CHAPTER II PORTS IN TURKEY

2-1 General

Turkey has more than 60 ports. They are located along the coast of the Mediterranean Sea, the Aegean Sea, the Marmara Sea and the Black Sea. The locations of the ports are indicated in Fig. 2-1-1.

Most Turkish coasts are near cliffs and there are not many beaches. In addition to the above, the sea bottoms near the coast have steep slopes. This is the main reason that few ports in Turkey have breakwaters.

The ports which have breakwaters are: Hopa, Trabzon, Samsun, Zonguldak, Eregli, Hayderpasa, Derince, Bandirma, Izmir, Antalya, Mersin, and Iskendern, for instance.

Aliaga and Nemrut do not have big breakwaters.

Ports in Turkey can be classified into three categories, namely :

General-Purpose ports,

Special-Purpose ports,

and marinas & other general or special-purpose piers.

The names of ports, according to the above categores, are listed in the following table.

Table 2-1-1 Ports by Category

General Purpose	Special Purpose	Marinas
Samsun	Zonguldak	Kusadasi(Turban)
Trabzon	Eregli	Datca(Barinak)
Hopa	Aliaga	Marmaris
Giresun	Nemrut	Izmir(Altinyunus)
Haydarpasa	Tasucu(Seka)	Bodrum
Derince	Botas	Kemer
Bandirma	Isdemir	Istanbul
Tekirdag		
Izmir		
Mersin		
Iskenderun		
Antalya		

2-2 Cargo Volume Handled

Data on the cargo volume handled in each port is indicated in Table 2-2-1. A map showing the volume handled is provided in Fig. 2-2-1.

(See Appendix for further detail)

Fig. 2-1-1 Location of Ports

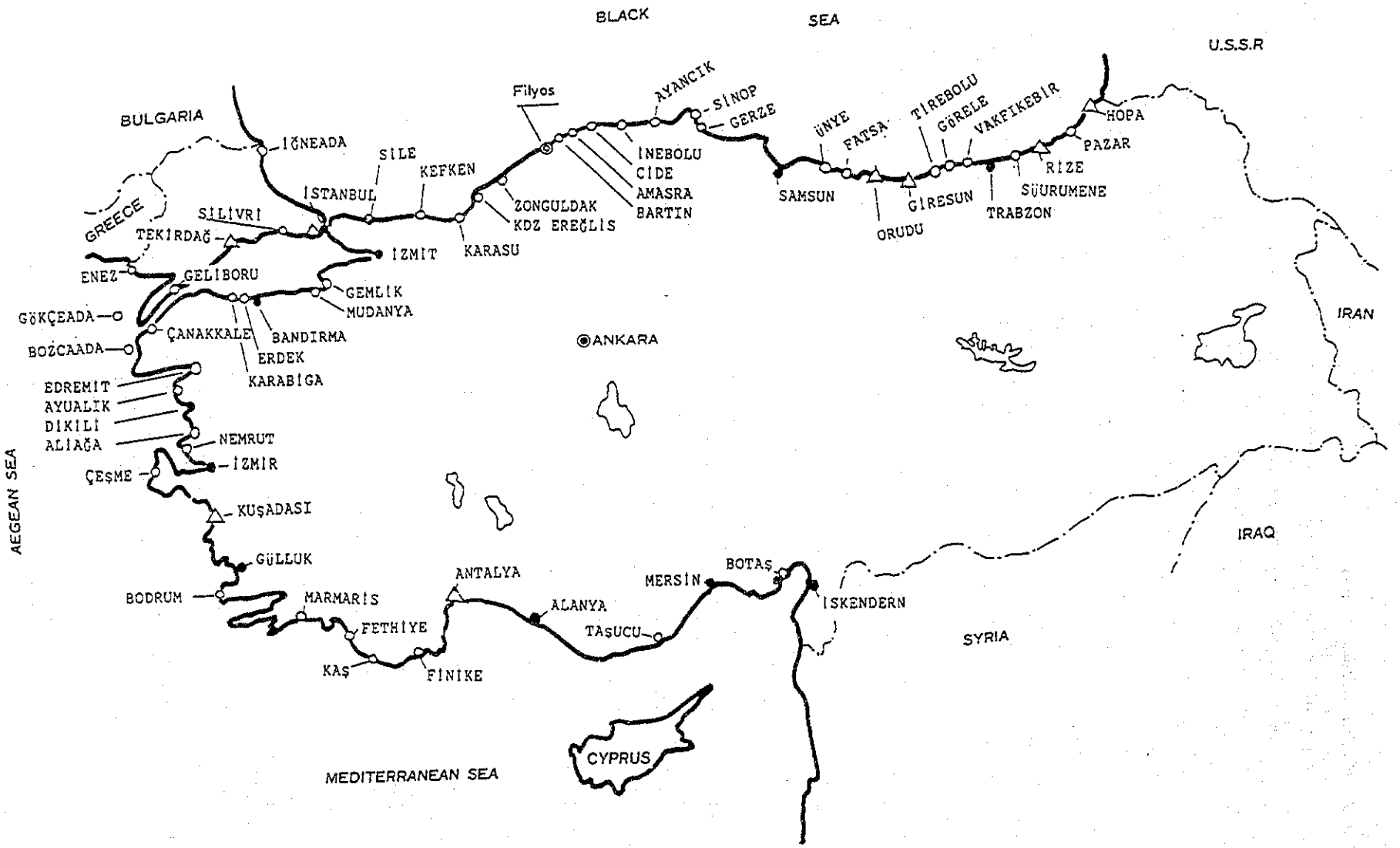


Fig. 2-2-1 Cargo Volume Map

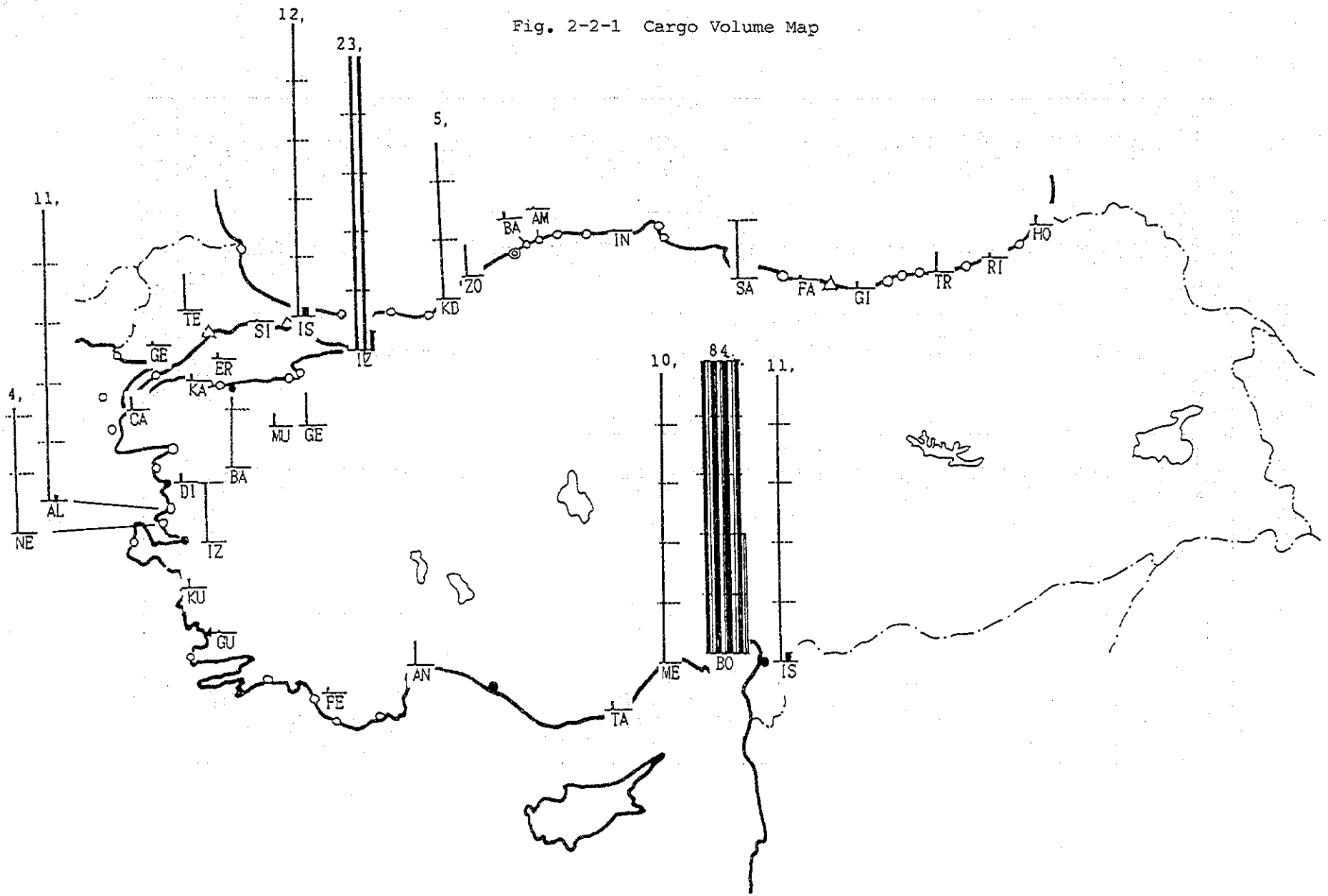


Table 2-2-1 Port Staistics(1987)

NAME OF PORT	Coastal Shipping '000 ton	Transit '000 ton	EX/IM '000 ton	TOTAL '000 ton
HOPA	165	153	60	378
PAZAR	1	0	14	15
RIZE	182	0	0	182
SURUMENE	0	0	0	0
TRABZON	531	36	138	705
VAKFIKEBIR	4	0	0	4
GORELE	0	0	2	2
TIREBOLU	0	0	0	0
GIRESUN	101	0	134	235
ORUDU	22	0	8	30
FATSA	97	0	38	135
UNYE	0	0	0	0
SAMSUN	1,373	4	641	2,018
GERZE	1	0	3	4
SINOP	17	0	2	19
AYANCIK	6	0	0	6
INEBOLU	50	0	0	50
CIDE	18	0	0	18
AMASRA	102	0	0	102
BARTIN	206	0	66	272
ZONGULDAK	964	0	116	1,080
KDZ EREGLIS	1,889	0	3,468	5,357
KARASU	0	0	0	0
KEFKEN	1	0	-1	0
SILE	38	0	0	38
IGNEADA	1	0	28	29
ISTANBUL	9,227	0	2,755	12,032
IZMIT	7,997	0	15,123	23,120
GEMLIK	313	35	795	1,143
MUDANYA	141	0	321	462
BANDIRMA	180	0	2,264	2,444
ERDEK	207	0	0	207
KARABIGA	232	0	0	232
SILIVRI	98	0	0	98
TEKIRDAG	507	18	714	1,239
GELIBORU	66	0	72	138
CANAKKALE	279	0	189	468
ENEZ	1	0	-1	0
GOKCEADA	1	0	2	3
BOZCAADA	1	0	0	1
EDREMIT	0	0	0	0
AYUALIK	1	0	36	37
DIKILI	190	0	159	349
ALIAGA	8,454	0	3,545	11,999
IZMIR	356	0	1,731	2,087
CESME	0	0	0	0
KUSADASI	0	0	341	341
GULLUK	1	0	135	136
BODRUM	0	6	32	38
MARMARIS	4	0	0	4
FETHIYE	154	0	142	296
NEMRUT	426	177	3,703	4,306
KAS	0	0	2	2
FINIKE	1	0	0	1
ANTALYA	527	0	342	869
ALANYA	0	0	13	13
TASUCU	2	41	296	339
MERSIN	4,326	743	5,283	10,352
ISENDERN	1,917	565	8,758	11,240
BOTAS	11,431	71,752	1,037	84,220
TOTAL	52,859	73,530	52,506	178,895

Source : GESIBIL

2-3 Capacities of Ports

The Ministry of Transport evaluated the capacities of ports in 1986. The evaluated capacities of ports are indicated in the following table:

Table 2-3-1 Capacities of Ports

ports	wharf length (meter)		handling capa.
	1986	1988	million tons/year
General ports(12 ports)	20,068	20,348	41.4
Special ports	7,869	8,423	41.5 *
Other gen. & spc. piers	-	17,996	-

*Excluding 60 million tons in Botas

Loading & unloading operations in 1987 are summarized in the following table:

Table 2-3-2 Loading & Unloading Operations in 1987

	Import	Export	Cabotage	Total
General-purpose Ports	10,505	5,734	8,907	25,146
Special-purpose Ports	11,969	3,770	19,994	35,733
Other piers	13,114	3,437	19,846	36,397
Total	35,588	12,941	48,747	97,276

From this data, ports in Turkey can be seen to have had some reserve capacity in 1987.

2-4 Port Construction

The Directorate General for the Construction of Railways, Harbours, and Airports (DLH) completed the following construction work in 1983-1987.

Table 2-4-1 Past construction projects

(million TL)

Year	Place	Project name	Cost
1983	Derince	Superstructural facilities and equipment	343
1983		The Cide Breakwater	172
1983		Maintainance and repair of a Dredger and construction of berthing facilities	240
1983		Repair work to Bozcaada Ferry Pier	26
1985	Iskendern	Concrete pavement and others	201
1986	Keban Lake	Ferryboat Pier	297
1987	Inebolu	Completion of Inebolu Harbour	439
1987	Iskendern	Supplementary Construction	3,462
1987	Hopa	Supplementary Construction and General Cargo wharf	2,520
1987		Extension of the Tekirdag Pier	644

Ongoing projects in 1988 are listed in Table 2-4-2.

Studies within the framework of the 1989-1993 Transport Masterplan envisage the performance of the following projects:
1)Tirebolu, 2)Amasra, 3)Canakkale, and 4)Marmara Ereglisi

The projects listed in the Transportation Master Plan are indicated in Table 2-4-3.

Table 2-4-2 On Going Projects

(Million TL)

Project Name	Place	Characteristic	Date start-end	Total of project		Cummultive Expenditure 1,988 end		
				Foreign	Total	Foreign Credit	Domestic Resource	TOTAL
DLH TOTAL				82,000	368,000	0	10,000	231,000
A)Survey Project TTL				0	198	0	0	21
a)To be Completed in '89				0	198	0	0	21
*Survey project	Various	survey	89-89	0	89	0	0	0
*Zonguldak(Filyos)Port	Zonguldak	survey	88-89	0	109	0	0	21
b)To be Completed aft'89				0	0	0	0	0
B)On-going Projects TTL				82,000	359,000	0	10,000	231,000
a)To be Completed in '89				2,830	80,000	0	2,830	74,200
*Samsun Constr.& Supply	Samsun	Infra.& Cranes	70-89	1,160	20,100	0	1,160	19,300
-Completed			70-89	1,160	17,900	0	1,160	17,900
-Lock of Indust.port			84-89	0	2,090	0	0	1,390
*Marine equipment	Various	Marine equip.	75-89	0	8,680	0	0	8,110
-Completed			75-86	0	8,110	0	0	8,110
-2x500m3 water barge			83-89	0	5,650	0	0	0
*Trabzon Constr.& Supply	Trabzon	Infra.& Cranes	78-89	1,680	21,800	0	1,680	20,800
-Completed			78-88	1,680	20,700	0	1,680	20,700
-Constr.& Supply			87-89	0	1,020	0	0	122
-Dredging			89-89	0	150	0	0	0
*Water Barge Const.	Various	Water Barge Con	83-89	0	1,590	0	0	1,410
-Completed			83-86	0	667	0	0	667
-350-500m3 water barge			83-89	0	923	0	0	743
*Arrangement of FTZ	Antalya-Icel	Infra.	85-89	0	26,000	0	0	26,000
-Antalya Fr. Trade Zone			85-89	0	9,880	0	0	8,880
-Mersin Free Trade Zone			85-89	0	16,100	0	0	15,100
*Gokceada Ferryboat Quay	Canakkale	Infra.	87-89	0	1,740	0	0	544
b)To be Completed aft'89				79,100	279,000	0	7,580	156,000
*Mersin P. Constr.Supply	Icel	Infra.	75-90	0	22,800	0	0	19,500
-Completed			75-88	0	19,100	0	0	9,100
-Dredging			87-89	0	538	0	0	338
-Free Trade zone			87-90	0	3,100	0	0	0
* Izmir Port Expansion	Izmir	Infra.	75-92	7,660	126,000	0	7,580	108,000
-Completed			75-88	3,710	77,200	0	3,710	77,200
-Dredging			84-89	3,951	10,300	0	3,871	10,100
-Third stage			84-89	0	22,900	0	0	20,100
-Reclamation			88-89	0	3,710	0	0	261
-Local Dredging			89-89	0	200	0	0	0
-Cever Molunun.Tanal.ve			89-92	0	12,000	0	0	811
*Antalya Port Breakwater	Antalya	Infra.	75-91	0	15,300	0	0	5,160
-Completed			75-85	0	1,730	0	0	1,730
-Constr.& Supply			86-89	0	5,250	0	0	3,250
-Dredging			86-89	0	341	0	0	141
-Maintainance of Breakwtr			88-91	0	8,000	0	0	31
*Hayderpasa Constr.&Supply	Istanbul	Infra.	77-90	0	27,100	0	0	22,400
-Completed			77-88	0	22,400	0	0	22,400
-Koprulu kavsak TCK			84-90	0	2,000	0	0	0
-TCDD Protocol Works			88-90	0	2,000	0	0	0
-Uncompleted works			88-89	0	700	0	0	0
*Public Facilities	Various	Super Structure	80-90	0	1,690	0	0	786
-Completed			80-86	0	786	0	0	786
-other public facilities			87-90	0	900	0	0	0
*Marine Constr. Machinery		Mrine Machine	82-90	0	500	0	0	0
*Bartin Fender		Infra.	84-90	0	2,200	0	0	0
*Dredging of Gulf	Izmir	Dredging	85-90	22,200	26,200	0	0	0
*Marine Equipment	Various	Bucket Dredger	85-90	45,700	53,500	0	0	0
*Cargo Quay	Canakkale	Infra.	88-91	0	3,500	0	0	0
C)New Project TTL				531	9,300	0	0	0
a)To be Completed in '89				531	9,300	0	0	0
-Techical Guide	Various	Controle Cost	89-89	0	1,770	0	0	0
-Allowance of Works	Various	Allowance	89-89	0	4,420	0	0	0
-others	Various		89-89	531	3,110	0	0	0

Table 2-4-3 Proposed Investment in the Transportation Master Plan (1981-1993)

(Planned Investment: 1981 TL)

Place	1983-1988	1989-1993
Continued Works	7,292,000	
Rize	90,000	
Tirebolu		250,000
Amasura	62,000	188,000
Bartin	300,000	6,800,000
Eregli of Marmara	3,000,000	100,000
Canakkale		
Erdemit	70,000	
Lzmir	250,000	
Kusadasi	350,000	
Other ports	400,000	1,488,000
Total	11,814,000	8,826,000

2-5 Port-Related Agencies

The following organizations are port-related agencies in Turkey. Governmental Organizations: Prime Ministry; State Planning Organization (SPO/DPT); Ministry of Transport; Ministry of Industry; Ministry of Agriculture, Forestry, and Fishery; Customs, Imigration, Quarantine, etc.

Autonomous Bodies: Turkish State Railways (TCDD), Turkisk Maritime Organization (TDI), PETOKIM, Iron-Steel Company, CISTOSAM, TUGSUS, TMO, ETIBANK, TPAO, etc.

Their roles in project implementation are as follows:

(1) The SPO considers the total balance of Investment in Turkey and judges the feasibility of specific construction projects.

