556	20,652	22,771	20,653	21,672
Others	59	60	32	213	227	298	51	64	50	35	1,178	0	221	33	0	0	0	0	0	0
TOTAL	86,547	93,896	124,805	141,002	154,237	151,901	165,048	152,951	140,401	150,348	155,045	153,220	152,522	149,027	142,872	144,024	136,092	144,448	160,346	153,582
DESTINATIONS:																				
East & Mediterranean	7,192	7,384	14,812	19,651	22,455	16,781	14,773	17,480	17,282	12,749	16,257	22,479	23,766	28,487	28,528	29,811	26,708	27,247	27,214	30,509
North Mediterranean	22,064	27,351	39,188	48,615	42,171	48,881	52,148	43,355	39,697	43,475	43,313	42,725	43,930	36,811	31,885	35,232	30,059	36,400	41,343	40,166
West & S.W. Mediterranean	3,147	4,650	6,608	11,030	14,959	12,769	13,489	12,191	9,887	10,878	12,805	11,097	12,659	12,820	15,373	11,207	11,909	15,589	19,702	18,352
Black Sea	19,680	17,522	19,064	13,260	18,566	17,531	16,776	15,407	12,171	14,114	12,365	7,077	5,657	3,993	3,282	6,107	8,583	7,111	4,970	5,091
North, West Europe, U.K.	28,022	30,523	36,633	37,748	39,708	42,971	50,992	46,377	47,591	55,730	57,588	59,142	56,780	56,758	54,975	53,333	49,915	49,974	59,155	52,804
Baltic Sea	3,382	2,153	2,198	2,268	3,661	2,874	3,293	3,542	3,015	3,530	2,565	1,684	1,428	1,141	1,327	775	932	584	699	699
America	1,892	3,020	5,167	6,647	11,592	8,907	13,023	13,769	9,960	9,353	8,729	7,931	7,566	8,328	6,583	6,958	7,358	7,071	6,667	5,083
Others	1,168	1,293	1,135	1,783	1,125	1,187	554	830	798	519	1,423	1,085	736	689	919	601	628	472	596	878
TOTAL	86,547	93,896	124,805	141,002	154,237	151,901	165,048	152,951	140,401	150,348	155,045	153,220	152,522	149,027	142,872	144,024	136,092	144,448	160,346	153,582

Source) SCA Yearly Report

Table 3.3.3 Southbound Cargo ton by Region (1980-1999)

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
ORIGINS:																				
East, S.E. Mediterranean	1,636	3,314	6,044	4,359	3,650	4,595	4,646	4,992	6,911	4,945	6,358	8,501	10,774	12,207	13,975	17,594	14,754	16,651	12,348	15,425
North Mediterranean	21,201	22,850	23,954	23,650	22,153	21,095	19,631	17,897	15,895	16,269	16,495	15,223	13,734	18,215	15,656	22,146	26,006	29,789	28,894	31,631
West & S.W. Mediterranean	8,509	11,582	11,025	14,021	11,002	9,388	7,763	7,375	10,972	9,277	8,422	9,241	9,061	10,447	11,526	9,045	9,212	14,312	10,961	11,624
Black Sea	12,803	13,508	15,166	15,304	15,259	13,988	16,274	17,412	20,657	19,082	17,146	15,690	16,798	20,369	22,953	22,734	21,324	20,658	13,210	23,156
North, West Europe, U.K.	29,863	34,632	34,260	39,927	41,288	38,869	34,537	40,048	45,765	46,068	48,769	53,837	57,420	67,681	68,805	57,350	54,970	47,679	38,313	50,822
Baltic Sea	2,249	1,882	1,615	2,679	2,692	3,319	3,356	3,335	3,226	3,463	4,087	2,736	2,803	6,606	4,356	6,928	8,128	8,593	4,761	7,273
America	11,232	12,700	12,167	12,959	10,353	11,616	8,929	10,502	12,670	14,527	12,664	11,482	9,599	10,837	8,143	10,195	8,689	10,291	6,981	9,747
Others	2,236	2,064	2,357	2,804	3,094	2,825	2,268	2,423	2,997	1,840	2,895	2,612	2,316	1,525	1,669	3,108	2,591	3,483	2,639	3,410
TOTAL	89,729	102,532	106,588	115,703	109,491	105,695	97,404	103,984	119,093	115,471	116,836	119,322	122,505	147,887	147,083	149,100	145,674	151,456	118,107	153,088
DESTINATIONS:																				
Red Sea	26,230	31,656	35,457	38,818	39,579	30,139	27,911	25,901	28,170	23,902	23,249	24,606	24,517	25,528	28,912	41,734	38,546	38,002	35,928	42,593
East Africa, Aden	5,308	4,876	5,406	5,050	4,420	4,691	4,508	5,032	4,514	4,144	3,326	1,200	1,224	1,396	1,497	969	1,084	1,136	841	1,505
Arabian Gulf	17,659	19,721	18,878	19,101	14,142	14,488	10,782	9,606	9,597	12,260	9,982	10,327	8,922	9,234	9,926	19,434	12,760	16,350	12,036	18,631
South Asia	15,747	20,530	18,663	17,217	17,582	20,243	17,165	16,608	20,091	18,405	20,008	18,884	17,732	14,693	14,561	10,333	22,224	20,775	18,636	25,180
South East Asia & Far East	23,731	23,747	26,478	32,995	31,495	34,166	35,464	45,394	55,165	54,533	57,497	63,711	69,806	96,750	91,832	76,077	70,308	73,835	49,439	63,760
Australia	900	1,786	1,437	1,574	1,864	1,806	1,385	1,414	1,403	2,097	2,607	559	248	254	355	553	752	1,358	1,227	1,419
Others	154	216	269	1,008	409	162	189	29	153	130	167	35	56	32	0	0	0	0	0	0
TOTAL	89,729	102,532	106,588	115,703	109,491	105,695	97,404	103,984	119,093	115,471	116,836	119,322	122,505	147,887	147,083	149,100	145,674	151,456	118,107	153,088

Source) SCA Yearly Report

Many regions are balanced similarly to the above regions. Most unbalanced region is Australia where 21,672 thousand tons are loaded to the north regions, but only 1,419 thousand tons are unloaded from the north in 1999. (Table 3.3.4)

Table 3.3.4 Loading and Unloading Cargo by Region in 1999

(1,000 tons)

North the Canal	As an Origin	As a Destination
North, West Europe & U.K.	50,822	52,804
North Mediterranean	31,631	40,166
Black Sea	23,156	5,091
East, S.E. Mediterranean	15,425	30,509
West& S.W. Mediterranean	11,624	18,352
America	9,747	5,083
Baltic Sea	7,273	699

South the Canal	As an Origin	As a Destination
South East & Far East Asia	64,863	63,760
Red Sea	25,074	42,593
Australia	21,672	1,419
South Asia	19,597	25,180
Arabian Gulf	17,518	18,631
East Africa, Aden	4,858	1,505

Source) SCA Yearly Report

3.3.2 O-D of the Suez Canal Cargo

The O-D tables of the Suez cargo are listed in Table 3.3.5 to Table 3.3.17. The sources of the categories were equal to those for the forecasting in ANNEX VI. The values in the tables are the average annual cargo volumes from 1997 to 1999. It should be noted that origins and destinations were based on the declarations by the captains of the vessels.

Table 3.3.7 Suez Canal Transiting Cargo (Oil Products, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania	
1 CS.America	-	-	-	-	-	-	-	216	-	-	-	-	216
2 N.America	-	-	-	-	-	-	-	784	580	673	-	58	2,096
3 NW.Europe	-	-	-	-	-	-	105	2,044	195	4,246	1,242	-	7,831
4 W.Med	-	-	-	-	-	-	361	3,679	1,841	3,174	180	-	9,235
5 N.Africa	-	-	-	-	-	-	-	1,280	705	5,410	5,120	-	12,515
6 E.Med	-	-	-	-	-	-	206	3,424	1,734	5,985	1,369	92	12,811
7 E.Africa	-	-	48	99	-	111	-	-	-	-	-	-	258
8 A.Gulf	2,369	7,394	19,141	13,905	2,176	4,441	-	-	-	-	-	-	49,427
9 S.Asia	22	208	242	182	79	130	-	-	-	-	-	-	863
10 SE.Asia	-	150	290	4,902	-	569	-	-	-	-	-	-	5,912
11 E.Asia	-	-	101	71	-	-	-	-	-	-	-	-	172
12 Oceania	-	92	5	-	55	154	-	-	-	-	-	-	306
Others	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	2,391	7,845	19,828	19,159	2,309	5,406	671	11,428	5,055	19,488	7,911	150	101,641

Table 3.3.8 Suez Canal Transiting Cargo (LPG/LNG, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania	
1 CS.America	-	-	-	-	-	-	-	50	-	-	-	-	50
2 N.America	-	-	-	-	-	-	-	120	161	21	97	-	400
3 NW.Europe	-	-	-	-	-	-	-	104	229	504	43	20	900
4 W.Med	-	-	-	-	-	-	11	389	281	167	13	-	860
5 N.Africa	-	-	-	-	-	-	-	450	267	1,153	484	-	2,355
6 E.Med	-	-	-	-	-	-	145	1,320	1,456	200	1,021	114	4,256
7 E.Africa	-	-	-	95	-	-	-	-	-	-	-	-	95
8 A.Gulf	2,137	1,168	1,717	15,191	615	10,553	-	-	-	-	-	-	31,381
9 S.Asia	-	-	-	98	-	-	-	-	-	-	-	-	98
10 SE.Asia	-	-	79	211	11	31	-	-	-	-	-	-	332
11 E.Asia	-	-	65	142	-	-	-	-	-	-	-	-	207
12 Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	2,137	1,168	1,861	15,738	625	10,585	156	2,433	2,394	2,046	1,658	134	40,934

Table 3.3.9 Suez Canal Transiting Cargo (Chemicals, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania	
1 CS.America	-	-	-	-	-	-	-	-	-	-	-	-	-
2 N.America	-	-	-	-	-	-	-	1,172	953	-	-	-	2,125
3 NW.Europe	-	-	-	-	-	-	116	3,497	2,732	5,212	1,018	-	12,575
4 W.Med	-	-	-	-	-	-	81	4,388	3,169	3,512	100	-	11,250
5 N.Africa	-	-	-	-	-	-	40	3,734	22,317	1,519	989	-	28,598
6 E.Med	-	-	-	-	-	-	30	1,480	2,158	1,210	982	-	5,860
7 E.Africa	-	-	153	311	-	91	-	-	-	-	-	-	555
8 A.Gulf	110	6,203	5,478	7,724	13,036	6,797	-	-	-	-	-	-	39,348
9 S.Asia	-	412	7,350	6,531	202	436	-	-	-	-	-	-	14,931
10 SE.Asia	-	1,124	21,970	9,755	1,458	5,773	-	-	-	-	-	-	40,080
11 E.Asia	-	-	84	79	-	58	-	-	-	-	-	-	221
12 Oceania	-	-	31	286	-	63	-	-	-	-	-	-	405
Others	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	110	7,771	35,322	24,400	14,720	13,219	266	14,272	31,329	11,453	3,088	-	155,949

Table 3.3.10 Suez Canal Transiting Cargo (Grain, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania	
1 CS.America	-	-	-	-	-	-	-	-	-	-	-	-	-
2 N.America	-	-	-	-	-	-	-	-	-	-	-	-	-
3 NW.Europe	-	-	-	-	-	-	191	33,675	3,067	631	3,626	-	41,190
4 W.Med	-	-	-	-	-	-	116	18,943	1,489	284	1,537	-	22,369
5 N.Africa	-	-	-	-	-	-	-	314	194	-	164	-	672
6 E.Med	-	-	-	-	-	-	672	18,393	8,045	1,592	12,767	-	41,468
7 E.Africa	-	-	-	-	-	-	-	-	-	-	-	-	347
8 A.Gulf	-	-	20	301	144	691	-	-	-	-	-	-	1,157
9 S.Asia	-	86	74	-	126	841	-	-	-	-	-	-	1,127
10 SE.Asia	-	8	313	261	636	1,577	-	-	-	-	-	-	2,794
11 E.Asia	-	-	395	-	142	414	-	-	-	-	-	-	950
12 Oceania	-	-	-	1,729	7,167	3,679	-	-	-	-	-	-	12,576
Others	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	94	801	2,291	8,562	7,201	979	97,860	15,549	3,565	18,572	-	155,494

