Chapter 4 Inland Transportation

4.1 Introduction

The cargo transport demand forecast for use in the Constantsa Port planning needs to include not only a maritime cargo volume forecast but also forecast of river cargo traffic volume to be handled in the future at this port. This is because the total of the projected maritime and river cargo volume should be the basis of the cargo volume for wharf planning. In this section, river cargo volumes in 2010 and 2020 will be estimated on the basis of the maritime cargo demand forecast studied in Chapter 3 of Part 2. In addition, for assessing the capacity of the land transport facilities, i.e., railway, road, etc., of this port, both railway and road transport cargo volume will also be approximately projected.

4.2 Inland Water Transportation

4.2.1 Traffic of Inland Water Transportation

(1) Evolution of inland waterway transportation cargo traffic

Inland waterway transportation (IWT, hereinafter called river transport or RT) is an important transportation mode in this region, which ensures mass and low-cost transportation of exported and imported cargoes in Romania and from Eastern and Central European countries in the hinterland to the Port of Constantza via the Black Sea Danube Canal and the Danube. RT cargoes transported to the Port of Constantza (hereinafter called the river cargoes) are transshipped to oceangoing vessels at the Port. For the Port of Constantza, to have this transportation mode is one of the biggest advantage over other competing ports along the coast of the Black Sea and Adriatic Sea. River cargoes are mainly carried by pusher and barge convoys.

For the past six years, from 1995 to 2000, the traffic of the river cargoes has been developing at approximately 10,000,000 tons (ten million tons) per annum. Both the ratio of the river cargo volume to the total cargo and the ratio of the river cargo volume to the maritime cargo volume handled in the Port have increased over the past five years. (See Table 4.2.1.)

In the case of the transit of cargoes imported to or exported from Eastern and Central European countries, river transport is a relatively more advantageous transportation mode than railway and road. Besides, railway and road transportation are subjected to fierce competition with other competing ports, the ratio of dependence of transit cargoes on river transportation being much higher than that of the Romanian trade cargoes. (See Table 4.2.1.)

(2) Evolution of River Cargo Traffic by Commodity

The volume of river cargoes is approximately 10,000,000 tons per annum; of which 7,000,000 tons represent imported cargoes in Romania and the remaining 3,000,000 tons are divided into cargoes exported from Romania, which account for 1,500,000 tons, and transit cargoes, which account for 1,500,000 tons (see Fig. 4.2.1). Major imported items are iron ore (4,000,000 tons), coal and coke (2,000,000 tons) and bauxite (1,000,000 tons). Main exported cargoes carried through the inland waterway are steel products from Sidex Galati Steel Plant (700,000 tons), cement and clinker from Lafarge Romcim Cement Plant (700,000 tons) and grains (100,000 tons). Main transit cargoes are imported iron ore (600,000 tons), exported grains (400,000 to 1,200,000 tons) and bauxite (100,000 tons). The export volume of grains varies to a large extent according to the harvesting performance of each year. (See Figs. 4.2.2 to 4.2.4)

(3) Ratio of the river cargo to the maritime cargo (river maritime ratio)

The most basic index for predicting the future of river cargoes is the ratio of river cargoes to maritime cargoes (that is river maritime ratio). In this concept, special attention is paid to the modal split ratios of each transportation mode by considering that river transportation is also one of the inland transportation modes such as railway and road transportation. The river maritime ratio of each main cargo for the six years from 1995 to 2000 is shown in Table 4.2.2 and its charts are shown in Appendix 4.2.1. As a matter of course, this ratio varies greatly from one item of cargo to another. In other words, there is a clear distinction between cargo items suitable for river transport and those unsuitable for river transport. Outlines of the river maritime ratio for each commodity group are shown in the following analysis.

a) **Cereals**: Twenty to thirty percent (20-30%) of Romania's imported and exported grains and almost all transit grains from the hinterland are carried by barge by use of inland waterways. For transit grains, there are years in which the RT cargo volume exceeds the maritime-transportation cargo volume. This suggests that there is a possibility that cargoes carried by RT from the hinterland may be transited to other countries by railway or barge.
b) **Timber export**: There is scarcely any cargo transported by RT. This is because timber is cut down from mountain districts, and not from districts along the coast of the Danube and because lumber mills are also located in the mountain districts. Almost all timber exports are carried by railway to the Port of Constantza.
c) **Fertilizer export**: Fertilizer exports from Romania are scarcely transported by RT. This is because almost all fertilizer plants are connected by railway to the Port of Constantza. On the other hand, the ratio of RT of transit cargoes is very high.

d) **Mineral rough product**: Mineral rough products are quarry and gravel for construction. They scarcely become maritime cargoes and even when they are transported by barge to the Port of Constantza, they are used for construction works within the Port or district. Statistically, the volumes of these products are included in the river cargo and, therefore, the river maritime ratio calculated on the basis of the statistics becomes higher, and it must be understood in consideration of this fact.

e) **Iron ore import**: Almost all quantity of imported iron ore is transported to the inland (Sidex Galati and steel plants in Hungary and Austria) by river transport.

f) **Iron scrap export**: The transportation of iron scrap for export from Romania is scantly performed by RT (about 10%). Places where iron scrap is collected are distributed throughout the country and are not necessarily concentrated along the banks of the Danube. In the case of transit cargoes, almost all quantity is transported by barge.

g) **Nonferrous ore**: Imported bauxite accounts for the greater part of this item. Whether nonferrous ores are domestic or transit cargoes, 70 to 80% of cargoes are transported to the inland by RT.

h) **Solid fuel**: Imported coal and coke account for the greater part of this item. Almost the whole quantity is transported by RT to steel plants and cement plans in Romania.

i) **Crude oil and oil product**: The whole quantity of imported crude oil is transported to oil tanks using pipelines connected to the Port of Constantza. Therefore, there is no river cargo from the Port. Although almost all oil products are also transported by pipelines, in recent years, transportation by dedicated barges has been increasing little by little (about 5%)

j) **Chemical product**: Chemical products are mostly liquid bulk cargoes and have not so far been transported by IWT.

k) **Cement and construction materials**: Major cargo items are imported cement and high-grade stone materials. In recent years, the volumes of these cargoes and their ratio to maritime cargoes have been on the raise. There is a possibility that the river maritime ratio of these cargoes will exceed 60% in the future. In the case of transit cargoes, almost the whole quantity is transported by RT to the Port of Constantza.

l) **Iron and nonferrous metal products**: Major cargo items are steel products for export transported from various steel plants in the country, and aluminum products. In the case of steel products exported from the Port of Constantza, 60 to 70% are steel plates, hot coils and wire rods manufactured in Sidex Galati Steel Plant and the remainder are structural shapes and pipes manufactured in other small-sized steel plants. They are transported by railway to the Port of Constantza. Aluminum products are also mainly transported by railway. For transit cargoes, almost the whole quantity is transported by RT to the Port of Constantza, because steel plants in Hungary and Austria are located along the banks of the Danube.

m) **Metal fabricated products and transport equipment**: Similar to the case of mineral rough product (quarry), statistically, materials for construction works used within the Port or the district are included in the metal fabricated products. Therefore, in Table 4.2.2, the river maritime ratio is higher than its actual value. In consideration of information obtained from operators, about 30% of export cargoes from Romania are transported by RT to the Port of Constantza. Almost the entire quantity of transshipment cargoes is RT cargoes.

n) **Other products**: Other products represent what is called general cargoes and almost all of these products will be containerized in the future. These cargoes do not easily become RT cargoes because of 1) high cargo prices per ton, 2) small lots per unit transportation, and 3) required short transportation time. At present, 5% of Romania's exported and imported cargoes and about 20% of transit cargoes are transported by RT to the Port of Constantza. The possibility that the river maritime ratio of general cargoes might increase in the future is not high.

4.2.2 Estimation of River Maritime Ratio by Commodity Group

To predict the future volume of river-transport cargoes in 2010, future values of river maritime ratio, which is the most basic index, were estimated on the basis of the basic features of RT (low-cost transportation mode, suitability for big-scale transportation, and suitability for bulk cargo transportation) and trends of river cargo traffic for the past six years (see Table 4.2.3). The result of the estimation is shown as values having ranges in the table. In the estimation, the following points were taken into consideration:

a) For main cargoes such as cereals, timber and steel products, information was obtained by hearings from operators
b) Present user sites and future trends in industries
c) Elimination of the effect of volumes of barge transportation of construction materials (quarry, cement, reinforcing bars), which are consumed within the Port of Constantza and its district, from the inland

4.2.3 Traffic of Inland Waterway Transportation in 2010 and 2020

The river-transportation cargo volume at the Port of Constantza was estimated by considering all of 1) the maritime cargo traffic forecast at the Port of Constantza in 2010 and 2020 which was set in the Chapter 3 of New Master Plan, 2) the revised cereal demand forecast reviewed in the formulation of the present Short-term Plan, and 3) the result of estimation of the river maritime ratio in 2010 and 2020 studied in this subsection. Result of estimation is

summarized as follows:

According to the results of the estimation, the RT cargo volume which is currently developing at a level of approximately 10,000,000 tons per annum is estimated at approximately 17,000,000 tons in 2010 and approximately 20,000,000 tons in 2020. The results of the estimation are shown in Tables 4.2.4 and Appendix 4.2.2.