(2) The Ministry of Transport coordinates all the development of ports in Turkey.

(3) The general directorate for construction of railways, Ports, and Airports(DLH) formulates the development plan for public ports and carries out implementation.

(4) Autonomous bodies, such as the Turkish State Raiways(TCDD) and the

Turkish Maritime Organization(TDI) propose the necessary improvements.

(5) Big industrial companies or autonomous bodies, such as PETKIM, CISTOSAM, TUGSUS, TRAO, etc, make plans and construct their private berths, handling machines and backup facilities.

(6) Municipal governments, or governmental organizations which do not have planning and technological sections reguests the DLH to construct their ports.

The relations between these organizations in implementation of the projects are indicated in Fig. 2-5-1.

The responsibilities of port-related organizations are listed below:

2-5-1 General Directorate of Marine Transportation

(1) To coordinate marine trade according to national policy

(2) To coordinate political, economical and legal subjects concerned with international marine work

(3) To coordinate organizations and state enterprises interested in marine works according to national marine policy and strategy.

(4) To undertake development studies on ports, harbours and piers which provide technical, social and economical benefits for the national economy

(5) To organize all marine works and undertake the dredging studies of all ports by investigating the working situations of ports and piers under operation or to be operated.

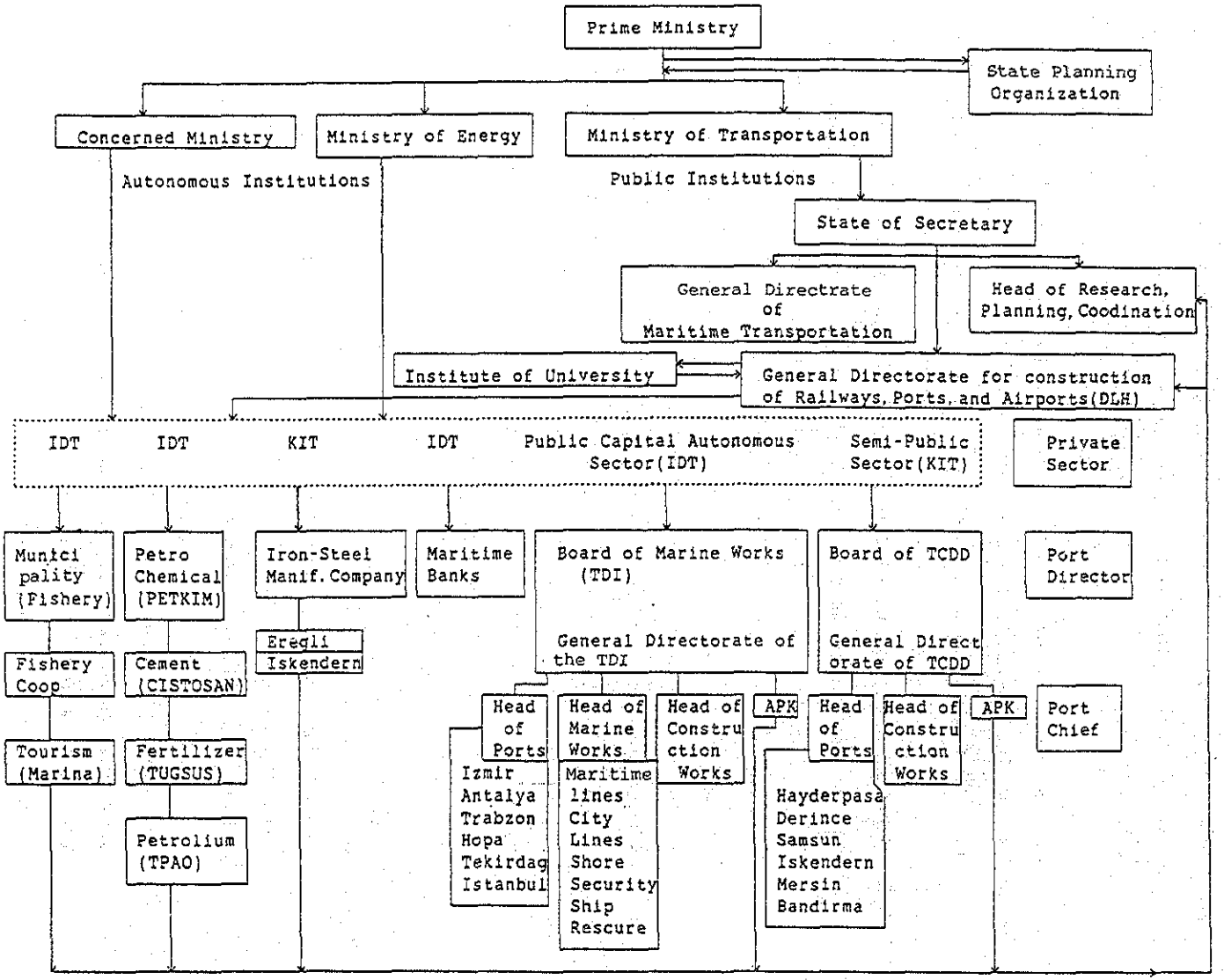
2-5-2 DLH

This directorate undertakes all projects, construction and maintenance works belonging to the semi-public sestor(KIT) and the public-capital autonomous sectors(IDT). For major projects, the required studies are undertaken by universities or institutes. Private ports are constructed by private enterprises. The DLH only approves their projects and controls all construction works.

Its main responsibilities are:

(1) To research, construct, prepare project and maintain public ports, harbouts and shore protection structures and their required facilities.

Fig. 2-5-1 Relation between Agencies in Project Implementation



(2) To provide national standards by taking precautions and controlling the project prepared by public institutions, state enterprises, municipalities, etc.

(3) To approve the above-mentioned project and control their construction works.

(4) undertake some duties given by the minister

2-5-3 TCDD

(1) To operate, develop and renew ports, quays and piers.

(2) To undertake miscellaneous transportation providing connections between railways and ships.

(3) To operate and establish the required superstructures (e.g.warehouses, silos, fuel oil tanks, etc.)

2-5-4 TDI

(1) To provide coordination and cooperation between the dependent institution of the TDI and the state

(2) To undertake loading and unloading operations by constructing and establishing the reguired facilities

(3) To provide some services for ships (e.g.water supply, fuel oil supply, etc.)

(4) To construct and operate the reguired superstructure facilities

2-6 Port Management and Organization in Turkey

2-6-1 Classification of Ports in Turkey

From the administrative point of view, ports in Turkey are classified into three groups: public, municipal, and privately owned ports.

The main ports in Turkey have been placed under the control of the central government. Port management is carried out by either the Turkish State Railways(TCDD) or the Turkish Maritime Organization(previously the Maritime Bank(DB), and now known as the TDI). Whether a port is managed by the TCDD or TDI depends upon the railway connection to the port. If the railway connects a port, this port will be managed by the TCDD. If there is no railway connection, the TDI will manage. The TCDD is the railway state company. This is why the TCDD manages ports connected to the railway system.

The management of major public ports is divided between two public

management bodies.

One group, i.e, the ports of Haydarpasa, Derince, Samsun, Mersin, Iskenderun, Bandirma and Izmir, are under the port establishment of the TCDD, and the other group, i.e, the ports of Hopa, Rize, Trabzon, Giresun, Ordu, Salipazari, Tekirdag, and Antalya, are under the port establishment of the TDI.

These major ports are under the control of the Ministry of Transport which approves the budgets and annual programmes of the TCDD and TDI.

Another public agency is engaged in the planning and management of the special public harbours in the Ministry of Industry, which controls special industrial harbours like Isdemir, Zonguldak and Eregli.

The third group is made up of privately owned ports. These ports are constructed and managed by the private sector after getting permission from the central Government.

Other public ports, i.e, Municipal ports are managed by municipalities. These ports are comparatively small ports.

2-6-2 Port Management Body

At the ports, port management is not controlled by a single port authority.

Port management body, customs, health and security agencies and another agencies concerned at the ports, as well as harbour masters under the Ministry of Transport are different entities.

The port management body is divided between TCDD and TDI.

Generally speaking, the forms of the port management body may roughly classified into the following:

(1) The national or federal government which directly manages the port;
(2) The local government(including local autonomous bodies that are established for the specific purpose of managing the port) which directly manages the port.
(3) The organs specially set up by the central government to manage the port
(4) The organs set up by the local government to manage the port.
(5) The port authorities and the like set up by individual legislation.

In Europe and north America, the port management body most other takes the form of local government or the port corporation as may be seen in Table 2-6-1.

In Japan, as we see in Table 2-6-2, the local government assumes the role of port management body. In developing countries, however, the port management bodies of their main ports are mostly public corporations or the central government's port corporations, as we see in Table 2-6-3.

Table 2-6-2 Port Management Bodies in Japan

(Oct.1, 1986)

Classification	Total number	Port Management Bodies					Others
		Prefec. tures	Munici- palities	Port authority	Cooperative system	Total	
Specially Designated Major Ports	19	9	7	0	3	19	
Major Ports	114	91	20	1	2	114	
Local Ports	961	507	371	0	0	878	81
Total	1,094	606	398	1	5	1,010	81

Notes: 1. Fishery ports are not included in the table.

2. "Specially Designated Major Ports" mean major ports which are especially important for the promotion of foreign trade and which are designated by Government Ordinance.

3. "Major Ports" mean those ports which are specified by Government Ordinance as having great importance to the national interest.

4. "Local Ports" mean those ports other than major ports.

Table 2-6-1 Port Management System in European and American Countries

	United Kingdom	Netherlands	France	Belgium	Germany	Canada	U.S.A.	Sweden	Japan
Direct Management of Central Goverenment (National Ports)			Cerbere			Port Hawkesbury			
Direct Management of Local Government through its Designated Department (Local Government Ports)	Bristol, Manchester (Note 1)	◎Rotterdam ◎Antwerpen Vlissingen (Note 1)		◎Antwerpen, Brugge, Zeebrugge (Note 1)	◎Hamburg, ◎Bremen, Bremerhaven		◎Oakland, ◎Seattle (Note 2)	◎Goteborg	◎All Ports (excepe Nii-Hama)
Management of Special Agency (Port Administration Authority) Established by Central Government (Port Administration Authority Controlled National Ports)	◎Southampton (BTDB) (Note 3)		◎Marseille			◎Montreal (NHB) (Note 4)			
Management of Special Agency (Port Administrtion Authority) Estblished by Local Government. (Port Administration Authority Controlled Local Government Ports)							◎New York, New Jersey		Nii-Hama
Management of Port Authority under the Special Law.	◎London					◎Halifax			

Note 1) Managed by the third sector setablished by the central government, the local government, etc.
Note 2) A special local autonomous body has been established to manage the port.
Note 3) British Transport Docks Board
Note 4) National Harbours Board

Table 2-6-3 Port Management in Developing Nations

Management Systems / Country	Nationally Managed Ports	Locally Managed Ports	Public Corporation Managed Ports		Independent Corporation	Privately Managed Ports	Remarks
			National Government	Local Government			
Indonesia	◎ ○						
Philippines	○		◎			△ (Mining Companies, etc.)	Separate Port Managed by Free Process and Trade Public Corporation Available
Thailand	○		◎				
Malaysia	○	○	◎				
China	◎	○					
Burma			◎ ○				
Papua New Guinea	○		◎			△(Mining Company)	
Western Samoa	◎ ○						
Cote D' Ivoire			◎ ○				
Guinea			◎				Separate Port Managed by Ministry of Mining and Geology Available
Kenya			◎ ○				
Ghana			◎				Government's Financial Support in Case of National Development Plans with Funding Difficulties
Liberia			◎ ○			△(Mining Company)	
Egypt			◎				Planning and Construction of New Ports under Ministry of Development
Argentina		○	◎			△	
Peru			◎ ○			△	Exclusive Ports for Mining Export and Oil Handling at Ports Owned by National Mining Corporation or Privately - Operated Ports

2-6-3 Port Management and Operation(The Case of Haydarpasa Port)

(1) Outline

Ports are characterized as essential infrastructures for trade activities, and serve as the connection between water and land transportation. Various activities take place at ports which directly or indirectly affect ship and cargo flow (Fig. 2-6-1). These activities are primarily conducted by terminal operators.

A terminal is a functional unit including various facilites such as quays, transit sheds, open storage areas, etc, which are necessary for providing ship service and handling cargoes.

In addition to the primary services required for ship and cargo handling, ports usually include a wide variety of other activities carried out by the public and private sectors including customs, quarantine, immigration, police activities, and so on. These activities are also crucial to the overall functioning of the port, and proper areas must be provided for these activities at each port.

The duties of the port management body include overseeing the overall activities which are carried out by various other bodies at the port, to ensure safe and efficient operations, and to promote the orderly growth of the port. In this context, the primary responsibility for port planning generally rests with the port management body.

The scope of business of the port management body differs greatly according to the historical and economical background.

For example, port management bodies in some countries directly conduct terminal operations, and the kind of services which the port management directly provides varies from port to port. In the case of Turkish ports, the port management system is different from other country's port management system.

(2) Example of Hayderpasa

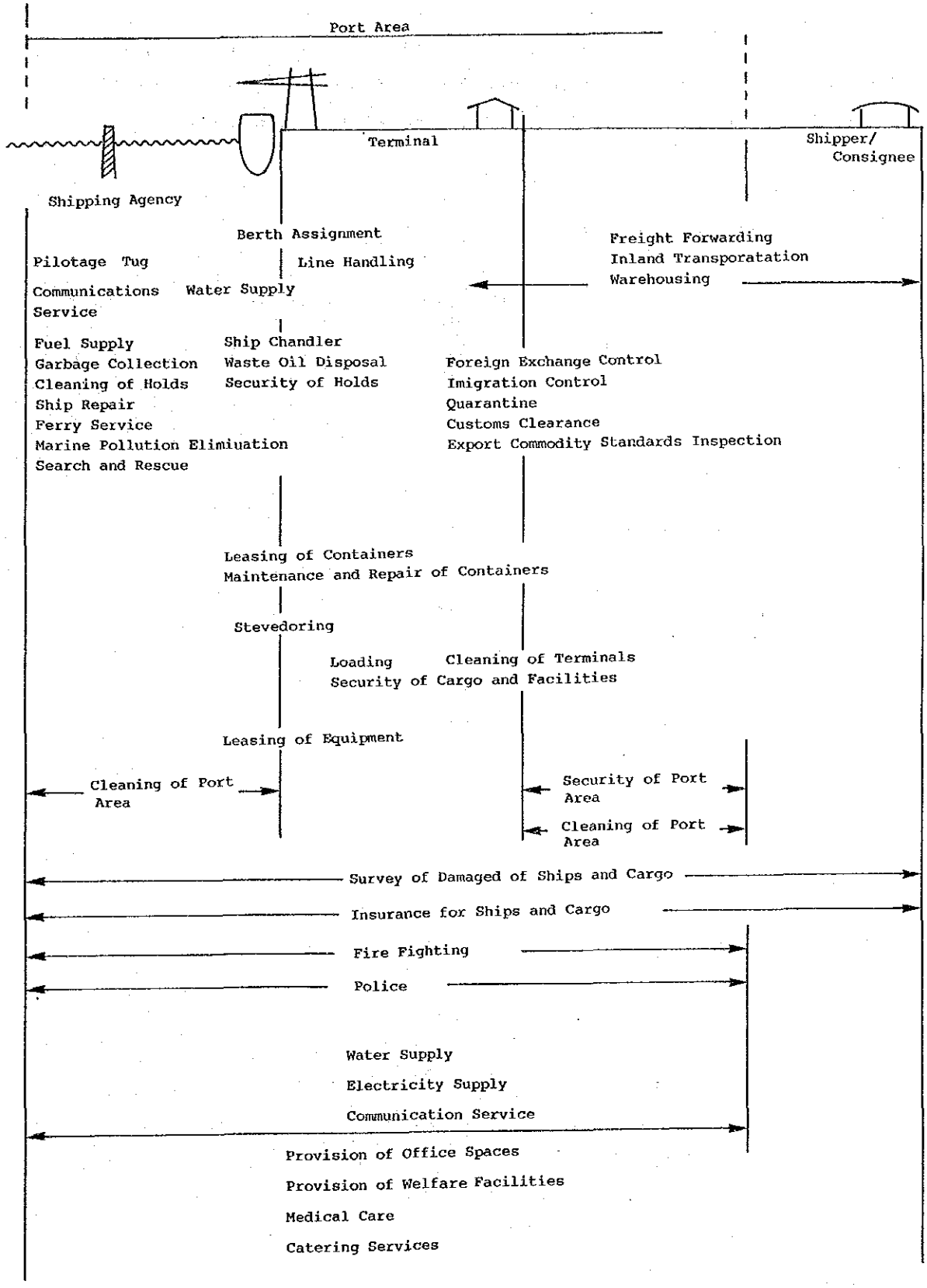
We adopted Haydarpasa port to explain port management and operation in Turkey.

The port management system at Haydarpasa is modernized and advanced and typical of other major Turkish public ports.

Therefore the data and information concerning Haydarpasa port is very useful for the purpose of the Filyos port management plan.

The Hayderpasa port management system is summarized as follows:

Fig. 2-6-1 Activities at a Port



1) Location

Hayderpasa port is situated on the Anatolian Coast of the city of Istanbul.

Saripazari is on the opposite side, i.e. European side, of Hayderpasa. The port has two breakwaters, about 1,200 meters and 700 meters long. The sea area inside the breakwaters is 62 hectares.

2) Facilities

i) Berthing facility

Berth	Length(m)	Depth(m)
No: 2 General cargo	220	- 6
No: 3 " "	190	- 10
No: 4-5 " "	334	- 10
No: 6 " "	220	- 10
No: 7-8 " "	246	- 10
No: 9 Dry bulk	153	- 8
No:10 Ro-Ro	25	- 8
No:11 Container	350	- 10
No:12 "	300	- 12
No:13-14 General Cargo	295	- 10
No:15 General Cargo	220	- 8
No:16 " "	96	- 8
No:17 " "	160	- 8

ii) Storage area

Warehouse Total 30,686m^2(CFS, 3,600m^2)

Open Storage area Total 170,282m^2

(Old: 70,282m^2)
(New: 100,000m^2)

iii) Cranes

2 container gantry cranes of 40 tons,

27 shore and yard cranes of 3 to 35 tons.

2 Special container mobil cranes of 40 tons,

1 floating crane of 250tons,

Table 2-6-4 Classification of Cargo in the Past Five Years

(UNIT: 1000 TONS)

	1984		1985		1986		1987		1988	
	VOLUME	RATIO	VOLUME	RATIO	VOLUME	RATIO	VOLUME	RATIO	VOLUME	RATIO
1-FOREIGN										
BULK										
GRAIN	330	16.01%	117	4.63%	321	10.87%	179	5.47%	651	20.54%
COAL	31	1.50%	35	1.39%	8	0.27%	5	0.15%		
MINERALS										
LIQUIDS										
SUB-TOTAL	361	17.52%	152	6.02%	329	11.14%	184	5.62%	651	20.54%
GENERAL CARGO										
FERTILIZER										
CHEMICALS	25	1.21%	24	0.95%	27	0.91%	35	1.07%	26	0.82%
IRON STEEL	942	45.71%	1,043	41.27%	820	27.76%	852	26.02%	746	23.53%
CONSTRICTION			1	0.04%						
ELECTRICAL GOODS	112	5.43%	89	3.52%						
MACHINERY					116	3.93%	95	2.90%	101	3.19%
MIXED GOODS	524	25.42%	1,059	41.91%	1,413	47.83%	1,889	57.68%	1,379	43.50%
SUB-TOTAL	1,603	77.78%	2,216	87.69%	2,376	80.43%	2,871	87.66%	2,252	71.04%
FOREIGN -TOTAL	1,964	95.29%	2,368	93.71%	2,705	91.57%	3,055	93.28%	2,903	91.58%
2-TRANSIT	6	0.29%	58	2.30%	188	6.36%	155	4.73%	184	5.80%
3-COASTAL										
GRAIN	68	3.30%	81	3.21%	43	1.46%	42	1.28%	72	2.27%
COAL	16	0.78%	15	0.59%	18	0.61%	23	0.70%	11	0.35%
MINERAL										
LIQUID										
GENERAL CARGO	7	0.34%	5	0.20%						
SUB-TOTAL	91	4.42%	101	4.00%	61	2.06%	65	1.98%	83	2.62%
TOTAL	2,061	100.00%	2,527	100.00%	2,954	100.00%	3,275	100.00%	3,170	100.00%

(SOURCE : TCDO)

3) Statistics

Table 2-6-4 shows the classification of the cargo handling volume in recent years. Haydarpasa port is an international port.