Table 3.3.11 Suez Canal Transiting Cargo (Fabricated Metals, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
destination	CS.America	N.America	NW.Europe	W.Med	N.Africa	E.Med	E.Africa	A.Gulf	S.Asia	SE.Asia	E.Asia	Oceania	Others
1 CS.America	-	-	-	-	-	-	-	-	213	34	-	-	-
2 N.America	-	-	-	-	-	-	-	-	692	61	1,933	912	-
3 NW.Europe	-	-	-	-	-	-	-	-	6,672	1,592	12,893	4,004	6
4 W.Med	-	-	-	-	-	-	-	-	3,549	840	1,803	663	41
5 N.Africa	-	-	-	-	-	-	21	325	75	273	102	-	-
6 E.Med	-	-	-	-	-	-	762	29,423	4,116	68,240	25,673	6	-
7 E.Africa	-	-	38	94	213	149	-	-	-	-	-	-	494
8 A.Gulf	-	139	1,427	2,230	2,123	1,064	-	-	-	-	-	-	6,984
9 S.Asia	-	1,244	604	1,396	400	424	-	-	-	-	-	-	4,068
10 SE.Asia	-	260	2,355	2,557	604	1,306	-	-	-	-	-	-	7,083
11 E.Asia	-	-	4,065	3,125	1,182	1,175	-	-	-	-	-	-	9,547
12 Oceania	-	356	2,246	500	60	150	-	-	-	-	-	-	3,311
Others	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	-	1,999	10,736	9,902	4,582	4,268	773	40,874	6,720	85,142	31,354	54	1

Table 3.3.12 Suez Canal Transiting Cargo (Coal & Coke, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL
	1	2	3	4	5	6	7	8	9	10	11	12	
destination	CS.America	N.America	NW.Europe	W.Med	N.Africa	E.Med	E.Africa	A.Gulf	S.Asia	SE.Asia	E.Asia	Oceania	Others
1 CS.America	-	-	-	-	-	-	-	-	-	-	-	-	-
2 N.America	-	-	-	-	-	-	-	-	-	-	-	-	-
3 NW.Europe	-	-	-	-	-	-	-	-	632	-	-	-	632
4 W.Med	-	-	-	-	-	-	-	-	238	-	-	-	238
5 N.Africa	-	-	-	-	-	-	-	-	30	-	-	-	30
6 E.Med	-	-	-	-	-	-	-	-	97	136	-	-	233
7 E.Africa	-	-	-	649	-	31,745	-	-	99	-	-	79	178
8 A.Gulf	-	923	194	25	147	210	-	-	-	-	-	-	32,394
9 S.Asia	-	-	168	89	191	1,074	-	-	-	-	-	-	1,499
10 SE.Asia	-	186	11,997	14,237	1,005	22,384	-	-	-	-	-	-	1,523
11 E.Asia	-	234	20,193	7,783	445	8,234	-	-	-	-	-	-	49,808
12 Oceania	-	852	25,961	15,586	3,806	33,255	-	-	-	-	-	-	36,889
Others	-	-	-	-	-	-	-	-	-	-	-	-	79,460
TOTAL	-	2,194	58,512	38,369	5,595	96,901	-	1,096	136	-	79	-	202,883

Table 3.3.13 Suez Canal Transiting Cargo (Ores, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL	
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania		Others
1 CS.America	-	-	-	-	-	-	-	-	-	-	-	-	-	49
2 N.America	-	-	-	-	-	-	-	49	-	-	-	-	-	-
3 NW.Europe	-	-	-	-	-	-	-	24	-	520	3,568	1,212	-	5,324
4 W.Med	-	-	-	-	-	-	-	10,146	541	3,558	1,831	-	-	16,076
5 N.Africa	-	-	-	-	-	-	3	308	82	120	137	-	-	651
6 E.Med	-	-	-	-	-	-	119	865	183	1,321	2,488	-	-	4,976
7 E.Africa	-	-	267	104	75	-	-	-	-	-	-	-	-	446
8 A.Gulf	-	45	1,066	2,804	848	1,492	-	-	-	-	-	-	-	6,254
9 S.Asia	105	557	8,156	9,501	343	9,023	-	-	-	-	-	-	-	27,685
10 SE.Asia	-	259	3,325	5,434	341	3,189	-	-	-	-	-	-	-	12,548
11 E.Asia	-	-	6,276	1,617	474	1,485	-	-	-	-	-	-	-	9,853
12 Oceania	-	1,788	46,550	26,876	81	19,839	-	-	-	-	-	-	-	95,134
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	105	2,649	65,640	46,335	2,162	35,027	123	11,422	806	5,640	8,024	1,212	-	179,146

Table 3.3.14 Suez Canal Transiting Cargo (Fertilizers, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL	
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania		Others
1 CS.America	-	-	-	-	-	-	-	-	-	-	-	-	-	145
2 N.America	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 NW.Europe	-	-	-	-	-	-	-	304	12,084	486	1,066	24	-	14,063
4 W.Med	-	-	-	-	-	-	-	1,534	2,894	9,195	16,591	226	-	30,923
5 N.Africa	-	-	-	-	-	-	68	696	432	541	563	-	-	2,300
6 E.Med	-	-	-	-	-	-	182	4,796	6,087	3,858	5,359	296	-	20,576
7 E.Africa	-	-	27	8	-	-	533	1,708	21,204	14,043	34,681	288	-	72,457
8 A.Gulf	24	3,273	6,845	1,082	418	3,457	-	-	-	-	-	-	-	36
9 S.Asia	-	-	54	127	-	-	-	-	-	-	-	-	-	15,098
10 SE.Asia	-	-	216	-	17	76	-	-	-	-	-	-	-	181
11 E.Asia	-	-	122	-	-	-	-	-	-	-	-	-	-	309
12 Oceania	-	-	-	-	-	-	-	-	-	-	-	-	-	122
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	158
TOTAL	24	3,273	7,263	1,376	435	3,533	1,365	9,038	42,701	28,122	58,405	833	-	156,369

Table 3.3.15 Suez Canal Transiting Cargo (Automobile, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL	
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania		Others
1 CS.America								80	-	-	-	8	-	87
2 N.America								617	-	-	12	5	-	634
3 NW.Europe							11	2,972	48	1,117	623	19	-	4,789
4 W.Med								1,729	53	540	903	10	-	3,234
5 N.Africa								146	-	8	6	-	-	160
6 E.Med								1,010	16	33	170	-	-	1,228
7 E.Africa			14											14
8 A.Gulf		238	367	1,214	633	1,986								4,440
9 S.Asia			18	74	55	486								632
10 SE.Asia				745	686	2,222								5,005
11 E.Asia	21	39	5,320	2,062	1,457	5,510								14,409
12 Oceania						33								33
Others														-
TOTAL	21	277	7,072	4,095	2,832	10,237	11	6,554	117	1,697	1,720	34	-	34,665

Table 3.3.16 Suez Canal Transiting Cargo (Containerized Cargo, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL	
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania		Others
1 CS.America								2,190	62	29	-	-	-	2,281
2 N.America							34	8,826	538	1,088	61	-	-	10,548
3 NW.Europe							465	24,130	5,877	8,139	7,247	193	-	46,051
4 W.Med							336	15,663	3,121	3,621	2,619	86	-	25,446
5 N.Africa							45	5,404	356	620	372	0	-	6,797
6 E.Med							764	16,323	4,925	3,734	5,313	86	-	31,145
7 E.Africa			1,579	959	349	788								3,675
8 A.Gulf	22	875	1,651	5,428	9,093	4,869								21,938
9 S.Asia	1	1,896	1,561	5,458	1,927	2,122								12,964
10 SE.Asia		3,972	28,219	13,601	9,152	6,301								61,245
11 E.Asia		355	4,384	3,473	3,645	1,650								13,506
12 Oceania						443								2,686
Others														-
TOTAL	23	7,098	38,477	29,371	24,874	16,171	1,645	72,537	14,878	17,232	15,611	365	-	238,282

Table 3.3.17 Suez Canal Transiting Cargo (Others, Average 1997-1999)

(1,000ton)

origin	North the Canal						South the Canal						TOTAL	
	1 CS.America	2 N.America	3 NW.Europe	4 W.Med	5 N.Africa	6 E.Med	7 E.Africa	8 A.Gulf	9 S.Asia	10 SE.Asia	11 E.Asia	12 Oceania		Others
1 CS.America	22	-	-	-	-	-	-	-	-	-	-	-	-	2,281
2 N.America	-	875	-	-	-	-	34	8,826	538	61	-	-	-	10,548
3 NW.Europe	-	1,896	-	-	-	-	465	24,130	5,877	7,247	193	-	-	46,051
4 W.Med	-	3,972	28,219	13,601	9,152	6,301	336	15,663	3,121	2,619	86	-	-	25,446
5 N.Africa	-	355	4,384	3,473	3,645	1,650	45	5,404	356	620	372	0	-	6,797
6 E.Med	-	-	1,083	453	708	443	764	16,323	4,925	3,734	5,313	86	-	31,146
7 E.Africa	-	-	1,579	959	349	788	-	-	-	-	-	-	-	3,675
8 A.Gulf	22	875	1,651	5,428	9,093	4,889	-	-	-	-	-	-	-	21,938
9 S.Asia	1	1,896	1,561	5,458	1,927	2,122	-	-	-	-	-	-	-	12,964
10 SE.Asia	-	3,972	28,219	13,601	9,152	6,301	-	-	-	-	-	-	-	61,245
11 E.Asia	-	355	4,384	3,473	3,645	1,650	-	-	-	-	-	-	-	13,506
12 Oceania	-	-	1,083	453	708	443	-	-	-	-	-	-	-	2,686
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	23	7,098	38,477	29,371	24,874	16,171	1,645	72,537	14,878	17,232	15,611	365	-	238,282

Chapter 4 Transit System

4.1 History

Suez Canal, known to the Egyptians as Qanat el Suweis, was opened for traffic on 17th November 1869. By the Convention of Constantinople of 29th of October 1888 the canal is opened to vessels of all nations and is free from blockade except in the time of war.

In July 1956, the canal was nationalized by the Egyptian Government, which precipitated the Suez Canal Crisis and resulted in the canal being closed due to sunken wrecks until April 1957, when it was re-opened. In June 1967 Suez Canal again closed as a result of the Israeli/Arab war and not re-opened to international shipping until June 1975.

The canal area is a 'Free Port'.

Between 1979 and 1982 extensive dredging and widening was carried out in the canal. The resulting improvements included the completion of Port Said Bypass and the construction of E and W branches at El-Ballah, in Lake Timsah and in the N and S approaches to Great Bitter Lake and through the lake itself.

4.2 General

4.2.1 Regulations

The regulations governing the navigation of Suez Canal and its ports are issued by SCA; these regulations are applicable both to warships and to merchant vessels.

4.2.2 Volume of traffic

In 2000, 14,141 vessels, including warships, passed through the canal; their total Suez Canal Net Tonnage was 438,962,000. The detail of transit vessels is described in Chapter 2.

4.2.3 Dimensions of Suez Canal

The minimum dimensions of the various sections of the Suez Canal, in 1996, is shown in Table 4.2.1.

Table 4.2.1. The Minimum Dimensions of the Suez Canal

Section	Depth	Width at 14m / 19m depth	Section	Depth	Width at 14m / 19m depth
Port Said to Km 17	15,5 m	201 m	Deversoir West Branch	14.5 m	159 m to 177 m
Port Said By-pass	20.5 m	146 m	Deversoir East Branch	20.5 m	142 m
Km 17 to Km 51	20.5 m	146 m	Bitter Lakes West Branch	14.5 m	232 m
El Ballah West Branch	15.5 m	146 m	Bitter Lakes East Branch	19.5 m	358 m
El Ballah East Branch	20.5 m	146 m	El Kabrit West Branch	15.0 m	152 m
Km 61 to Km 76	20.5 m	162 m to 182 m	El Kabrit East Branch	20.5 m	152 m to 162 m
Lake Timsah West Branch	15.5 m	102 m to 259 m	Km 122 to Km 148	20.5 m	132 m to 162 m
Lake Timsah By-pass	20.5 m	182 m	Km 148 to Km 150	23.0 m	132 m
Km 81 to Km 95	20.5 m	147 m to 192 m	Km 150 to Port Tawfik	25.0 m	157 m to 187 m

Source: Red Sea Pilot, UK

The canal cross sections are trapezoidal in shape having side slopes of $\frac{1}{4}$ in the N part and $\frac{1}{3}$ in the S part. All bends in the canal have a radius of 5,000 m or greater.

The total distance from Port Said High Light or Km 3 on Port Said By-pass to Port of Suez is 162.25 km or 87.6 miles.

In 1996, the first phase of a dredging program was completed, enabling vessels of up to 17.7 m draught to transit the canal. It is intended to further deepen the canal, to allow vessels of up to 18.9 m draught to transit, by the year of 2001.