Table 4.2.1 Evolution of River Cargo: Port of Constantza (1995-2000)

	Import+Export Total				
Year	**Maritime (Ton)**	**River (Ton)**	**Total (Ton)**	**River/Maritime (%)**	**River/Total (%)**
1995	32,785,339	7,204,563	39,989,902	22	18
1996	31,509,266	7,564,043	39,073,309	24	19
1997	29,309,624	8,753,996	38,063,620	30	23
1998	26,346,275	8,681,957	35,028,232	33	25
1999	21,782,353	7,952,399	29,734,752	37	27
2000	21,582,004	8,429,547	30,011,551	39	28

	Transit Total				
Year	**Maritime (Ton)**	**River (Ton)**	**Total (Ton)**	**River/Maritime (%)**	**River/Total (%)**
1995	1,367,527	1,012,590	2,380,117	74	43
1996	2,803,667	1,815,262	4,618,929	65	39
1997	2,422,339	1,422,785	3,845,124	59	37
1998	2,394,742	2,307,109	4,701,851	96	49
1999	1,173,267	1,298,604	2,471,871	111	53
2000	1,550,264	1,050,914	2,601,178	68	40

	Grand total				
Year	**Maritime (Ton)**	**River (Ton)**	**Total (Ton)**	**River/Maritime (%)**	**River/Total (%)**
1995	34,152,866	8,217,153	42,370,019	24	19
1996	34,312,933	9,379,305	43,692,238	27	21
1997	31,731,963	10,176,780	41,908,743	32	24
1998	28,741,017	10,989,065	39,730,082	38	28
1999	22,955,620	9,251,003	32,206,623	40	29
2000	23,132,268	9,480,462	32,612,730	41	29

Fig.4.2.1 Evolution of River Cargo Traffic: Port of Constantza (1995-2000)

Year	1995	1996	1997	1998	1999	2000
Grand total	8,217,153	9,379,305	10,176,780	10,989,065	9,251,003	9,480,462
Export	816,640	676,920	1,076,147	1,256,767	1,957,190	2,347,013
Import	6,387,923	6,887,123	7,677,848	7,425,190	5,995,209	6,082,534
Transit	1,012,590	1,815,262	1,422,785	2,307,109	1,298,604	1,050,914

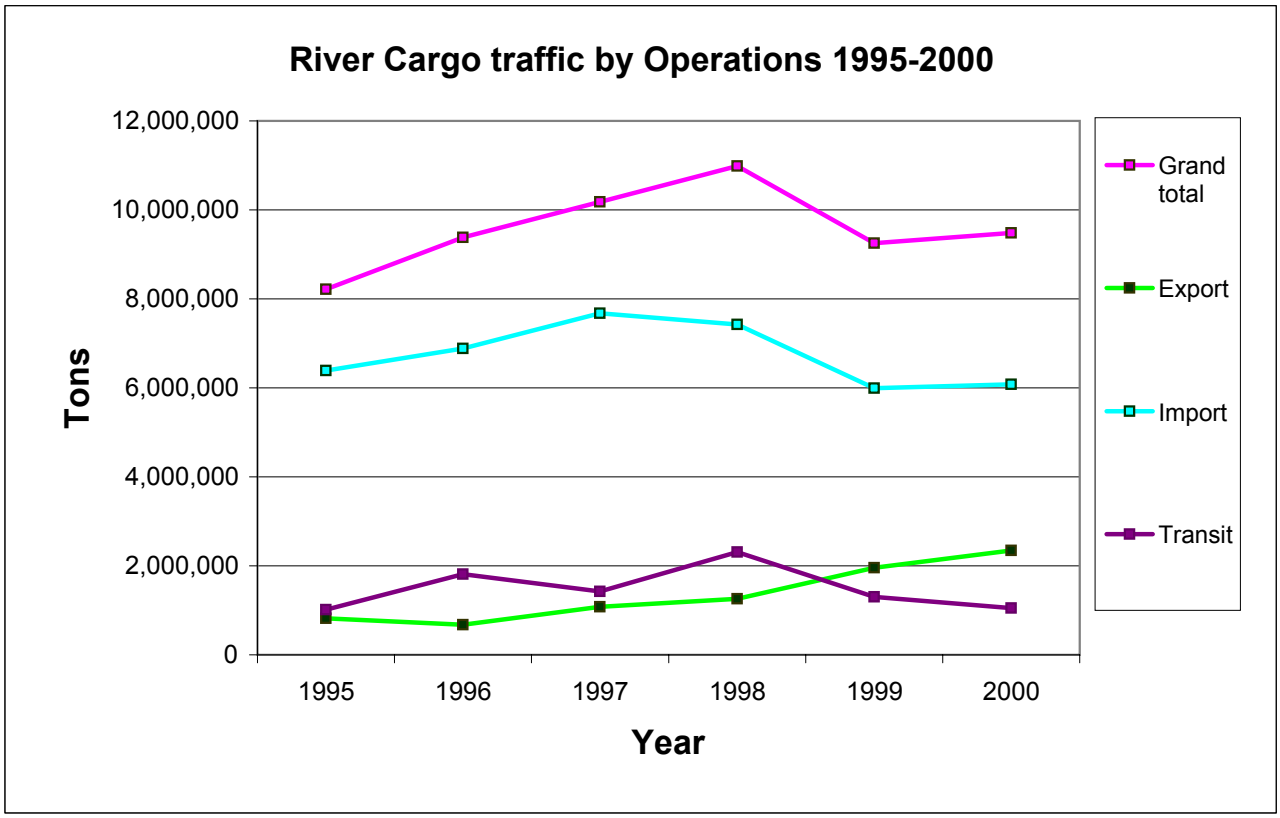


Table 4.2.2 Commodity wise River/Maritime Ratio: Average of Recent six Years (1995-2000)

Year	Trade (Import+export) Total		
	Maritime (Ton)	River (Ton)	River/Maritime (%)
Cereals	803,149	131,736	16
Other Foods and Seeds (2,3,4,5)	816,557	17,578	2
Timber, fire wood	518,679	2,772	1
Fertilizers, Mineral rough products (7,8)	1,779,648	57,278	3
Iron ore, Scrap	4,601,460	4,010,372	87
Non ferrous ore	889,705	621,883	70
Solid fuel, (coal, coke, etc)	2,698,413	2,029,840	75
Crude Oil	5,680,833	5,973	0
Gas and Oil Products (15,16)	4,004,857	53,788	1
Chemical Products	893,135	5,507	1
Chalk, cement, construction materials	1,936,036	580,087	30
Iron / Non Iron Metals	1,501,786	451,066	30
Metal Fab. Products, Car, Transport (21,22)	239,375	103,403	43
Other Products (11,12,19,23,24)	855,512	26,468	3
TOTAL	**27,219,144**	**8,097,751**	**30**

Year	Transit Total		
	Maritime (Ton)	River (Ton)	River/Maritime (%)
Cereals	432,415	502,584	116
Other Foods and Seeds (2,3,4,5)	40,301	56,027	139
Timber, fire wood	360	401	111
Fertilizers, Mineral rough products (7,8)	15,637	92,571	NA
Iron ore, Scrap	604,697	481,983	80
Non ferrous ore	366,446	144,163	39
Solid fuel, (coal, coke, etc)	10,799	7,527	70
Crude Oil	336,667	6,644	2
Gas and Oil Products (15,16)	4	24,708	NA
Chemical Products	18,184	11,951	66
Chalk, cement, construction materials	486	9,159	NA
Iron / Non Iron Metals	73,764	111,573	151
Metal Fab. Products, Car, Transport (21,22)	8,638	20,994	NA
Other Products (11,12,19,23,24)	43,571	14,257	33
TOTAL	**1,951,968**	**1,484,544**	**76**

Year	Grand Total		
	Maritime (Ton)	River (Ton)	River/Maritime (%)
Cereals	1,235,564	634,320	51
Other Foods and Seeds (2,3,4,5)	856,858	73,606	9
Timber, fire wood	519,039	3,173	1
Fertilizers, Mineral rough products (7,8)	1,795,285	149,849	8
Iron ore, Scrap	5,206,156	4,492,355	86
Non ferrous ore	1,256,151	766,047	61
Solid fuel, (coal, coke, etc)	2,709,212	2,037,368	75
Crude Oil	6,017,500	12,617	0
Gas and Oil Products (15,16)	4,004,860	78,496	2
Chemical Products	911,319	17,457	2
Chalk, cement, construction materials	1,936,522	589,247	30
Iron / Non Iron Metals	1,575,550	562,639	36
Metal Fab. Products, Car, Transport (21,22)	248,012	124,397	50
Other Products (11,12,19,23,24)	899,083	40,724	5
TOTAL	**29,171,111**	**9,582,295**	**33**

Source: CMPA

Fig.4.2.2 Evolution of River Cargo Traffic: Port of Constantza (1995-2000)
<Total (Trade + Transit) Cargo>

Cargo / Year	1995	1996	1997	1998	1999	2000
Cereals	436,339	841,125	359,212	1,214,677	664,396	290,169
Other Foods and Seeds (2,3,4,5)	12,526	87,984	16,676	63,260	186,638	74,551
Timber, fire wood	1,765	1,320	2,201	1,750	8,918	3,082
Fertilizers, Mineral rough products (7,8)	87,208	26,908	193,478	190,421	131,308	269,769
Iron ore, Scrap	4,034,589	4,980,868	4,848,147	5,175,700	3,831,502	4,083,326
Non ferrous ore	492,531	841,926	683,942	547,117	706,251	1,324,512
Solid fuel, (coal, coke, etc)	2,260,758	1,991,900	2,800,670	2,415,223	1,688,435	1,067,221
Crude Oil	0	0	14,568	0	54,545	6,589
Gas and Oil Products (15,16)	0	0	69,399	75,231	138,064	188,283
Chemical Products	17,502	49,760	11,759	15,516	550	9,657
Chalk, cement, construction materials	454,706	260,000	433,272	549,950	742,746	1,094,807
Iron / Non Iron Metals	378,932	230,718	571,033	588,337	803,454	803,363
Metal Fab. Products, Car, Transport (21,22)	27,858	25,310	165,761	141,116	222,221	164,115
Other Products (11,12,19,23,24)	12,439	41,486	6,661	10,769	71,974	101,016