Foreign sea borne cargo amounts to over 90% of total volume. A characteristic of cargo handling is that major cargoes are grain iron steel and mixed goods. The total volume handled in 1988 was 1.5 times as large as in 1984. One big increase during these five years was in mixed goods, figures for which we do not know precisely.

Table 2-6-5 shows the relation among total volume of general cargo and container cargo. The volume of general cargo is about 1.5 time as great as five years ago. On the other hand, container cargo grew 2.4 times, as containerization progressed in recent years. This trend to containerize will continue in the future in step with other world major international ports.

Table 2-6-5 Container Ratio

(unit: 1,000 Tons)

Year	Total	General	General Ratio	Container	Container Ratio(1)	Container Ratio(2)
1984	2,061	1,603	77.78%	141	6.84%	8.80%
1985	2,527	2,216	87.69%	183	7.24%	8.26%
1986	2,954	2,376	80.43%	246	8.33%	10.35%
1987	3,275	2,871	87.66%	292	8.92%	10.17%
1988	3,170	2,252	71.04%	339	10.69%	15.05%

Remarks: Container ratio(1) = Container/Total
Container ratio(2) = Container/General

4) Port management body

Hayderpasa is managed by the General Directorate of TCDD.

Fig. 2-6-2 shows Haydarpasa organization chart.

The essential duties of the port management body can be summarized as follows:

i) Maintenance and utilization of own facilities

ii) Supervision and control of terminal operations and other commercial activities.

iii) Port marketing activities

In addion to the primary services mentioned above, Hayderpasa port management body carries out such main work as follows:

i) Loading/unloading
ii) Workshop
iii) Dockwork

Turkish port management bodies operate cargo handling by themselves. This kind of port management system is different from other foreign countries' port, i.e. American and japanese ports. (Ref. Table 2-6-6)

Fig. 2-6-2 Hayderpass Organizational Chart

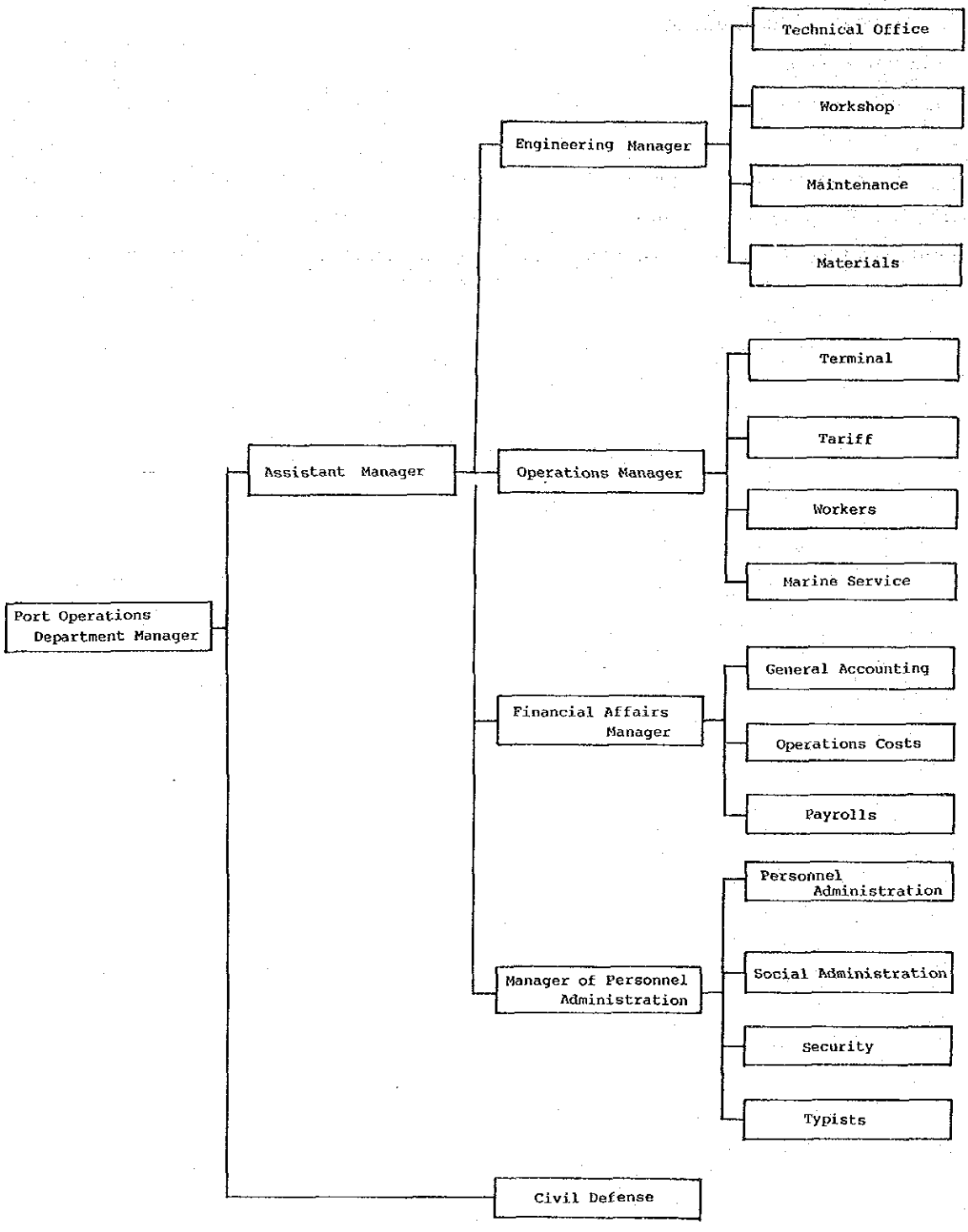


Table 2-6-6 Scope of Work of Port Management Bodies

Mame of port	New York New Jersey	London	Rotterdam	Dalian	Bangkok	Singapore	Hong Kong	Yokohama
Name of Country	USA	United kingslcm	Netherlands	China	Thailand	Singapore		Japan
1. Owner of facilities(Berth)	●	○	○	○	●	○	○	●
2. Berth assignment	●	○	○	○	○	○	●	●
3. Collection port charge	●	○	○	○	○	○	●	●
4. Port Statistics	○	○	○	○	○	○	○	○
5. Navigation Control			○			○	○	
6. Customs Clearance								
7. Quarantine								
8. Immigration								
9. Navigation Safety		○		○	○			
10. Police service	○	○		○	○	○		
11. Fire fighting	○	○		○	○	○		
12. Warehouse/open storage area permission		○		○	○	○	●	●
13. CY Operation		○		○	●	○		
14. CFS Operation		○		○	○	○		
15. Stevedoring		○		○		○		
16. Longshoring		○		○	○	○		
17. Warehouse operation		○		○	○	○		
18. Transportation to/from the port area		○						
19. Railway operation in the port area		○		○		—	—	
20. Towage		○		○	○	○		
21. Line handling		○		○	○	○		
22. Lighterage				○		○		
23. Oil bunkering/water supply					○	○		
24. Pilotage			○	○		○	○	
25. Tally/Weighing				○	○	○		
26. Refuse Collection & Disposal				○		○	○	○

Remarks : ● Lessee terminal operator

Number of officials and laborers

Port manager
Assistant manager: Administration, Operations
Container, Statistics, Purchase
Technical matters
Operations sector: 138 persons
Engineering: 20 persons
Personnel: 77 persons
Finance section: 10 persons
Other: 1 person

Labour:
Engineering: 277 persons
Operations sector: 684 persons
Personnel: 4 persons
Total 1,215 persons

These figures include permanent, temporary and casual laborers.

Table 2-6-8 shows the labour productivity among TCDD major ports. Taking into consideration labour productivity only, Haydarpasa port utilizes its labour force effectively when compared with other major ports.

Table 2-6-8 Comparison of Labour Productivity in Major Ports(1988)

(unit: ton)

Name of Port	Official	Worker	Total	General Cargo	Productivity
Hayderpasa	248	772	1,020	2,252,000	2,917.10
Derince	147	296	443	534,000	1,804.05
Samusun	158	345	503	228,000	660.87
Mersin	311	1,071	1,382	2,592,000	2,420.17
Iskenderun	226	761	987	447,000	587.39
Bandirma	123	261	384	502,000	1,923.37
				-	-
Average	1,213	3,506	4,719	6,555,000	1,389.06

Remark: Productivity = GENERAL CARGO / WORKER

5) Port services

There are different type of organization concerned with port service as follows:

i) Customs

ii) Pilot sevice under TDI (Turkish Maritime Orgamization)

iii) Tug and Mooring service:

iv) Police station under the Istanbul police chief sea department

v) Fire station

vi) Port security service: Land traffic control is handled by the security department

There are no immigration office and quarantine office in this port area.

6) Berth Operation

The criterion of this port in allocating berths for incoming vessels is "First come, first served", which is the world-wide accepted criteria.

A port manager fixes allocation based on the conclusion of the daily berth meeting. This meeting is chaired by a port manager. Regular attendants at this meeting are the operations chief, technical chief, dock captain, labour service chief and terminal chief. Agency representatives can also attend this meeting if they wish.

Before the decision is made, physical dimensions, i.e, full length, draft of the vessel, capacity and specifications of ship cranes, cargo type (including cargo volume and weight) and compatibility of other terminal services are carefully considered.

7) Labour Force and Work Hours

i) Work hours

Loading / unloading opertions are conducted by two shifts including weekends.

First shift: 0800-1630 (Lunch time 1200-1300)

Second shift: 1600-2400 (Lunch time 1900-1930)

A third shift also can be established, if needed.

Each shift can work 3 hours overtime.

ii) Constitution of one shift

Type of cargo	in one shift (Steersman)	(Operator)
Container	2	1
Metal Sheets	6	1
Pallet Cargo	6	1
Steel Drums	8	1
Wool Canvas	6	1
Composite Cargo	6	1
Heavy Cargo	6	1
Paper Bags	8	1
Sacks	8	1
Iron	6	1
Bulk Mine	1	1
Scrap	1	1
Pig Iron	10	1

One steersman and loading / unloading labour are required by the type of cargo.

2-7 Port Finance

2-7-1 Present Port Finance System

(1) Budgets

Both the TCDD and TDI are subject to the budget preparation, execution and controls of the state-owned establishments.

Their annual operating and capital budgets are prepared and approved by the Board of Directors of the parent companies subject to annual overview by the Ministry of Transport, the State Planning Organization and the Ministry of Finance.

(2) Accounts

All organizations in the public sector are required to adhere to the national uniform accounting system.

The accounting concepts, classifications, and definitions follow generally accepted principles of accounting and the system is, on the whole, adequate for basic financial accounting.

(3) Audits

Annual audits are conducted by the financial inspectors attached to the Ministry of Finance.

2-7-2 Present Situation

Strictly speaking, Turkish major public ports bodies are not independent entities.

The ideal system for the port management body is a self - supporting financial system, which aims at securing the independence of the body's activities and managerial efficiency. This system means that all the expenses incurred by the management body should be covered by its own income. This involves an incentive to promote the rationalization of the port operation, resulting in the decrease in operating costs and possibly lower tariffs.

But it is considered very difficult to adopt a self - supporting financial system, because the construction of ports requires a large amount of initial investment, and because the management body will be obliged to bear a long - term financial burden for the repayment of loans. Therefore, it is necessary for the government to subsidize the port management body.

In the case of the TCDD, it operates mainly railways, ports and piers. Table 2-7-2 shows TCDD revenue - expenditure statement in the past five years. Ports and piers sector have been making great profit on the port activity.

Gross profit ratio (Profit / Total Revenue) is on the average about 60% in recent years. On the other hand, the railways sector has been suffering a loss in its railway activities. The railway sector can't cover its own expense. Therefore, the TCDD has registered a loss in its total activities in the past three years.

Table 2-7-1 TCDD Revenue - Expense Status in Recent 5 years

(unit: 1,000,000TL)

	1984	1985	1986	1987	1988
Railway Sector					
Revenue	137,980	182,923	196,584	245,604	404,130
Expense	142,384	198,193	265,329	313,303	558,264
Profit	-4,404	-15,270	-68,745	-67,699	-154,134
Ports and Piers Sector					
Revenue	30,208	43,961	58,522	78,506	125,692
Ports	30,068	43,799	58,424	78,357	123,479
Piers	140	62	98	149	244
Van Lake					1,969
Subvention					2,159
Total	30,208	43,861	58,522	78,506	127,851
Expense					
Official Salaries	771	1,108	1,291	1,743	2,080
Contracted-Staff Salaries	4	21	396	2,042	
Worker Wages	5,799	7,464	9,472	15,018	25,593
Total Staff Salaries	6,570	8,486	10,784	17,157	29,715
Material Expenses	424	535	726	1,310	2,330
Fuel and Energy	474	699	908	975	2,881
Other Expenses	2,185	8,471	7,925	11,643	21,692
Total	9,653	18,191	20,343	31,085	56,618
Profit	20,555	25,670	38,179	47,421	71,233
Total Revenue	168,188	226,784	255,106	324,110	531,981
Total Expenses	152,487	216,384	285,672	344,388	614,882
Total Profit	15,701	10,400	-30,566	-20,278	-82,901

Table 2-7-2 shows the TCDD Income Statement. The TCDD receives subsidies from the central government. This subsidy has amounted to about 15% in the past three years. This subsidy is appropriated from the railway sector.

Portwise revenus - expenditure status is shown in Table 2-7-3. As regards their financial position, TDI ports are not as good as the TCDD ports.

Table 2-7-2 TCPD Total Income Statement

TCDD INCOME STATEMENT (uuit : 1,000.000TL)

	1984		1985		1986		1987		1988	
OPERATIONAL REVENUES										
PASSENGER AND BAGGAGE	10,023	5.96%	14,308	3.61%	19,687	7.72%	28,407	8.76%	59,279	11.14%
FREIGHT TRANSPORT	42,352	25.18%	58,327	25.72%	82,211	32.23%	88,839	27.41%	180,886	34.00%
PORTS AND PIERS	30,208	17.96%	43,861	19.34%	58,522	22.94%	78,506	24.22%	125,692	23.63%
OPERATIONAL TOTAL	82,583	49.10%	116,496	51.37%	160,420	62.88%	195,752	60.40%	365,857	68.77%
VALUE-ADDED TAX									20,774	3.91%
TOTAL	82,583	49.10%	116,496	51.37%	160,420	62.88%	195,752	60.40%	345,083	64.87%
SUBVENTIONS										
TRACK MAINTENCE AND REPAIR	17,357	10.32%	21,281	9.38%	26,251	10.29%	36,604	11.29%	53,332	10.03%
NON ECONOMICAL LINES	4,254	2.53%	5,113	2.25%	12,472	4.89%	19,658	6.07%	28,704	5.40%
FREIGHT TRANSPORT	37,195	22.12%	44,228	19.50%						
SUBURBAN PASSENGER			3,121	1.38%						
VAN LAKE OPERATION									2,159	0.41%
TOTAL	58,806	34.96%	73,743	32.52%	38,723	15.18%	56,262	17.36%	84,185	15.83%
NON OPERATIONAL REVENUES										
PORT DUTIES	17,930	10.66%	23,779	10.49%	35,776	14.02%	41,506	12.81%	52,524	9.87%
OTHER	8,869	5.27%	12,766	5.63%	20,187	7.91%	30,590	9.44%	50,179	9.43%
TOTAL	26,799	15.93%	36,545	16.11%	55,963	21.94%	72,096	22.24%	102,703	19.31%
TOTAL REVENUE OF TCDD	168,188	100.00%	226,784	100.00%	255,106	100.00%	324,110	100.00%	531,981	100.00%
EXPENSE										
PAILWAY	142,834	93.67%	198,193	91.59%	265,329	92.88%	313,303	90.97%	558,264	90.79%
PORTS AND PIERS	9,653	6.33%	18,191	8.41%	20,343	7.12%	31,085	9.03%	56,618	9.21%
TOTAL	152,487	100.00%	216,384	100.00%	285,672	100.00%	344,388	100.00%	614,882	100.00%
PROTIT	15,701		10,400		-30,566		-20,278		-82,901	

SOURCE : TCDD

Table 2-7-3 Comparison of Financial Position

TCDD Revenue-Expenditure Status of Ports Year of 1988

('000 TL)

	Hydarpasa	Dernicd	Sansun	Merisin	Iskenderun	Bandirma	Total
Revenue	38,747,311	10,404,454	6,396,449	43,611,886	16,299,463	7,567,483	123,027,046
Expenditure	10,491,289	3,858,897	4,150,006	12,227,138	8,758,113	4,628,529	44,113,972
Profit (Rev-Exp)	28,256,022	6,545,557	2,246,443	31,384,748	7,541,350	2,938,954	78,913,074
Cargo Volume	3,622,215	587,528	2,101,535	10,096,234	3,165,440	2,618,611	22,191,563
Revenue/Ton	10,697	17,709	3,044	4,320	5,149	2,890	5,544
Exenditure/Ton	2,896	6,568	1,975	1,211	2,767	1,768	1,988
Profit/Ton	7,801	11,141	1,069	3,109	2,382	1,122	3,556
Exp/Rev Coefficient	27	37	65	28	54	61	36

	Hopa	Texiroag	Sarpazari	Trabzon	Giresun	Antalya	Total
Revenue	735,609	2,802,090	54,717,618	1,864,275	1,319,812	3,520,414	64,959,818
Expenditure	709,571	812,343	17,413,198	2,905,448	1,373,491	3,439,652	26,653,703
Profit (Rev-Exp)	26,038	1,989,747	37,304,420	-1,041,173	-53,679	80,762	38,306,115
Cargo Volume	332,374	1,171,419	1,714,542	326,470	195,561	733,266	4,473,632
Revenue/Ton	2,213	2,392	31,914	5,710	6,749	4,801	14,521
Exenditure/Ton	2,135	693	10,156	8,900	7,023	4,691	5,958
Profit/Ton	78	1,699	21,758	-3,189	-274	110	8,563
Exp/Rev Coefficient	96	29	32	156	104	98	41

Source: TCDI, TDI

2-7-3 Present Port Tariffs

The TCDD and TDI have the same tariffs. These tariffs also apply to other public posts.

The constitution of the present tariffs is as follows:

1) Pilotage and Tugging
2) Sheltering
3) Fresh water Delivery to ship
4) Collection of Ship's Discharge
5) Lash Lighter
6) Loading / unloading
7) Terminal and warehouse
8) Port Establishment
9) Passenger
10) Weighing
11) Renting the Port Tools, Devices and Vehicles

Present tariffs are not decided by cost estimation but for other reasons. In order to set and revise tariffs, the central government's approval is needed. Individual port management bodies can't change their charges flexibly according to local conditions.

