

PART II MASTER PLAN (2020)

Chapter 1 Development Strategy of the Port of Constantza

1.1 Market Potential and the Role of the Port

1.1.1 Change in the Industrial and Trade Structure of Romania

Since 1989, the Romanian Economy, which once concentrated on capital intensive and energy consuming heavy and chemical industry, is now undergoing a general economic development, with EC countries and other countries of the world serving as the market for its goods. Thus, Romania's trade relations have changed from countries of the Eastern Block to the EU countries. (Trade volume ratio for EU increased from 25% (1990) to 65 %(1999))

1.1.2 Traffic Trends and the Changing Role of the Port

Since 1994 the total volume of cargo handled at the Port of Constantza has been increasing or decreasing in correlation to the economic growth rate of Romania. In particular, the volume of imported cargo has been changing in correlation to the economic growth rate.

Import volume of Crude Oil and Solid Fuel, and export volume of Oil Products and Chemical Fertilizers have been decreasing for these years due to the reasons above.

On the other hand, General Cargoes, including containerizable cargo, have been increasing year by year at an annual rate of about 4%. The container traffic volume has doubled during these five years since 1994. However, the main reason for this increase in the container traffic volume is a rapid increase in the containerization ratio, not an increase in containerizable cargo itself. In the long-term, containerization of General Cargoes will gradually continue. The main role of the Port of Constantza as a Commercial Port will gradually increase in the future.

1.1.3 Potential Hinterland for the Port

Transit cargo of the Port of Constantza exported to and imported from CEEC recorded a maximum of 8% of the total volume since 1994. Reflecting the turmoil in Yugoslavia, the recent transit cargo volume decreased to 40% of the volume of 1996. Main commodities are cereals, steel and other metal products, ferrous and non-ferrous ore. Container traffic is still very small.

Inland Waterway Transportation through the Danube and Black sea Danube Canal is used for the transit cargoes of the Port. This transportation system will continue to be used in future.

Although Hungary, Slovakia, Yugoslavia and Moldova are deemed to be the potential hinterland

countries of the Port, the most promising countries are Hungary and Slovakia, considering their locations, economic and political situations. The trade volume of these countries for Mediterranean European Countries, North African countries, Middle East countries and Asian countries, which is considered as the potential trade that might be transited at the Port, reaches 4-6% of the total export trade and 8-14% of total imports.

However, competing ports in this area, particularly ports in the North Sea and the Adriatic Sea, are formidable rivals. In order for the Port of Constantza to acquire the exported and imported cargo in this area, it will be necessary to innovate regional transport infrastructure, the level of differentiated service including not only harbors, but also inland traffic systems and customs systems.

1.1.4 Possibility to serve Transit Cargo between Caucasus/Central Asian Countries and Europe

The scale of economy of the three Caucasian and the five Central Asian countries is still very small. Among these countries, Kazakhstan and Uzbekistan have a substantial economic scale. These countries still have close economic relations with Russia and the former CIS countries, which account for 40-50% of their total trading volume.

Cargo from this area that might be considered to pass through the Port is the cargo exported to and imported from countries such as CEEC and some EU countries, i.e., Germany. Trade volume between these two areas is expected to be about 5-15% of the total trade volume.

The sea transport of cargoes to and from Caucasus and Central Asian countries is carried out using the ports on the Black Sea coast of Georgia. Of these cargoes, bulk cargo, general cargo and other cargoes excluding oil are exported or imported via Poti Port. About 50% of cargoes handled at Poti Port are transit cargoes to Caucasian countries such as Armenia and Azerbaijan which make up part of the Port's hinterland. Both Kazakhstan and Uzbekistan with a comparatively large economic scale are considered to be hinterland in the future. The originating countries of import cargoes through Poti Port are the former CIS countries (Ukraine and Russia), CEEC (Bulgaria and Rumania), and the USA. On the other hand, major countries to which export cargoes are destined through the Port are Turkey and Ukraine. Of these cargoes, those which go via Constanța Port are approximately 5 ~ 15% including trade cargoes with Romania, and of which transit cargoes at Constanța Port are currently about 5%.