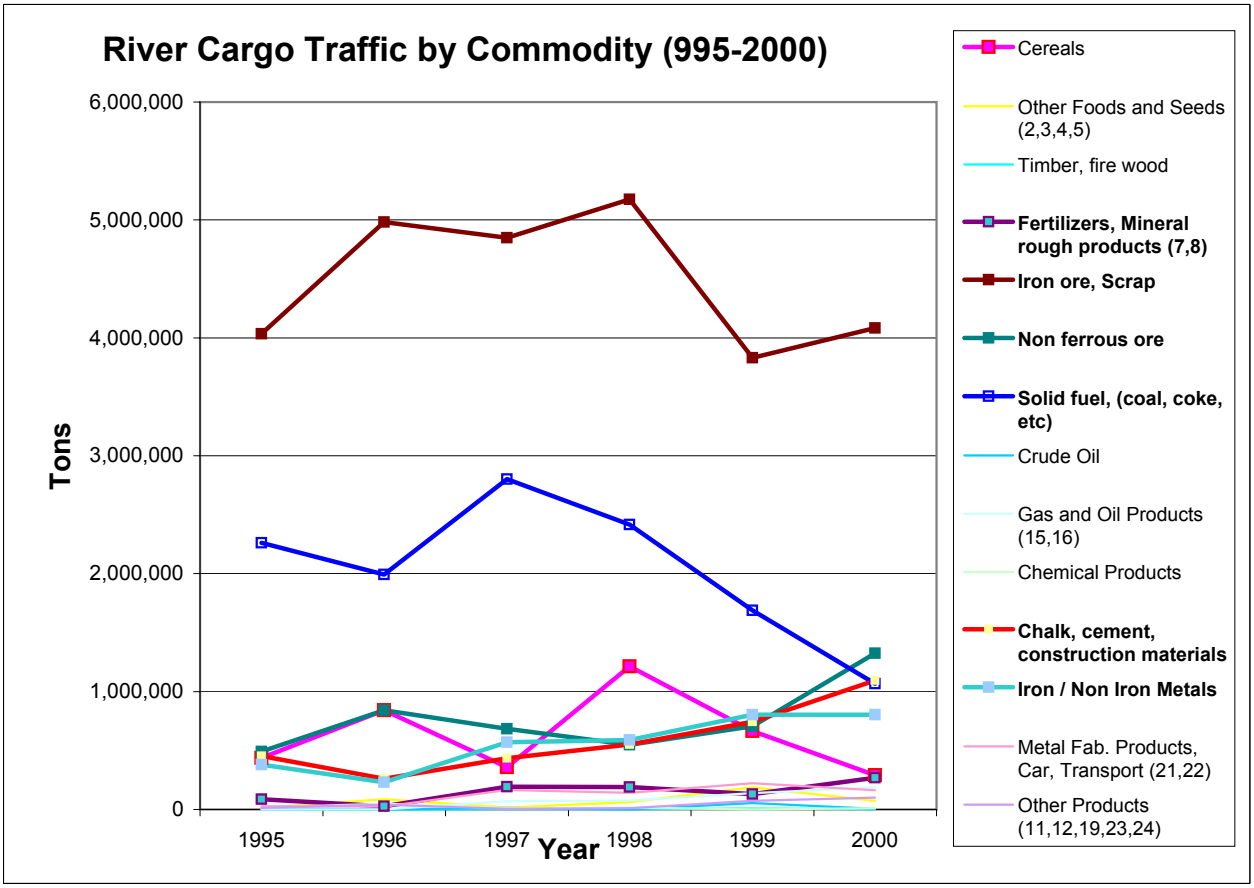


Fig.4.2.3 Evolution of River Cargo Traffic: Port of Constantza (1995-2000)
<Trade (export + import) Cargo>

Cargo / Year	1995	1996	1997	1998	1999	2000
Cereals	150,303	408,000	115,841	43,731	48,351	24,188
Other Foods and Seeds (2,3,4,5)	12,526	2,530	5,937	5,313	59,579	19,584
Timber, fire wood	1,515	1,225	911	1,750	8,147	3,082
Fertilizers, Mineral rough products (7,8)	38,314	1,467	43,512	40,619	44,235	175,522
Iron ore, Scrap	3,684,889	4,237,400	4,292,929	4,498,909	3,557,949	3,790,158
Non ferrous ore	288,926	467,813	553,610	481,211	698,817	1,240,921
Solid fuel, (coal, coke, etc)	2,260,758	1,991,900	2,759,111	2,413,357	1,688,435	1,065,482
Crude Oil	0	0	14,568	0	14,679	6,589
Gas and Oil Products (15,16)	0	0	68,699	69,039	92,986	92,003
Chemical Products	7,503	25,537	0	0	0	0
Chalk, cement, construction materials	454,706	260,000	409,032	543,153	739,756	1,073,877
Iron / Non Iron Metals	275,659	140,606	378,040	470,502	741,298	700,291
Metal Fab. Products, Car, Transport (21,22)	25,314	21,146	111,622	114,181	193,156	154,998
Other Products (11,12,19,23,24)	4,150	6,419	182	193	65,012	82,851

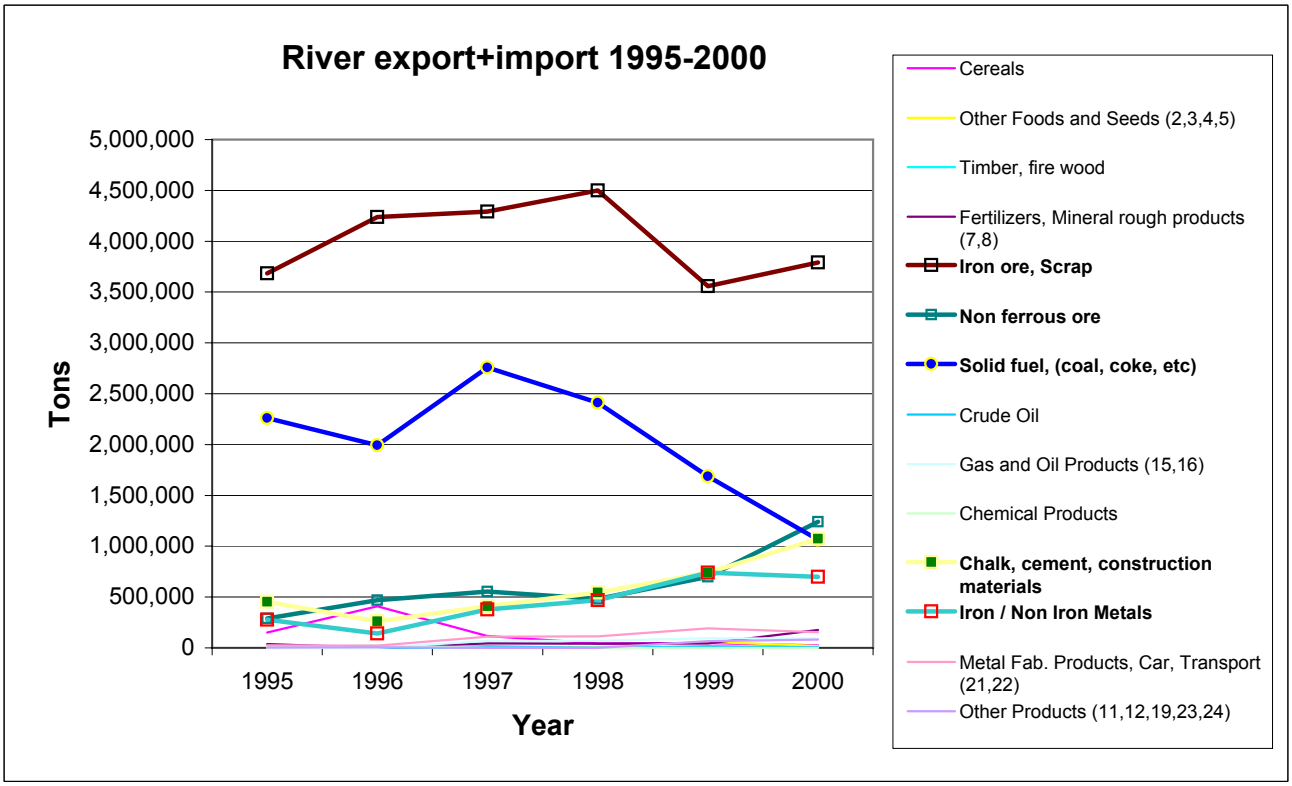


Fig.4.2.4 Evolution of River Cargo Traffic: Port of Constantza (1995-2000)
<Transit Cargo>

Cargo / Year	1995	1996	1997	1998	1999	2000
Cereals	286,036	433,125	243,371	1,170,947	616,045	265,981
Other Foods and Seeds (2,3,4,5)	0	85,454	10,738	57,946	127,059	54,967
Timber, fire wood	250	95	1,290	0	771	0
Fertilizers, Mineral rough products (7,8)	48,894	25,441	149,966	149,802	87,073	94,247
Iron ore, Scrap	349,700	743,468	555,218	676,791	273,553	293,168
Non ferrous ore	203,605	374,113	130,332	65,906	7,434	83,590
Solid fuel, (coal, coke, etc)	0	0	41,559	1,866	0	1,739
Crude Oil	0	0	0	0	39,865	0
Gas and Oil Products (15,16)	0	0	700	6,192	45,078	96,280
Chemical Products	9,999	24,223	11,759	15,516	550	9,657
Chalk, cement, construction materials	0	0	24,240	6,797	2,990	20,930
Iron / Non Iron Metals	103,273	90,112	192,993	117,835	62,156	103,072
Metal Fab. Products, Car, Transport (21,22)	2,544	4,164	54,139	26,935	29,065	9,118
Other Products (11,12,19,23,24)	8,289	35,067	6,479	10,577	6,963	18,165