There is a big problem in this present tariff system in that foreign vessels' port charges are more expensive than those for Turkish vessels.

At present it might be necessary to distinguish between foreign flag vessels and Turkish vessels. But in the future no difference between foreign and Turkish vessel will be needed, from the national economic point of view.

On the other hand, private port authority can set port tariff according to port conditions. Compared with public port, private port charges are comparatively lower than public ones.

Therefore much cargo volume flows in private berths, not public berths.

The throughputs of general cargoes at private berths are of small quantity, because of non-availability of equipment and the berths for big-size vessels and the locations are limited to Izmir, Derince and Iskenderun.

The type of cargo is also specific to each berth.

In addition, as a result of tariff reduction by 45% in mid 1989 at the public berths, cargo throughput at the public berths have nearly doubled, although the general cargo throughput at the private berths had been increasing before then.

CHAPTER III INTERNATIONAL CONTAINER TRAFFIC

3-1 Present Situation of Container Shipping Service in the Mediterranean and Black seas.

3-1-1 Container Service in the Mediterranean Sea

(1) Container Handling Port

The Mediterranean Sea is surrounded by 16 countries in total and these countries have main container handling ports, except Albania.

These ports can be classified in line with the characteristics of container shipping service as follows.

North Africa & Middle East

Algiers (Algeria), Tunis (Tunisia), Benghazi, Tripoli (Libya), Haifa (Israel), Beirut (Lebanon), Latakia (Syria), Mersin, Izmir, Istanbul (Turkey) ⟶ feeder ports

Port Said, Alexandria (Egypt), Limassol Larnaca (Cyprus), Piraeus (Greece), Valleta (Malta) ⟶ hub ports

South Europe

Algeciras, Valencia, Barcelona (Spain), FOS/Marseille (France), Genoa, La Spezia, Leghorn, Naples, Trieste, Ravenna (Italy) ⟶ major ports

The existence of so many container handling ports.

The last 3 ports are simulataneously feeder ports 26 in total, in the Mediterranean, has resulted in three categories of ports, defined according to their roles:

*major ports: regular call ports by mother vessel

*hub ports: container transshipment ports

*feeder ports: feeder vessel calling ports

Major ports handle larger quantities of containers and belong to developed countries like Italy, France, and Spain which have large levels of foreign trade inside and outside the Mediterranean Sea. (Please refer to the map on Fig)

(2) Container Feeder Port

Hub ports (container feeder ports) are container transshipment ports for mother vessels. Piraeus and Limassol are the major container feeder ports in this area, but Port Said, Alexandria, Larnaca, Valleta will experience increased transshipment container handling.

Piraeus port handled 88,332 TEUs of feeder containers in 1988, reportedely the largest quantity in the Mediterranean Sea.
However, figures regarding the quantity of feeder containers handled at other hub ports are not available. (Total quantity including local cargo is available).
For guidance, about 80 percent of 88,332 TEU (950,000MT) is feeder container to/from Italy, Spain and only 51,000MT is to/from Turkey.

(3) Major Container Service Routes

Major container service routes to/from the Mediterranean Sea area,

*UK & Northern Continental Europe

*Southern Europe (in Mediterranean Sea)

*USA

*Far East

The range of prevailing container ship sizes is very wide, from 400 TEU to 2,000 TEU type, except the 3,400 TEU type of SEALAND vessel engaged in the USA/Med route.
As for Southern European (in the Mediterranean Sea) service, it is entirely within Mediterranean. Smaller vessels, up to the 500 TEU type, are in operation, similar to the feeder service in this area. (Please refer to Table 3-1)

(4) Container Feeder Service

Container feeder service prevails in the Mediterranean because many container ports are situated along the Mediterranean coast.
Container feeder service is the result of container ship operators' needs to reduce ships' operating cost and to shorten the length of voyages by minimizing the number of regular calling ports without, however, reducing freight earnings in view of the progress of container ship enlargement and consequently immense ship construction cost as well as crew costs.
This trend has been proceeding in other container trade service since the size of container ship reached a more than 3,000 TEU capacity.
For examples of the development of container feeder service, we have, in the South Asia area, the largest feeder service system, where 3 container feeder ports, Singapore, Colombo and Kaohsiung, are competing for the transshipment of containers to/from ports of other

countries in the area and major Asia ports such as Bangkok, Port Kelang, Manila, and Bombay, Madras, Calcutta and Karachi, are being converted rather rapidly into ports that can handle small container feeder vessels as well as conventional vessels, handling fewer full-container vessels of normal size (1,000-2,500 TEU capacity) day by day.

(5) Container Feeder Vessel

Many of the container feeder vessels running in the Mediterranean Sea are operated by minor operators in Greece, Egypt or other countries in the Mediterranean area, regular schedules in the case of comparatively major operators and irregular schedules in case of minor operators.

Feeder vessels are of the 50-250 TEU type, except for the ones described below.

Many vessels are gear-equipped but some are gear-less.

(6) Self-operating Feeder Service

Three shipping lines (groups) are directly operating feeder vessels to transship container cargo of mother vessels to final destination ports in the Mediterranean Sea.

The Japanese group NYK/MOL and NORASIA Line are operating feeder vessels based at Piraeus port to transship containers from (and onto) mother vessels engaged in Far East/Mediterranean Sea service to their final destinations.

SEALAND and P.OCL are jointly operating feeder vessels based at Piraeus port to transship container cargo in their UK & North Continental Europe/Mediterranean Sea and USA/Mediterranean sea services (the latter applies to SEALAND only).

SCANDUTCH is operating feeder vessels based at Limassol to transship container cargo in their Far East/Mediterranean Sea service and UK & North Continental Europe/Mediterranean Sea service, but reportedly is going to change its feeder port from Limassol to Piraeus because of the easier operation at Piraeus of larger feeder vessels, which are to be introduced shortly.

Feeder vessels operated by the NYK/MOL group and the NORASIA Line are providing weekly service in conjunction with their mother vessel services and load transshipment containers 2 days after completing the

unloading of mother vessels and finishing Customs clearance of containers for loading.

Such self-operating feeder services are a more effective method of quickly delivering main cargoes to final destination ports, which is essential for carriers to deal with the severe competition in the relevant container trade service, rather than utilizing the usual feeder vessels available at that time.

It also contributes to saving on the cost of transshipment of containers as long as a sufficient and constant volume of cargo on mother vessels can be expected through the year.

In this case larger feeder boat (over 300 TEU) capacity is required for transshipment cargo, then a lower cargo feedering cost is to be borne by the shipping line (mother vessel).

(7) Inducement of Container Feeder Cargo

Container feeder ports, not only in the Mediterranean sea but also in other areas, usually include some of the following services designed to attract container feeder cargo and vessels, including mother vessels:

<u>for transit container</u>

*discount rates for discharging/loading and other cargo handling charges

*container stockyard

<u>for vessels discharging and loading transit containers</u>

*berthing priority

*24 hours working

*discount rates for ships' handling charges

For example, in the case of the NYK/MOL group (Japan), mother vessels coming from the Far East arrive at Piraeus every Tuesday alongside the specific berth for which the port authority gives the priority. Their operating feeder vessel is usually (though not exclusively) allowed to get a berth just behind the one assigned to their mother vessel so as to load transshipment containers bound for Turkey and other Mediterranean countries every Thursday, only two days after the arrival of their mother vessel.

Further, the Piraeus port authority is studying the introduction of a 24-hour working system for all container cargoes (local and transit

cargoes) to compete with Thessaloniki, a Greek port which has already introduced this system.

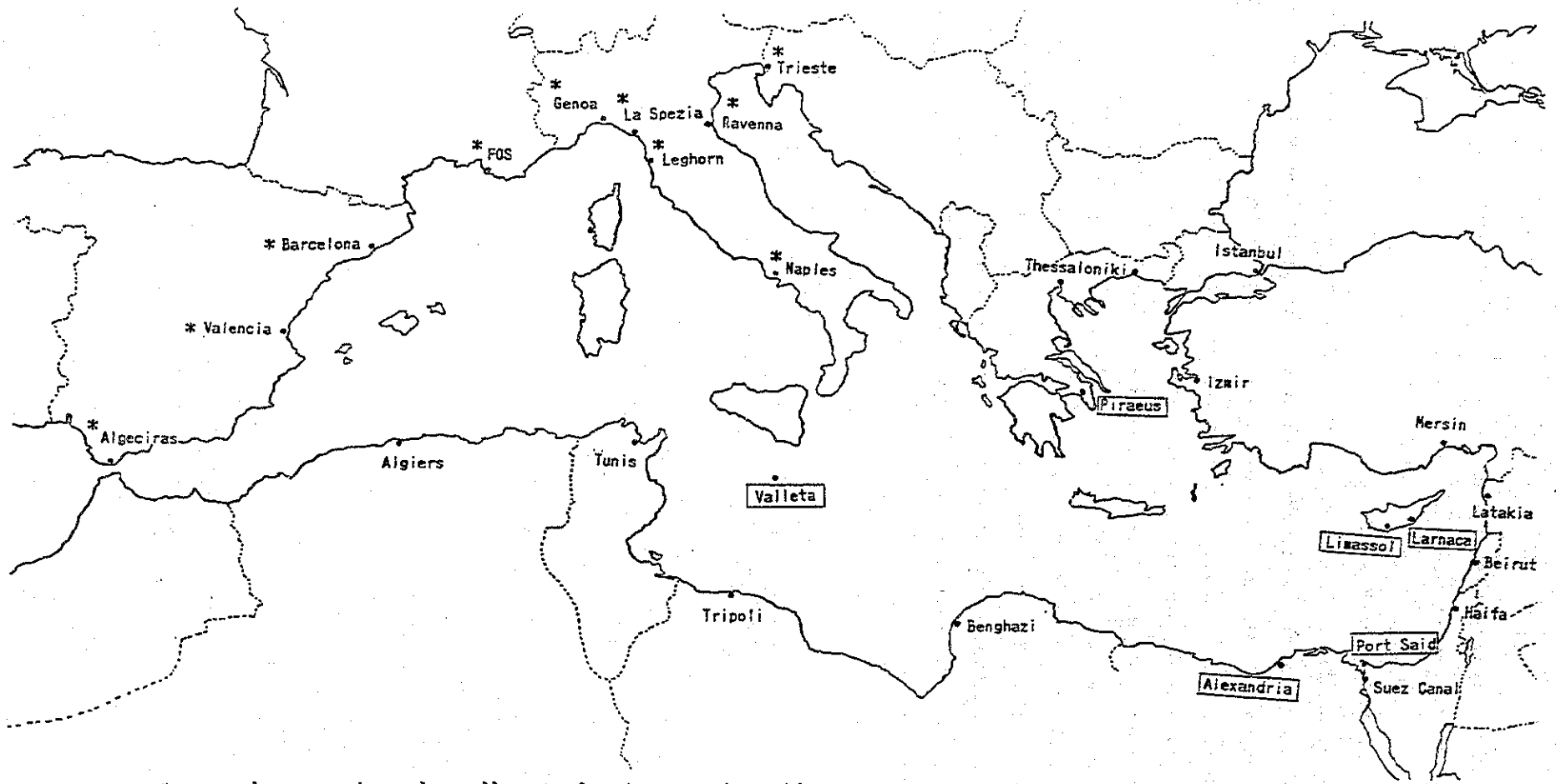
(8) Mersin as Container Feeder Port

In the meantime, Mersin port surely has some potential as a container feeder port in the Mediterranean Sea in competition with Cyprus or Greek ports as well as container transit port to Iraq because of its:

1. geographical location (though a bit worse than Cyprus)
2. sufficient capacity, space and equipment to handle container (though further investment may be required in future)
3. experience in handling large numbers of containers
4. existence of a free-trade zone

However, it seems to have missed its chance, as it did not take a positive attitude aimed at encouraging feeder container and container vessels amid the recent remarkable growth of container feeder cargo in the Mediterranean.

Fig. 3-1-1 Container Service in the Mediterrean Sea



* regular or semi-regular call port of mother container ship.

▭ container hub port (transhipment port).

no mark: container feeder port.

Table 3-3-1 Regular Container Ship Service to/from Mediterranean Sea

SHIP'S OPERATOR	FREQUENCY (Medit Sea)	SHIP'S SIZE	FREQUENCY (Turkish Port)	* SHIP'S SIZE	DIRECT CALL or FEEDER PORT	REGULAR CALLING PORT (TURKEY)
1) **U.K & North Continental**	(per month)	(TEU)	(per month)	(TEU)		
DSR(E.G)/ NECOL	3	550-750	3	550-750	direct	I'bul/Izmir/Mersin
BULCON(Bul)	4	450	2	450	"	I'bul/Izmir/Mersin
P&OCL/SEALAND	4	900-1,900	1-2	500	Piraeus	I'bul etc.
(TCL (Multi vessel)	3-4	150-300	3-4	150-300	direct	I'bul etc.)
2) **USA East Coast**						
NORDANA(NTL)	1.5	480	1.5	480	direct	I'bul/Mersin
CONSTELLATION(GRC)	2-3	400	2-3	400	"	I'bul/Mersin
SEALAND(USA)	4	3,400	4	500	Piraeus	I'bul
ZIM(ISR)	3	1,400-2,200	1-2		Haifa	I'bul etc.
FARRELL(USA)	3	1,070	3	1,070	direct	Izmir
(LYKES (Semi-con vessel)		1,100			direct	I'bul/Izmir)
(TCL (Multi vessel)		300-500		300-500	"	I'bul etc.)
3) **Far East**						
NYK/MOL(JPN)	4	1,400-1,800	4	250	Piraeus	I'bul/Izmir
SCAN(DEN)	4	1,600-2,600	2	250-400	Limassol	I'bul etc.
DSR(E.G)	3	1,200	2	180-440	Larnaka	I'bul/Izmir/Mersin
NORASIA/SEALAND	4	2,000	1-2	300-500	Piraeus	I'bul/Izmir
(JUGOLINIJA (Conventional vessel)	1	100-200	1	100-200	direct	I'bul/Mersin)
4) **South Europe in Mediterranean Sea**						
CMN(FR)	2		2		direct	I'bul etc.

[Remarks] 1) excludes container service to Mediterranean Sea which does not accept Turkish cargo even on a feeder basis
2) excludes the detail of the service of container feeder vessels in the Mediterranean Sea because many small vessels are operated on regular and irregular schedules
* size of mother vessels in case of direct calling and that of feeder vessels in case of no direct calling at Turkish ports

3-1-2 Container service related to Turkish ports

Turkey's major container ports are Mersin, Izmir and Istanbul, as shown in the statistics of 1988 and 1989 by the Ministry of Transport and the TCDD Istanbul.

(Data for Izmir port obtained from other sources as figures by computer data by Ministry of Transport is incomplete)

	Loaded CTR	unloaded CTR	total CTR(TEU)
Mersin			
1988	39,739(5,077)	41,512(21,688)	81,251(26,765)
1989	42,594(6,188)	43,707(20,537)	86,301(26,725)
Istanbul(Haydarpasa)			
1988	24,846(8,630)	24,220(6,209)	49,066(14,839)
1989	25,387(7,162)	27,383(6,866)	52,770(14,028)
Izmir			
1988			
1989	53,076	53,654	106,730
Iskendern			
1988	2,136(779)	2,516(536)	4,652(1,315)
1989	1,794	1,466	3,260

[Remark]

*blanket is empty container

*figures in 1989 for Mersin and Istanbul for 11 months, for Izmir 12 months and for Iskendern 10 months.

(1) Mersin Port

Mersin port is handling a large volume of containers, both loaded and unloaded, as per the above data but according to other statistics of the TCDD about 85 percent of unloaded and 15 percent of loaded containers are transit containers, mostly destined for Iraq by truck. Thus Mersin can be said to be an export and transit container port.

(2) Istanbul Port

On the other hand, Istanbul port handles an almost equal number of TEU in loaded and unloaded containers, and according to another TCDD statistic in MT, its export container cargo is 109,381 MT against import cargo of 228,155 MT in 1988, half of the import volume, with

similar percentages in 1987, however in 1989 export and import containers were almost equal, with 217,980 MT and 286,902 MT, respectively.

(3) Izmir Port

Izmir port has the characteristics of an agricultural products exporting port and the unloaded container volume in 1989, which was equal to the loaded container volume, is presumed to have been mostly empty containers.

(4) Geographical Factors

Mersin port as well as Izmir port are located in a geographically better position for ships' passage through the Mediterranean Sea than Istanbul port, so mother vessels sometimes make irregular calls there to discharge transit containers or to load export cargo such as agricultural products in the harvest season.

But mother vessels, especially those with large container capacity (over 1,000 TEU type vessels) normally do not like to call at Istanbul by taking a detour to the end of the Marmara Sea due to the increase in voyage cost, as already explained.

(5) Direct Call Vessel

Table 1 shows that at this moment all container vessels (both mother vessels and feeder vessels) providing regular service to Turkish ports are under-600TEU-capacity types except those serving Izmir.

Feeder vessels calling at Turkey in most cases cover Istanbul, Mersin and Izmir, while Iskendern Delince and Bandirma in the Marmara Sea are not regularly covered by feeder vessels due to less constant cargo movement, although Delince (Izmit) seems to sometimes serve as a substitute port for Istanbul port whose the latter is congested.

3-1-3 Container service related to Istanbul port

At present, most export and import cargoes originating in or destinated for the Ankara Metropolitan area are loaded/discharged at Haydarpasa port on/from container vessels and conventional vessels. Thus Haydarpasa port is the gateway port to the Ankara Metropolitan Area (AMA).

Haydarpasa port, as already mentioned, is situated in a disadvantageous position at the northeastern end of the Marmara Sea, so only 4 shipping lines make full container mother vessel direct calls there. Other shipping lines' container services from 3 major trade zones (shipping routes) cover Hayderpasa port by feeder vessels operated by them or independent feeder operators. (Refer to Table 1)

The transshipment port, for container cargo to/from Istanbul, Izmir port is in most cases Piraeus and cargo to/from Mersin is Limassol due to the geographical situations of the respective ports.

Direct call vessel's size is limited to less than 600 TEU capacity.

These phenomena show that vessels with lower ship costs including crew's labor costs, (or low charterage vessel in case of time-chartered vessels) can bear the voyage cost for a prolonged voyage totaling 4 days to proceed to Haydarpasa port and stay there.

In the meantime, container shipping service between Southern Europe in the Mediterranean sea and Turkey involves various small container vessels carrying containers of both feeder cargo and local cargo to/from Spain, Italy, France or other European countries (a lot to/from inland zone).

So these vessels, services are similar to that of feeder vessels connecting Piraeus, Limassol or other Eastern Mediterranean Sea and Turkish ports.

3-1-4 Container Service in the Black Sea

The Black Sea is surrounded by Turkey, Bulgaria, Romania, the USSR and the main general cargo flow by sea is:

*Northern Europe/Romania, Bulgaria

*Turkey/Romania

*Far East/USSR

Regular shipping service for 3 main trade routes covers constant cargo movement.

*Northern Europe/Bulgaria, 1 container weekly service by BULCON (1) Bulgaria

*Northern Europe/Romania, 1 container service by Romanian Line

*Turkey/Romania, 1 RO/RO weekly (not container) service jointly by Turkish Cargo Line and ROMTRANS (Romania) between Istanbul and Constanza ports

*Far East/USSR, 1 conventional fortnightly service by BLASCO (USSR)

Further, RO/RO (not container) service between Samsun and Constanza started last year but was soon suspended due to the sudden political change in Romania.