4.3 Requirements for passage of Suez canal

4.3.1 Arrival information and documents

Advance notification of transit. If intending to pass through the Canal on a certain day, priority to join a convoy can be obtained if the transit is arranged 4 days advance. The following information is required:

- * Name of vessel, previous name if any and SCID.
- * Nationality.
- * Type of vessel.
- * Draught and beam on day of transit.
- * Suez Canal Gross tonnage.
- * Deadweight and SCA net tonnage.

Notice of cancellation or alteration of a booked passage must be given at least 24 hours before the date booked or fine will be imposed by SCA.

Notice of arrival. When intending to transit the canal the certain information should be passed to a vessel's agent or diplomatic representative and to SCA, at least 48 hours before arrival:

- * Name (previous name, if any) and SCID.
- * Nationality.
- * Suez Canal Gross Tonnage.
- * Deadweight and SCA net Tonnage.
- * ETA.

Whether carrying any dangerous cargo.

Information to be passed to SCA on arrival. The harbor office should be contacted on VHF when the vessel is

- (a) 15 miles from the Fairway Light-buoy off -Port Said (31°21' .3 N, 32°20' .7 E), or
- (b) 5 miles from SC No.1 Light-float (Suez Bay approach) (29°40 N, 32°32' E), and certain information passed.

Documents. The following documents must be produced:

- * Suez Canal special tonnage Certificate
- * Certificate of Registry.
- * Statistical Declaration.
- * Extract from the vessel's official documents and information concerning her type and cargo.
- * Declaration concerning the use of double bottom tanks and the lower part of high tanks.
- * Declaration concerning vessels in ballast.
- * Declaration of state of navigability.
- * The last classification certification issued.
- * Capacity plan.
- * General arrangement plan.
- * Piping plan for LPG and LNG vessels.
- * Canal searchlight certificate.
- * Four copies of the Crew list.
- * Four copies of the passenger list.
- * Any other information relevant to the vessel's transit of the Canal.

The Certificate of registry is taken ashore by the ship's agent and returned after the canal transit.

The classification certificate, if necessary, should be translated into Arabic or English and duly certified by the embassy or consulate in Egypt.

4.3.2 Permissible dimensions

The maximum permitted beam is 77.49 m (254 ft), there is no restriction on length. Vessel in ballast with a beam up to 77.49 m (254 ft) and draught of up to 12.2 m (40 ft) will be permitted to transit.

Vessels with a beam in excess of 64 m (210 ft) and similar draughts will be permitted to transit only in calm clear conditions with a wind speed of less than 10 knots..

The maximum permitted draught, (which must not exceed the Summer Load Line or Tropical Load Line if marked it), are related to the beam and to the draught of the convoy (See Table 4.3.1 Beam and Draught).

Vessels in ballast (Northbound and Southbound)

Beam
Fore
Aft.
 Up to 77.49 m (254 ft) - 12.2 m (40 ft)

Laden vessels (Northbound and Southbound)

Table 4.3.1 Beam and Draught

B	D	B	D	B	D	B	D	B	D	B	D	B	D	B	D
175'-4 53m44	58'-00	182'-11 55m75	55'-07	191'-3 58m29	53'-02	200'-4 61m06	50'-09	210'-4 64m10	48'-04	221'-5 67m48	45'-11	233'-9 71m24	43'-06	247'-6 75m43	41'-01
175'-7 53m51	57'-11	183'-2 55m82	55'-06	191'-7 58m39	53'-01	200'-8 61m16	50'-08	210'-9 64m23	48'-03	221'-10 67m61	45'-10	234'-2 71m37	43'-05	248'-0 75m59	41'-00
175'-10 53m59	57'-10	183'-6 55m93	55'-05	191'-10 58m47	53'-00	201'-1 61m26	50'-07	211'-1 64m33	48'-02	222'-3 67m74	45'-09	234'-8 71m52	43'-04	248'-6 75m74	40'-11
176'-1 53m67	57'-09	183'-9 56m00	55'-04	192'-2 58m57	52'-11	201'-4 61m36	50'-06	211'-6 64m46	48'-01	222'-8 67m86	45'-08	235'-1 71m65	43'-03	249'-0 75m89	40'-10
176'-4 53m74	57'-08	184'-0 56m08	55'-03	192'-5 58m64	52'-10	201'-8 61m46	50'-05	211'-10 64m56	48'-00	223'-1 67m99	45'-07	235'-7 71m80	43'-02	249'-6 76m04	40'-09
176'-7 53m82	57'-07	184'-4 56m18	55'-02	192'-9 58m75	52'-09	202'-0 61m56	50'-04	212'-2 64m66	47'-11	223'-6 68m12	45'-06	236'-0 71m93	43'-01	250'-0 76m20	40'-08
176'-10 53m89	57'-06	184'-7 56m26	55'-01	193'-1 58m85	52'-08	202'-4 61m67	50'-03	212'-7 64m79	47'-10	223'-11 68m24	45'-05	236'-6 72m08	43'-00	250'-7 76m37	40'-07
177'-1 53m97	57'-05	184'-10 56m33	55'-00	193'-4 58m92	52'-07	202'-8 61m77	50'-02	212'-11 64m89	47'-09	224'-4 68m37	45'-04	236'-11 72m21	42'-11	251'-01 76m53	40'-06
177'-4 54m05	57'-04	183'-9 56m43	54'-11	193'-8 59m02	52'-06	203'-0 61m87	50'-01	213'-4 65m02	47'-08	224'-9 68m50	45'-03	237'-5 72m36	42'-10	251'-7 76m68	40'-05
177'-7 54m12	57'-03	185'-5 56m51	55'-10	194'-0 59m13	52'-05	203'-4 61m97	50'-00	213'-8 65m12	47'-07	225'-1 68m60	45'-02	237'-10 72m49	42'-09	252'-1 76m83	40'-04
177'-10 54m20	57'-02	185'-9 56m61	55'-09	194'-3 59m20	52'-04	203'-8 62m07	49'-11	214'-1 65m25	47'-06	225'-6 68m73	45'-01	238'-4 72m64	42'-08	252'-8 77m01	40'-03
178'-1 54m27	57'-01	186'-0 56m69	54'-08	194'-7 59m30	52'-03	204'-0 62m17	49'-10	214'-5 65m35	47'-05	226'-0 68m88	45'-00	238'-9 72m77	42'-07	253'-2 77m16	40'-02
178'-5 54m38	57'-00	186'-3 56m76	54'-07	194'-11 59m41	52'-02	204'-5 62m30	49'-09	214'-10 65m48	47'-04	226'-5 69m01	44'-11	239'-3 72m92	42'-06	253'-8 77m31	40'-01
178'-8 54m45	56'-11	186'-7 56m87	54'-06	195'-3 59m51	52'-01	204'-9 62m40	49'-08	215'-2 65m58	47'-03	226'-10 69m13	44'-10	239'-9 73m07	42'-05	254'-3 77m49	40'-00
178'-11 54m53	56'-10	186'-10 56m94	54'-05	195'-6 59m58	52'-00	205'-1 62m50	49'-07	215'-7 65m70	47'-02	227'-3 69m26	44'-09	240'-2 73m20	42'-04		
179'-2 54m61	56'-09	187'-2 57m04	54'-04	195'-10 59m69	51'-11	205'-5 62m61	49'-06	216'-0 65m83	47'-01	227'-8 69m39	44'-08	240'-8 73m35	42'-03		
179'-5 54m68	56'-08	187'-5 57m12	54'-03	196'-2 59m79	51'-10	205'-9 62m71	49'-05	216'-4 65m93	47'-00	228'-1 69m51	44'-07	241'-2 73m50	42'-02		
179'-8 54m76	56'-07	187'-9 57m22	54'-02	196'-6 59m89	51'-09	206'-1 62m81	49'-04	216'-9 66m06	46'-11	228'-6 69m64	44'-06	241'-7 73m67	42'-01		
180'-0 54m86	56'-06	188'-0 57m30	54'-01	196'-10 59m99	51'-08	206'-5 62m91	49'-03	217'-1 66m16	46'-10	228'-11 69m77	44'-05	242'-1 73m78	42'-00		
180'-3 54m94	56'-05	188'-3 57m37	54'-00	197'-1 60m07	51'-07	206'-10 63m04	49'-02	217'-6 66m29	46'-09	229'-4 69m90	44'-04	242'-7 73m93	41'-11		
180'-6 55m01	56'-04	188'-7 57m48	53'-11	197'-5 60m17	51'-06	207'-2 63m14	49'-01	217'-11 66m42	46'-08	229'-9 70m02	44'-03	243'-1 74m09	41'-10		
180'-9 55m09	56'-03	188'-10 57m55	54'-10	197'-9 60m27	51'-05	207'-6 63m24	49'-00	218'-3 66m52	46'-07	230'-3 70m18	44'-02	243'-7 74m24	41'-09		
181'-0 55m16	56'-02	189'-2 57m65	54'-09	198'-1 60m37	51'-04	207'-10 63m34	48'-11	218'-8 66m64	46'-06	230'-8 70m30	44'-01	244'-0 74m37	41'-08		
181'-4 55m27	56'-01	189'-6 57m75	53'-08	198'-5 60m47	51'-03	208'-3 63m47	48'-10	219'-1 66m77	46'-05	231'-1 70m43	44'-00	244'-6 74m52	41'-07		
181'-7 55m34	56'-00	189'-9 57m83	53'-07	198'-9 60m57	51'-02	208'-7 63m57	48'-09	219'-5 66m87	46'-04	231'-6 70m56	43'-11	245'-0 74m67	41'-06		
181'-10 55m42	55'-11	190'-1 57m93	53'-06	199'-1 60m68	51'-01	208'-11 63m67	48'-08	219'-10 67m00	46'-03	232'-0 70m71	43'-10	245'-6 74m82	41'-05		
182'-1 55m49	55'-10	190'-4 58m01	53'-05	199'-4 60m75	51'-00	209'-3 63m77	48'-07	220'-3 67m13	46'-02	232'-5 70m84	43'-09	246'-0 74m98	41'-04		
182'-5 55m60	55'-09	190'-8 58m11	53'-04	199'-8 60m85	50'-11	209'-8 63m90	48'-06	220'-8 67m25	46'-01	232'-10 70m96	43'-08	246'-06 75m13	41'-03		
182'-8 55m67	55'-08	190'-11 58m19	53'-03	200'-0 60m96	50'-10	210'-0 64m00	48'-05	221'-1 67m38	46'-00	233'-4 71m12	43'-07	247'-0 75m28	41'-02		

Source: SCA

Sea trial.

Vessels permitted by the above tables to transit at a draught of between 15.20 m (50 ft) and 17.68 m (58 ft) must carry out a satisfactory sea trial before entering the canal for their first passage at that draught either in Port Said Roads or at Suweis.

Tugs.

The escorting of VLCC's, ULCC's, large bulk carriers and other vessels by tugs will be as follows:

- * Loaded vessels less than 70,000 SCNT will be escorted by one tug if for technical reasons SCA finds it necessary, or when the vessels draught is more than 14.3 m (47 ft).
- * Loaded vessels from 70,000 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 vessels over 25,000 SCNT will be escorted by one tug. Gas free vessels are treated as tankers in ballast.
- * Vessels in ballast with a beam over 66.5 m (218 ft) up to 71.02 m (233 ft) will be escorted by one tug.
- * Vessels in ballast with a beam over 71.02 m (233 ft)
- * Towed scrap vessels in ballast of 80,000 SCNT and over will be escorted by one tug.
- * Loaded heavy –lift ships are to be escorted by one or more tugs.

In addition, the SCA may impose mandatory tug escorts in the following instances:

- * The SCA may require any vessel to take a tug or tugs through the canal, when in its judgement such action is necessary to ensure safety of the vessels or the canal.
- * Vessels loaded with liquefied inflammable gas (LPG), LNG and similar) of over SCGT.
- * Any vessel without mechanical power, or the machinery of which is, or become, disable, or steers badly or is liable to become an manageable for any reason, shall be towed through the canal.
- * Vessels having engine or steering gear trouble for the second time during the same passage.
- * Vessels with restricted visibility due to deck cargo, containers, cranes or constructions impeding the view from the wheelhouse and wings shall be towed through the Suez Canal.
- * Vessels unable to use one of the bow anchors or vessels over 1,500 SCGT built with one anchor or built with more than one anchor, one or both abaft the bridge or vessels built with two anchors, one on the bow and one at the stern and vessels unable to use their anchors.
- * Drilling vessels. Vessels with two engines on one propeller one of which is out of order foe any reason and cannot maintain a speed of at least 10 knots without current after a sea trial to assure the speed and valid seaworthiness certificate.
Vessels with two engines on two propellers one of which is out of order.
- * On the master's request for one or more tugs.