Economic Growth of the Caucasian and Central Asian countries is forecasted to increase by 3-6% by year 2020. (The World Bank forecasts 3-4% growth to year 2010)

In 1993, EU launched TRACECA Program to implement financial and technical assistance (TA) to develop a transport corridor on a west - east axis from Europe, across the Black Sea, through the Caucasus and the Caspian Sea to Central Asia. As part of the program, the European gauge ferry loading bridge project is underway in the port of Poti (Georgia). Completion of this project will result in the realization of direct railway transport between Caucasian countries to Europe via the Black Sea-Constanța line. Thus, Railway Ferry Terminal of the Port of Constanța will have an important role again.

1.1.5 Possibility of Container Hub Port in the Region

Presently, two types of container feeder lines operate in the Black Sea with hub ports at Piraeus, Gioia Tauro and Haifa in the Mediterranean Sea. One calls at ports (Odessa, Constanța, Varna, and Burgas etc.) on the west coast of the Black Sea, and the other calls at ports (Poti, Novorossiysk, and Samsun etc.) on the east coast of the Black Sea. More than 10 shipping companies assign small ships of 500 ~ 1200 TEU to call at the Port of Constanța.

Currently, competition among shipping company alliances has further increased, and the recent trend in international container transport business has been toward higher efficiency of operation and better response to customer needs by less deviation of hub port sites from East-West trunk lines connecting the west coast of USA, East Asian coast, South Asia, the Mediterranean Sea coast, West Europe, and the east coast of the USA. This situation also stimulates the strengthening of feeder service networks through concentrating the cargoes at hub ports.

Therefore, even if the Port of Constanța aims to be a hub port like those in the Mediterranean Sea, the possibility of mother ships now in service in the Mediterranean Sea trunk lines deviating to the Port is very low. Even in the case of Jakarta Port, Surabaya Port, etc., which annually handle containers of 1 million TEU in Indonesia, most ships are feeder ships from Singapore Port.

It is possible, however, for the Port to become a container hub port in the Black Sea if, in the future, the following situation occurs.

- 1) When the total demand for container transport in the Black Sea increases and independent container ship services within the Black Sea have been established, there will be a possibility for the Port to play a role as the second hub port in case it becomes economically advantageous to assign large ships for shuttle services between the hub ports in the Mediterranean Sea and the Port as a transit port.
- 2) In the case that container transport networks are developed in the basin of the Danube River, the Port can become a transit port since container transport services from the Mediterranean Sea to the

Black Sea coast may possibly be connected to these liner services when the container transport of some substantial volume has been established between the Danube River basin and the Black Sea coast.

1.2 Development Strategy of the Port

1.2.1 Change of Romanian Trade Structure and Reorganization of the North Port

The Port of Constantza is basically a port that supports the domestic economy and domestic industries and will not be prosperous without the development of Romania's economy and industries. Since 1989, changes in the trade structure of Romania have resulted in vast discrepancies between the existing facilities and required port functions.

Port facilities for Bulk Cargo, i.e., Crude Oil, Oil Product, Coal and Ore, and Fertilizers and Chemical product, have sufficient capacity even considering Romanian economic growth in the future. Facilities for General Cargo traffic will need to be enhanced.

Currently, a large amount of General Cargo is handled in the North Port. Due to its superannuated facilities and dispersed handling areas around the Port, this cargo is not handled efficiently. For this reason, reorganization of the North Port, including effective connection with the inland transportation system in the Port, is crucial.

1.2.2 Development of Regional Agriculture Industry and Development of Grain Terminal in the Port

CEEC countries are endeavoring to modernize their agriculture industry as a national project. Romania also registered development of agricultural technology and trading system as a centerpiece of the medium-term national development strategy. In cooperation with EU accession their arable productivity will be improved and they will regain their position as a strong grain exporter in the world market. From a long-term perspective, the unrest in Yugoslavia will be also settled and Danube River Traffic will be resumed in the future. Accordingly, transit cargo for the hinterland, particularly cereals, will increase.

On the other hand, due to their obsolete facilities and lack of draft, the Grain Terminals in the Port at present do not have sufficient capacities or capabilities. As a consequence, development of effective and competitive Grain Terminal to support export industry of Romania and hinterland countries is crucial in the Port.

1.2.3 Expansion of the Container Terminal

Considering the changes in the trade structure of Romania, economic growth of hinterland countries, recovery of Danube River Traffic and the potential in cargo transit between Caucasian / Central Asian Countries and CEEC / EU countries, it is necessary for Constantza port to go along with the worldwide containerization trend.

Following the ongoing container terminal development project, the pier S-2 in the South Port should be extended to increase capacity from the viewpoints of pursuing effective investment and sufficient yard space and draft. Consequently, expansion of the slip width in the east side basin of pier S-2 is important for the future plan.