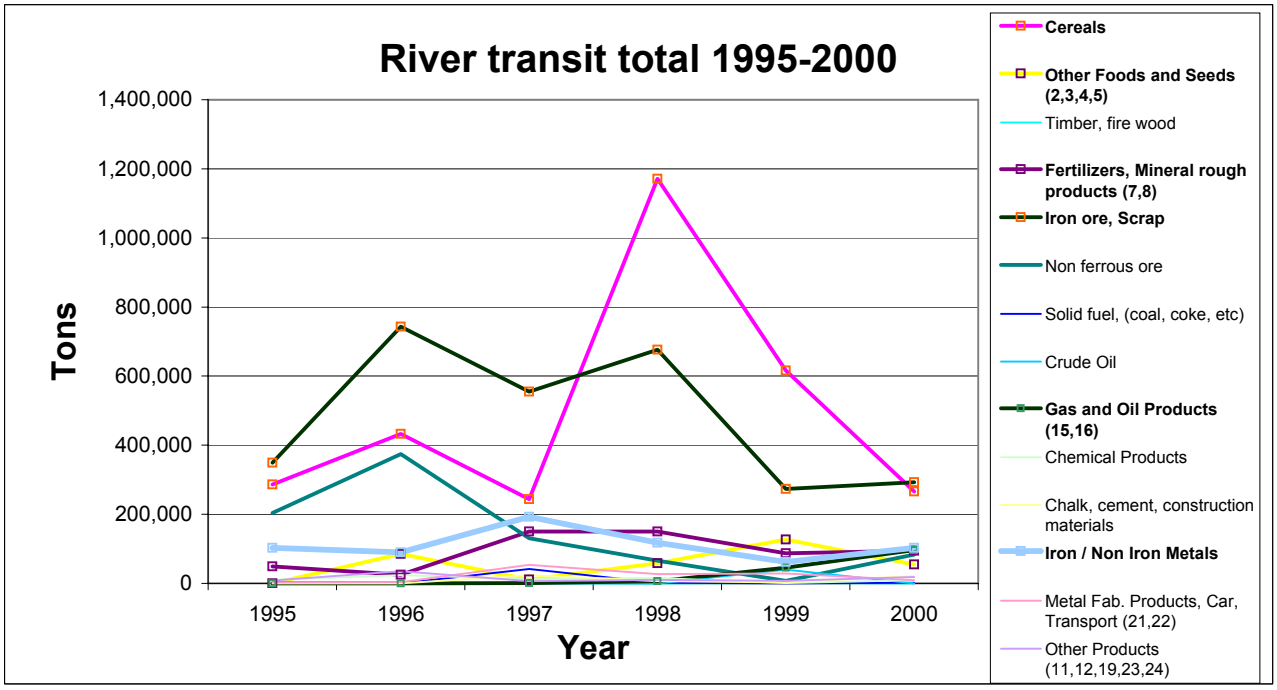


Table 4. 2.3 River Traffic Ratio (River Traffic / Maritime Traffic : Port of Constantza in 2010 & 2020)

	Cargo Classification	Discharged from River Barge Loaded to Maritime Vessel						Discharged from Maritime Vessel Loaded to River Barge						Total					
		Export			Export Transit			Import			Import Transit			Export+Import			Total Transit		
		Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave	Max	Min	Ave
1	Cereals	30%	20%	25%	90%	80%	85%	30%	20%	25%	90%	80%	85%	30%	20%	25%	90%	80%	85%
2	Other Foods and Seeds (2,3,4,5)	5%	5%	5%	100%	100%	100%	5%	5%	5%	100%	100%	100%	5%	5%	5%	NA	NA	NA
3	Timber, fire wood	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	Fertilizers, Mineral rough products (7,8)	10%	10%	10%	100%	100%	100%	10%	10%	10%	100%	100%	100%	10%	10%	10%	100%	100%	100%
5	Iron ore, Scrap	10%	10%	10%	100%	100%	100%	100%	100%	100%	100%	100%	100%	90%	90%	90%	100%	100%	100%
6	Non ferrous ore	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%
7	Solid fuel, (coal, coke, etc)	NA	NA	NA	NA	NA	NA	100%	100%	100%	100%	100%	100%	100%	100%	100%	NA	NA	NA
8	Crude Oil	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	Gas and Oil Products (15,16)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
10	Chemical Products	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
11	Chalk, cement, construction materials	60%	50%	55%	100%	100%	100%	60%	50%	55%	100%	100%	100%	60%	50%	55%	100%	100%	100%
12	Iron / Non Iron Metals	60%	60%	60%	90%	60%	75%	60%	60%	60%	90%	60%	75%	60%	60%	60%	90%	60%	75%
13	Metal Fab. Products, Car, Transport (21,22)	30%	30%	30%	100%	100%	100%	30%	30%	30%	100%	100%	100%	30%	30%	30%	100%	100%	100%
14	Other Products (11,12,19,23,24)	5%	5%	5%	20%	20%	20%	5%	5%	5%	20%	20%	20%	5%	5%	5%	20%	20%	20%

Table 4.2.4 Estimated Barge Traffic: Port of Constantza 2010 and 2020 (CASE 1 of Master Plan Demand Forecast)
Note: Crude Oil is Excluded

(x 1,000 Ton)

	Master plan Demand Forecast			River Traffic			
				Actual Yearly	Assumption		
	1999(Actual)	2010	2020	Ave.(1998-2000)	1999	**2010**	**2020**
Cereals	1,764	4,410	6,480	723	874	**2,669**	**3,924**
Foods, Beverages, Tobacco	643	1,191	2,171	108	60	**176**	**437**
Timber, Charcoal	638	1,129	676	5	-	**-**	**-**
Natural / Chemical Fertilisers	1,076	1,045	1,428	197	125	**104**	**143**
Iron Ore, Scrap	4,873	8,685	9,637	4,364	4,316	**7,922**	**9,371**
Non-ferrous Ore	1,202	1,954	1,170	859	961	**1,563**	**936**
Solid Fuel (Coal, Coke, etc.)	1,836	2,110	2,553	1,724	1,831	**2,110**	**2,553**
Oil and Gas Products	2,205	3,838	4,036	134	110	**192**	**202**
Chemical Products	749	670	361	9	-	**-**	**-**
Chalk, Cement, Construction Materials	1,823	1,070	644	796	1,003	**588**	**354**
Ferrous / Non-ferrous Metals	1,453	2,000	2,000	732	882	**1,215**	**1,215**
Various Manufactured Products	713	1,391	2,542	176	214	**522**	**1,058**
Other Cargoes	773	1,393	2,541	61	47	**91**	**188**
TOTAL	19,747	30,886	36,239	9,907	10,423	**17,153**	**20,381**

4.3 Review of Transit Cargoes at the Port of Constantza

4.3.1 Maritime Transit Cargoes

The volume of maritime transit cargoes at the Port of Constantza, i.e., exported and imported cargoes of the Eastern and Western European countries in the hinterland which are transited to oceangoing vessels at the port, has ranged at levels between 1,500,000 tons and 3,000,000 tons per annum over the past six years. The average value for the six years is approximately 2,000,000 tons per annum, which account for 7% of the whole volume of maritime cargoes at this port. Major items of maritime transit cargo are imported iron ore (about 600,000 tons) and exported cereals (about 400,000 tons), which are followed by imported bauxite, exported steel products, and crude oil (transported by pipelines). The transit volume of exported cereals varies greatly depending on the harvest in the hinterland countries such as Hungary and Yugoslavia (700,000 tons in 1998). (See Tables 4.3.1 and 4.3.2 and Fig. 4.3.1.)

The ratio of transit cargoes to the cargoes handled at the Port of Constantza (transit cargo ratio), i.e., the degree of importance of transit cargoes for the Port of Constantza differs greatly from one cargo item to another. A cargo item having the highest transit ratio is cereals which accounts for about 35%. In other words, one third of the cereals handled at the Port of Constantza are transit cargoes. In some years, the ratio exceeds even 50%. Second to cereals, bauxite has the highest transit cargo ratio (29%), and is followed by iron ore (12%), various agricultural products for export (5%), such as seeds, and exported steel products (5%). (See Table 4.3.2 and Fig. 4.3.2.)

All of the above transit cargoes are related to river transportation. This suggests that the transit cargoes at the Port of Constantza are obtained by making the most of the greatest advantage of the Port of Constantza, the water transportation on the Danube and the Black Sea Danube Canal. In other words, aiming to obtain cargoes from the hinterland by the railway transport mode and road transport mode means engaging in very fierce competitions with the competing ports along the coast of the Adriatic Sea and the North Sea, and the foregoing suggests that it is realistic to provide services for the transportation of the imported and exported cargoes of the hinterland by making the most of river transport, which is the greatest advantage of the Port of Constantza.

Furthermore, comparing transit cargo ratio of maritime cargos with river cargoes, the ratio of maritime is 7% against 15% for river cargoes (see Table 4.3.1). This shows that river transportation plays an important role in the transportation of transit cargoes between the Port of Constantza and its hinterland.

4.3.2 River Transit Cargoes

The volume of river transit cargoes handled at the Port of Constantza has been developed at levels between 1,000,000 tons and 2,500,000 tons per annum over the past six years. The average value for five years is of approximately 1,500,000 tons per annum, which account for 15% of the whole volume of river cargoes at this port. As with maritime cargoes, major items of river transit cargo are imported iron ore (about 500,000 tons) and exported cereals (about 500,000 tons), which are followed by imported bauxite and exported steel products. As with maritime cargoes, the transit volume of exported cereals varies greatly depending on the harvest in the hinterland countries (1,200,000 tons in 1998). (See Table 4.3.3 and Fig. 4.3.3.)