4.3.3 Suez Canal Convoy System

Passage through the canal is operated on a convoy system.

The S-bound and N-bound convoys are usually timed so that they will pass the Great Bitter Lake.

Northbound convoys consist of two groups;

Group A

(i) Naval ships, 4th Generation container ships, 3rd generation container ships over and

similar, LASH vessels over 40,000 SCGT, LPG and LNG (loaded or non gas-free), loaded chemical carriers.

Speed of transit 11 to 15 km/hr (6 to 8.1 kn).

(ii) Loaded VLCC's, conventional loaded tankers and heavy bulk carriers (draught over 11.6 m (38 ft) or length over 289.7 m (950 ft) between perpendiculars).

Speed of transit 11 to 15 km/hr (6 to 8 kn).

Group B

Cargo and other vessels anchored in Suez anchorages, speed of transit 13 to 16 km/hr (7 to 8.6kn).

Times for arrival and departure are:

0100 Vessels in Group A (i) and (ii) should have anchored in the anchorage and be declared ready for transit by their agents. Vessels anchored and ready by 0300 can also be accepted in the tanker group, for an additional charge of 3% of the canal dues. Vessels arriving between 0300 and 0330 can also join the tanker group for an additional charge of 5% of the canal dues.

0300 Vessels in group B must have anchored in waiting area S of Newport Rock Channel and be declared ready for transit by their agents. Vessels arriving between 0300 and 0400 can join Group B for an additional charge of 3% of the canal dues. Vessels arriving 0400 and 0500 can join the convoy against a surcharge of 5% the canal dues.

0600 Vessels of Group A (i) headed by container ships enter the canal at Km 160. Group A (ii) follows the last vessel of Group A (i) at about 0700: Group B follows the last vessel of Group A (ii) up to about 1130. A third group may precede Group A (i), if the traffic situation warrants it, entering canal between 0300 and 0430.

The N-bound convoy usually proceeds without stopping via:

El Kabrit East Branch (Km 122 to Km 115).

Great Bitter Lake East Branch.

Deversoir East Branch (Km 103 to Km 95).

Lake Timsah By-pass.

El Ballah East Branch (Km 61 to Km 51).

Port Said By-pass.

Port Said By-pass Approach Channel.

If the N-bound convoy has to stop in the Bitter Lakes, vessels anchor in the Great Bitter Lake East Branch or in the anchorages E of the channel, or make fast in El Kabrit East Branch, where three berths are available for emergency use.

South bound convoy (N1) consists of three groups:

Group A Vessels in Port Said Harbour.

Group B Vessels anchored in the Northern Anchorage Area consisting of 4th generation container ships, 3rd generation container ships, VLCC's in ballast, vessels over 12.8 m (42 ft) draught, LPG, LNG and non gas-free vessels in ballast or loaded and LASH vessels over 40,000 SCGT.

Group C Vessels anchored in the Southern Anchorage Area that will enter through Port Said West channel in due time to join Group B at Km 17.

Vessels of Group B headed by the container ships enter Port Said By-pass Approach in due time to join Group A at Km 17.

The speed of transit of both groups is 14 km/hr (7.6 kn).

Vessels of the S-bound convoy proceed via:

- El Ballah East Branch.
- Lake Timsah By-pass
- Deversoir West Branch with the exception of vessels with draught greater than 12.8 m (42 ft), which use Deversoir East Branch.
- Great Bitter Lake anchorage, W of the channel.

When the last ship of the N-bound convoy has passed El Kabrit the S-bound convoy, headed by Naval ships and Group B, proceeds through El Kabrit West Branch.

Vessels in both Group A and B joining the S-bound convoy must have arrived at the anchorage by 1900. For an additional charge of 3% of the canal dues, vessel arriving between 1900 to 2100 may join the convoy (N1). Vessels arriving between 2100 to 2200 may also join the convoy (N1) for an additional charge of 5% of the canal dues.

A second convoy (N2), S-bound, is sometimes formed if the density of traffic justifies it. This convoy leaves Port Said between 0630 and 0900 and makes fast in El Ballah West Branch until the last vessel of the N-bound convoy has entered El Ballah East Branch at Km 60.

Subject to alteration according to canal developing projects vessel with the following dimensions are authorized to berth in El Ballah West Branch.

Beam		Draught	
m	ft	m	ft/ins
41.15	135	12.80	42-00
41.45	136	12.73	41-08
41.76	137	12.62	41-05
42.06	138	12.52	41-01
42.37	139	12.42	40-09
42.67	140	12.34	40-06
42.98	141	12.27	40-08
43.28	142	12.17	39-11
43.59	143	12.09	39-08
43.89	144	12.01	39-05
44.20	145	11.91	39-01
44.50	146	11.84	38-10
44.80	147	11.76	38-07
45.11	148	11.68	38-04

For safety reasons the following vessels will not be allowed to join the 2nd convoy:

- * Loaded tankers or bulk carriers carrying Petroleum Grade A or similar, having a flash point below 23°C.
- * LPG, LNG or similar loaded or non gas-free vessels.
- * Vessels not fitted with double bottom tanks, carrying chemicals in bulk.
- * Vessels carrying uncontainerized radioactive substance group I.
- * Vessels carrying dangerous wastes.
- * Semi-submergible heavy lift vessels carrying unit with tonnage exceeding the lifting capacity of their individual cranes.
- * Vessels carrying deck cargo protruding more than the allowed maximum.
- * Vessels with a beam of over 45 m (148 ft).
- * Vessels with a draught exceeding 12.8 m (42 ft).
- * Warships.

The latest time for vessels joining the second convoy to arrive at the Port Said anchorage is 0300. Providing that the canal capacity permits, and for an additional charge of 3% of the canal dues, vessels arriving between 0300 and 0400 may join the second convoy; vessels arriving between 0400 and 0500 can also join the second convoy for an additional charge of 5% of the canal dues.

The convoy system is summed up in Table 4.3.2 Northbound Convoy System and Table 4.3.3 Southbound convoy System.

Table 4.3.2 Northbound Convoy System

Convoy	North-Bound Convoy			
Group	A (i)	A (ii)	B	Third Group
Arrival Time	0100 (+0%) 0300 (+3%) 0330 (+5%)		0300 (+0%) 0400 (+3%) 0500 (+5%)	Same as A or B
Arrival Point	Off Suez Anchorage Areas			
Entering Point	Km 160			
Entering Time	0600	Follows A (i) (about 0700)	Follows A (ii) (up to 1130)	0300 - 0430
Note				Rare case (Precedes A-i until Great Bitter Lake, and then follow B)

Table 4.3.3 Southbound Convoy System

Convoy	N1			N2
Group	A	B	C	-
Arrival Time	1900 (+0%) 2100 (+3%) 2200 (+5%)			0300 (+0%) 0400 (+3%) 0500 (+5%)
Arrival Point	Port Said Harbor	Northern Anchorage Area	Southern Anchorage Area	
Entering Point	Port Said West Channel	Port Said Bypass	Port Said West Channel	
Entering Time	0000 - 0500			0630 - 0900
Waiting point	Bitter Lakes			Ballah Loop for max 15 vessels, and Timsah for max 2 vessels
Note	-			The forming and depths of this convoy is subject to traffic situation and time limit. Exclusion of vessels to join N2 is detailed in Art. 49-C-(5).

The Suez Canal Vessel Traffic Management System (SCVTM) provides the continuous monitoring of a vessel's position and speed, her deviation from the planned track and her separation from other vessels, by means of radar tracking stations at Port Said, Port Tewfik and Great Bitter Lake and a dedicated Loran-C chain covering the canal and its approaches.

Vessels approaching Port of Suez from S should report by radio to the harbor office at Suez for instructions, 5 miles before reaching SC No 1 Light-float in the position shown on chart 5501.

A vessel approaching Port Said or Suez is identified on radar from information given in her arrival message and tracked thereafter. On entering the canal the pilot bring on board a Carry On Receiver Transmitter which receives Loran-C signals continuously and transmits them to the movement center ashore.

4.4 Navigation in Suez Canal

4.4.1 Pilotage

Pilotage is compulsory for all vessels, when entering, leaving, moving berth or transitting in canal waters or Port Said and Port Suez Harbours. The only exemption are certain Egyptian vessels under 300 SCGT authorized to work in canal and/or its approaches ; any other exemptions must be explicitly authorized by the SCA.

Vessels which undertake any movement in waters under SCA's jurisdiction without employing a pilot are liable to pay extra dues of US\$ 21,500, and additional due of US\$ 3,200 in Port of Suez.

Pilot are employed in four stages:

From Port Said

- (a) From Fairway Light-buoy to berths in Port said Harbour through Port Said Harbour Approach Channel, or from North Anchorage through Port Said By-pass Approach Channel to the N entrance to Port Said By-pass;
- (b) thence from Port Said Harbour, or N entrance to Port Side By-pass, to Ismailia;
- (c) thence to the pair of buoyant light-beacons marking the S entrance to the canal;
- (d) thence to the Hm 80.50 (the S entrance to Newport Rock Channel). However the master may request pilotage to end at Hm 44.4 (Newport Rock).

From Port of Suez

Foul weather

If foul weather prevents pilot boarding or disembarking in the usual places, masters may be authorized by the Suez Canal Harbour to proceed without a pilot as follows:

- (a) Vessels joining a S-bound convoy via Port Said By-pass Approach Channel; from North Anchorage to the entrance to the canal at Km 0 of Port Said By-pass.
- (b) Vessels in a S-bound convoy; from Km 162 to sea.
- (c) Vessels joining a N-bound convoy; from the VLCC anchorage or the Waiting Area to

the entrance to the canal; where a canal pilot will join near Km 161.

(d) Vessels in a N-bound convoy; from Km 3.0 East Port Said Channel N-ward.

Second Pilot.

The following type of vessels must engage an extra pilot.

(a) Vessels with a SCGT tonnage exceeding 80,000 tons.

(b) Vessels with a poor view from the bridge.

(c) Vessels which, on account of slow speed or other causes, have to transit the canal in stage.

(d) Vessels without suitable accommodation for the pilot to rest in when not under way.

(e) 4th generation container ships, 3rd generation container ships and LASH ships of 35,000 SCGT and over.

(f) By any vessel if it is deemed necessary by SCA or on master's request.

Master's responsibilities.

Pilots only give advice on maneuvering the vessels. They place at the disposal of masters their experience and practical knowledge of the canal, but as they cannot be acquainted with the defects and difficulties in maneuvering, stopping, starting etc peculiar to each vessel, the responsibility of handling the vessel devolves solely upon the master.

It is therefore for the master, taking into account the indications given by the pilots, to give the necessary orders to the helm, to the engines, and to the tugs. If, in the interest of rapid maneuvering the master thinks it preferable to allow the pilot to give orders direct maneuvers carried out in these circumstances shall be considered as having been carried out on the orders of the master and engage his sole responsibility.

Masters are held solely responsible for all damage or accidents of whatever kind resulting from the navigating or handling of their vessels by day and by night.

In the event of the pilot being suddenly unable to carry on with his duties, the master must

(a) warn the vessel astern of his intended maneuvers by the visual and sound signals described in Art. 92-93, as well as by radio message via Ismailia Radio Station (SUQ);

(b) reduce speed and contact the Movement Office for advice on making fast if in the canal or entrance channels, or anchoring if in the lakes;

(c) keep the Movement Office in Ismailia informed at all times by UHF or VHF, with confirmations by W/T, Telex, or Immarisat through Ismailia Station (SUO).

Requesting a pilot.

The signal requesting a pilot should be hoisted 2 hours before the expected time of getting underway. Signals for pilots are described in Art. 92-93.

Pilots for navigation in Suez Canal are due on board 1½ hours after the signal has been hoisted; pilots for proceeding to sea or for changing berth are due 30 minutes after the signal has been hoisted.

Embarkation.

On seeing the signal that a pilot is coming out, the vessel must make ready to take him on

board and to enter the canal without delay. A vessel at anchor in a waiting area must shorten in her cable and make a lee for the pilot launch to come alongside in safety.

Accommodation ladders should be rigged for use of the pilot when boarding. Should the accommodation ladder be situated near the propeller a pilot ladder should be rigged amidships. Vessels with a high freeboard should provide a mechanical hoist for the pilot.

A ship's officer should be in attendance when the pilot boards.

Should a pilot's service be dispensed with after his arrival on board, or the time of departure be postponed, or should a pilot be compelled to sail with a vessel because of heavy weather or at the vessel's request, additional charge are made.

A spare cabin or a special space should be set aside in which the pilot can rest during the vessel's waiting periods. Vessels unable to provide this facility will be liable to delay and the payment of extra pilotage dues.