1.2.4 Renovation of River Transportation Facilities

The advantage of the Port of Constantza over its competitors is its location at the river mouth of the Black Sea-Danube Canal, allowing it to provide economical transportation services by water transport on the Danube to the landlocked Eastern and Central European countries in the hinterland. It is important to set the development direction of the Port with an eye to ensuring that the port can make full use of this advantage. In recent years, transit cargoes from the landlocked Eastern and Central European countries transported by inland water on the Danube have decreased due to the ethnic turmoil in Yugoslavia. However, when the blockage of the Danube in the Yugoslavian district is removed in the future, there is a possibility that these transit cargoes will increase significantly.

At present, the greatest part of the barge facilities at the Port has suffered severe deterioration and the capacity of the remaining part is insufficient for the future traffic demand. New facilities are needed to meet the inland waterway transportation cargo demand in 2010 in an appropriate manner. At present, there is a plan to make use of the hinterland area behind these barge berths as premises for an industrial district, in response to the establishment of a new law for turning the entire Port of Constantza into a Free Port in future.

For the above reasons, it is necessary to renovate River Transportation Facilities for barge mooring and for the breakdown and setup of convoys in still water areas inside the port.

1.2.5 Improving Road Access in the Port

Since the Port of Constantza has been developed as a modern port, transport between the

hinterland areas has mainly been railway. Large portion of port area was shared to the railways. On the other hand, as the Port gradually shifts to a commercial port, the weight of road transportation system will increase. From this viewpoint, securing road capacity and accessibility for future traffic is necessary in the New Master Plan.

The South Port and North Port have different problems in terms of the port traffic roads. At present in the North Port, the means for transporting bulk cargoes to the inland are mainly pipelines, barges and railways, therefore the dependence on road transportation is not necessarily high. Furthermore, due to the progress in containerization, the general cargoes in the North Port will be shifted to the South Port in the future and will not increase abruptly. In the North Port, therefore, the main problems to be solved are the accessibility of the roads connecting the gates and the wharf and the insufficient specifications of the facilities.

In the South Port, there is a possibility that the capacity of roads will become insufficient, due to an increase in the cargo traffic, including containers, in the future. Particularly, inland transportation of containers has a high proportion of the road traffic compared with other bulk cargoes. Furthermore, the existing roads in the South Port have many crossing points with the railway and there is a possibility that this may represent an obstacle to an increase in traffic volume in the future. Therefore, it is necessary to formulate the master plan from the viewpoint of improving crossing points and increasing capacity of the road traffic.

1.2.6 Revamping of Institutional Framework of the Port Administration

Since 1989, an intensive privatization process of the national companies has been carried out. In the port sector, the national company for port administration has been established and port operations have been privatized, spawning dozens of independent companies. This abrupt privatization, on the other hand, has left over some insufficient legal and institutional frameworks as well as taxation system and procedures. This situation hinders the efficient utilization of the port facilities and undermines financial sustainability of the port administration body that has the responsibility to maintain port facilities. This situation also hinders sound competition among operators in the open market for achieving efficient operation in the port. Present privatization and competition scheme tends to protect the vested interests of the present operators and discourages newcomers from participating. In order for the Port to compete with the ports in EU and neighboring countries successfully, it is essential to improve the legal and institutional frameworks and taxation system for the port administration.

1.3 Possibility of Industrial Development in Constantza Port

1.3.1 Industries Located in Port of Yokohama

In order to identify what kinds of industrial activities could be located in and around the area of a port, the activities in the port area of Yokohama City are examined.

The four major activities, which occupied more than 80% in total, are manufacturing, transport and communication, wholesale and retail, and services. The share of manufacturing, and transport and communication are 28.3% and 31.3%, respectively. In the sub-categories of manufacturing, food processing, chemical product, oil and coal products, ceramics and quarry, steel industry, and machinery are occupying large shares. In the sub-category of transport and communication, the share of cargo transport by road, warehousing, and related service is about 95% in total.

On the whole, the manufacturing industries located in the port area could be divided into two types: material-based and demand-based. The material-based factories use a large volume of crude materials transported by sea, and in general have dedicated berthing facilities in the port area to optimize transport cost. On the other hand, the demand-based industries are more concerned with the distance from target customers and land acquisition cost. Acquisition cost of large reclaimed land neighboring densely populated area was comparatively cheap in Japan and therefore demand-based industries are also located in port areas.