4.3.3 Railway Transit Cargoes

The actual volume of transit cargoes transported in 2000 by railway from the Port of Constantza to the Eastern and Western countries in the hinterland is of 42,000 tons, which corresponds to about 1.8% of the whole volume of imported cargoes shipped by railway at the Port of Constantza to the inland (2,370,000 tons in 2000). We have not obtained statistics about what proportion of cargoes in the exported cargoes carried by railway to the Port of Constantza (about 8,260,000 tons) are transit cargoes. If this proportion is estimated to be almost the same as imported cargoes, it is about 148,000 tons. Therefore, the volume of railway transit cargoes for exports and imports is presumed to be of approximately 190,000 tons. (See Table 4.3.4.)

4.3.4 Modal Split Ratio of Transit Cargoes in 2000

On the basis of the above results, the breakdown of transit cargo volume handled at the Port of Constantza in 2000 by transportation mode is estimated as shown in Table 4.3.5.

Table 4.3.5 Estimation of Modal Split Ratio of Transit Cargoes in 2000

Transportation mode	Transit cargo volume (x 1,000 tons)	Ratio (%)
Maritime	1,550	100
River (IWT)	1,050	68
Pipeline	100	7
Railway	190-240	12-15
Road	160-210	10-13

As suggested by the results, transit cargoes at the Port of Constantza cannot be conceived without the use of inland water transportation, which is the greatest advantage of the Port of Constantza. When, in the future, the Port of Constantza intends to obtain transit cargoes from the hinterland, it is important to work out a strategy by keeping always this fact in mind.

Table 4.3.1 Evolution of Transit Cargo: Port of Constantza (1995-2000)

	Import+Export Total Volume			Proportion of Domestic Cargo		
Year	Maritime (Ton)	River (Ton)	Total (Ton)	Maritime (%)	River (%)	Total (%)
1995	32,785,339	7,204,563	39,989,902	96	88	94
1996	31,509,266	7,564,043	39,073,309	92	81	89
1997	29,309,624	8,753,996	38,063,620	92	86	91
1998	26,346,275	8,681,957	35,028,232	92	79	88
1999	21,782,353	7,952,399	29,734,752	95	86	92
2000	21,582,004	8,429,547	30,011,551	93	89	92
Average	27,219,144	8,097,751	35,316,894	93	85	91

	Transit Total			Proportion of Transit Cargo		
Year	Maritime (Ton)	River (Ton)	Total (Ton)	Maritime (%)	River (%)	Total (%)
1995	1,367,527	1,012,590	2,380,117	4	12	6
1996	2,803,667	1,815,262	4,618,929	8	19	11
1997	2,422,339	1,422,785	3,845,124	8	14	9
1998	2,394,742	2,307,109	4,701,851	8	21	12
1999	1,173,267	1,298,604	2,471,871	5	14	8
2000	1,550,264	1,050,914	2,601,178	7	11	8
Average	1,951,968	1,484,544	3,436,512	7	15	9

	Grand total			Total Proportion		
Year	Maritime (Ton)	River (Ton)	Total (Ton)	Maritime (%)	River (%)	Total (%)
1995	34,152,866	8,217,153	42,370,019	100	100	100
1996	34,312,933	9,379,305	43,692,238	100	100	100
1997	31,731,963	10,176,780	41,908,743	100	100	100
1998	28,741,017	10,989,065	39,730,082	100	100	100
1999	22,955,620	9,251,003	32,206,623	100	100	100
2000	23,132,268	9,480,462	32,612,730	100	100	100
Average	29,171,111	9,582,295	38,753,406	100	100	100

Source: MPAC

Table 4.3.2 Evolution of Commodity wise Maritime Transit Cargo Volume and Ratio : Port of Constantza

1. Transit total 1995 - 2000

(Tons)

Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	350,035	477,442	128,937	712,637	721,006	204,434	432,415
Other Foods and Seeds (2,3,4,5)	24,729	41,304	22,747	8,658	56,282	88,087	40,301
Timber, fire wood	600	114	1,229	218	0	0	360
Fertilizers, Mineral rough products (7,8)	29,477	5,999	1,644	4,500	19,200	33,000	15,637
Iron ore, Scrap	558,874	882,213	959,000	797,890	80,202	350,000	604,697
Non ferrous ore	232,571	558,754	287,041	327,010	109,999	683,300	366,446
Solid fuel, (coal, coke, etc)	0	0	15,000	48,700	0	1,095	10,799
Crude Oil	0	682,000	781,000	381,000	72,000	104,000	336,667
Gas and Oil Products (15,16)	0	0	21	0	0	0	4
Chemical Products	15,222	4,324	11,539	5,867	16,379	55,774	18,184
Chalk, cement, construction materials	222	313	812	50	1,519	0	486
Iron / Non Iron Metals	78,730	60,451	144,530	72,277	67,673	18,923	73,764
Metal Fab. Products, Car, Transport (21,22)	12,258	12,034	16,847	1,463	2,461	6,762	8,638
Other Products (11,12,19,23,24)	64,809	78,719	51,992	34,472	26,546	4,889	43,571
TOTAL	1,367,527	2,803,667	2,422,339	2,394,742	1,173,267	1,550,264	1,951,968

Grand total 1995 - 2000

(Tons)

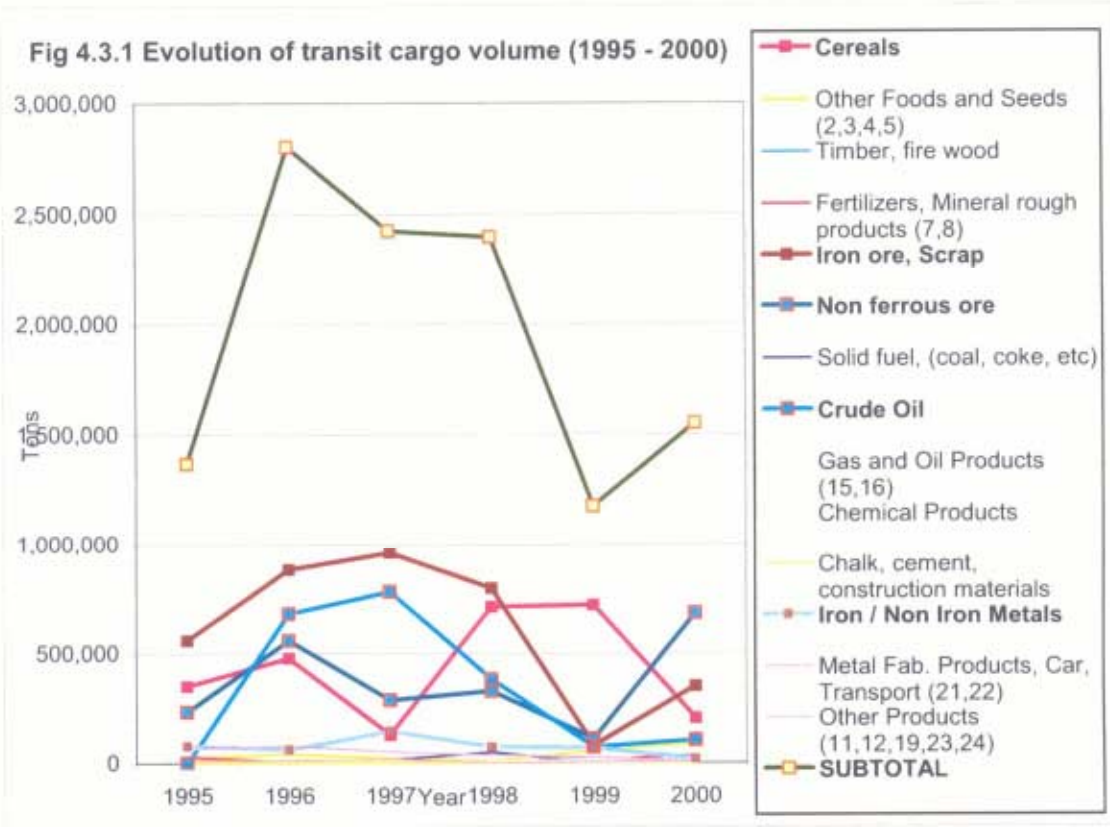
Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	1,203,676	1,671,109	724,069	1,327,841	1,764,457	722,230	1,235,564
Other Foods and Seeds (2,3,4,5)	784,752	969,300	685,394	829,263	949,656	922,782	856,858
Timber, fire wood	298,634	367,066	510,702	550,557	637,773	749,501	519,039
Fertilizers, Mineral rough products (7,8)	2,855,987	2,865,541	1,698,628	813,130	1,094,398	1,444,026	1,795,285
Iron ore, Scrap	5,046,014	5,087,357	5,174,074	5,668,784	4,872,518	5,388,190	5,206,156
Non ferrous ore	848,067	1,158,287	1,115,997	980,327	1,201,727	2,232,500	1,256,151
Solid fuel, (coal, coke, etc)	3,211,207	3,324,151	4,032,978	2,720,490	1,835,880	1,130,567	2,709,212
Crude Oil	8,662,000	7,870,000	7,073,000	6,701,000	3,209,000	2,590,000	6,017,500
Gas and Oil Products (15,16)	5,198,655	5,770,822	4,678,021	3,770,020	2,208,000	2,403,642	4,004,860
Chemical Products	906,330	874,702	955,506	765,068	749,231	1,217,079	911,319
Chalk, cement, construction materials	2,335,308	1,886,641	2,027,769	1,744,709	1,822,659	1,802,048	1,936,522
Iron / Non Iron Metals	1,826,479	1,246,078	2,068,739	1,689,331	1,452,602	1,170,070	1,575,550
Metal Fab. Products, Car, Transport (21,22)	220,666	301,068	222,051	220,892	177,862	345,533	248,012
Other Products (11,12,19,23,24)	755,091	920,811	765,035	959,605	979,857	1,014,100	899,083
GRAND TOTAL	34,152,866	34,312,933	31,731,963	28,741,017	22,955,620	23,132,268	29,171,111