4.4.2 Navigational aids

The canal is well marked throughout its length by buoyant light-beacons, for details of which are marked on the charts. These light-beacons may be temporarily removed, displaced or changed during dredging or other operations.

Buoyant light-beacons marking:

- (a) The E side of the channel carry a white oval shaped topmark with a green border and exhibit a green fixed light.
- (b) The W side of the channel carry a white oval shaped topmark with a red border and exhibit a red fixed light.
- (c) Junctions carry an oval shaped topmark painted black and yellow in band and exhibit a white flashing light.
- (d) The center line between the two channels in Great Bitter Lake carry a yellow X-shape topmark and exhibit a yellow fixed light.

Tidal buoys which show the direction of flow of the water are painted in red and white bands with one reflector on their down stream side, and in black and white stripes with two reflectors on their upstream side.

Thus a vessel proceeding against the flow of water will see a buoy (red and white bands; 1 reflector).

Local Direction of Buoyage. To conform to international convention, the Local Direction of Buoyage is the direction taken by the mariner when approaching the canal from seaward. In view of the double ended nature of the canal there is a point at which the buoyage direction is reversed. This is at Km 4,000 and Km 2,800E in approximate latitude 31°13'5 N. North of this position (in Port Said Harbour and approaches) the port hand buoys are on the E side of the channel and starboard to the W. To the S of these positions the buoyage is reserved.

4.4.3 Projector and lighting

Vessels must satisfy the officials SCA in Port Said or Port Tewfik that they are provided with a projector (searchlight) and overhead lighting. Night transit may be suspended in case of breakdown or in adequate or defective functioning of these appliances.

Projector. This to be placed in the axis to show the canal 1,800 m ahead, and is to be so constructed as to permit rapid splitting up of the beam of light into to separate segments of 5° each, with a dark sector of 0° to 10°. Such a projector, weighing 1¼ tons, can be hired locally at 4 days notice. Vessels entering the canal directly from the anchorage S of Conry Rock should have their own searchlight.

On board vessel electrically propelled or having electrically driven gear (steering, winches, etc) the number of generators and their individual power output must be sufficient to ensure an interrupted functioning of the searchlight in the event of stoppage of one of the generators.

No exception to this rule will be allowed except when there is an independent generator and circuit on board specifically set apart for the searchlight.

Vessels with bulbous bow must be provided with their own projector.

LPG and LNG vessels and vessels entering the canal direct from sea must have their own projector.

Two shore electricians must be embarked to operate the projector during the transit , whether it is hired or is provided by the vessel; a sheltered place is to be provided for them. Spare lamps must be available for the projector when supplied by vessel.

In 1998 a new magnetically mounted projector was authorized. Vessels using this facility are required to be fitted with an unpainted steel plate platform , square or round of 0.75 m side or diameter, placed on the center-line on the upper part of the stem.

Bridge wing projectors must be fitted on each side of the bridge to show the canal banks clearly during the transit and mooring operations.

Overhead lights are required , visible from all points of the compass and powerful enough to light up a circular area of about 200 m diameter around the vessel.

Vessels are also required to illuminate their funnel to aid identification.

4.4.4 Radio

Vessels must have their radio apparatus in good working order before entering the canal. They must also be fitted with a VHF set easily operated from the bridge. If not, a set must be rented from SCA.

Wireless watch will be kept in accordance with the directions of the pilot and a continual watch may be required to be kept during the whole transit of the canal.

VHF RT is used for communications during transit of the canal or in the harbor.

4.4.5 Preparations for entering the canal

All vessels ready to enter the canal must have their ladders and jib-booms run in, their boats swung in and derricks, obstructing the view forward, lowered.

There must be a rudder angle indicator and an engine rpm indicator on the bridge in such a position that the pilot may read both without having to move away from his station.

The bow anchor must be ready to let go. Before entering the canal it must be ascertained that main engines, compass, steering gear, engine room telegraph, rudder angle, rpm indicators, WT, VHF and radar are in good working order.

Masters must ascertain, before entering the canal, that deck loads, if any, are stowed in such a manner not to affect the vessel's stability or impede the view.

Vessels in ballast must fill spaces intended to be used for carrying water ballast in such proportion as SCA may direct.

Bridge and engine room movement books should be kept, recording all engine maneuvers, unless an automatic device is fitted which produces a permanent legible record of every engine movement. These records may be requested by SCA if necessary.

Any vessel failing to comply with the requirements within SCA Rules of Navigation may be delayed from joining the convoy and/or may be subject to special arrangements for her transit. This includes imposing convoying tugs. Access to the canal may also be refused.

4.4.6 Mooring in Suez Canal

Mooring bollards are placed on both banks of the canal about 200 m apart; they will bear a strain of up to 60 tons. It was reported in 1975 that a number of bollards on the E bank were no longer in existence.

'Gares' are positions at which the canal was specially widened to enable a vessel to secure to the bank so that another vessel might pass.

In the event of running hard ground the best shore anchor is a spar buried horizontally on the inner side of the canal with vertical planks in front, the hawser being led through a cutting.

Mooring ropes. At least six flexible floating mooring ropes (manila, hemp, etc) in good condition must be in readiness at suitable points on deck in case it should be necessary to make fast in the canal, and all arrangements must be made for their quick handling. It is to be noted however that the use of synthetic mooring ropes able to produce sparks by their manipulation is absolutely forbidden on board petroleum tankers and LPG or LNG carriers, or any vessels carrying in flammable substances.

Mooring boats must be in constant readiness for lowering to run the hawsers to the

mooring bollards without delay. The number of mooring boats required is based on the vessel's SCGT:

Under 2,500 SCGT	1 motor boat
2,500 to 5,000	1 motor boat
5,000 to 30,000	1 motor boat or 2 motor boats
Above 30,000	2 motor boats

In case when no mooring boats are available, suitable ship's boats can be used. A shore crew must still be taken.

Motor boat boats are 8.8 m long, weight 3 tons. A sheltered place is to be provided for the mooring boatmen, who will number 4 to 6 for vessels up to 70,000 tons, and 8 to 10 for vessels over 70,000 tons.

4.5 Signals in Suez Canal

Port radio stations are maintained by SCA at Port Said, Ismailia and Port Tewfik; RT is used for communications during a vessel's transit of the canal, or in the harbors.

Thirteen signal stations are situated on the banks of the canal, usually at 'gares'.

4.5.1 Visual signals

The following signals laid down by SCA for use at Port Said and in Suez Canal are extracted from *Rules of Navigation, Part III* containing all such signals, which pilots hold at the disposal of the masters of the vessel. This booklet should be consulted for additional signals.

All flags and pendants referred to are those used in the *International Code Signals*.

Night signal lights shall be hoisted at the foremast head or where best seen by other vessels.

Pilotage signals for vessels approaching Port Said Harbour, are summarized in Table 4.5.1 Pilotage signals and signals by pilot boat.

Table 4.5.1 Pilotage Signals and Signals by Pilot Boat

By day	At night	Meaning
Black ball above Flag G	Three white lights vertically disposed	I require a Pilot (a) for leaving harbour or changing berth (½ hr before sailing) (b) for canal transit (2 hr before first vessel enters canal)
Flag U above Flag A	White rocket or 'UA' in morse	A pilot vessel is going out to you
Flag U above Flag F	White flare or 'UF' in morse	Follow pilot vessel (too rough for boarding here)
Flag U above Flag I	Red rocket or 'UI' in morse by signal lamp	Pilot vessel cannot go out due to weather

Special signals

Signals to be shown by certain vessels on arrival off Port Said or Port of Suez and during canal transit, are shown in Table 4.5.2 Special signals.

Table 4.5.2 Special Signals

By day	At night	Meaning
Ball over Flag B	White light over two red lights	Vessel carrying explosive or other very dangerous substances, including non gas-free tankers, LPG and LNG vessels and vessels carrying dangerous chemicals in bulk.
Flag B between 2 balls	Three red lights vertically	Vessel carrying bulk petroleum, flash point below 73° F.
Flag B over 1 ball	Two red lights over white lights	Vessel carrying bulk petroleum, flash point between 73° F and 150° F.
Flag F between 2 balls	Four red lights vertically	Vessel carrying radio-active substances.

4.5.2 Sound signals

The only sound signals allowed in Suez Canal and approaches thereto are fully listed in Rules of Navigation, Part IV issued by SCA; important extracts are as follows:

(a) Normal maneuvers

- (1) The sound signals laid down in The International Regulations for Preventing Collision at sea, ie one two or three short blasts.
- (2) Five or six short blasts, repeated several times at short interval: I am reducing speed and may have to stop or make fast. In addition, at night, four to five long flashes with the Aldis lamp or masthead signal light.
- (3) One prolonged blast: To attract attention

(b) Obstruction in channel in all circumstances

- (1) Four long blasts: The channel is not free. This signal to be made immediately by a vessel which under any circumstances causes or finds obstruction in the channel; this warning must be repeated every three minutes until vessels in vicinity have answered in like manner. The vessel should maintain radio watch until advised otherwise.

(c) Not under command approaching dredger

In case of engine or steering failure while approaching a dredger, the vessel sounds one long blast followed by two short blasts: vessel not under command.

(d) Vessel mooring voluntarily

During the maneuver, a series of six short blasts are to be sounded every two minutes. Once made fast, a bell is to be rung rapidly at intervals not exceeding one minutes; for vessel of 100 m and over in length, the bell is to be rung forward and a gong is to be sounded in similar manner aft. These signals may be stopped when all vessels concerned have been notified.

4.5.3 Quarantine signals; convoy signal; vessel aground

Table 4.5.3 Quarantine Signals; Convoy Signal; Vessel Aground

By day	At night	Meaning
Flags ZS	Red light over white light	I require free pratique
Flag Q	Red light over green light	Vessel under quarantine during transit
Flag Z	Green light over white light, hoisted on signal halyard	Last vessel in convoy
Black ball above Pendant No.2 at masthead	Red light at masthead	Vessel aground; passage clear for tug
Black ball above pendant No. 2 above Flag N	Two red lights vertically disposed	Vessel aground; passage not clear for tugs

4.5.4 Signals indicating maneuvers in the canal

Table 4.5.4 Maneuvering Signals

By day	At night	Meaning
Pendant No. 2 at masthead	Two white lights vertically disposed	The vessel is making fast. Note: When made fast in the canal white light are to be replaced by red stern light
Pendant No. 2 above Answering pendant	Red light between two white lights vertically disposed	Vessel mooring voluntarily, or vessel is not ready. If in the canal signal indicates vessel is securely made fast and can be crossed or doubled by other vessels.
Pendant No. 1 at masthead	White light above red light	Vessel is maneuvering to get underway in the canal.

Notes:

- (a) The red light which replaces the stern light is to remain alight all the time the vessel is moored and until she is actually under way.
- (b) When starting to handle the mooring ropes, switch off the search light and switch on the overhead light.
- (c) When finally made fast, switch off the overhead light and green and red side lights, and place 2 or 3 white lights along the bulwark. A vessel which is to be passed at night by a benzine ship shall not place kerosene, oil or candle lights along the bulwark; electric lights alone are to be used. If electric lighting is not available no light is to be placed on the bulwark.
- (d) Any vessel which has to make fast owing to bad weather, insufficient speed, bad light, breakdown, etc must inform all vessels in the vicinity of the maneuver intended, by making the appropriate sound signal in addition to visual signal described above.

4.6 Handling of vessels in Suez Canal

4.6.1 Speed

In the pilotage of a vessel in Suez Canal the major point requiring attention is the speed, which the present SCA regulations describe in detail by the section/ship type/tidal set in between 11 km and 16 km (previously in between 13 km/h and 14 km/h). (See Art. 54)

According to recent three representative days' (heavy, average and light traffic) diagrams the actual state of average sailing speeds through the canal excluding waiting time, were as follows:

N-bound (54 vessels); 15.2 km/h (fastest 16.8 km/h, slowest 12.1 km/h),

S-bound (67 vessels); 15.5 km/h (fastest 16.7 km/h, slowest 13.0 km/h). (See Table 4.6.1 to 4.6.7). It is clear that the actual transit speeds exceeded that prescribed values.

Considering all the factors e.g. maintaining good maneuverability of vessels, the course keeping quality in shallow and narrow waters, safe distance between the preceding/following vessels together with protection of the banks and possible earliest transit, the present operating speeds are considered to be almost optimum.

Provided that, clarifying the problematic relation between a vessel speed and its resultant bank erosion still remains.