1.3.2 Potential Industries in Constantza Port Area

From abovementioned facts, it follows that some kinds of manufacturing and transport industries have the potential to be newly located in Constantza Port area.

Material-based large factories are already operating in the port hinterland, such as Petromidia, SIDEX Galati, Lafarge Medigia and Oil Terminal. These factories have sufficient capacity to increase production volumes, and therefore it is unlikely that similar industries will be developed in the port area. Small size industries could be more feasible for this market size and under the present economic situation of Romania. Investment by private sectors will occur under the incentives given in the Free Zone to minimize initial cost. Considering these facts, it is most anticipated that the following industries could locate in and around the area of the Constantza port.

- 1) Road Transport Industry and its Related Service
- 2) Food Processing Industry
- 3) Wood Processing and Furniture
- 4) Car Terminal

1.3.3 Initial Evaluation of Potential Industries

(1) Road Transport Industry and its Related Service

The improvement of rail and road network, including the European Corridor project, is in progress and Bucharest -Constantza highway will be inaugurated by the year 2010. The e-Business, SCM

and LMM are essential tools in the age of IT to succeed in competitive business fields. In order to facilitate these tools, optimum transport network with various transport means such as sea, air and land, shall be organized in the targeted business domain to satisfy different kinds of terms and conditions of materials supply and products delivery. Construction of new container terminal in south port is in progress, while several forwarding companies and storage companies have been established. According to the given container forecast volume, the size of these facilities is not sufficient. Therefore appropriate area near the new container terminal, for example in the Agigea Commune, as well as road connection to European Corridor should be prepared to encourage further private investment.

(2) Food Processing Industry

Around 274 food industry companies are functioning in Constantza County. Those companies are, however, too small to be competitive on the international market. After organizing short sea shipping transport network in Black Sea, local material- based investment targeting this market could be started. On the other hand, after the economy of Romania has recovered, the domestic market would consume the food processed imported raw materials, for example soybeans.

(3) Wood Processing and Furniture

Several wood processing and furniture industries are already operating in Constantza County. After the container transport system is well organized, further local material -based investment targeting foreign markets could be started.

(4) Car Terminal and its Related Services

Automobile sector planned to export their products to emerging markets in their original investment program. But due to severe competition in the world automobile market, this has not been realized. If exports become a reality, car terminal and its related service could be located in Constantza port.

1.3.4 Location for New Industries Investment

The industries proposed in this section are characterized as customer-oriented and therefore the investor will select clean and easily accessible areas located a certain distance from dirty cargo handling area and near the ramp of highway.

The detail plan of road network is not yet fixed, but it could be said that in and around South port area is the most appropriate location for new investment. If coordination between the port and the city would be thoroughly organized, the north-end part of the port could be another alternative location for a car terminal.

Chapter 2 Socio-economic Framework up to the year 2020

2.1 Socio-economic Framework in Romania

(1) Population

The Romania General Transport Master Plan Study prepared by Ministry of Transport, Bucharest, and European Commission, DG IA (Phare), Brussels shows the population projection of Romania until 2015. World Development Indicators 2000 published by World Bank also shows the population projection until 2015

The population of Romania increased until 1990 and then during past transition period, the number had been continually reduced. These figures also indicate that the population of Romania will continually decrease during the Study period. The ratio of population in the year 2020 to 1999 will be assumed around 93%.

Table 2.1.1 Population Projection in Romania

(Unit as shown)

Year* ¹	1995	2000	2005	2010	2015
Index* ¹	100	98	96	94	92
Total Population* ¹	22.7 milli.	22.2 milli.	21.8 milli.	21.3 milli.	20.9 milli.
Year* ²	1980	1998	2015	2030	
Total Population* ²	22.2	22.5	21.3	20	
Annual Growth Rate* ²	0.1%		-0.4%		-

Source : *¹Romania General Transport Master Plan Study *²World Development Indicators 2000

(2) GDP

The National Medium-term Development Strategy of the Rumania Economy gives the estimation of GDP until 2004 and the Romania General Transport Master Plan Study also gives until 2015.