(2) Turkish Ports

Samsun, Trabzon and Hopa ports in Turkey are transit ports to Iran (and sometimes to Iraq) and at this moment conventional vessels come to those ports from the Far East, and from the USA on an irregular basis, to mainly discharge general cargo and bulk cargo (grain, fertilizer etc.) but few containerized cargoes.

Upto 1985 during the Iran/Iraq war, a lot of bulk cargo and general cargo like construction materials, daily consumption goods (food, clothing etc.) were transported to Iran through Samsun, Trabzon and containerized cargo was mainly discharged at Samsun and partly at Trabzon and carried to the inland points of Northern Iran (Tabris, Tehran, etc.) together with containers.

A railway branch line is connected to the inner part of Sumsun port close to the container stockyard, so many containers are presumed to have been carried to near the boundary of Turkey/Iran by railway and thereafter by truck.

The vessels that entered Samsun and Trabzon ports to discharge (there was little to load) container cargo were conventional vessels, including semi-container vessels and, rarely, container feeder vessels.

Since 1986 only a few containers have been discharged at Samsun port by semi-container vessels of the Turkish Cargo Line, etc.

Trabzon and Hopa ports have been handling only break-bulk cargo since 1986.

3-1-5 Function of Container Feeder Port of Istanbul Port

In view of the location of Istanbul's port (Haydarpasa Port) at the entrance of the Black Sea, the assumption was made by our team that it could function as the feeder port of container cargo to Samsun and Trabzon ports for transit to Northern Iran.

However, it was realized that such a function of Istanbul Port has not been effected for the following reasons:

1). No container feeder vessels of a small size upto 300 TEU were available between Istanbul and those ports.

2) Istanbul Port at that time was inadequate for the transshipment of containers due to its limited space for container storage, berthing congestion and lack of incentive measures to induce feeder cargo.

Vessels, when loaded with voluminous break bulk cargo together with some containerized cargoes, made direct calls at Samsun, Trabzon to discharge them.

These points still seem applicable at present.

3-2 Future Prospect for Container Shipping Service in the Mediterranean and Black Seas.

In the past 5-7 years the container feeder service system has been progressing and stabilizing in the Far East on a large scale following the establishment of a feeder service among Scandinavian countries with the feeder base at Copenhagen port long ago.

Now, in the Mediterranean Sea this has been also proceeding at a rather rapid pace.

Considering the world-wide trend of steady growth of containerized cargo (growth in the amount of cargo itself and progress of contaierization in cargo packing mode) and consequently the increased size of container ships in the world liner service, it will be clear to anybody in the shipping field that container feeder transport system should be developed continually in the long term.

Further to this, enlargement of containers, from 8 feet to 9.5 feet in height, is now more prevalent in North America and utilization of railways in inland container transportation is also stabilizing in the USA.

This trend will be extended to other countries where these changes are applicable and more advantageous.

Anyhow, in the Mediterranean Sea the transfer to container feeder service lagged 2-3 years behind that of other container service route among the container ship operators of developed countries, and this trend will surely last in the long term over 10-20 years.

(1) Container Facility Expansion Movement

As a result of the change in container shipping service in this sea, the ports in developing countries are eager to introduce transit containers as an effective means of earning foreign currency.

In the Mediterranean Sea, most container feeder ports favor introducing feeder containers and are investing heavily in expansion of container berths, stockyards, etc., in the long term.

For example, in Piraeus port a new container terminal (Neo Ikonian Terminal) has been under construction since 1988. When finished, in 1991, with its berths totaling 700 meters, its handling capacity will be 600 thousand TEU per year, double that of 1989 (not 1988).

Thessaloniki and Iraklion in Greece, are also proceeding with container accommodation expansion plans to compete with Piraeus especially in the case of Crete's Iraklion, which is establishing a free trade zone in its port.

In Cyprus, Larnaca port is also promoting itself as a container feeder port and is trying to replace Limassol as Cyprus' biggest feeder container port.

Limassol port is presumed to be the second-biggest behind Piraeus port in handling feeder container in the Eastern Mediterrancean Sea.

It has a free-trade zone to designed to attract foreign investment for export of local cargo and for processing export cargo in addition to serving normal feeder container traffic.

In Malta, Valleta port annually handles 22,000 TEU of container in total, most of which is feeder containers. This port is expected to increase feeder cargo traffic in view of its geographical position on the ship navigation route between the Suez Canal and Gibraltar.

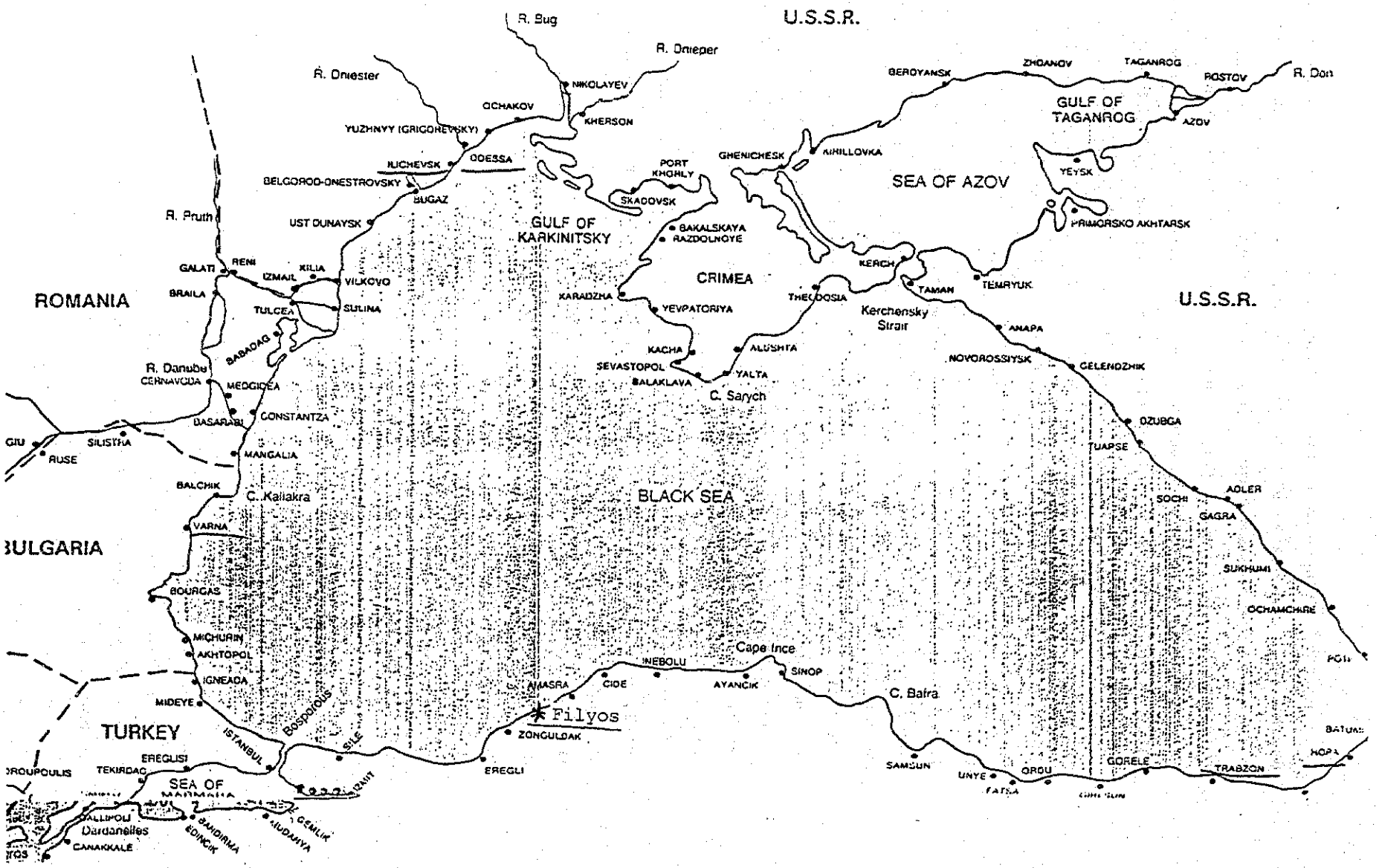
However, the new Marsaxlokk port is going to start business as a container feeder port in 1990 with a plan to establish a free-trade zone therein. It rationalized its container terminal operation system recently by making a joint venture company with a experienced UK firm. This development will doubtless accelerate the progress of container feeder activity in the Mediterranean Sea.

(2) Black Sea

In the Black Sea, the movement of general cargo from outside the sea is so far too small to run a container feeder service.

This is partly due to the fact that, in the main, trade of general cargoes from Northern Europe to Romania, Bulgaria and the USSR, is by road transport using T.I.R trucks owing to the geographical situation of both zones.

Fig. 3-1 Black Sea Rim



3-3 Potential for Container Port of Filyos with AMA cargo.

3-3-1Present Situation of Containerization in Turkey.

(1) Containerized Cargo in Turkey

According to the statistics of the TCDD head office and relevant ports, the rates of containerized cargo in Turkey, excluding transit cargo to Iraq, etc., to containerizable cargo (general cargo excluding Iron/Steel, Fertilizer) handled at 6 major ports under the control of the TCDD are as follows:

	1986	1987	1988	
*6 major ports				
General Cargo	4,326	5,394	5,356	thous MT
Container Cargo	558	687	817	"
Ratio of CTR	12.9	12.7	15.3	%
*Istanbul(Haydarpasa)				
General Cargo	1,793	2,189	1,622	thous MT
Container Cargo	247	292	338	"
Ratio of CTR	13.8	13.4	20.8	%

(2) Containerized Cargo at Istanbul Port

Since most export/import AMA cargo passes through Haydarpasa port, we need to analyze the contents of containerized and non-containerized cargo recently handled at Haydarpasa port.

The containerized cargo ratio to General cargo, excluding Iron/Steel, was 20.8 per cent in 1988. However, there should be further not containerizable cargoes out of general cargo, so the actual containerization ratio at Haydarpasa port should be a bit higher.

For example, the amount of General Cargo in 1988 1.622.000 MT includes 144,511 MT of machinery and 453,766 MT of mixed goods, some of which was not containerizable due to the size or nature of the cargo etc.

After considering this aspect, the containerization ratio of the general cargo at Haydarpasa is still low in comparison with that of Asian developing countries countries' ports, where the containerized ratio is in the 35-65 per cent zone.

The main factors preventing the development of containerization at Haydarpasa port as well as other Turkish ports are described in (Inland transport of container) in article 1 below.

(3) Container Cargo of Export and Import at Haydarpasa

To see the containerized cargo volume for export and import for the last 3 years at Haydarpasa port as per TCDD Haydarpasa data.

	1987	1988	1989	
container cargo				
export	104,375	109,381	217,980	M/T
import	187,851	229,544	286,902	"
Total	292,226	338,925	504,882	M/T

The amount of export container cargo increased remarkably in 1989 in comparison with import cargo.

We regret that we were unable to clarify the reason because date of containerized cargo tonnage by commodity is not available.

As to the containerized ratio for export and import cargo at Haydarpasa port, general cargo (containerizable cargo) tonnage for export and import as per MOT computer data is incomplete (the tonnage of "others" for import in 1988 is too small), and the same data for export and import cargo by TCDD Haydarpasa is not available (only date of the total amount of export/import general cargo by commodity is available). However, based on a rough assumption of the ratio of export/import general cargo (containerizable) in 1989 (11 months) being 1:2, the level of containerization of import cargo is below that of export cargo (though both ratios in 1987 and 1988 seem even).

For guidance, container cargo movements at Mersin, the biggest container handling port in Turkey, were:

1986	1987	1988	1989 (11 month)	
668,736	637,558	805,446	896,115	M/T
(361,276)	(226,586)	(340,205)	(")	

( ) transit to Iraq etc.

and the growth ratio of container cargo from 1988 to 1989 (11 months) was about 10 per cent and presumably would be 12 per cent or more for all of 1989, while the growth rate of Istanbul was 15 per cent. Thus we can indicate that containerization is increasing in Turkey steadily year by year.

(4) Empty Containers at Istanbul Port

In the study of containerization of cargo in Istanbul port, we have to analyze full and empty container movements both for loading and discharging, because an important factor for ships' operation in terms of the profitability of container services is their ability to return their containers to the original location or a substitute place with cargo loaded in container or in an empty condition.

Hereunder is the comparison between empty and full container movements at Haydarpasa and Mersin in 1989 (11 months). A similar trend was recorded in 1988 & 1987.

BY this data, we can indicate that at Mersin port ships' operators are forced to send back empty containers to their countries due to the imbalance of imported and exported containerized cargo, while at Haydarpasa they don't need to send back so many empty containers due to the more balanced movement of import/export cargo, although the ratio of empty containers for both loading and discharging is rather higher than normal.

This means that the voyage cost for ships' operators is higher in accepting container cargo destined for Mersin than to Istanbul. Thus the operators must be more eager to accept containers destined to Istanbul than to Mersin. This would somewhat affect the development of containerization of cargo handled at Istanbul port.

(1989.11 months)

		load	discharge	
Haydarpasa	full	18,425	20,517	TEU
	empty	7,162	6,866	"
Mersin	full	36,406	22,970	"
(include transit CTR)	empty	6,198	20,537	"

(entrance of container ship at Istanbul)

	1984	1985	1986	1987	1988
Container vessel	159	194	273	236	293(in number)
Conventional "	752	817	931	1,191	843
Bulk "	29	40	41	40	42

(date by TCDD Haydarpasa)

The growth in the number of conventional vessels up to 1987 was mainly caused by the rush of imports of voluminous materials for the construction of roads, bridges, etc., in the Marmara Sea zone which were not fit for container loading.

(5) Inland transport of containers

In Turkey, general cargo loaded/unloaded in containers at ports is in general packed/unpacked in port and transported from/to the merchant's premises without a container. Door-to-door transport system for containers is not common, except for assembly or machinery cargo consigned to factories, etc.

So it can be concluded that the usage of containers in sea-transport of Turkish export and import cargo is caused by the change of the liner service system from semi-container ship service to full-container ship service on the basis of feeder transport in the Mediterranean Sea in line with the global trend toward large-size full container ship service. Another factor is the need of overseas merchants to reduce expenses for export (import) of cargo incurred in their country, as opposed to from demand of merchants in Turkey who do not enjoy the advantages of an economical and safe transport system by door-to-door service in Turkey.

The main factors preventing development of a door-to-door container service in Turkey are:

1) higher truckage for container cargo in domestic transport than non-container cargo.
2) need to deposit large amounts of money with port authorities to take containers out of ports (abt US$ 3,000 per 20 feet CTR).
3) ICD (Island Container Depot) have not yet been established by ship operators or other parties.
4) lack of space and equipment at most importers'/exporters' premises for handling containers.

Given that purchase contracts for import cargo through Haydarpasa port are reportedly made according to both C & F terms and FOB terms and for export cargo almost always C & F terms, Turkish traders in many cases hold ship nomination rights in the contract.

If points 1) - 3), especially, for the time being, 1) and 2), are rectified, containerization of cargo will progress rapidly in Turkey.

(6) Import business for cargo destined to AMA

Data regarding the volume and the content of export and import goods that are carried between the Ankara region and Haydarpasa port (and other ports) in containers or not in containers were not available, but according to information obtained from a trucking company in Ankara and a truckers cooperative in Istanbul, the main commodities that are transported to/from the Ankara region in containers are:

A) instruments and machinery consigned to university or governmental organizations

B) parts consigned to factories

C) household goods consigned to and dispatched from foreign embassies

However, this volume is very small and is roughly estimated to be less than 300 TEU in 1988 (one TEU per normal day on average).

(7) Importers of AMA Cargo

In the meantime, Istanbul port, being the gateway port for cargo in Turkey, handles a lot of imported goods that are transported to inland districts, mainly to the Marmara Sea area and some to the Central Anatolia area, including the Ankara region.

However, relative importers, of which the number is tremendous, are concentrated in Istanbul, keeping offices there and rarely in inland cities.

Especially in the case of imports of finished goods such as apparel, foodstuffs or electronic products (office computers, copy machines etc.) which are used in the Ankara region to some extent, it is normal for importers in Istanbul to bring imported goods to their premises, taking them out of the container in port or on their premises and stocking them until they distribute the merchandise to be sold to the premises of the purchaser in Ankara, etc., and even if the purchased volume is enough for one container it cannot be carried to the purchasers' premises in the container.

So this is also a decisive factor in that imported goods finally sent to Ankara region (and any other area) are not transported in containers.

(8) International Road Transport

Furthermore, it should be noted that another factor restricting the containerization of export/import cargo in Turkey is that Europe, with which the bulk of Turkey's trading is done, is connected to Turkey by land. For example, the distance to Holland and Belgium is about 1,600 km in a straight line, and thus international road transport by TIR truck has been utilized for the transport of Turkish export/import cargo and transit cargo to Iran, Iraq, etc., on a large scale.

Further, in the trade with some European areas, Northern Italy, Romania, etc., RO/RO vessel service connecting the Black Sea, the Mediterranean Sea and Turkish ports is also utilized a great deal (in this case up to inland points from ports such as Trieste and Constanza by land transport).

The biggest advantage for Turkish traders in using land transport is the faster arrival of cargo in the case of imports than by sea transport, as interest rates in recent years in Turkey have been extremely high among the highest in the world. So it is most important for importers to receive imported cargo as soon as an L/C is opened and cargo is dispatched from the exporter's side.

Road transport from Holland to Istanbul, for instance, takes 5 days. However, by using container vessel service from Rotterdam to I'bul or Izmir with transshipment of cargo at a feeder port (10 - 15 days) plus road transport between inland points and ports and waiting day for vessel's call on loading port, the total transport time is 10 days longer than with road transport.

Another advantage of land transport, is the assessment of "port tax" on overseas cargo discharged/loaded with vessels of 5 per cent of C & F value plus all charges incurred in inland transport of cargo until the middle of 1989, with no tax assessed on land-transported export/import cargo.

This legislation was apparently intended as an inducement to land transport to Turkish traders and should have been the cause of growth of road transport between Turkey and Europe, etc., until 1989. However, this exceptional legislation was modified to a 4% tax on sea-transported cargo and 3% newly assessed on land-transported (road and railway) cargo in 1989.

The third advantage is cheaper transport costs in door-to door transport from many inland points in Europe to Turkey, especially in

cases of small volumes of cargo.
The volume of goods transported between Europe and Turkey by TIR truck was not known.

(RO/RO vessel)
There are several regular RO/RO ship services between Turkish ports and Southern Europe and Romania.
RO/RO vessels are operated by Turkish Cargo Lines and jointly with the Romanian government.

Derince-Trieste (Italy), weekly service
Mersin, Izmir-Venice("), "
Istanbul-Constanza(Romania), 2 service per week
Sumsun- " ("), weekly service
(this has been suspended due to the Romanian revolution)
RO/RO vessels capacity is 2,700 - 3,350 D/W ton.

Cargo not in containers is loaded on to trucks at the exporter's premises and directly loaded at the port onto a RO/RO vessel using trucks.
In RO/RO service between Istanbul and Constanza (Romania) with 2 sailings per week, much general cargo and trucks themselves (for export to Romania) are involved.
Statistics of TCDD Haydarpasa regarding RO/RO vessels show 561,000 MT in 1986, 495,000 MT in 1987, 497 MT in 1988 for loading/discharging, while container cargo movements were 246,000 MT 292,000 MT and 339,000 MT, respectively.
In RO/RO service between Turkey and Italian ports, general cargo comes from Northern Italy, Central Europe to Venice and from Eastern European countries such as Czechoslovakia and Hungary to Trieste by truck. At both ports they are loaded on RO/RO vessel destined not only for Turkey but to other countries in the Middle East in a combined sea/land multi-transport system.
The data regarding the volume of cargo between Turkey and Europe handled by RO/RO vessel service is not obtainable.
Considering the fact that quick and economical transport is available and a quota system for road transport between Europe/Turkey exists and

modification of "Port Tax" was made, the combined sea/land multi-transport system would seem likely to continue for the foreseeable future.