Table 4.6.1. Summary of Vessels' Traffic in SC

Item Date	No. of vessels		Time required for passing through (hr-min)			Average sailing speed km/h			Non waited Vs / Waited Vs			Gaps between vessels (min)	
	Total	Bound for N/S	Longest	Average	Shortest	Fastest	Average	Slowest	Non-waited	Wait-ed	Average time waited	Longest	Shortest
Heavy traffic day (7.1.2000)	57	N 24	11-55	11-38	11-25	16.7	14.9	13.2	16	8	2 ^h -00 ^m	21	5
		S 33	16-17	14-17	10-17	16.6	15.2	13.0	6	27	4 ^h -32 ^m	36	4
Average day (27.10.2000)	36	N 18	10-59	10-24	09-32	16.8	15.6	14.2	10	8	0 ^h -48 ^m	29	5
		S 18	17-40	14-25	11-53	16.7	16.0	14.9	0	18	3 ^h -50 ^m	58	6
Light traffic day (6.11.2000)	28	N 12	13-00	10-27	09-36	16.4	15.1	12.1	11	1	1 ^h -31 ^m	52	8
		S 16	17-00	13-10	10-18	16.6	15.4	13.7	2	14	3 ^h -36 ^m	19	8
Weighted average	N-bound	54	-	10-58	-	-	15.2	-	37	17	1 ^h -24 ^m	-	-
	S-bound	67	-	14-03	-	-	15.5	-	8	59	4 ^h -06 ^m	-	-

**Table 4.6.2 Record of the Movements of S-bound Vessels
(7/1/2000: Heavy Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Fouad	Ballah	Timsah	Dev.	GB NL	GB SL	Tewfiq	Time Req'd	Order (out)	
					4 km	50/54	22/76	22/98	6/104	10/114	47/161			
S 1	OT	162	34.6	58.0	0010	0318 15.9 km	0450 14.3 km	0615 15.5 km	0645/1210 12.0 km	1220 Var.	1515 16.1 km	15-05 15.2km	5	
S 2	OT	141	33.0	51.8	0025	0336 15.7 km	0505 14.8 km	0627 16.0 km	0703/1210 10.0 km	1230 Var.	1525 16.1 km	15-00 14.9km	6	
S 3	OT	135	34.3	54.6	0043	0357 15.5 km	0527 14.7 km	0648 16.3 km	0715/1215 13.3 km	1250 Var.	1538 16.8 km	14-55 14.8km	7	
S 4	OT	55	46.1	42.7	0100	0435 14.0 km	0612 13.6 km	0744 14.3 km	0820/1346 8.2 km	1420 Var.	1748 13.6 km	16-48 12.9km	15	
S 5	OT	67	49.3	40.6	0114	0455 13.6 km	0634 13.3 km	0810 13.7 km	0844/1410 7.1 km	1448 Var.	1758 14.8 km	16-44 13.0km	16	
S 6	OT	13	31.1	23.0	0150	0505 15.4 km	0640 13.9 km	0810 14.7 km	0835/1245 12 km	1245 Var.	1547 15.5 km	13-57 15.0km	8	
S 7	BC	16	32.1	24.8	0204	0514 15.8 km	0650 13.7 km	0815 15.5 km	0900/1240 14.7 km	1255 Var.	1558 15.4 km	13-54 14.4km	9	
S 8	BC	17	27.8	22.9	0214	0524 15.8 km	0703 13.3 km	0821 16.9 km	0904/1300 14.7 km	1313 Var.	1605 16.4 km	13-51 14.8km	10	
S 9	OT	20	22.0	26.0	0223	0535 15.6 km	0710 13.9 km	0828 16.9 km	0857/1420 9.1 km	1507 Var.	1826 14.1 km	16-03 13.8km	19	
S10	GC	14	27.7	22.9	0235	0545 15.8 km	0719 14.0 km	0836 17.1 km	0918/1436 6.4 km	1520 Var.	1835 14.5 km	16-00 13.7km	20	
S11	CAR	53	25.1	32.2	0250	0607 15.2 km	0730 15.9 km	0847 17.1 km	0940 15.8 km	1210 Var.	1440 16.8 km	11-50 16.1km	1	
S12	CAR	39	20.4	28.0	0300	0620 15.0 km	0742 16.1 km	0859 17.1 km	0929/1435 10.0km	1518 14.0 km	1840 14.0 km	15-48 14.9km	21	
S13	CAR	45	27.1	30.6	0313	0637 14.7 km	0757 16.5 km	0914 17.1 km	0950 10.0 km	1208 Var.	1447 17.7 km	11-34 15.1km	2	
S14	OTHR	66	41.6	42.0	0335	0657 14.9 km	0814 17.1 km	0931 17.1 km	1002 11.6 km	1327 Var.	1615 16.4 km	12-40 15.6km	11	
S15	BC	31	39.1	28.6	0350	0708 15.2 km	0825 17.1 km	0945 16.5 km	1039 6.7 km	1332 Var.	1631 15.8 km	12-41 15.0km	12	
S16	CONT	20	31.2	25.5	0410	0725 15.4 km	0843 16.9 km	1000 17.1 km	1030/1300 16.6 km	1336 15.0 km	1638 16.8 km	12-28 15.7km	13	
S17	BC	27	37.9	30.0	0421	0752 14.2 km	0904 18.3 km	1020 17.4 km	1130/1325 12.0 km	1337 Var.	1638 15.6 km	12-17 15.0km	14	
S18	CONT	52	38.9	32.2	0430	0800 14.2 km	0917 17.1 km	1035 16.9 km	1105 12.0 km	1155 12.0 km	1455 15.7 km	10-25 15.1km	3*	
S19	CONT	53	41.1	32.2	0446	0807 13.6 km	0927 16.5 km	1045 16.9 km	1115 12.0 km	1204 12.2 km	1503 15.8 km	10-17 15.3km	4*	
S20	CHM	14	31.2	23.0	0457	0824 14.5 km	0945 16.3 km	1100/1340 17.6 km	1421 Var.	1458 16.2 km	1805 15.1 km	13-08 15.4km	17	
S21	GC	15	35.0	30.0	0507	0833 14.6 km	0955 16.1 km	1100/1640 17.6 km	1650 Var.	1724 17.6 km	2020 16.0 km	15-13 15.7km	22	
S22	RSRH	4	22.0	16.0	0515	0839 14.7n km	1002 15.9 km	1124/1340 16.1 km	1400 Var.	1453 11.3 km	1818 13.8 km	13-03 14.3km	18	
S23	CONT	49	39.4	32.2	0700	1005/1700 16.2 km	1804 15.9 km	1925 16.3 km	1945 18.0 km	2020 17.1 km	2317 15.9 km	16-17 16.2km	25	
S24	CONT	26	32.6	29.1	0722	1028 16.1 km	1145/1602 17.1 km	1715 15.6 km	1736 17.1 km	1812 16.7 km	2056 17.2 km	13-34 16.6km	23	
S25	CONT	34	37.5	32.2	0734	1040 16.1 km	1200/1647 16.5 km	1726 Var.	1748 16.4 km	1824 16.7 km	2111 16.9 km	13-37 16.6km	24	
S26	BC	35	41.0	32.2	0748	1054/1705 16.1 km	1817 15.0 km	1931 17.8 km	1955 15.0 km	2031 16.7 km	2328 15.9 km	15-40 16.1km	26	
S27	BC	35	40.2	32.2	0800	1109/1707 15.8 km	1823 15.0 km	1940 17.1 km	2002 16.4 km	2039 16.2 km	2335 16.2 km	15-35 16.0km	27	
S28	BC	17	31.6	26.0	0810	1125/1715 15.4 km	1830 15.2 km	1946 17.4 km	2009 15.6 km	2045 16.7 km	2345 15.7 km	15-35 15.8km	28	
S29	CONT	48	39.1	32.2	0833	1146/1718 15.5 km	1838 16.5 km	1957 16.7 km	2018 17.1 km	2054 16.7 km	2354 15.7 km	15-21 15.9km	29	
S30	CONT	34	37.1	32.2	0842	0157/1723 15.4 km	1844 15.8 km	2009 15.5 km	2031 16.4 km	2105 17.6 km	0008 15.4 km	15-34 15.4km	30	
S31	BC	27	36.5	32.2	0857	1218/1740 14.9 km	1900 16.5 km	2017 17.1 km	2041 15.0n km	2117 16.7 km	0622 15.2 km	15-25 15.5km	31	
S32	CONT	52	40.3	32.2	0908	1205/1741 16.9 km	1901 15.3 km	2025 16.9 km	2048 15.6km	2125 16.2 km	0032 15.1 km	15-24 15.7km	32	
S33	GC	3	14.1	30.0	0912	1220/1744 16.1 km	1918 14.4 km	2033 17.6 km	2056 15.7 km	2135 15.4 km	0045 14.8 km	15-33 15.5km	33	
Average					-	15.3 km	15.5 km	-	-	-	-	15.7 km	14-17 15.2km	-

* Passing vessels without waiting in the lakes

Source) SCA Diagram

**Table 4.6.3 Record of the Movements of N-bound Vessels
(7/1/2000 Heavy Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Tewfiq	GB SL	GB NL	Dev.	Timsah	Ballah	Fouad	Time Req'd	Order (out)
					161 km	47/114	10/104	6/98	22/76	22/54	50/4		
N 1	CONT	37	38-11	32.2	0503	0809/1032 15.2 km	1048 Var.	1114 15.0 km	1228 17.8 km	1345 17.1 km	1648 17.3 km	11-45 16.7km	1
N 2	CONT	48	38-4	32.2	0518	0827/1050 14.9 km	1055 Var.	1125 12.0 km	1241 17.4 km	1357 17.4 km	1659 16.5 km	11-41 15.8km	2
N 3	CONT	50	39-4	32.2	0530	0834/1105 15.0 km	1110 Var.	1136 13.8 km	1253 17.1 km	1410 17.1 km	1712 16.5 km	11-42 16.0km	3
N 4	CONT	69	42-0	-	0542	0845 14.2 km	0924/1143 15.4 km	1143 Var.	1302 16.7 km	1417 17.6 km	1720 16.4 km	11-42 16.1km	4*
N 5	CONT	42	42-8	32.2	0555	0900 15.2 km	0930/1150 16.0 km	1150 Var.	1312 16.1 km	1425 18.1 km	1728 16.4 km	11-33 16.4km	5*
N 6	CAR	50	27-9	32.2	0607	0925 14.2 km	1031/1200 9.1 km	1200 Var.	1320 16.5 km	1437 17.1 km	1740 16.4 km	11-25 16.6km	6
N 7	CONT	24	34-1	28.4	0615	0942/1108 13.6 km	1128 Var.	1205 9.7 km	1327 16.1 km	1448 16.3 km	1755 16.0 km	11-40 16.1km	7
N 8	CONT	21	33-2	28.4	0622	0924 15.5 km	1115 Var.	1222 Var.	1338 15.5 km	1458 18.6 km	1805 16.0 km	11-43 16.1km	8
N 9	OT	6	27-7	18.2	0630	1000 13.4 km	1155 Var.	1233 Var.	1348 17.6 km	1506 16.9 km	1810 16.3 km	11-40 15.5km	9*
N10	BC	27	36-1	26.0	0639	1004 13.8 km	1205 Var.	1238 10.9 km	1355 17.1 km	1515 16.5 km	1817 15.7 km	11-38 15.3km	10*
N11	BC	28	33-4	-	0647	1010 13.9 km	1213 Var.	1244 11.6 km	1403 16.7 km	1520 17.1 km	1824 16.3 km	11-37 15.5km	11*
N12	BC	37	34-1	32.2	0655	1000 15.2 km	1220 Var.	1252 11.3 km	1410 16.9 km	1526 17.4 km	1830 16.3 km	11-35 15.6km	12
N13	BC	26	33-6	30.5	0709	1018 14.9 km	1228 Var.	1303 10.3 km	1420 17.1 km	1537 17.1 km	1840 16.4 km	11-31 15.2km	13
N14	OTHR	16	32-2	24.8	0715	1010 16.1 km	1223 Var.	1306 8.4 km	1428 16.1 km	1547 16.7 km	1850 16.4 km	11-35 15.7km	14*
N15	BC	17	30-0	22.9	0731	1055 13.8 km	1220 7.1 km	1313 6.8 km	1435 16.1 km	1555 16.5 km	1902 16.0 km	11-31 13.6km	15*
N16	THL*	34	37-10	-	0738	1111 13.2 km	1225 8.1 km	1319 6.7 km	1440 16.3 km	1600 16.5 km	1907 16.0 km	11-29 13.7km	16*
N17	GC	1	10-6	11.4	0743	1115 13.3 km	1237 7.3 km	1325 7.5 km	1445 16.5 km	1608 15.5 km	1916 16.1 km	11-33 13.6km	17*
N18	CONT	2	12-6	-	0752	1122 13.4 km	1242 7.5 km	1330 7.5 km	1456 15.3 km	1617 16.3 km	1925 16.0 km	11-33 13.6km	18*
N19	CHM	23	32-10	32.0	0801	1134 13.2 km	1250 7.9 km	1337 7.7 km	1459 16.1 km	1624 15.5 km	1928 16.3 km	11-27 13.7km	19*
N20	OT	163	49-10	58.0	0817	1210 12.1 km	1314 9.4 km	1351 9.7 km	1521 14.7 km	1648 15.2 km	2012 14.7 km	11-55 13.2km	20*
N21	CHM	27	40-6	32.2	0835	1225 12.3 km	1327 9.7 km	1405 9.5 km	1535 14.7 km	1702 15.2 km	2029 14.5 km	11-54 13.9km	21*
N22	BC	25	34-1	30.0	0848	1235 12.4 km	1336 9.8 km	1415 9.2 km	1542 15.2 km	1709 15.2 km	2035 14.6 km	11-47 13.3km	22*
N23	BC	23	36-3	-	0859	1247 12.4 km	1351 9.4 km	1423 11.3 km	1552 14.8 km	1717 15.5 km	2047 14.3 km	11-48 13.3km	23*
N24	OBO	72	50-6	45.4	0930	1300 18.8 km	1412 8.3 km	1435 15.7 km	1600 15.5 km	1725 15.5 km	2056 14.2 km	11-26 13.7km	24*
Average					-	14.2 km	-	-	16.2 km	16.6 km	15.9 km	11-38 14.9km	-