Table 2.1.2 GDP Estimation in Romania

(Unit : previous year = 100)

Year	2000	2001	2002	2003	2004
Index	101.3	103.0	105.0	105.0	106.0

Source: National Medium-term Development Strategy of the Rumania Economy

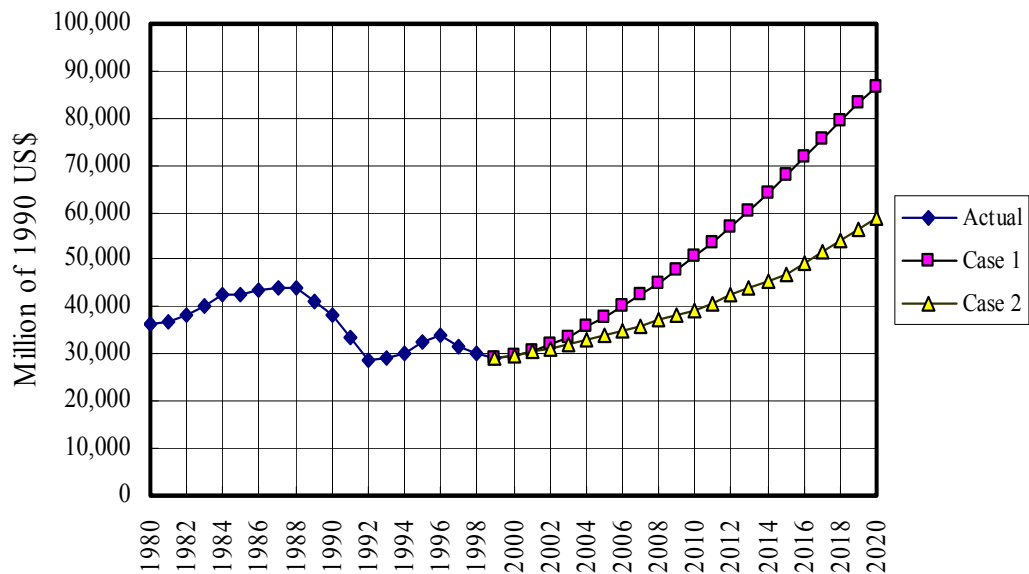
Period	1995 - 2000	2001 - 2005	2006 – 2010	2011 - 2015
Annual Growth	0.3 %	2.7 %	3.1 %	3.6%.

Source : Romania General Transport Master Plan Study

According to the PRESS RELEASE No. 67 / 28.11.2000 by National Commission for Statistics,

GDP from 1st Jan to 30th Sep 2000 amounted to Lei 509,833.7 billion in current prices, and increased 2.0% in real terms as against similar period of previous year. The monthly economic indicator by the Commission showed industrial production decreased by 14.5%, and exports FOB increased by 9.3% and imports CIF by 10.3% in December 2000 against previous month.

The sustainable growth of the GDP in Romania was presumed based on aforementioned estimation during the Study period, until 2020 for the purpose of forecasting cargo throughput in Constantza port.



(Unit : percent)

Year	Case 1	Case 2
2000	2.0	2.0
2005	6.0	2.7
2010	6.0	3.1
2015	6.0	3.6
2020	4.0	4.6

Note1: The figures from 2001 to 2004 in Case 1 were based on National Medium- term Development Strategy of the Rumania Economy and the figures from 2005 to 2020 were presumed by the Study Team.

Note2: The figures from 2001 to 2015in Case 2 were based on Romania General Transport Master Plan Study and the figures from 2016 to 2020 were presumed by the Study Team.

Fig. 2.1.1 Actual and Estimated GDP in Romania

2.2 Socioeconomic Framework of Surrounding Countries

2.2.1 Central and Eastern European Countries

Countries considered to be within the hinterlands of Constantza Port include four (First Group) of the CETE-5 countries (Hungary, Czech Republic, Slovakia and Poland) and three countries (the Second Group) of the SETE-7 countries (Bulgaria, Yugoslavia, and Bosnia Herzegovina). In addition, Austria can be also included in the hinterlands in consideration of iron ore and other bulk cargoes. The orbit has eight countries if we include Austria.

The most reliable and latest economic prospectus available today for Central and Eastern European countries can be found in the report of "Romania General Transport Master Plan Study," conducted by the Ministry of Transport of Romania and a European economic consultant, Prognos, as part of the EU's Phare Program in the period 1998 to 1999. The Study forecasts a GDP growth rate for these the countries up to 2015. This figures are adopted fot the study as a socioeconomic indicator in this study. (See Table 2.2.1)

In these countries, "the First Group countries" are considered in the "Romania General Transport Master Study Report (June, 1999, Prognos)" to be the most advanced and prosperous among the countries at issue. Their average growth rate is expected to be about 5 percent per annum and will peak between 2005 and 2010. Meanwhile, it is expected that economic and political reforms will be implemented in the Second Group countries, but will not be completed by then.