3-3-2 Comparison of Transport Costs of AMA Cargo via Istanbul and via Filyos.

(1) inland transport costs

As an incentive for merchants to utilize Filyos port, calculation should be made regarding inland transport costs between Istanbul/AMA and Filyos/AMA on break bulk cargo and container cargo.

In general, truckage is much influenced by the volume of cargo traffic, availability of return cargo and market situation (competition extent), etc., and estimating cost comparison for the next 10 years is impossible due to uncertainty regarding those factors.

But to understand the general background for the possible truckage to Filyos ports, a comparison is made as follows:

	break bulk	container	
Istanbul/Ankara (470km)	TL 600,000	TL750,000	per truck
Filyos/Ankara (270km)	" 450,000	" 565,000	"

At this moment Filyos/Ankara traffic by road does not exist, so truckage for Filyos/Ankara was replaced by the one for Istanbul/Bolu, whose distance is almost same: 250 KM.

Truckage per MT varies depending on the circumstances the supply/demand situation of trucks, etc., which are difficult to determine as far as the inland transport of import cargo at Istanbul is concerned.

The above figures lead to, ostensibely, the conclusion, that truckage from Filyos to Ankara is abt 75% cheaper than Istanbul to Ankara, viz.,

* TL 150,000 per truck or TL 15,000 per MT on basis of 10 MT per truck for break bulk
* TL 185,000 per container or TL 18,500 per MT on basis of 10 MT per truck.

The above comparison is related to Ankara municipal district, so comparisons with other points in the AMA differ in terms of figures. At Cankuru, Kastamonu or Zonguldak, the difference of truckage is far more and at Bolu it is a bit less.

Anyhow, the obvious conclusion is that Filyos port is more advantageous in terms of the cost of inland transport of import/export cargo related to AMA than Istanbul Port.

(2) Ocean Freight

The comparison of ocean freight for cargo, container cargo and break bulk cargo in common, is as follows.

In the case of cargo discharged at Istanbul from feeder vessels after transshipment at a hub port, ocean freight from the loading port to Istanbul is fixed between the exporter (or importer) and the mother vessel operator instead of the feeder vessel operator, while the fixture of feeder freight between the mother vessel operator and the feeder vessel operator has no connection with the business of Turkish importers.

Consideration should be made of the AMA cargo to be discharged (or loaded) at Filyos in 2000 and 2010.

In comparing the freight for Istanbul-destined cargo and Filyos destined cargo, it should be pointed out that ocean freight from the major trade zones with Turkey (Northern Europe, Southern Europe in the Mediterranean Sea, the USA, and the Far East) to Filyos port would be the same as the freight to Istanbul, when it is constructed according to normal standards, due to the short distance between Istanbul and Filyos (only 160 miles).

In fact the current amount of ocean freight from the Far East, the USA, and Northern Europe to Samsun and Trabzon, which are far from Filyos, is the same as the freight to Istanbul, as per the freight tariffs of respective shipping conferences.

Further, as to container feeder freight between major feeder ports on the Mediterranean Sea/Istanbul route and between those ports and the projected Filyos port, it would not vary much, if at all, in the period from 2000 to 2010, considering the current feeder freight structure, although it is not directly (nor even indirectly) concerned with the trade fixture by exporters and importers.

(3) Port Charge

Port charges at Filyos port are also of no concern to Turkish importers/exporters, as they are paid by ship operators.

However, at the early stage of the operation of Filyos port, ocean freight might be asessed an additional "out-port surcharge" by the relevant shipping conference for the reason that sufficient cargo is not available for ships when they call.

So it should be concluded that Filyos port is more advantageous for cargo traders related to AMA cargo than Istanbul port in terms of overall transport costs.

3-3-3 Prospect for Container Cargo at Filyos

The mode of cargo flow at Filyos port anticipated in 2000 and 2010 is as follows:

	port		AMA
A)	container cargo (by container vessel)	⟷	break bulk cargo
B)	" "	⟷	container cargo
C)	break bulk cargo (by RO/RO vessel)	⟷	break bulk cargo
D)	bulk cargo (by conventional or bulk vessels)	⟷	in industrial area behind port

Just as import/export containerized cargo is now handled at Istanbul, containerized cargoes discharged (and loaded) at Filyos port from container vessels will be transported to the AMA in or out of containers subject to the following conditions:

A) availability of ICD (Inland Container Depot)
B) truckage structure advantageous to containers
C) no occurrence of extra expenses such as port tax or deposit of money for inland transport of containers

At the moment, most cargo is, as mentioned before, de-stuffed (and stuffed) from containers at the port due to these factors.

However, considerable growth in cargo is anticipated in 2000 or 2010 and this would be an impetus to improve these conditions.

This growth in cargo would contribute to the increase in total containerized cargo in view of costs resultant ability of merchants to reduce and ensuring safe and quick transport of cargo by using door-to-door service.

Furthermore, it should be pointed out that, apart from container cargo, the entrance of RO/RO vessels is expected at Filyos port, because merchants appreciate the convenience of their shipping arrangements, economical transport costs, fast arrival of cargo, although this is subject to conditions set by the trading-partner's country.

Containerization of cargo and introduction of RO/RO ship service (mainly for non-containerized cargo) are related in terms of the increase/decrease of cargo volume, but anyway, this would contribute to the performance of Filyos port in both ways.

Furthermore, it should be mentioned that the container handling capacity at Haydarpasa port is going to be unable to meet the demand for the increasing amount of containerized cargo. Inland traffic congestion between Istanbul and AMA is also anticipated.

As a countermeasures against the above, other ports in the Marmara Sea such as Delince/Izmit, Bandirma, and Izmir will enlarge their roles as gateway ports for import/export cargo to the Marmara Sea region. However, some government officials are worried that the maritime pollution problem in teh Marmava Sea will increase due to the number of vessels entering its ports in future, and thus the motive for the construction of Filyos port will be strengthened.

3-4 Prospect for Entrance of Container Ships into Filyos

3-4-1 Cost Analyses for Container Ships by Ship Types

In the study of the prospects for container ships' calling at the projected Filyos port, analysis of the cost incurred by ships calling at Filyos and cost comparison with feeder freight in case of ships not calling at Filyos is one of the most important factors.

The following is the cost increase calculation for container ships making extra calls at Filyos from the hub port of Piraeus on the basis of current cost structures:

* ship size(TEU)	500	800	1,000	2,000	3,000
* ship cost(day)	($8,000)	($9,500)	($12,500)	($22,000)	($30,000)
speed(knot)	15	16	16	20	22
extra day(stay 1 days)	3.7	3.5	3.5	3.0	2.8
total ship cost	$29,600	$33,300	$43,800	$66,000	$84,000
* operation cost					
bunker per day(ton)	17	25	35	45	55
" ($100 per ton)	$4,600	$6,300	$8,800	$9,000	$10,000
port charge	$2,500	$4,000	$5,000	$13,000	$21,000
total cost	$36,700	$43,600	$57,600	$88,000	$115,000

(Piraeus/Filyos, 514 miles)

In the case of a mother vessel not calling at Filyos and discharging cargo at hub port (Piraeus), comparison of cost on ship's operators is made as follows:

* ship size(TEU)	500	800	1,000	2,000	3,000
* cost for direct call	$36,700	$43,600	$57,600	$88,000	$115,000
* feeder freight					
$650 per TEU x	56TEU	67TEU	89TEU	135TEU	177TEU

(feeder freight $500 + load/discharge $150 per TEU)

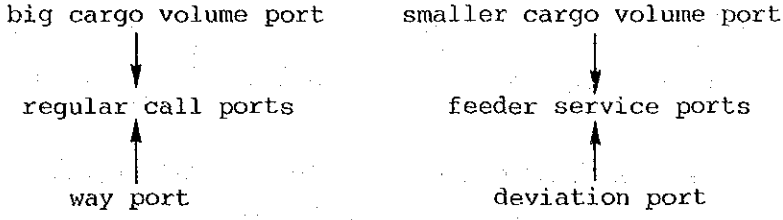
This shows that mother vessels having more than 89 TEU in case of 1,000 TEU type vessels and 135 TEU in case of 2,000 TEU type vessels will benefit by calling directly at Filyos, but this comes only from the direct voyage cost (for Filyos call) comparison and does not mean that the ship makes a direct call even though she has enough cargo to absorb the extra cost incurred, as explained in the next item.

3-4-2 Basic Policy in Container Ship Operation

(1) full container vessel operation

There are two factors in the container vessel operation mode in the Mediterranean Sea in common with other world shipping zones.

One is related to the choice of regular calling ports of mother vessels according to the following logic.



The other factor is frequency of service.

In the competitive situation in the world container trade, conflict between "North" and "South" (in other words, conflict between early coming and late coming), high frequency of service, normally weekly service, (like "every Wednesday" service at loading port) have been established among major ship operators as attractive services for regular traders.

The above is completely applicable to container services, especially to:

USA/Mediterranean Sea service
Far East/ " " "
and to some extent
North Europe/ " " "

The main stream of container cargo in the Mediterranean Sea is to/from Italy, France and Spain, of which container load/discharges in 1988 totaled 3.3 million TEU, while of the remaining 7 countries, there was 1.1 million TEU (based partly on 1987 figures).

Consequently, regular ports of call of major shipping lines in USA/Med Sea and Far East/Med Sea service are usually one feeder port (Piraeus or Limassol, etc.) and several regular ports in Spain, Southern France and Italy, while Turkish ports or others are covered by feeder vessels.

For example, the container service of the Japanese NYK/MOL group in the Far East/Med, it operates 9 vessels in total to maintain weekly service with 63 days for one round trip, so if they have a vessel proceed to Filyos regularly with sufficient cargoes, it means that a vessel cannot keep to figure of 63 days for one voyage as it has to lose 3 - 5 days to make the extra call at Filyos for running and staying there.

one vessel 63 days voyage (9 weeks voyage)

one vessel 70 days voyage (10 weeks voyage)

weekly by 9 vessels weekly by 10 vessels

This means that, according to the simple calculation below

1,800 TEU type vessel x 5 voy x 2 = 18,000 TEU
(70 days x 5 voy per year)

18,000 TEU (abt 180,000 MT) of container to/from Filyos is needed a year by one shipping group in order to have a vessel make an extra call at Filyos.

(2) Far East/Mediterranean Sea

In the Far East/Med Sea service, there are 4 container services in total: NYK/MOL, NORASIA/SEALAND, SCANDUTCH maintaining strict weekly service and DSR maintains 10 days-interval service.
All 4 container services operate on a feeder basis Turkish cargo.
The policies of the other three lines are considered to be basically similar to the NYK/MOL group's.
On the other hand our container cargo forecast for Filyos port is 97,000 TEU in 2000 and 270,000 TEU in 2010 and cargo volume predictions in each container service could be made as follows:

		2000	2010
Northern Europe	20%	19,400 TEU	54,000
Southern " (Med Sea)	15%	14,550	40,500
USA	35%	33,950	94,500
Far East	30%	29,100	81,000
		97,000 TEU	270,000 TEU

In view of the 4 container services and 1 semi-container service in operation on the Far East/Turkey route, the portion of each shipping group would be, if divided into 5 groups, 5,820 TEU (total 29,100 TEU) in 2000 and 16,200 TEU (total 81,000 TEU) in 2010.
Furthermore, there will be more container services (more competitors) available in accordance with significant container cargo growth in

future, so acquisition of 18,000 TEU per year by one shipping group can be said to be much more difficult in 2000 based on an on-paper calculation.

Consequently, a ship operator like the NYK/MOL group will be unwilling to introduce one more vessel into their regular service in 2000 to provide direct-call service at Filyos.

In 2010 there will be some possibility that mother vessels will start calling directly at Filyos by securing enough cargo as per the following calculation, in the case of a 1,500 TEU type vessel:

* cargo requirement per year for direct call is 1,500 TEU x 5 voy x 2 = 15,000 TEU
* average cargo share among 5 operators is 16,200 TEU (for a total of 81,000 TEU)

So the assumption can be made that 1,500 TEU or less type vessel would make regular call at Filyos in 2010.

(3) USA/Mediterranean Sea

In the USA/Med Sea container service 3 shipping companies currently operate full container vessels of over 1,000 TEU type which cover Turkish ports on a feeder basis and 2 shipping companies have direct call service to istanbul with 400-500 type TEU vessels. (One shipping company provides direct call service to Izmir with 1,070 TEU type vessels but does not call at Istanbul).

In the container trade, the world trend toward enlargement of ships will go on in line with the growth of container movement and complete weekly service will emerge in the near future, like the current sole weekly service of SEALAND by 3,400 TEU type mother vessel.

The same calculation is made as in the case of the Far East/Mediterranean Sea route, although the factor of the freight level is excluded:

* one round trip to/from USA/Med Sea, 35 days
  w/extension to Filyos, 42 days
* requirement of cargo for one vessel (increase)
  800 TEU type x 8.7 voy (365 ÷ 42) x 2 = 13,920 TEU per year

* average cargo share among 7 operators is 13,500 TEU (total 94,500 TEU)

So the assumption can be made that 800 TEU or less type vessel will make regular calls at Filyos in 2010.

(4) Northern Europe/Mediterranean Sea

In view of the shorter distance between Northern Europe and the Mediterranean Sea a similar calculation/assumption can be made, with a smaller size of vessel making direct calls at Filyos.

(5) Semi-container Vessel

There are semi-container services with comparatively flexible frequency of service to load both container and non container cargo (break bulk cargo).

Such vessels' operators do not face such severe competition in obtaining cargo and do not have as severe voyage profitability problems compared with ship operators providing weekly service, because they can obtain more earnings from break bulk cargo than container cargo.

In the case of direct calls at Istanbul port, multi-purpose vessels call regularly at Istanbul on the Far East/Med Sea route and the USA/Med Sea service by Turkish Cargo lines, etc.

Looking ahead to 2000 and 2010, especially 2000, it can be expected that multi-purpose vessels will make direct calls at Filyos to discharge/load container cargo and break bulk cargo in view of the expected movements of non-containerizable cargo in the AMA.

3-4-3 Feeder Container Vessel's Movements in the Mediterranean Sea

Many container feeder vessels are at this moment operating in the Mediterranean Sea.

In the Mediterranean, there are many "minor ports" covered by feeder vessels. The volume of cargo to/from each port is not big, so vessels generally have to navigate among 5-8 ports in order to fill their speces. This leads to prolonged voyages in one round.

This creates the following phenomena:

1) small vessels (with small amount of ship cost) of the 50-200 TEU types.
2) higher rate of feeder freight even over short distances

This situation will be improved by the increase in feeder cargo movement in future and as larger feeder vessels become more operative, to 300-600 TEU type in 2000 and in the long term (after 10 years)300-800 TEU Type vessels.

(1) Self Operating Feeder Service by Mother Vessel

In this regard attention should be paid to the current situation such that in order to maintain a constant volume of cargo in feeder service, the following system is being promoted among feeder vessel/mother vessels operators in the Med. Sea:

A) exclusive feeder cargo contracts between feeder operators and mother vessel operators
B) direct feeder service operation by mother vessel operators
C) joint feeder service operation by 2 mother vessel operators

In this case the size of the feeder vessel is subject to the volume of cargo and frequency of mother vessels arriving at hub port.

As a good example of the above, NORASIA and SEALAND have a joint container service on the Far East/Mediterranean Sea route, with 2000 TEU capacity vessels with transshipment of containers to Istanbul etc. at Piraeus. However containers discharged at Piraeus under NORASIA B/L are carried to Istanbul by feeder vessels with 300 TEU capacity operated independently by NORASIA. Containers discharged under SEALAND B/L are carried by feeder vessels with 500 TEU capacity under the joint feeder operation of SEALAND/P & OCL. (SEALAND also brings containers to Piraeus on mother vessels in USA/Med service and in North Europe/Med joint service with P & OCL for transshipment to Turkey)

The size of vessels utilized in feeder service by mother vessel operators depends on, as already mentioned, the frequency of mother vessels' service and cargo volume discharged from mother vessels, but

over the long term between 2000 and 2010 a range of 300-800 TEU types of vessel can be expected.

(2) conclusion

After the study 1) - 3), it is conclused that container vessels calling at Filyos in 2000 and 2010 will be made up of the following:

2000

Direct-call vessels

* multi-purpose vessels (semi-con vessels) up to 25,000DWT

Feeder vessels

* up to 600 TEU type container vessel

2010

Direct-call vessels

* multi-purpose vessels (semi-con vessels) up to 25,000 DWT
* upto 1,500 TEU type container vessels

Feeder vessels

* up to 800 TEU type container vessels

3-5 Possibility of Filyos Port to be a Container Feeder Port in the Black SEA

At the moment no container feeder service is available in the Black Sea due to lack of stable container movements.

Regular container services by mother vessels in Black Sea are:

* Valna (Bulgaria) - Turkey, Cyprus, Greece - Northern Europe, by BULCON
* Ilichevsk (USSR) - Mersin, Limassol, Trieste - Far East, by BLASCO (semi-con vessel).

RO/RO service (handles non-container cargo) available are:

* Constanza(Romania) - Istanbul
* " " - Samsun (currently suspended)

jointly by DBTCL and Romania.

In the case of mother vessels having containers destined for Black Sea ports, the containers are being transshipped to BULCON or BLASCO

vessels at Piraeus, Limassol and Trieste but their volume is assumed to be small.

3-5-1 future prospect for container service

The aspect of container service in the Black Sea in 2000 and 2010 depends mainly on three major factors:

1) Cargo movement to/from Black Sea in each container trade service. (especially 4 main trade services)
2) Direct extra cost for mother vessels to make deviation to Black Sea
3) Ship operator's basic policy to run container service

Analysis is made of each factor as follows:

1) Container Movements in the Black Sea

Future cargo prospects are the most important factor in assuming the mode of container service in this area, but in general regard it is very difficult to make a long-term forecast of 10-20 years because of unforseeable political and economic changes in this area. However, the following indications can be made considering the recent dramatic political changes in Eastern European countries.

After long economic stagnation in Eastern European socialist countries, there has been sudden dramatic democratization in these societies, which is expected to induce an infusion of economic aid from Western countries to those countries. This is seen in resulting in stable growth of cargo movement between Bulgaria, Romania, the USSR in Black Sea and the West such as Western Europe, USA and the Far East (Japan and other capitalist countries) from now on.

Predicting long-term future cargo volumes by figures on the main trade routes to those countries is impossible because other countries besides Turkey are involved, though it is essential to anticipate the possible mode of container service in the Black Sea.

Nevertheless the following points can be suggested regarding the pattern of possible cargo movements:

A) Northern Europe/Black Sea

transport of cargo is to be done in three ways:

* by road, affected by the improvement of road traffic between Western Europe and Eastern European countries.
* by river (Danube River) in a multi-transport way by possible materialization of transport on the river by barge
* by sea

At this moment, the development of a new cargo transport system in Europe on the Danube River and the Rhine River is unclear in terms of when it will substanially start, but road transport will surely be much more utilized in view of the effect of EC integration in 1992. So the growth of seaborne cargo movement will be restricted.