Transit/Total ratio

(%)

Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	29	29	18	54	41	28	35
Other Foods and Seeds (2,3,4,5)	3	4	3	1	6	10	5
Timber, fire wood	0	0	0	0	0	0	0
Fertilizers, Mineral rough products (7,8)	1	0	0	1	2	2	1
Iron ore, Scrap	11	17	19	14	2	6	12
Non ferrous ore	27	48	26	33	9	31	29
Solid fuel, (coal, coke, etc)	0	0	0	2	0	0	0
Crude Oil	0	9	11	6	2	4	6
Gas and Oil Products (15,16)	0	0	0	0	0	0	0
Chemical Products	2	0	1	1	2	5	2
Chalk, cement, construction materials	0	0	0	0	0	0	0
Iron / Non Iron Metals	4	5	7	4	5	2	5
Metal Fab. Products, Car, Transport (21,22)	6	4	8	1	1	2	3
Other Products (11,12,19,23,24)	9	9	7	4	3	0	5
TOTAL	4	8	8	8	5	7	7

Fig 4.3.1 Evolution of Transit Cargo Volume and Ratio : Port of Constantza (Maritime)



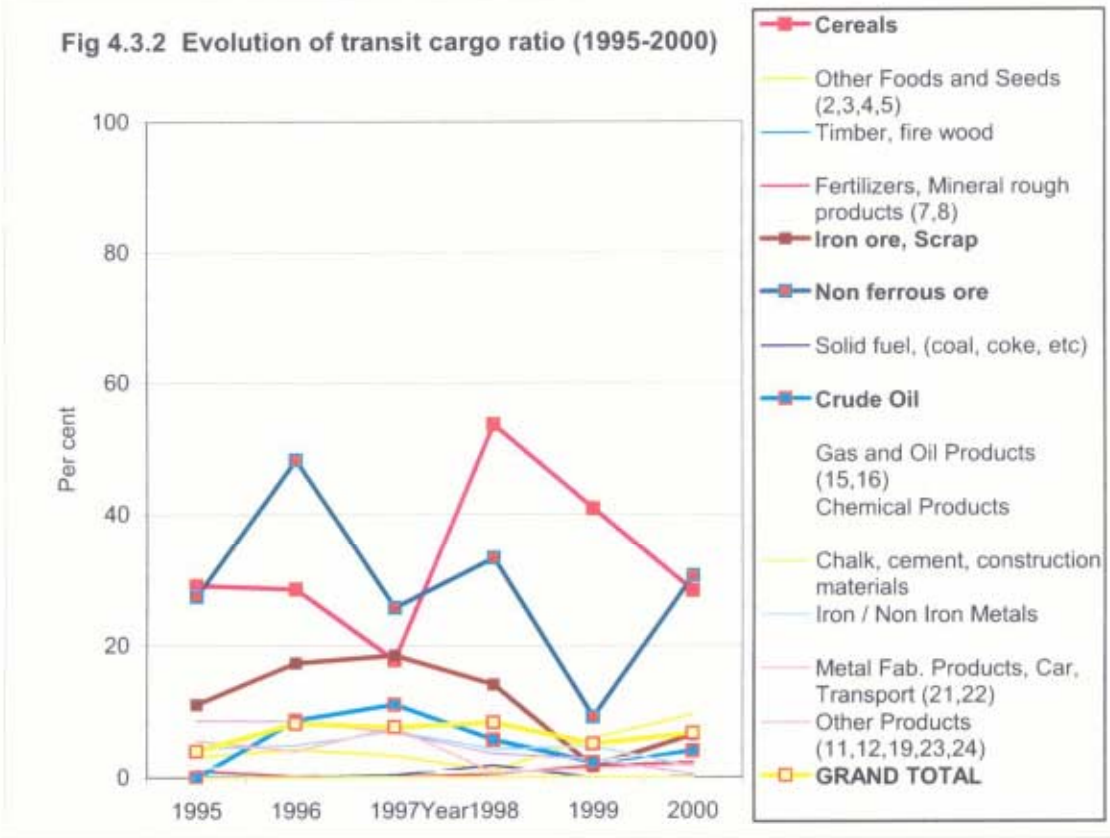


Table 4.3.3 Evolution of Commodity wise River Transit Cargo Volume and Ratio : Port of Constantza (River)

1. Transit total 1995 - 2000

(Tons)

Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	286,036	433,125	243,371	1,170,947	616,045	265,981	502,584
Other Foods and Seeds (2,3,4,5)	0	85,454	10,738	57,946	127,059	54,967	56,027
Timber, fire wood	250	95	1,290	0	771	0	401
Fertilizers, Mineral rough products (7,8)	48,894	25,441	149,966	149,802	87,073	94,247	92,571
Iron ore, Scrap	349,700	743,468	555,218	676,791	273,553	293,168	481,983
Non ferrous ore	203,605	374,113	130,332	65,906	7,434	83,590	144,163
Solid fuel, (coal, coke, etc)	0	0	41,559	1,866	0	1,739	7,527
Crude Oil	0	0	0	0	39,865	0	6,644
Gas and Oil Products (15,16)	0	0	700	6,192	45,078	96,280	24,708
Chemical Products	9,999	24,223	11,759	15,516	550	9,657	11,951
Chalk, cement, construction materials	0	0	24,240	6,797	2,990	20,930	9,159
Iron / Non Iron Metals	103,273	90,112	192,993	117,835	62,156	103,072	111,573
Metal Fab. Products, Car, Transport (21,22)	2,544	4,164	54,139	26,935	29,065	9,118	20,994
Other Products (11,12,19,23,24)	8,289	35,067	6,479	10,577	6,963	18,165	14,257
SUBTOTAL	**1,012,590**	**1,815,262**	**1,422,785**	**2,307,109**	**1,298,604**	**1,050,914**	**1,484,544**

Grand total 1995 - 2000

(Tons)

Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	436,339	841,125	359,212	1,214,677	664,396	290,169	634,320
Other Foods and Seeds (2,3,4,5)	12,526	87,984	16,676	63,260	186,638	74,551	73,606
Timber, fire wood	1,765	1,320	2,201	1,750	8,918	3,082	3,173
Fertilizers, Mineral rough products (7,8)	87,208	26,908	193,478	190,421	131,308	269,769	149,849
Iron ore, Scrap	4,034,589	4,980,868	4,848,147	5,175,700	3,831,502	4,083,326	4,492,355
Non ferrous ore	492,531	841,926	683,942	547,117	706,251	1,324,512	766,047
Solid fuel, (coal, coke, etc)	2,260,758	1,991,900	2,800,670	2,415,223	1,688,435	1,067,221	2,037,368
Crude Oil	0	0	14,568	0	54,545	6,589	12,617
Gas and Oil Products (15,16)	0	0	69,399	75,231	138,064	188,283	78,496
Chemical Products	17,502	49,760	11,759	15,516	550	9,657	17,457
Chalk, cement, construction materials	454,706	260,000	433,272	549,950	742,746	1,094,807	589,247
Iron / Non Iron Metals	378,932	230,718	571,033	588,337	803,454	803,363	562,639
Metal Fab. Products, Car, Transport (21,22)	27,858	25,310	165,761	141,116	222,221	164,115	124,397
Other Products (11,12,19,23,24)	12,439	41,486	6,661	10,769	71,974	101,016	40,724
GRAND TOTAL	**8,217,153**	**9,379,305**	**10,176,780**	**10,989,065**	**9,251,003**	**9,480,462**	**9,582,295**

Transit/Total ratio

(%)

Cargo/Year	1995	1996	1997	1998	1999	2000	Average
Cereals	66	51	68	96	93	92	79
Other Foods and Seeds (2,3,4,5)	0	97	64	92	68	74	76
Timber, fire wood	14	7	59	0	9	0	13
Fertilizers, Mineral rough products (7,8)	56	95	78	79	66	35	62
Iron ore, Scrap	9	15	11	13	7	7	11
Non ferrous ore	41	44	19	12	1	6	19
Solid fuel, (coal, coke, etc)	0	0	1	0	0	0	0
Crude Oil	0	0	0	0	73	0	53
Gas and Oil Products (15,16)	0	0	1	8	33	51	31
Chemical Products	57	49	100	100	100	100	68
Chalk, cement, construction materials	0	0	6	1	0	2	2
Iron / Non Iron Metals	27	39	34	20	8	13	20
Metal Fab. Products, Car, Transport (21,22)	9	16	33	19	13	6	17
Other Products (11,12,19,23,24)	67	85	97	98	10	18	35
GRAND TOTAL	**12**	**19**	**14**	**21**	**14**	**11**	**15**

Fig. 4.3.3 Evolution of River Transit Cargo Volume and Ratio : Port of Constantza (River)