Table 2.2.1 GDP Annual Growth Rate in Constant Prices (1995)

	Forecast (%)				
	1995-2000	2001-2005	2006-2010	2011-2015	2016-2020
Hungary	4.2	5.3	5.8	5.5	5.2
Czeck Republic	2.5	4.4	4.9	4.7	4.1
Slovakia	4.9	3.5	3.7	4.4	4.1
Poland	6.0	4.3	4.9	4.4	4.9
CEEC-5	4.8	4.5	5.0	4.7	4.7
Bosnia-Herzegovina	10.9	3.5	3.0	2.8	5.0
Bulgaria	-2.3	2.7	3.5	3.7	1.9
Yugoslavia	0.6	1.5	2.2	2.6	1.7
CEEC-7	1.4	3.0	3.4	3.7	2.9

2.2.2 Black Sea Countries

Countries lining the coast of the Black Sea and considered to be forelands of Constantza Port include three former CIS countries, namely, Ukraine, the Russian Federation and Moldova; Georgia, a Caucasus country; the Republic of Turkey, and Bulgaria. As we will discuss Georgia and Bulgaria in another group, the Black Sea countries we discuss here include Ukraine, the Russian Federation, Moldova, and the Republic of Turkey.

A prospectus available today regarding the economic growth of the "Black Sea countries" is the World Bank's "Prospect for Development, 2001." The forecast covers a period up to 2010. In this study, figures forecasted by the World Bank are used as indicators of socioeconomic development for Black Sea countries. (See Table 2.2.2.)

**Table 2.2.2 Growth of Gross Domestic Product in Ukraine, Russia and Turkey
GDP Forecast in % against preceding year**

	GDP 1998 (MUSD)	Forecast		Forecasted by WB		Forecast in this Master Plan Study			
		2000	2001	2000-2010		2000-2010		2011-2020	
		by WIIW		High Case	Low Case	High Case	Low Case	High Case	Low Case
Ukraine	43,615	1.0	3.0			1.0	3.0	2.0	4.0
Russia	276,611	4.0	3.0			3.0	4.0	3.0	4.0
Turkey	198,884					3.0	6.0	2.0	4.0
	519,110	3.6	5.6	4.1	3.0				

Source: World Bank (World Development Indicators 2000)

2.2.3 Caucasus and Central Asian Countries

Caucasus and Central Asian countries considered to be forelands of Constantza Port include three Caucasus countries, namely, Georgia, Azerbaijan and Armenia, and five Central Asian countries considered to be hinterlands of the three Caucasus countries, namely, Kazakhstan, Uzbekistan, Tajikistan, Turkmenistan and Kyrgyz Republic. Whether or not the Central Asian countries can be forelands of Constantza Port could be a rather wide-open issue. The SAPROF Report (Special Assistance for Project Formation for the Poti Port Development Project in the Republic of Georgia, February 1999), compiled in 1999 by JBIC, concluded that about 10 percent of the sea born cargo handled at Port of

Poti would continue to originate from Central Asian countries.

The survey carried out this time shows that five to fifteen percent of the total cargoes handled the Port of Poti in 1999 are the trading cargoes between this area and Central and Eastern Europe including Germany. Trade statistic also indicates that five to fifteen percent (in terms of capital) of the cargo bound for or inbound from major Central Asian countries such as Kazakhstan and Uzbekistan is the trading cargoes between Germany, Austria, and Hungary. These cargoes will be considered to be potential cargoes via Constantza Port. (See Chapter 3 of Part 1)

A prospectus available today regarding economic growth of the "Caucasus and Central Asian countries" is the World Bank's "Prospect for Development, 2001." The forecast covers a period up to 2010. In this study, figures forecasted by the World Bank are used as indicators of socioeconomic development for these Caucasus and Central Asian countries. (See Table 2.2.3.)