* Passing vessels without waiting in the lakes

Source) SCA Diagram

**Table 4.6.4 Record of the Movements of S-bound Vessels
(27/10/2000 Average Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Fouad	Ballah	Timsah	Dev.	GB NL	GB SL	Tewfiq	Time Req'd	Order (out)
					4 km	50/54	22/76	22/98	6/104	10/114	47/161		
S 1	BC	25	36-1	30.0	0141	0459 15.2 km	0620 16.3 km	0735 17.6 km	0800 14.4 km	0824/1255 Var.	1543 16.8 km	14-02 16.7km	4
S 2	GC	15	25-0	23.4	0150	0505 15.4 km	0628 15.9 km	0745 17.1 km	0808 15.7 km	0827/1258 Var.	1553 16.1 km	14-03 16.7km	5
S 3	RSRH	5	28-3	-	0158	0513 15.4 km	0635 16.1 km	0753 16.9 km	0814 17.1 km	0833/1306 Var.	1558 16.4 km	14-00 16.2km	6
S 4	GC	8	30-2	20.2	0209	0523 15.5 km	0646 15.9 km	0805 16.7 km	0832 13.3 km	0845/1315 Var.	1605 16.6 km	13-56 16.0km	7
S 5	BC	27	38-7	32.2	0220	0532 15.6 km	0654 16.1 km	0815 16.3 km	0845 12.0 km	0908/1322 Var.	1614 16.4 km	13-54 15.4km	8
S 6	CONT	38	38-1	32.3	0227	0543 15.3 km	0705 16.1 km	0825 16.5 km	0855 12.0 km	0915/1330 Var.	1621 16.5 km	13-54 15.8km	9
S 7	CONT	17	25-3	-	0238	0555 15.2 km	0720 16.1 km	0840 16.5 km	0904 15.0 km	0910/1335 Var.	1630 16.1 km	13-52 15.6km	10
S 8	CONT	56	41-8	32.2	0258	0607 15.9 km	0730 15.9 km	0847 17.1 km	0907 18.0 km	0934/1240 Var.	1529 16.7 km	12-31 16.6km	2
S 9	CONT	82	41-0	42.8	0314	0618 16.3 km	0745 15.2 km	0904 16.7 km	0928 15.0 km	0948/1245 Var.	1535 16.6 km	12-21 16.3km	3
S10	LPG	11	20-0	-	0328	0650 14.9 km	0816 15.3 km	0940 15.7 km	1004 15.0 km	1005/1220 Var.	1521 15.6 km	11-53 16.2km	1
S11	GC	6	19-9	18.0	0356	0708 15.6 km	0826 16.9 km	0946 16.5 km	1015 12.4 km	1220/1340 Var.	1633 16.3 km	12-37 15.8km	11
S12	YACH	0.06	5-7	8.0	0403	0715 15.6 km	0834 16.7 km	0951 17.1 km	1103 Var.	1300 Var.	1640 16.6 km	12-37 16.3km	12
S13	GC	11	30-6	21.8	0646	1015/1715 15.6 km	1819 16.9 km	1939 16.5 km	2000 17.1 km	2037 16.2 km	2331 16.2 km	16-45 16.1km	13
S14	CONT	27	26-7	22.7	0659	1022/1715 15.5 km	1828 16.4 km	1944 17.4 km	2006 16.4 km	2044 15.8 km	2341 15.9 km	16-42 15.9km	14
S15	CONT	15	32-10	25.0	0705	1023/1722 15.2 km	1834 16.7 km	1953 16.7 km	2015 16.4 km	2051 16.7 km	2347 16.0 km	16-42 16.0km	15
S16	RC	3	20-4	-	0713	1032/1732 14.8 km	1845 15.2 km	2000 17.6 km	2022 16.4 km	2058 16.7 km	2356 15.8 km	16-43 16.0km	16
S17	BC	20	32-10	27.0	0727	1046/1753 15.1 km	1915 15.4 km	2036 16.3 km	2100 15.0 km	2137 16.2 km	0107 13.4 km	17-40 14.9km	18
S18	CAR	50	28-2	32.2	0825	1154/1737 15.1 km	1901 15.7 km	2016 17.6 km	2039 15.7 km	2115 16.7 km	0012 15.9 km	15-47 15.6km	17
Average					-	15.4 km	16.0 km	16.8 km	-	-	16.1 km	14-25 16.0km	-

**Table 4.6.5 Record of the Movements of N-bound Vessels
(27/10/2000 Average Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Tewfiq	GB SL	GB NL	Dev.	Timsah	Ballah	Fouad	Time Req'd	Order (out)
					161 km	47/114	10/104	6/98	22/76	22/54	50/4		
N 1	CAR	64	28-3	32.3	0551	0844 16.3 km	0919 17.1 km	0940 17.1 km	1057 17.1 km	1215 16.9 km	1523 16.0 km	9-32 16.5km	1*
N 2	CAR	55	28-9	-	0557	0853 16.0 km	0927 17.6 km	0948 17.1 km	1107 16.7 km	1226 16.7 km	1531 16.2 km	9-34 16.4km	2*
N 3	CONT	52	32-6	32.2	0607	0905 15.8 km	0940 17.1 km	1004 15.0 km	1121 17.1 km	1242 16.3 km	1545 16.4 km	9-38 16.3km	3*
N 4	CONT	42	37-1	32.2	0632	0930 15.8 km	1006 16.7 km	1027 17.1 km	1146 16.7 km	1306 16.5 km	1610 16.3 km	9-38 16.3km	4*
N 5	CONT	71	42-0	40.3	0647	0947 15.7 km	1024 16.2 km	1045 17.1 km	1204 16.7 km	1319 17.6 km	1622 16.4 km	9-35 16.8km	5*
N 6	CONT	54	42-0	32.2	0656	1000 15.3 km	1034 17.6 km	1058 15.0 km	1213 17.6 km	1330 17.1 km	1647 15.2 km	9-51 15.9km	6*
N 7	LNG	103	37-9	43.4	0725	1052 13.6 km	1132 15.0 km	1200 12.9 km	1330 14.7 km	1457 15.2 km	1825 14.4 km	11-00 14.3km	7*
N 8	OT	164	50-0	57.3	0745	1110 13.8 km	1150 15.0 km	1215 14.4 km	1350 13.9 km	1518 15.0 km	1844 14.6 km	10-59 14.3km	8*
N 9	BC	82	56-9	43.0	0805	1129 13.8 km	1210 14.6 km	1237 13.3 km	1411 14.0 km	1536 15.5 km	1910 14.0 km	11-05 14.2km	9*
N10	CONT	33	36-1	32.2	0900	1146 17.0 km	1222 16.7 km	1225/1355 Var.	1510 15.5 km	1627 17.1 km	1947 15.2 km	10-47 16.5km	11
N11	CAR	48	26-4	32.3	0912	1204 16.4 km	1234/1340 Var.	1408 12.9 km	1527 16.7 km	1645 16.9 km	1944 16.8 km	10-32 16.4km	10
N12	CONT	24	34-5	28.4	0920	1230 14.8 km	1307/1354 Var.	1415 17.1 km	1535 16.5 km	1655 16.5 km	1958 16.4 km	10-58 15.6km	12
N13	CONT	19	28-7	26.0	0930	1230 15.7 km	1240/1400 Var.	1425 14.4 km	1546 16.3 km	1704 16.9 km	2010 16.1 km	10-40 15.1km	13
N14	BC	22	22-0	28.2	0935	1256 14.0 km	1316/1400 Var.	1432 14.4 km	1555 15.9 km	1714 16.7 km	2023 15.9 km	10-48 15.2km	14
N15	BC	23	34-11	28.0	0945	1306 14.0 km	1400 11.1 km	1425 14.4 km	1545 16.5 km	1705 16.5 km	2012 16.0 km	10-27 15.0km	15
N16	CCON	16	29-6	26.0	0953	1257 15.3 km	1427 Var.	1447 12.0 km	1608 16.3 km	1727 16.7 km	2030 16.4 km	10-37 16.2km	16
N17	GC	1	9-6	10.2	1002	1320 14.2 km	1430 Var.	1456 13.8 km	1617 16.3 km	1734 17.1 km	2043 15.9 km	10-41 15.3km	17
N18	BC	30	38-3	31.0	1010	1334 13.8 km	1440 9.1 km	1505 14.4 km	1627 16.1 km	1742 17.6 km	2102 15.0 km	10-52 14.4km	18*
Average					-	15.1 km	-	-	16.1 km	16.6 km	15.7 km	10-24 15.6km	-

* Passing vessels without waiting in the lakes

Source) SCA Diagram

**Table 4.6.6 Record of the Movements of S-bound Vessels
(6/11/2000 Light Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Fouad	Ballah	Timsah	Dev.	GB NL	GB SL	Tewfiq	Time Req'd	Order (out)
					4 km	50/54	22/76	22/98	6/104	10/114	47/161		
S 1	CONT	54	40-2	32.2	0157	0504 16.0 km	0627 15.9 km	0746 16.7 km	0810 15.0 km	0831/1120 Var.	1413 16.3 km	12-16 16.6km	1
S 2	BC	90	57-11	-	0212	0556 13.4 km	0727 14.5 km	0903 13.7 km	0938 10.3 km	0938/1231 Var.	1550 14.2 km	13-38 13.7km	9
S 3	BC	24	33-2	29.6	0233	0605 14.5 km	0737 14.3 km	0906 14.8 km	0928 16.4 km	0954/1148 Var.	1438 16.6 km	12-05 15.1km	4
S 4	RC	14	24-11	-	0247	0614 14.5 km	0745 14.5 km	0915 14.7 km	0937 16.4 km	1000/1200 Var.	1453 16.3 km	12-06 15.0km	5
S 5	CCON	18	32-10	26.0	0301	0625 14.7 km	0754 14.5 km	0917 15.9 km	0937 18.0 km	0951/1213 Var.	1505 16.4 km	12-04 15.5km	6
S 6	CONT	39	32-2	32.2	0315	0635 15.0 km	0802 15.2 km	0925 15.9 km	0951 13.8 km	1005/1215 Var.	1514 15.8 km	11-59 15.7km	7
S 7	BC	38	41-8	32.2	0324	0643 15.1 km	0807 15.7 km	0931 15.7 km	0956 14.4 km	1006/1231 Var.	1522 16.5 km	11-58 15.8km	8
S 8	OT	6	26-3	18.8	0336	0650 15.5 km	0817 15.2 km	0934 17.1 km	0959 14.4 km	1005/1255 Var.	1557 15.5 km	12-21 15.5km	10
S 9	CON	22	32-6	25.6	0350	0705 15.4 km	0830 15.5 km	0946 17.4 km	1016 12.0 km	1028/1255 Var.	1605 14.8 km	12-15 15.3km	11
S10	CONT	49	38-1	32.2	0404	0715 15.7 km	0840 15.5 km	0953 18.0 km	1028 10.3 km	1132 9.4 km	1422 16.6 km	10-18 15.2km	2*
S11	GC	68	41-4	40.0	0410	0721 15.7 km	0847 15.3 km	1000 18.1 km	1040 9.0 km	1136 10.7 km	1430 16.2 km	10-20 15.2km	3*
S12	GC	2	12-6	-	0417	0759 13.5 km	0928/1443 14.8 km	1607 Var.	1635 12.9 km	1719 13.6 km	2117 15.8 km	17-00 13.1km	12
S13	GC	18	32-3	26.5	0647	1002/1600 15.4 km	1707 Var.	1820 18.1 km	1845 14.4 km	1920 17.1 km	2219 15.8 km	15-32 16.3km	13
S14	GC	2	17-9	-	0655	1008/1608 15.5 km	1724 16.9 km	1841 17.1 km	1904 15.7 km	1942 15.8 km	2237 16.1 km	15-42 16.3km	14
S15	GC	3	20-4	-	0708	1025/1615 15.2 km	1734 16.0 km	1847 18.1 km	1910 15.7 km	1949 15.4 km	2241 16.4 km	15-33 16.1km	15
S16	CONT	19	34-0	27.5	0727	1050/1618 14.8 km	1738 16.5 km	1857 16.7 km	1920 15.7 km	1957 16.2 km	2258 15.6 km	15-31 15.6km	16
Average					-	14.9 km	-	-	14.0 km	-	15.9 km	13-10 15.4km	-