B) USA/Black Sea

* land-bridge transport by sea and by railway (by road)
* by sea

In view of the long sea route between the East Coast of Gibraltar and Odessa in the Black Sea, almost equal to that between the USA and Gibraltar, and the expected steady increase in shipping costs (construction costs and seamen's costs) throughout the world, a new land-bridge transport system of USA, East Coast-Rotterdam etc.-East Europe including Romania, Bulgaria, and the USSR is foreseeable similar to the case of USA land bridge transport, although it depends on improvement of railway facilities (and road) and transport liberalization in Eastern European countries (and total transport costs, though it can be competitive enough).

C) Far East/Black Sea

* Siberian land-bridge transport in case of trade with Japan and Korea and Taiwan.
* by sea

Up to now cargo movements between Japan and South Korea on one hand and the USSR and Europe on the other by Siberia land bridge transport have been stable owing to the recent improvement of the performance of cargo transport by the Saviet railway system. Cargo transport between Japan, South Korea and Black Sea countries on this route is expected to be established.

In spite of these factors affecting the growth of sea-borne cargo to/from the Black Sea, its growth should be promoted compared to current law cargo traffic by sea.

2) Cost analysis of container ship (comparison)

Prospective modes of container vessel service that could exist in 2000 and 2010 are, as mentioned before, mostly affected by sea-borne cargo volume at that time, but the basic patterns are as follows:

A) mother vessels calling directly at Black Sea ports (west side, 3 ports)
B) feeder vessels calling at Black Sea ports.
C) mother vessel having containers related to the AMA calling at Filyos and transshiping containers there to/from the Black Sea.

To shed light on ships' operation cost incurred in each pattern and to clarify ship operator's economic interest, cost comparison is made as follows:

Calculation of ships' cost and operation cost is based on Piraeus as the last port on the ships' route.

* Ship's size (TEU)	500	800	1,000	2,000	3,000
* " speed (Knot)	15	16	16	20	22
* " bunker (day)	17t	25t	35t	45t	55t
* " cost (")	$8,000	$9,500	$12,5000	$22,000	$30,000
Pattern A					
* ship cost	6.85d	6.6d	6.6d	6.89d	6.63d
(1,386 mile + 3d)	$54,800	$62,700	$82,500	$151,600	$198,900
* operation cost					
bunker($100 pert)	$6,500	$9,000	$12,600	$17,500	$20,000
p' charge(3 ports)	7,500	12,000	18,000	39,000	63,000
total	$68,800	$83,700	$113,100	$208,100	$281,900
Pattern B less	98TEU	120TEU	162TEU	297TEU	403TEU
Feeder FRT $700(TEU) less	$68,800	$83,700	$113,100	$208,100	$281,900

Pattern C	less	106TEU	129TEU	174TEU	320TEU	434TEU
Feeder Frt $650(TEU)						
	less	$68,800	$83,700	$113,100	$208,100	$281,900

(calling port of Pattern A, Valna, Constanza, Odessa
" C,D, Filyos)

This reveals that in the case of 1,000 TEU type mother vessels:

1) Comparison of patterns A and B or A and C, if the number of containers destined for the 3 ports is more than 162 TEU or 174 TEU respectively per mother vessel, then pattern A is more beneficial in terms of total ship voyage cost.
2) In comparison of B and C, C is always beneficial.

In cost comparison of patterns A - C, it can be said that the conditions under which mother vessels would utilize Filyos port as a container feeder port are:

* having enough cargo to discharge or load constantly at Filyos, a mother vessel is scheduled to call at Filyos regularly.
* The mother vessel has Black Sea cargo less than 174 TEU in case of 1,000 TEU type vessel. (if she had more than 174 TEU, she would make direct calls at Black Sea ports)

3) Basic policy of container ship operators.

The basic policy of ships' operators is described in article(3) above. This is also applicable to the study of container service in the Black Sea.

Furthermore, extension of ships' voyages to the Black Sea (up to Odessa in the USSR) needs about 9 days extra sailing and gives rise to more handicaps to ship operators than in the case of the study of direct calling at Filyos in previous article(3).

3-5-2 Conclusion

After study of 1-3, the undermentioned could be a case whereby mother vessel call at Filyos port and make transshipment of containers to/from Black Sea (west side) ports at Filyos.

A) a mother vessel has enough containers to/from Filyos (AMA cargo) to make a direct call at Filyos

B) Feeder service is available between Filyos and the west side of the Black Sea.

As to A), it is indicated in article (3), last paragraph (conclusion), that the mother vessels anticipated to call at Filyos on the basis of our container forecast are

Multi-purpose vessels up to 25,000 DWT in 2000
" " in 2010
up to 1,500 TEU type container vessel "

However, in the case of multi-purpose vessels, as explained in article(3), some of them have flexible schedules and can afford to have vessels deviate to other ports, so cases of mother vessels transshipping containers to/from Black Sea ports at Filyos would be limited to the following:

containers to/from those ports less than 129 TEU
in case of 800 TEU type vessel
" to/from " less than 174 TEU
in the case of 1,000 TEU type vessel
" to/from " less than 320 TEU
in case of 2,000 TEU type vessel

Otherwise mother vessels would make direct calls at Black Sea ports instead of making transshipment of container at Filyos based on a cost comparison.

As to B), it has already been indicated that there are decisive factors restricting container movement by sea, such as development of road transport, introduction of land-bridge transport system, etc., even if significant growth of trade between Western countries and Bulgaria, Romania, and the USSR materializes between 2000-2010, and it seems that significant growth of container movement by sea such as would induce feeder service activity in the Black Sea is doubtful, even over the long term to 2010.

Therefore it seems unlikely that Filyos port will become a container feeder port in the Black Sea.

CHAPTER IV THE PROJECT SITE

4-1 General

Filyos is located on the western part of the Black Sea coast in Turkey.

Its location is latitude 32° 01' E and longtitude 41° 32' N.

The project site is a delta formed by the Filyos River next to Hisaronu town.

It is presently used for agriculture, forestry and livestock breeding.

The flat area of the delta is 5,500,000 m^2, including the river.

The climate is generally mild. The coldest month is February(+2°C) and the hottest is July(+28°C).

(For detail, refer chapt. V Natural Conditions.)

4-2 Information on Hisaronu Town

4-2-1 The History of Hisaronu (Filyos)

The word Filyos comes from King Filubus. The history of Filyos extends to ancient times, to about 1500 years before the birth of Christ. It is thought that Gasgases came to Filyos on that time. After Gasgases, Tors, Kokiniks, Henets and Frigs came here.

When Iranian King Kros took over the kingdom of Lidya, Filyos was dependent on Iran and later on Greece. It was dependent on Paflagonia and Makedonia in Great Iskender's time. Filyos was occupied by Selcuks and Cenevizes when Roman Empire was divided into two in 301 A.D. Finally, Fatih Sultan Mehmet conquered Filyos in 1459-1460. Most of its historical structures are from the Roman and Cenevizes eras. Some of them are a big cave in Hisanonu, a castle extended to the sea and an open theatre.

4-2-2 Geographical Structure of Hisaronu

i) Location: it is between;

41 degree 33 min. 50 sec. North (latitude)

32 degree 0.1min. 00 sec. East (longitude)

ii) Boundaries:

East of it: Caycuma District. West of it: Zonguldak Province. North of it: Black Sea. South of it; Zonguldak and Caycuma provinces.

iii) Surface Area: Surface area of town is about 150 km^2.

Fig. 4-1-1 Location of Filyos (1)

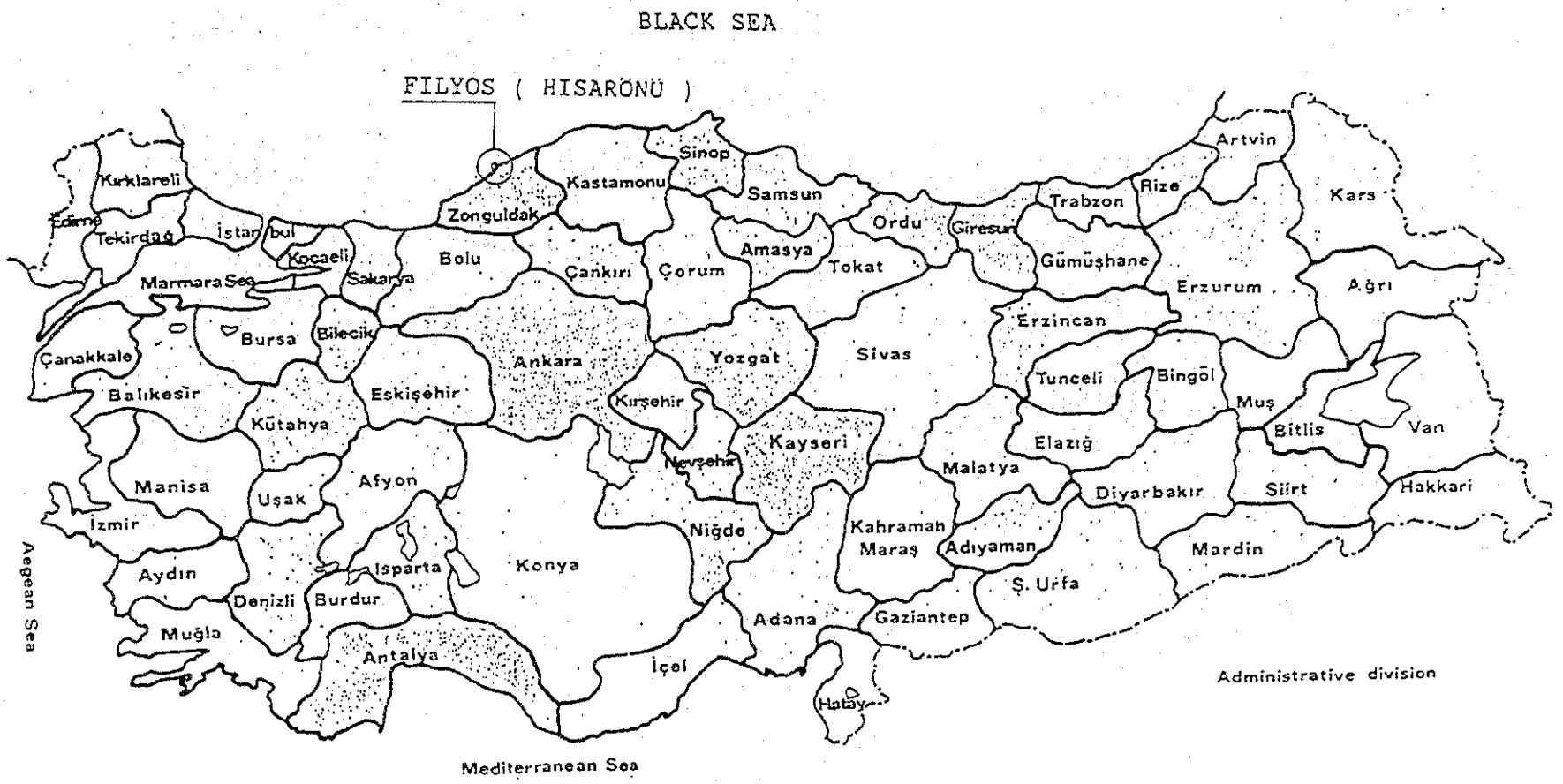


Fig. 4-1-2 Location of Filyos (2)

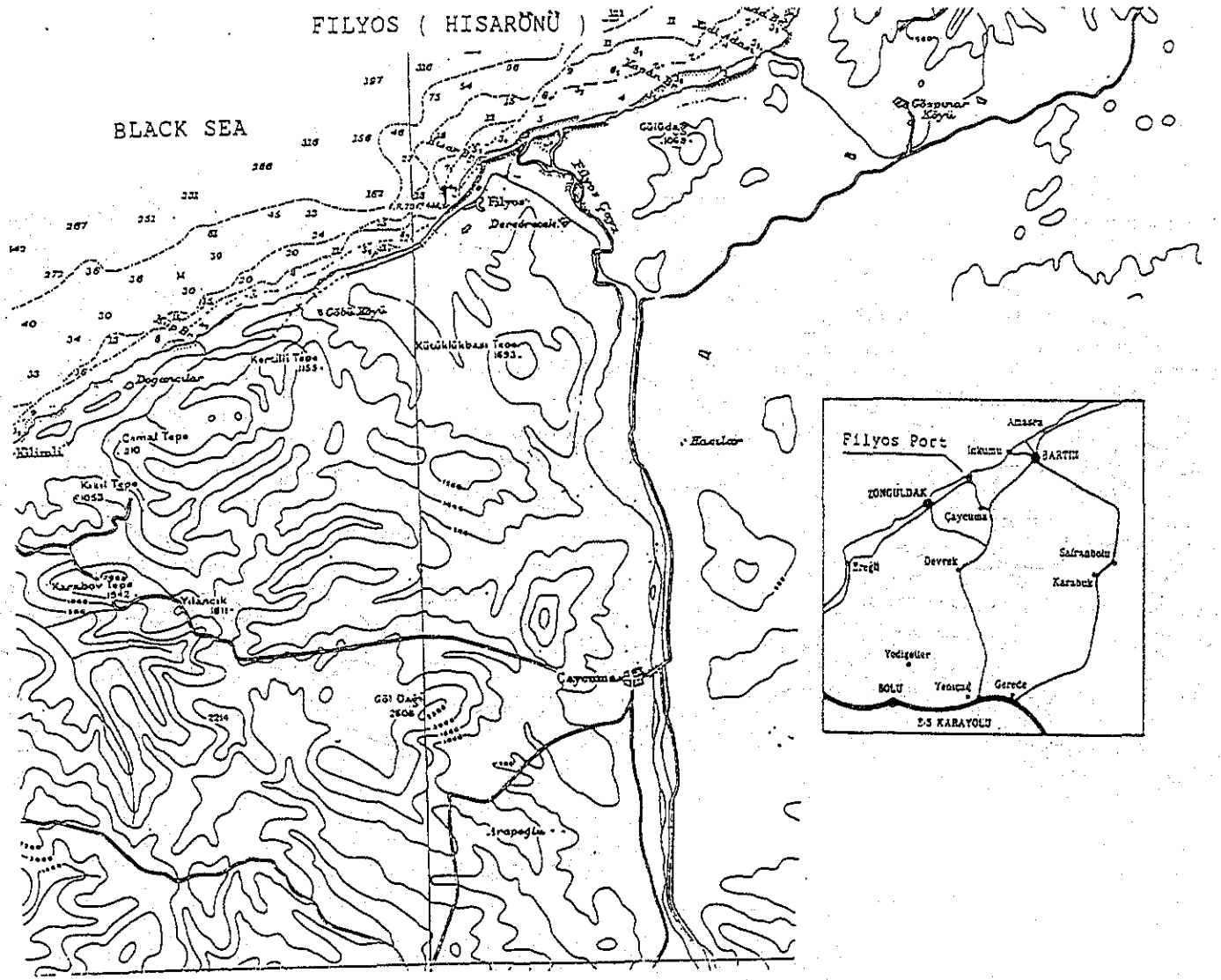


Fig. 4-1-3 Location of Filyos (3)

iv) Special Charactoristics: It is built on the valley of the Filyos River. The south side of the town is forested. There are the nose of castle and a residual port which was built in Cenevizes' time. The prevailing winds come from the north. The sea bathing season starts on June 15 and continues up to the end of September. It is 21 km from Caycuma. It is connected to Zonguldak by an asphalt road which is about 25 km in length. There are also trains travels that leave once an hour to Zonguldak and Karabuk. The distance between Filyos and Zonguldak is about 12.5 nautical miles. There are T. Cement Earth Industry A.S., Cay-T.A.S., Navy Radar Base, T.C.D.D. Railway terminal management. Separately there is a wharf of Karabuk Iron and Steel Factory, which is 270 m long. for loading and unloading.

v) Climate: All seasons on the Black Sea coast have rainy weather, with the greatest rainfall generally in the spring and winter. Winter is mild and summer is cool. The coldest month is February (+ - 2); the hottest month is July (+ 28). Autumn is longer in the region. It can be said that the most beautiful season is autumn. The site is open to the north, north-west and star winds.

vi) Plant coverage (Vegetation): The site is surrounded by chestnut, oak, pine and white pine forests. There are dumpy heaths on the edge of the forests. Within the boundreis of Comlekci village, afforestation works have been completed.

4-2-3 The Villages of Hisaronu District, the Names of its Quarters and the Population According to the 1980-1985 Census

The town center consists of 6 quarters and 7 villages are related to Filyos.

The populations of villages of Hisaronu are as follows.

Table 4-2-1 Populations by Villages

No.	Name of Place	1980	1985
1.	Hisaronu district center	-	5,686
2.	" Gokceler village	247	357
3.	" Derecikoren	348	470
4.	" Comlekci	787	1,004
5.	" Akpinar village	327	390
6.	" Temenler village	327	368
7.	" Cay village	268	356
8.	" Yukari goynuk	915	972
	TOTAL		9,553

The population according to the 1975-1980-1985 census of quarters of Hisaronu center are as follows:

Hisaronu	1975	1980	1985
TOTAL	4,485	4,989	5,686

4-2-4 The Distances of Villages and Provincial Centers to Hisaronu, Quality of Existing Roads, Transportation and Communication Possibilities.

All villages related to Hisaronu are connected by asphalt and stabilized roads. The farthest village from Hisaronu, at about 20 km, is Yukari goynuk village. The farthest village center is again Yukari goynuk village in distance of 45 km. Transportation between the villages of the province with the center is by train which are from Zonguldak to Caycuma. There are also telephone connections between the villages.

4-2-5 Geopolitic Peculiarities and Military Importance of Hisaronu

The railway which is used to transport the coal needs of karabuk Iron and Steel Factory by wagons, the existence of the Navy Radar Base, the Filyos fire brick factory which is very important for heavy industry and an unloading, loading wharf which is 270 m long are the main reasons for the geopolitical importance of Hisaronu.

4-2-6 Economical Structure and Peculiarities of Hisaronu Field Peculiarities

It is suitable for every kind of agriculture. There is no irrigation equipment. 250 tons ammonium sulphate, 200 tons ammonium nitrate and 150 tons trible super phosphate are used as fertilizer. Agriculture despute is executed locally.

i) Agricultural products

Generally wheat and corn are grown in the villages of hisaronu. In Hisaronu center, 22,000 olive trees, 35 decar hazelnut and many kinds of fruit trees, which number more than 10,000, are found in Hisaronu. Separately 13,600 decar wheat, 23,900 decar corn and 543 decar, many kinds of vegetables are grown. The monetary value of these products is (on average) 16,626,000 TL. If we add that monetary value of husbandry and fruit crops to this value, it exceeds 30 million TL. on average.

ii) Status of Trade:

Firstly, the production of fire bricks used in heavy industry, fishing and tourism are the main income sources of Hisaronu.

A market is set up every Saturday, where villagers sell their products. There is also a transport cooperative which has 56 partners.

iii) Working Places and the Number of Workers

T. cement and Earth Industry A.S.

Filyos Flame Brick Factory : No. of Workers : 794

Cay-Tas A.S. : " " : 70

T.C.D.D. Hisaronu : " " : 35

iv) Husbandry

1,570 sheep, 5,600 head of cattle and 2,515 hens are raised in Hisaronu and its villages.

v) Direction and possibilities of economical development

The production capacity of the Filyos fire brick factory is 33 thousands tons annually. The annual fire brick production of Cay Tas A.S. is 5 thousand tons. Generally the fishery needs of Zonguldak are supplied by Hisaronu. There has been an increase in the number of people who came to Filyos in order to visit this year. The improvement project of Filyos River, the Filyos River Valley project and the construction of the

greatest port project of the middle Black Sea region were included in the 1988 investment program of the government.