Table 2.2 3 Growth of Gross Domestic Product in the Caucasus and Central Asian Countries

GDP Forecast in % against preceding year

	GDP 1998 (MUSD)	Forecast by WIIW		Forecast by WB		Forecast in this Study	
		2000	2001	Low Case	High Case	Low Case	High Case
				2000-2010		2000-2020	
Armenia	1,900	4.6	0.3			4.0	6.0
Azerbaijan	3,926	6.2	6.5			4.0	6.0
Georgia	5,129	1.2	4.4			2.0	4.0
Kazakhstan	21,979	-3.8	9.1			4.0	6.0
Kyrgystan	1,704	0.3	1			1.0	2.0
Tajikistan	2,164	2.4	3.8			3.0	5.0
Turkmenistan	2,367					0.0	2.0
Uzbekistan	20,384	2.9	3			3.0	5.0
	59,553	3.6	5.6	3.0	4.1		

Source: World Bank (World Development Indicators 2000)

CHAPTER 3 TRAFFIC DEMAND FORECAST

3.1 Traffic Demand Forecast

Traffic demand forecast to 2020 was carried out for the cargoes and passengers. The methodology of traffic demand forecasting for the cargoes is composed of the following procedures.

- (1) Setting up scenarios for the future socio-economic framework of Romania to forecast demand of trade cargo as well as transit cargo. The socio-economic framework takes into consideration factors such as the development of GDP and per capita GDP in Romania. Three frameworks were set up as follows:

Case 1 : High case, (2001/2004, Romania Middle Term Economics Development Strategy)

Case 2 : Medium case, (2001/2015, MOT Transport Master Plan, 1999)

Case 3 : Low case, (Modified Case 2 the port planner of study team)

Case 3 is similar to **Case 2**, and there is no significant difference. The study team finally recommended the traffic demand be in between **Case 1** and **Case 2**. Then the traffic demand forecast was conducted for these two cases.

- (2) Setting up scenarios for other potential developments that impact trade and transit cargo. Such developments were considered on the basis of the following factors:
 - The port's hinterland potential;
 - The economic development potential of the Black Sea basin;
 - The ability of the Port of Constanza port to act as a hub port;
 - Potential industrial developments in the port's free trade zone;
 - Romania's accession to the European Union; and
 - The re-emergence of the Danube river as a viable waterway.
- (3) Integrating the scenarios for the socio-economic framework and other potential developments.
- (4) Analyzing the cargo throughput at the Port of Constantza on the basis of historic data, and classifying this throughput into export, import, outbound transit (export), and inbound transit (import) traffic.
- (5) Classifying these cargo flows into major commodity groups on the basis that the cargoes thus reclassified cover more than 70% of each particular cargo flow. Cargo selection is based upon the following:

- The historical performance of Romania’s trade for each particular commodity;
 - An analysis of future production and supply in Romania;
 - An analysis of future consumption and demand in Romania;
 - The historical performance of transit cargo by commodity; and
 - An analysis of the production and consumption in other countries.
- (6) Classifying general cargoes and break-bulk cargoes into containerisable cargo and non-containerisable cargo, based upon experience and actual practice in the Port of Constantza.
- (7) Categorizing containerizable cargo into two groups (i.e., containerized and non-containerized) by applying the rate of containerization.
- (8) Finally, the following cargo flows are identified: export; import; outbound transit; and inbound transit. Where applicable, these flows are additionally classified as dry bulk, liquid bulk, break-bulk and containers. The total demand is determined by summing the individual cargo flows

The relationship between the proposed commodity groups and the containerisable cargo is shown in Figure 3.1.