* Passing vessels without waiting in the lakes

Source) SCA Diagram

**Table 4.6.7 Record of the Movements of N-bound Vessels
(6/11/2000 Light Traffic Day)**

Order (in)	Type	SCGT (1000)	Draft ft	Beam m	Tewfiq	GB SL	GB NL	Dev.	Timsah	Ballah	Fouad	Time Req'd	Order (out)
					161 km	47/114	10/104	6/98	22/76	22/54	50/4		
N 1	CAR	53	27-5	32.2	0550	0837 16.9 km	0918 14.6 km	0943 14.4 km	1102 16.7 km	1217 17.6 km	1529 15.6 km	9-39 16.3km	1*
N 2	CONT	62	39-9	37.2	0600	0848 16.8 km	0927 15.4 km	0950 15.7 km	1110 16.5 km	1230 16.5 km	1538 16.0 km	9-38 16.3km	2*
N 3	CONT	54	43-0	32.2	0612	0901 16.7 km	0937 16.7 km	1000 15.7 km	1120 16.5 km	1240 16.5 km	1548 15.2 km	9-36 16.4km	3*
N 4	OT	136	41-0	54.6	0704	1010 15.2 km	1055 13.3 km	1122 13.3 km	1300 13.5 km	1428 15.0 km	1807 13.7 km	11-03 14.2km	4*
N 5	BC	79	54-10	43.0	0727	1034 15.1 km	1115 14.6 km	1140 14.4 km	1310 14.7 km	1444 14.0 km	1823 13.7 km	10-56 14.4km	5*
N 6	NS	0.5	8-6	-	0739	1100 14.0 km	1147 12.8 km	1218 11.6 km	1332/1503 Var.	1633 14.2 km	2039 12.2 km	13-00 12.1km	12
N 7	CAR	54	26-8	32.2	0826	1130 15.3 km	1233 9.5 km	1300 13.3 km	1416 17.4 km	1532 17.4 km	1837 16.2 km	10-11 15.4km	6*
N 8	OTHR	7	19-0	20.6	0834	1140 15.2 km	1233 11.3 km	1306 10.9 km	1422 17.4 km	1540 16.9 km	1849 15.9 km	10-15 15.3km	7*
N 9	CONT	16	32-10	-	0842	1153 14.8 km	1247 11.1 km	1315 12.9 km	1430 17.6 km	1549 16.7 km	1902 15.5 km	10-20 15.2km	8*
N10	RC	8	14-9	28.8	0850	1157 15.1 km	1254 10.5 km	1320 13.8 km	1438 16.9 km	1555 17.1 km	1907 15.6 km	10-17 15.3km	9*
N11	BC	26	32-4	31.0	0901	1207 13.7 km	1259 11.5 km	1329 12.0 km	1447 16.9 km	1603 17.4 km	1917 15.5 km	10-16 15.3km	10*
N12	BC	12	27-11	23.1	0909	1214 15.2 km	1307 11.3 km	1337 12.0 km	1455 16.9 km	1615 16.5 km	1927 15.6 km	10-18 15.2km	11*
Average					-	15.3 km	12.7 km	13.3 km	-	16.3 km	15.1 km	10-27 15.1km	-

* Passing vessels without waiting in the lakes

Source) SCA Diagram

4.6.2 Interval between vessels

Although the distance to be kept between vessels proceeding in the same direction are not prescribed in SCA regulations, there is an original standard concerning this matter which

takes the form of time interval instead of distance interval. The time interval vary from 6 min. to 25 min. mainly by vessels' DWT, which is convertible from 1,400 m for up to 30,000 DWT to 5,800 m for over 259,000 DWT.

The rather long time interval between vessels mentioned above mainly take into account the stopping distance of very large laden crude oil carriers, in particular, that continue to maintain headway from the issue of crash astern until zero speed for some 15 times of her length proceeding. In addition, to leave leeway for possible emergency measures.

In recent years, however, there has been rapid increase in container vessels and a decrease in large tankers transiting canal. Accordingly the concept of vessels' interval should be reconsidered given the high-maneuverability of container vessels as well as PCC, general cargo, passenger and naval ships.

In general, those vessels have high performance engines, which enable them to stop within three to four times of their lengths assuming the original speed is about 8 knots (15 km/h). In the event that a proceeding vessel has any accident or suddenly loses her headway, the following vessel should accordingly reduce her headway to avoid collision from behind by using the engine crash astern and variously.

The problem during this maneuver is not the interval distance between the preceding vessel but the tendency for the following vessel to swing towards starboard and fall into uncontrollable course keeping.

Therefore, attention should be focussed on loss of course control and its resultant running aground or touching with bank. Escorting tugs are naturally very suited to this purpose and thus more training in this area should be conducted.

According to the three days' diagrams, the actual state of interval between transiting vessels almost follow the original standards, however, some examples of excessive time interval of over 25 min. are found in the diagrams (11examples among 121 transiting vessels).

Therefore time adjusting of entering canal would have to be carefully for not exceed the standard intervals; excluding minor cases of huge tankers and similar. As a result, the time adjusting would effectuate to shorten the total length of a convoy.

4.6.3 Wind

When the wind blows across the canal, care must be taken to prevent the vessel drifting to leeward; it is better to stop and secure to the bollard than to risk damaging the propeller by using it near the lee bank, this being the only serious damage vessel are liable to sustain in transiting the canal. Similarly, with a wind abeam, care is required in getting under way after mooring to the bank.

4.6.4 Tidal stream

The most difficult part of the canal passage, apart from the effect of a strong wind, is between Little Bitter Lake and Port Tewfik, on account of the tidal streams prevailing there. A severe and sudden set has been reported (1996) in the vicinity of Buoy Hm 60 and Hm 80 in the Port Said By-pass Approach Channel.

4.7 Regulations for Navigation in Suez Canal

Regulations for Suez Canal are contained in Rules of Navigation, issued by SCA; a copy is held by the pilot for the master's use.

Masters are bound to make themselves well acquainted with these regulations as a condition of passage through the canal; the extracts which follow may be used by vessels approaching the canal, before the rule book is available.

4.7.1 General conditions

Transit through Suez Canal is open to vessels of all nations, subject to their complying with the conditions stated in the present Rules of Navigation.

However, SCA reserves the right to refuse access to the canal, or to order the towage or conveying of vessels which it may consider dangerous or troublesome to shipping generally.

By the sole fact of using canal waters (ie Suez Canal, Port Said Harbor and access channels etc within SCA's concession), masters and owners of vessels bind themselves to accept all the conditions of the present Rules of Navigation, with which they acknowledge being well acquainted, to conform with these conditions in every respect, to comply with any requisition made with a view to their being duly carried out, and to adhere to SCA's private code of signals.

When in canal water, any vessel or floating structure of any description is responsible for any damage and consequential loss it may cause either directly or indirectly to SCA without option for the owners and/or operators to release themselves from responsibility by purely and simply abandoning the vessel, floating structure or wreck.

Vessels carrying petroleum or dangerous cargo must comply with these regulations and also with Rules of Navigation, Appendix for Vessels Carrying Dangerous Cargo, a copy of which is given to masters on their arrival at the canal.

Vessels are not permitted to transit the canal when their draught exceeds the maximum, or when they are not well found in every respect for navigation in the canal.

4.7.2 Departure and movements under way

Mooring must not be changed before the pilot is on board. The vessel may get under way only if there is no signal from SCA. To the contrary.

When several vessels are ready to get under way at the same time, the order of their sailing either into the canal or out to sea will be fixed by SCA.

SCA will prescribe the movements of vessels under way in order to ensure the maximum safety to navigation. Consequently no vessel may demand immediate passage through the canal, and no claim for delay arising from the foregoing causes can be admitted. Masters must avoid anchoring in the canal, except in case of absolute necessity.

4.7.3 Speed

Mentioned in 4.6.1.

4.7.4 Overtaking

Vessels proceeding in the same direction are not permitted to overtake one another while underway in the canal and ports unless authorized by the Suez Canal Control Office.

4.7.5 Night transit

Navigation of sailing craft of every description by night is entirely forbidden. During night transit vessels must keep their projector alight. They must show their regulation lights and keep a man on the lookout forward.

Vessels not provided with projectors and having no mean to use hired ones from shore are only allowed to transit at night in exceptional circumstances, escorted by tugs, the master being entirely responsible. Vessels going through the canal under these conditions are subject to all the other rules for night transit.

4.7.6 Towage and convoying

At Port Said, tugs may be placed at the disposal of master if SCA deems it necessary. Vessels maneuvering in the harbor are required to provide their own hawsers. Wire towropes are not allowed.

SCA may order that certain defective vessels, or vessels carrying dangerous cargoes, shall be towed or convoyed in the canal by one of SCA's tugs.

With the exception of certain cases involving fire, grounding, etc, the master of a vessel utilizing a tug placed at his disposal has the exclusive direction and control of the maneuvers of both the vessel and the tug.

Ship owners are authorized to have their vessels towed or convoyed by their own tugs, or tugs belong to third parties, upon their entire responsibility. Such tugs must be approved by SCA.

4.7.7 Prohibitions

In canal waters, sounding the steam whistle is only allowed as laid down at 9.4.2.

Boats, other than SCA' own , are not allowed to come alongside vessels which are under way or maneuvering, except the following at their own risk:

- (a) Quarantine and Police boats;
- (b) Mooring boats;
- (c) The ship's agent's boat.

The following prohibitions are hereby notified to masters:

- (a) Allowing any shot to be fired.
- (b) Taking boats or floating appliances of whatever description in tow of vessels.
- (c) Throwing overboard earth, ashes, cinders, or articles of any kind into canal waters at any point during transit from sea to sea.
- (d) Emptying or letting oil, petrol, heavy oil, oil fuel, or scouring or cleaning water, flow from tanks having contained such products. Loading, unloading and, generally, handling of liquid fuel must be so carried out as to avoid any fuel leaking into canal waters, failing which SCA reserves the right to stop such operations until the necessary repair shall have been effected.
- (e) Picking up, without the direction intervention of SCA' official, any object that may have fallen into canal waters.

Whatever any object or merchandise whatsoever falls overboard, it must be immediately reported to SCA.

4.7.8 Accidents

Whenever a vessel under way is accidentally stopped she must, if other vessels following, attract their attention by making the sound signal described in 4.5.1, at night, in addition, the white stern light must be replaced by a red light.

In case of grounding, the master must immediately hoist the signal, and send a radio message stating whether a tug is required or not; if required, whether or not passage is clear for the tug , and whether lightening is necessary, etc.

When a vessel runs aground, SCA's officials are alone empowered to order and direct all operation required to get the vessel afloat and, in case of need, to get her unloaded and towed.

All attempts on the part of other vessels to get off a vessel aground are strictly prohibited.

Whenever a collision appears probable vessels must not hesitate to run aground, should this be necessary, to avoid it.

4.8 Formalities of pre-arrival of vessels

The advance notification of transit, which shall reach the SCA not later than four days prior to the scheduled day (Art. 12), is still remains in Rules of navigation. However, SCA is now accepting arriving vessels for joining a convoy even 2 hrs before the starting time of the convoy if the conditions permit, actually.

The rule of advance booking was effective during 80's through the beginning of 90's, which the annual transit volume attained over 18,000 to 20,000 vessels (daily average 50 -60). In accordance with descending of the traffic volume from 1994 onwards, SCA has been taking a flexible acceptance as aforementioned. In connection with this, the imposed charges for canceling and altering of a booking described in Art. 12 are not being applied, further the additional charges for late arrival described in Art. 50 (2-a) and (2-b) were reduced from 5 % to 3 % and 10 % to 5 % respectively.