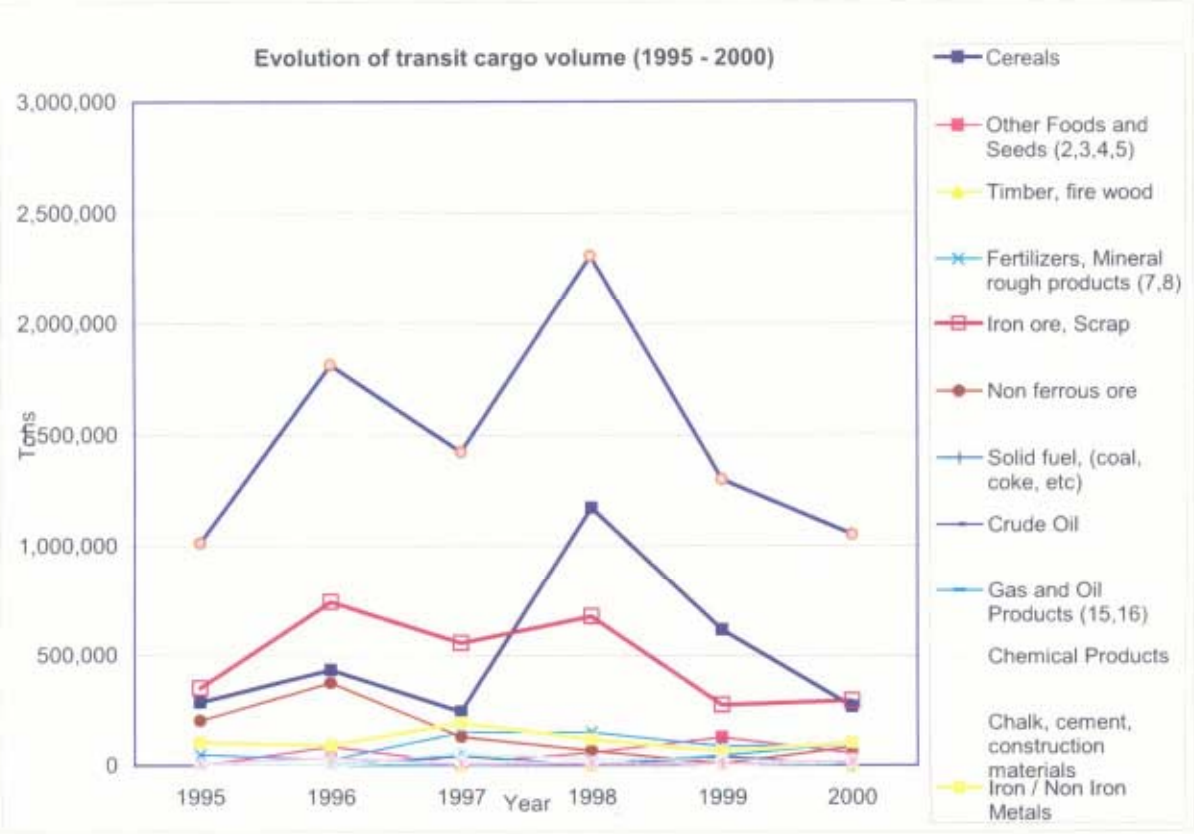


Table 4.3.4 Import Transit Cargoes Transported by Railway in 2000 (from Constanta Port)

(Ton)

Country	Checking Point (Station)	Cargo	Cargo Volume Net Tons	Cargo Volume Total	Grand Total Import
Yugoslavia	**Stamora**	Sodium and potassium hydroxide	1,034	**1,034** 2%	
Moldova	**Cris JIJ**	Meat, poultry	343	**400**	
		Ceramic tiles	57	1%	
		Partially empty wagons	0		
Hungary	**Episcopia Bihor**	Soya grouts	19,459	**19,472**	
		Big full containers	12	46%	
	Curtici	Soya grouts	19,040	**19,382**	
		Wood	85	46%	
		Machinery	7		
		Partially empty wagons	0		
		Big empty containers	193		
		Big laden containers	56		
Bulgaria	**Negru**	Fresh and dried bananas	346	**346**	
		Freight wagons	0	1%	
		Partially empty wagons	0		
	Giurgiu	Aircraft gasoline	1,010	**1,280**	
		Sodium and potassium hydroxide	269	3%	
		Partially empty wagons	0		
Ferry boat station		Wood	428	**614**	
		Chopped wood > 6 mm	161	1%	
		Fashioned wood	25		
Grand Total	**Grand Total**			**42,526**	**2,365,254**
	(Rail Transit Ratio: IP Rail Transit Cargo/IP Rail Transport Cargo)			**1.8%**	

4.4 Railway and Road Transport

4.4.1 Evolutions in Railway Cargoes

Of the export/import cargoes handled at the Port of Constantsa, those transported by railway to and from inland regions amount to about 10 million tons a year, according to the statistics of the national railway cargo company (CFR Marfa), which has been kept at similar levels for the past 3 years. This cargo volume can be broken down into 2 million tons of import cargoes and 8 million tons of export cargoes. Major import cargoes are iron and nonferrous ores (24%), grains (20%), general cargoes (17%), sugar (13%), etc. Import container cargoes account for about 10%. Major export cargoes include general cargoes (48%) and chemical products (20%). (See Table 4.4.1)

Table 4.4.1 Evolution of Railway Cargoes derivered from and transported to the Port of Constantsa by Commodity

		1998		1999		2000		Average	
		1,000 Ton	%	1,000 Ton	%	1,000 Ton	%	1,000 Ton	%
Import	Cereals	512	23%	455	22%	475	20%	481	22%
	Ferrous & Nonferrous Ore	625	28%	515	25%	455	19%	532	24%
	Solid Fuel	195	9%	191	9%	195	8%	194	9%
	Cement	0	0%	0	0%	0	0%	0	0%
	Food Products	151	7%	191	9%	57	2%	133	6%
	Chemical Product	0	0%	0	0%	0	0%	0	0%
	General Cargo	350	16%	275	13%	495	21%	373	17%
	Container	175	8%	215	10%	275	12%	222	10%
	Suger	224	10%	231	11%	422	18%	292	13%
	Import Total	2,232	100%	2,073	100%	2,374	100%	2,226	100%
Export	Cereals	425	5%	457	6%	328	4%	403	5%
	Ferrous & Nonferrous Ore	1,278	16%	1,381	19%	1,575	19%	1,411	18%
	Solid Fuel	0	0%	0	0%	0	0%	0	0%
	Cement	485	6%	512	7%	535	6%	511	6%
	Food Products	122	2%	95	1%	74	1%	97	1%
	Chemical Product	1,447	18%	1,565	21%	1,642	20%	1,551	20%
	General Cargo	4,227	52%	3,172	43%	3,909	47%	3,769	48%
	Container	122	2%	134	2%	195	2%	150	2%
	Suger	0	0%	0	0%	0	0%	0	0%
	Import Total	8,106	100%	7,316	100%	8,258	100%	7,893	100%
Total	Cereals	937	9%	912	10%	803	8%	884	9%
	Ferrous & Nonferrous Ore	1,903	18%	1,896	20%	2,030	19%	1,943	19%
	Solid Fuel	195	2%	191	2%	195	2%	194	2%
	Cement	485	5%	512	5%	535	5%	511	5%
	Food Products	273	3%	286	3%	131	1%	230	2%
	Chemical Product	1,447	14%	1,565	17%	1,642	15%	1,551	15%
	General Cargo	4,577	44%	3,447	37%	4,404	41%	4,143	41%
	Container	297	3%	349	4%	470	4%	372	4%
	Suger	224	2%	231	2%	422	4%	292	3%
	Import Total	10,338	100%	9,389	100%	10,632	100%	10,120	100%

The volume of transit cargoes transported by railway to the Port from the hinterland countries, or from the Port to the hinterland is low at about 2%, which is quite different from the inland waterway transport that plays a major role in transporting transit cargoes. (See Section 4.2.) In the case of Budapest, Hungary, which is a major transit cargo market, for example, it is clear that Constantsa Port is exposed to severe competition with competing ports in the Adriatic Sea and the North Sea in terms of conditions such as level of railway transport networks established, customs clearance at borders.

4.4.2 Transport Modal Splits as seen from the Railway Side

According to the statistics of CFR Marfa and transitions in the volume of Inland Waterway Transport cargoes described in the preceding section, the annual average volume of sea transport cargoes handled at the Port for the recent 3 years (about 25 million tons/year) can be broken down by transport mode as about 10 million tons of inland waterway transport cargoes (40%), 10 million tons of railway transport cargoes (40%), and the remaining 500 million tons (20%) of cargoes shared between road transport and pipeline transport. (See Table 4.3.3.) In the future, it is projected that the percentage of road transport will gradually increase according to the change of structure of Romanian industry while the share of railway transport will decrease. The percentage of pipeline transport volume depends on the transitions in the export/import volumes of crude oil and petroleum products. The percentage of the volume of inland waterway transport would steadily increase with its increase in importance as the arteries of the activities of each of the steel, cement and aluminum industries of Romania as well as hinterland countries..

Table 4.4.2 Cargo Transport Shares among Inland Transport Modes

	1998		1999		2000		Average	
	1,000t	%	1,000t	%	1,000t	%	1,000t	%
Maritime	28,741	100	22,956	100	23,132	100	24,943	10
River	10,989	38	9,252	40	9,480	41	9,907	40
Railway	10,338	36	9,389	41	10,632	46	10,120	41
Other(Road, Pipeline)	7,414	26	4,315	19	3,020	13	4,916	20

A summary of transport volumes by inland transport modes for major types of cargoes and 2010 cargo distributions based on the results of demand projections in Chapter 3 is shown in Table 4.4.3.