4-2-7 Hisaronu Municipality

i) Hisaronu Municipality was established on 13th of December, 1954. The Municipality's office is at the old normal house building. The Municipality has 9 officers, 25 permanent workers and 35 temporary workers. Officials are the Mayor, the First Secretary, the Accountant, two Security Officers one tax collector, one caretaker (helper) and seven cleaning workers.

ii) The municipality has one repairshop building, one fire-fighting building and one water system building.
Equipment: It has 1 car, 1 jeep, 1 minibus, 1 garbage truck, 3 trucks, 1 excavator and 1 watering truck.

iii) Urbanization speed:
The improvement plan made in 1964 was revised and enlarged in 1986. With this improvement, the population of Hisaronu will be about 10-15 thousands in 2000. 16 km of road was built in 1986-1987. The number of buildings has increased and at the beginning of 1986, 194 houses were built by cooperatives. They also tried to finish 165 houses.
Public areas which have improved:

Karabuk Iron and Steel Factory Management	31,000 m^2
T. C. D. D. General Manager	36,385 m^2
Filyos Fire Brick Factory	24,325 m^2
Highways General Directorate	900 m^2

4-2-8 Status of Water, Electricity and Canalization

The potable water of Hisaronu was 13 Lt/s in 1960. But, because of the insnfficiency of the existing water system, a new water system built by the city bank will supply water needs up to 2013. Electricity is provided by T. E. K. Four quarters have canalization. Other quarters have phoseptic ditches. Preliminary design of canalization has been completed and city bank has tried to put it into the investment program of the State Planning Organization.

4-2-9 Status of Economic Conditions of Hisaronu

(1) Cultural Status: Hisaronu is one of the places where tourism has been developed in Zonguldak. From year to year, tourism has increased. Historical handiworks which were collected in Hisaronu and the area around it like gold and silver coins are exhibited in Amasra Museum. There is 1 high school and 7 elementary schools in Hisaronu center. The literacy rate is 80%.

(2) Public Foundations in Hisaronu:

i) District Organizations

1. Administration

It was closed in 1983.

2. Police

1 officer, 8 soldiers and 3 quarter wards

ii) Local Administration

The local administration are directed by Saffet Cakar, Municipal Chief of Hisaronu. The municipality has 1 town clerk, 1 accountant 1 technical worker, 2 inspectors, 1 tax collector, 1 Realization personnel and 2 other personnel

iii) Religious Organization

There are 2 mosques in Hisaronu. There are plans for two others.

iv) Health Organizations

a) There is 1 health building, 4 personnel houses, 1 doctor, 3 nurses and 5 workers in Hisaronu center.

b) There is 1 doctor, 1 nurse, 1 cashier and 6 workers in the dispansary of the Social Insurance Organization. The Naval Radar Base also has a doctor.

v) Agricultural Organization

1 agricultural technician.

Tekel Organization

2 personnels and 1 worker

vi) Metrorology Organization

1 Staffer

vii) Government Organizations

a) PTT: 1 manager, 16 personnel

b) Agriculture Bank: 1 manager, 14 personnel

c) Work Bank: 1 manager, 8 personnel

d) TCDD Hisaronu Railway Station Department: 1 chief, 4 action personnels, 1 stare personnel, 1 casher and 2 workers.
TCDD chief department: 1 chief, 35 workers

e) Caytas A.S.: 7 personnels, 70 workers

f) Filyos Fire Brick T.A.S.: 60 personnel, 794 workers

4-2-10 Importance of Tourism in Hisaronu

Hisaronu has attracted foreign tourists since 1988.

4-2-11 Social Status of Hisaronu

a) Social Status:

There is no big differences in social status in Hisaronu. Close relatives marry due to inheritances. In the circumstances of birth and death, concerning and supporting are traditional.

Most houses are made of reinforced concrete and they are convenient for seasonal conditions.

The public is open to development and civilization. And they can easily conform to foreign people.

b) Social Structure:

There are no differences in race, religion or Language.

4-3 Access To Filyos

4-3-1 Inland Route

From Ankara to Filyos, there are two approaches through land.

One is by road and the other is by rail.

The distance between Ankara and Filyos is 280 km by road and 390 km by railway.

It takes 5 hours by car and 8 hours by train.

The route maps are shown in Fig. 4-3-1 and 4-3-2, and time and distance table are shown in Table 4-3-1 and 4-3-2.

Fig. 4-3-1 Route Map (1)

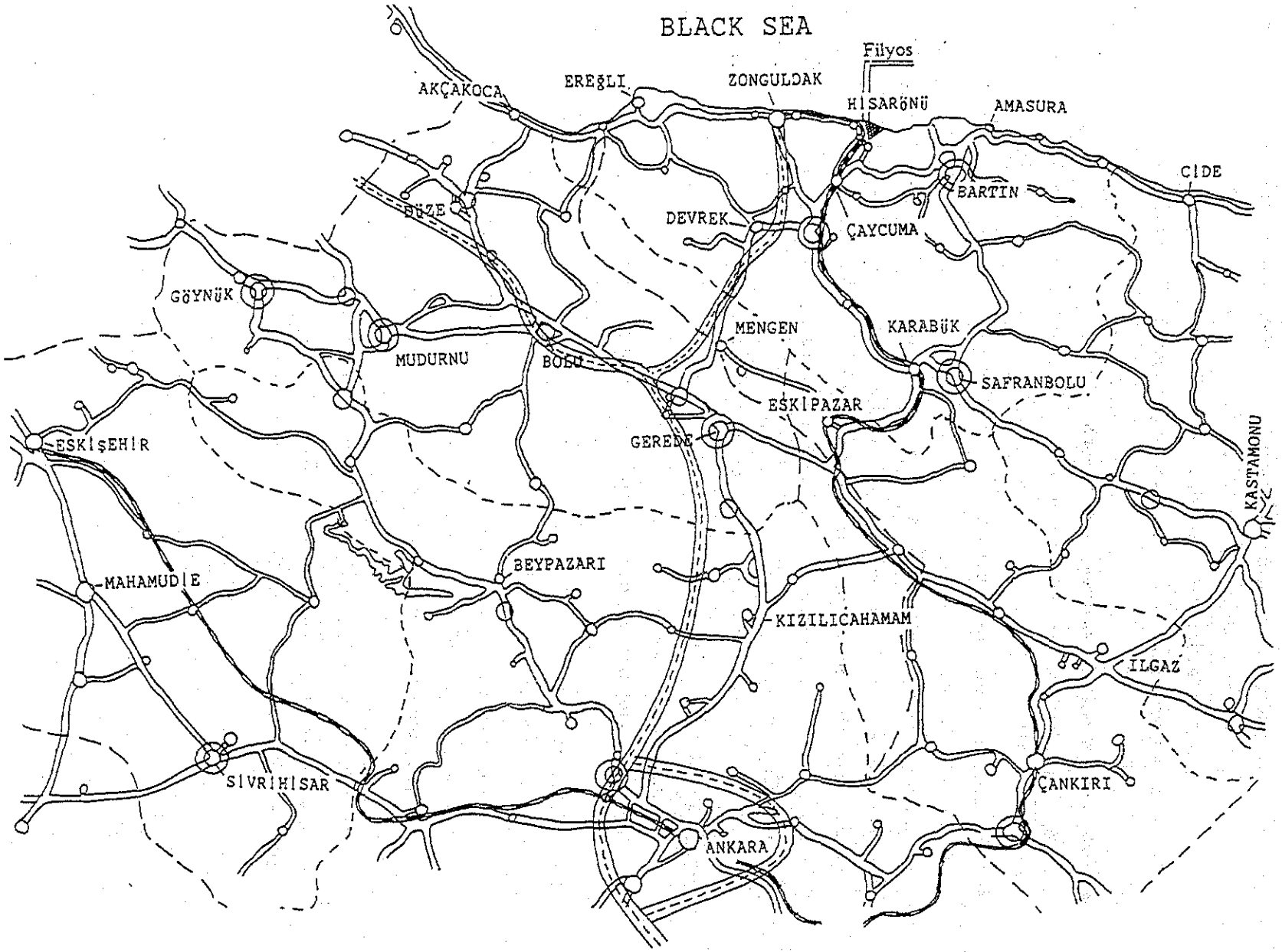


Fig. 4-3-2 Route Map (2)

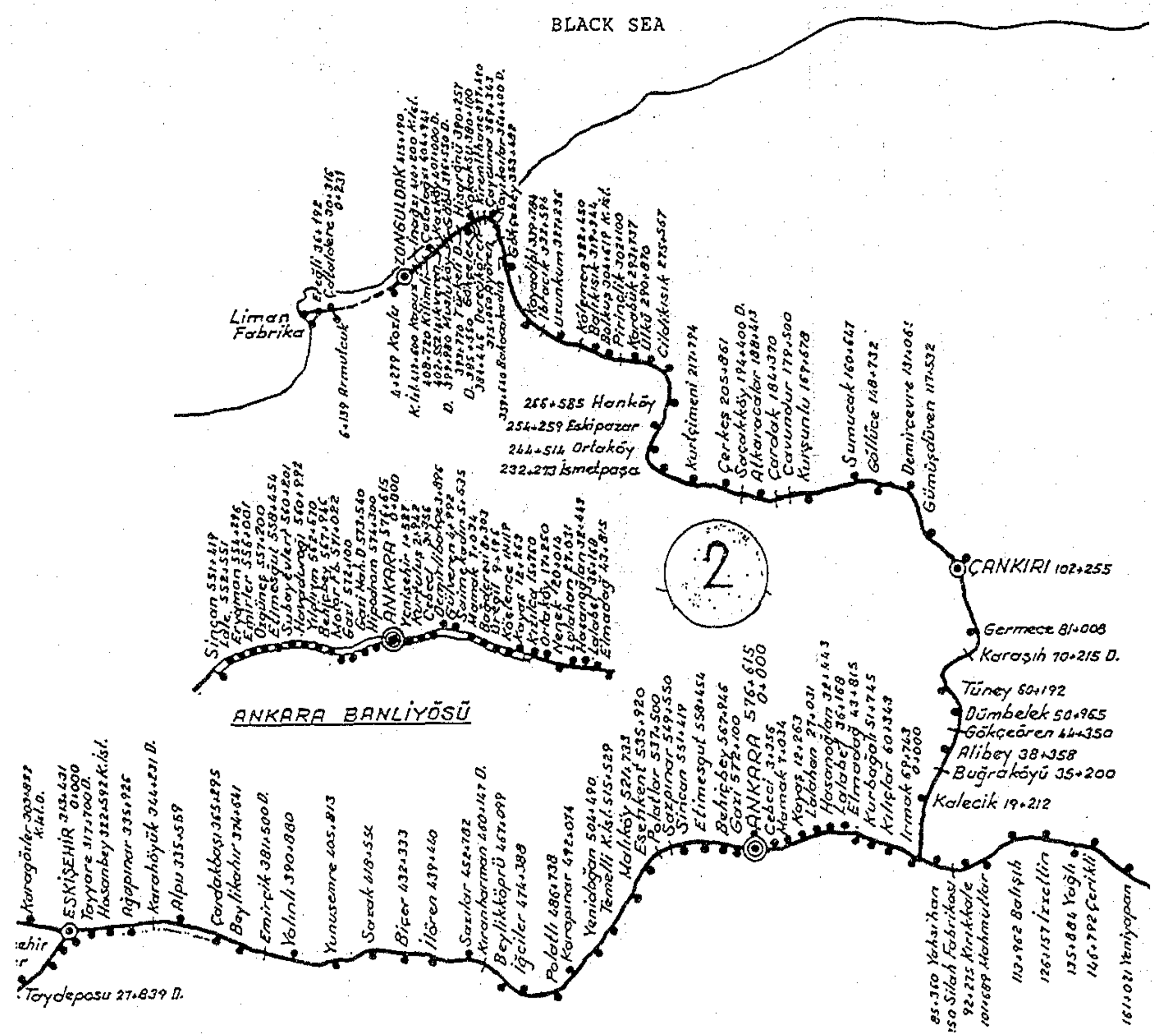


Table 4-3-1 Time and Distance (by road)

Ankara-Filyos Road	distance (km)	Speed (km/hr)	comments
Ankara			
	137	80-90	E5 / Excellent seperated road
Gerede			
	50	50-70	Route 750 / 3-7% slope / B : 6m
Dorcan Tunnel			
	30	50-70	3% slope
Devrek			
	37	80-90	smooth / B :10m
Caicuma			
	26	50-70	filyos:narrow
Filyos			
TOTAL	280	Avg.60	fairy good

In addition to the Present road system, the Ankara-Bolu-Istanbul motorway will be in use by 2000, and a conceptual plan for a motorway from Gerede to Zonguldak will be realized by 2010. (See Fig. 4-3-1)

Table 4-3-2 Time and Distance (By Rail)

Railway Route	Distance (km)	Speed (km/hr)	Comment
Ankara			
	69	60-90	Elmadag:20 km/hr
Irmak			
	33	60-90	
Cankiri			
	191	60-90	
Karabuk			
	97	40-90	
Hisaronu(Filyos)			
TOTAL	390	Avg.50	

4-3-2 Sea Route

From the Mediterranean Sea, ships have to pass through the Aegean Sea, the Dardanelles Channel, the Sea of Marmara, the Bosphorus Channel and the Black Sea.

The number of ships passing the channels is about 12,000 vessels per year.

The average size of the vessels is 10,000 GRT.

It is said that there are no crucial hindrances for 150,000 dwt vessels to pass the channels.

The maps of the Bosphorus are indicated in Fig. 4-3-3 - 4-3-4.

The record of the vessels passed the channels is indicated in Table. 4-3-3.

Table 4-3-3 Foreign and Turkish Ships passing through the Bosphorus and Dardanelles

Year	Istanbul Bosphorus		Dardanelled		Total	
	Number	'000 GRT	Number	'000 GRT	Number	'000 GRT
1980	11,839	102,859	11,849	112,624	23,688	215,483
1981	12,320	106,009	12,298	112,968	24,618	218,977
1982	12,983	109,742	12,130	116,378	25,113	226,120
1983	12,767	115,128	12,565	125,047	25,332	240,175
1984	11,006	108,299	12,884	134,168	23,890	242,467
1985	14,271	129,305	11,650	133,419	25,921	262,724
1986	12,103	119,380	12,305	128,773	24,408	248,153
1987	11,557	127,607	12,685	135,761	24,242	263,368
1988	12,092	131,739	13,046	141,277	25,138	273,016

Main-Danube Canal, the 3,488km waterway between the North Sea and the Black Sea, is reported that the project will be finished in 1992.

The standard canal cross-section has a waterline width of 55m, and a channel 40m wide, and 4m deep.

The locks have a length of 190m, and a width of 12m.

This permits the passage of the European standard barge of 80m length,

Fig. 4-3-3 Bosphorus Channel (Sailing Routes)

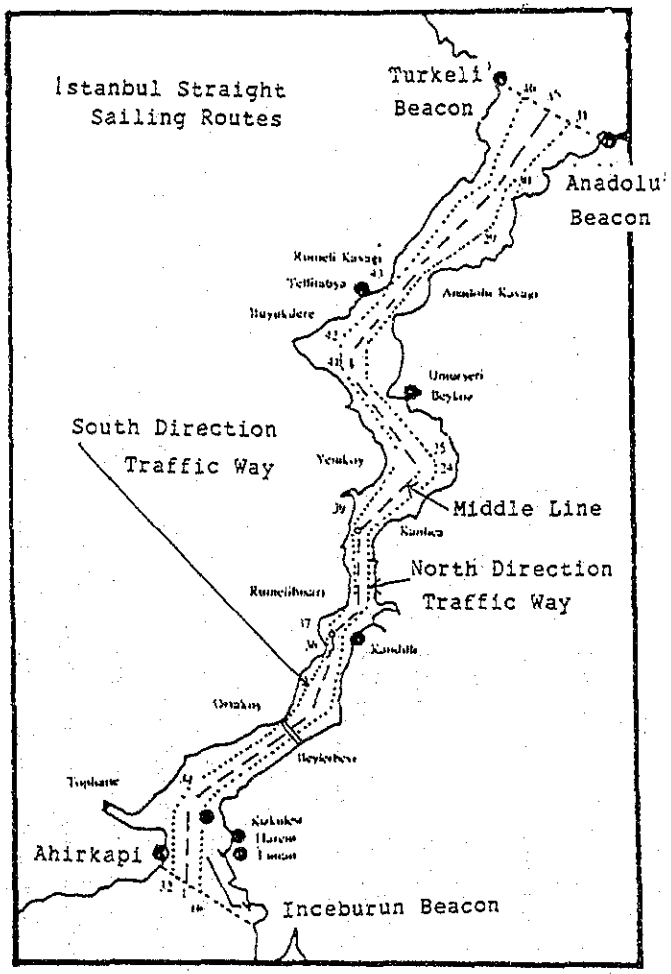
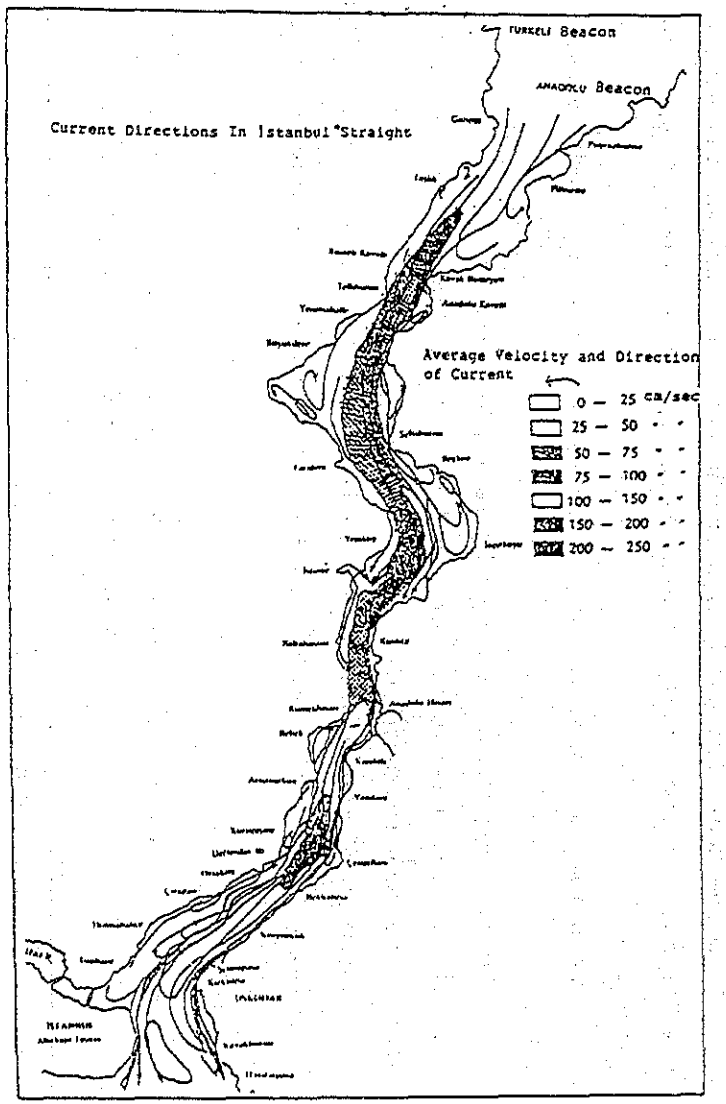


Fig. 4-3-4 Bosphorus Channel (Current)



9.5m beam, 2.5m draft and a cargo capacity of 1,350 tonnes. It also allows the passage of large motorcargo vessels, 11.4m wide barge and pusher-tug unit, and 185m long twin barge pusher units with a cargo capacity of 3,300 tonnes.

4-3-3 Air Route

Although there is an old air force runnway in Caicuma, there is no civil aviation service in Zonguldak Province.