Table 4.4.3(1) Transportation Mode for Loading to Vessels in 2010

(Unit: Million tons)

Commodity	Railway			River			Road		
	Export	Transit	Total	Export	Transit	Total	Export	Transit	Total
Cereals	1.224	0.390	1.614	0.450	2.210	2.660	0.126	-	0.126
Food products	0.032	-	0.032	0.003	0.000	0.003	0.019	-	0.019
Timber, fire wood	1.017	-	1.017	-	-	-	0.113	-	0.113
Chemical products	1.233	-	1.233	0.069	-	0.069	0.069	-	0.069
Iron ore, scrap iron, concentrate	0.864	-	0.864	0.096	-	0.096	-	-	-
Non ferrous ore	0.000	-	0.000	0.000	-	0.000	-	-	-
Gas and Oil Products	2.271	-	2.271	0.120	-	0.120	-	-	-
Cement	0.321	-	0.321	0.589	-	0.589	0.161	-	0.161
Iron / Non Iron Metals and Metal Produ	0.800	-	0.800	1.100	-	1.100	0.100	-	0.100
Container	0.471	-	0.471	-	-	-	1.099	0.174	1.273
General cargo	0.290	-	0.290	0.073	-	0.073	0.019	-	0.019
Total	8.523	0.390	8.913	2.498	2.210	4.708	1.705	0.174	1.879

Table 4.4.3(2) Transportation Mode for Umloading from Vessel in 2010

(Unit: Million tons)

Commodity	Railway			River			Road		
	Import	Transit	Total	Import	Transit	Total	Import	Transit	Total
Cereals	0.150	0.000	0.150	0.050	0.000	0.050	-	-	-
Food products	0.137	-	0.137	0.015	-	0.015	0.031	-	0.031
Timber, fire wood	-	-	-	-	-	-	-	-	-
Chemical products	0.125	-	0.125	0.013	-	0.013	0.078	-	0.078
Iron ore, scrap iron, concentrate	-	-	-	7.730	-	7.730	-	-	-
Non ferrous ore	0.365	0.054	0.419	1.459	0.216	1.675	-	-	-
Gas and Oil Products	1.368	-	1.368	0.072	-	0.072	-	-	-
Cement	-	-	-	-	-	-	-	-	-
Iron / Non Iron Metals and Metal Produ	-	-	-	-	-	-	-	-	-
Container	0.284	-	0.284	-	-	-	-	0.143	0.143
General cargo	0.091	-	0.091	2.080	-	2.080	0.114	0.000	0.114
Total	2.520	0.054	2.574	11.419	0.216	11.635	0.223	0.143	0.366

Chapter 5 Recommendation on Port Adminisration on a long-term basis

5.1 Institutional Framework and Organization

Recommendation on clarification of CMPA's responsibility

(1) Port planning

Overall port administration by an independent port authority promotes efficient and flexible management. Port facilities management should be done by one port authority. In the case of Constantza Port, facilities should be managed in an integrated manner by CMPA as a port authority, even if this involves transferring authorities from the Ministry of Transport. This will allow the port authority to allocate its budget flexibly in a comprehensive port development scheme.

One of the most important functions for a port management body is to make port planning. There are not extensive legal provisions or procedures regulating this subject.

Some regulations are provided for MPWTH responsibility on port planning. That is to say;

Art. 3 GO no. 22/1999:

"MPWTH is the state authority in the port field which elaborates and co-ordinates port policy and programs for national port system development and port exploitation."

Art. 15(1) GO no. 22/1999:

The Port Development Plan has to be created "in conformity with the policy and development programs established by MPWTH".

On the other hand, same regulation is provided for the port administration responsibility.

Art. 15(1) GO no. 22/1999:

"The development of each port is carried on according to the Port Development Plan which elaboration constitutes an obligation of the port administration."

It is desirable that CMPA should play a main role in making port planning of the Port of Constantza in order to reflect actual local situations after coordinating with related organizations.

(2) Promotion activity enhancement

In near future the port of Constantza should develop into an efficient port and distribution center in the Black Sea through improved services of its port community.

To reach this goal CMPA and the port users must join forces to create an efficient service center, that is to say, close cooperation among the port operators and labor organizations, coordinated investment by port administration and port operators, sufficient maintenance of port infrastructure and professional promotion and marketing.

It is desirable that CMPA should play a leading role in promoting Constantza Port. Last year "Constantza Port Community Association (PORTAS)" was established as a promotion body to realize these goals. CMPA should enthusiastically support these kinds of activities as a port management body.

5.2 Management and Operation System

5.2.1 Implementation of Competitive Policy

(1) Liberalization of Port Services Market

Concerning the cost structure of the terminal operators in the Port of Constantza, the lease fee level is almost nominal and, generally speaking, the depreciation cost is low because of the relatively old cargo handling equipment. The labor cost is also low because of the low wage level.

These factors help the operators to survive in spite of their small annual handling volume.

Once the normalization of the lease fee level is carried out, however, those operators who cannot raise enough revenue to cover the increased cost will be obliged to cut down their business scale or withdraw from their business.

Such operators will be replaced by other more efficient and productive operators or entrepreneurs of other business types through ensuring free and fair competition and ensuring open access to the port services market.

For example, in the Port of Los Angeles, those operators who are unable to attain the contracted annual handling volume are obliged either to return a part of the leased land or pay a penalty to the Port Authority.

(2) Establishment of a Level Playing Field

As regards the application of the revised lease fee which has been explained before, the same lease fee should be applied to all the land users in the port, whether they are existing port users or newcomers.

For example, the lease fee for the future grain terminal operator and that for the existing grain terminal operators should be the same in order to establish a level playing field. Otherwise, it might be very difficult to attract a new grain terminal operator to the

Port of Constantza.

(3) Measures to Avoid Monopoly

In the case of the consolidated Timber Export Terminal and Steel Products Export terminal, it is desirable to avoid monopoly and ensure free and fair competition by introducing a plural number of operators in each terminal.

5.2.2 Introduction of Information System

Taking into account that the Information System in a modern and highly efficient port is the core of the administration and operation issues, the port's function is paralyzed in case the system fails. The Information System is, therefore, very important for maintaining port activities at high standards.

CMPA owns an Information System whose development has been scheduled in three stages. In the first stage, the System is operated within CMPA. In a second phase, currently under implementation, the System will be made available to related bodies such as customs, Harbor Master office, terminal operators, pilots, CFR, as well as to major shipping companies and consignees. In the final stage, major related ports in the world will be connected to the System.

According to CMPA, the Information System has enough hardware available, the completion of its availability depending of the connecting bodies' capability to ensure themselves the necessary software.

In April 2001 CMPA completed the first stage of the System, its major functions being as follows:

- Building a database on port activities related to: calling ships, cargo handling operators, cargo handling volume, major shippers/consignees
- Checking the receipt of charges and fees from the ports users
- Access control system: issuing gate permits and receiving entrance fee permits for vehicles
- Investment management system for evaluating the investments in terms of financial and technical aspects, contract conclusion and payments, assessment data and research of appropriate resource for the investment requests coming from each department of CMPA
- Database regarding CMPA's employees: wage calculation system, labor contract data

- Database regarding CMPA's property, including the record of its appropriate maintenance

At present, the System is available for all CMPA's officers, according to CMPA's policy.

The Information System presented above will be sufficient for the port's activity, if the second and third stages are implemented in the future.

5.3 Management of Port Services and Tariff System

Recommendation on Tariff Policy for Port Investment

(1) Comparison with the competitive ports

In the Black Sea the biggest competitor of Port of Conatantza is Bulgarian ports (Varna, Bourgas). The tariffs of those ports are shown below;

	Port access tariff (Ship charge)	Quay tariff (charge)
Constantza	0.15 USD / GT	2.5 USD / m (LOA)
Varna – East, Bourgas	0.55 USD / GT	2.4 USD / m (LOA)
Varna – West	0.40 USD / GT	2.4 USD / m (LOA)

Given Condition: General Cargo Vessel, 10,000GT, 1 day (24 hours) staying

GT: gross tonnage shown in documents

LOA: length measured between outer perpendiculars of ship's hull

Quay charge of Port of Constantza is similar to that of Bulgarian ports. But Port Access charge of Port of Constantza is more competitive than Bulgarian ports.

(2) Recommendation on land tariff

Current financial scheme for development and maintenance is as follows;

The Government (MPWTH) and Port Administration (CMPA) are responsible for the development of port infrastructure at public ports. Public funds from the national budget are used only for the development of port infrastructure. The Government must approve all projects in advance which are financed from the national budget or from external loans contracted by the government. Although CMPA is financially independent from the government, at present CMPA doesn't have a strong financial scheme.

The core of CMPA's revenue is generated from service charges such as Entrance Fee and Dockage Fee. In order to strengthen the financial condition of CMPA, it will be

necessary to secure stable revenue sources. Maintenance of port facilities, dredging, etc. have not been adequately carried out because of CMPA's weak financial condition.

It will be difficult to increase the fee level of such port service charges and other fees levied on ships because of the severe competition with neighboring ports.

Under such circumstances, through a concession contract between CMPA and the Government, CMPA has acquired legal authority over port administration for a long period of time. After "The Regime of Concessions" is revised, CMPA will be able to have a concession contract with operators over public assets. Based upon the administrative authority, CMPA will give operators "Permission for use" of land (lease agreement).

In this occasion it is recommended that the present lease fee system should be reconsidered, and a new lease fee level should be formulated, taking into account of the lease fee level of public lots in the neighbouring city area.

Through collecting proper lease fee from land users who engage in profit making business, it would be possible for CMPA to secure the financial resources necessary for port construction, maintenance, dredging, etc.

It should be noted, however, that a sudden, dramatic increase in the lease fee would not be well received by land users. Therefore, a gradual, step by step increase in lease fees should be adopted.

According to the present tariff for port domain using, lease fee for 1 square meter of land is 590 LEI per month, which is extremely low compared with the lease fee of around 20,000 LEI per month (around US$10 per square meter per year) for equivalent public lots in the neighboring area of Port of Constantza.

Once CMPA has established its administrative authority over the port area, lease fees should be increased to enable CMPA to secure the firm financial basis necessary for port construction, maintenance, dredging, etc.

Additionally in order to stimulate operator's efforts for cargo collection, it would be desirable for CPMA to stipulate a minimum quantity to be handled by each operator in the lease contract. Incentives and penalties should also be included in the contract. In other words, more competitive policy should be introduced.