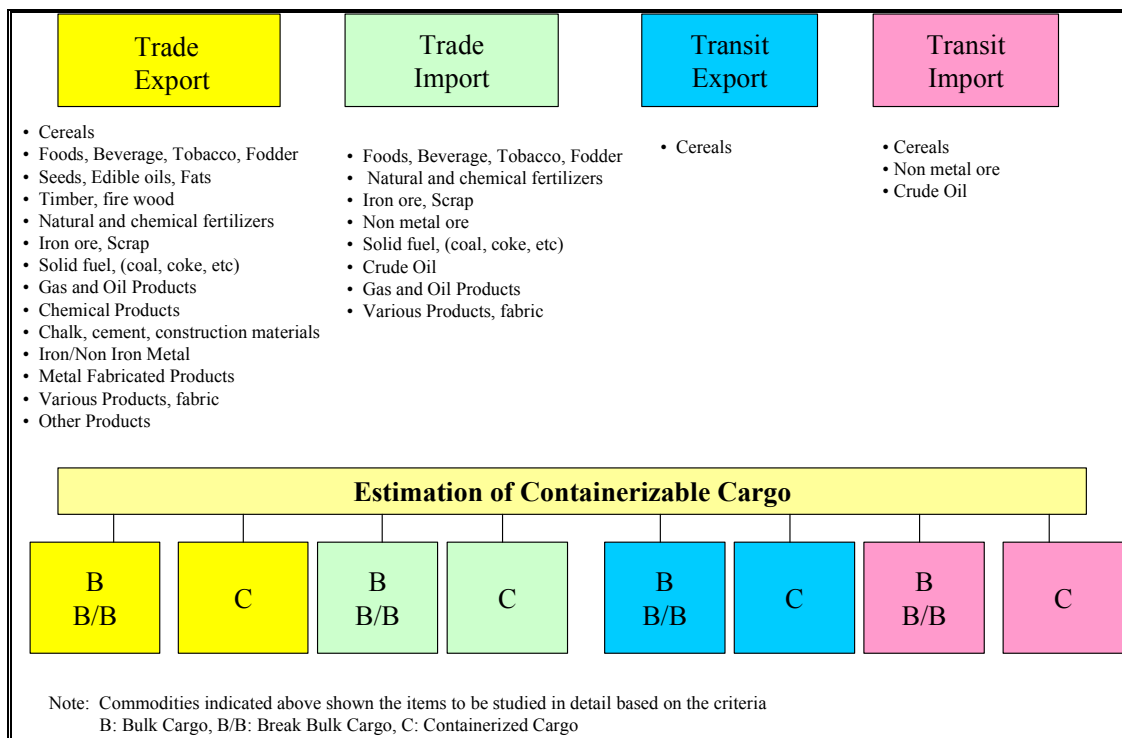


Figure 3.1 Proposed Commodity Groups and Containerization

The integrated results of forecast with the Master Plan are summarized as shown in Tables 3.1 and 3.2.

Table 3.1 Summary of Cargo Traffic Demand

(Unit: Million Tons)

Case	Trade/ Transit	Year			Note
		1999	2010	2020	
		Base year	Short Term	Master Plan	
Case 1	Trade	21.76	38.66	46.53	Export & Import
	Transit	1.15	4.78	6.82	Including transshipment cargo
	Total	22.91	43.44	53.35	
Case 2	Trade	21.76	35.26	35.65	Export & Import
	Transit	1.17	1.76	3.48	Including transshipment cargo
	Total	22.91	37.96	39.13	
Index		1.00	1.14	1.36	Case 1/Case 2

Note. 1. Figures are rounded, thus a total may not equal to the sum.

Table 3.2 Summary of Cargo Traffic Demand

(Unit: Million Tons)

No.	Type of Cargo	1999				2010				2020			
		C1	%	C2	%	C1	%	C2	%	C1	%	C2	%
1	General Cargo	4.04	18%	4.04	18%	4.98	11%	5.14	14%	3.54	7%	3.76	10%
2	Containerizable Cargo	2.11	9%	2.11	9%	3.97	9%	3.19	8%	7.25	14%	5.32	14%
3	Dry Bulk	10.75	47%	10.75	47%	17.60	41%	15.30	40%	20.94	39%	14.51	37%
4	Liquid Bulk	6.01	26%	6.01	26%	16.89	39%	14.33	38%	21.82	41%	15.54	40%
	Total	22.91	100%	22.91	100%	43.44	100%	37.96	100%	53.55	100%	39.13	100%

Table 3.3 shows the summary of cargo traffic demand for commodity groups and Table 3.4 shows the result of container cargo demand forecast for Case-1 respectively.

In order to review the traffic demand of bulk grains, detailed analysis of it was carried out. Basic procedure of this forecast is given in Section 3.2. The final conclusion of this evaluation supports the strong market demand and is incorporated in Tables 3.1 and 3.3.

Preliminary passenger traffic demand forecast was also carried out in order to prepare the possible forecast scenarios. Section 3.3 presents the study results of passenger traffics in 2020 which apparently support a strong market demand on tourism in Romania and Black Sea.

Table 3.3 Summary of Cargo Traffic Demands: Commodity by Target Years

Unit: Million tons

No.	Commodity Groups	1999												2010												2020												Notes
		Trade				Transs				T	Trade				Transs				T	Trade				Transs				T										
		Ex	Im	ST	Load	Disch.	ST	Load	Disch.		ST	Load	Disch.	ST	Ex	Im	ST	Load		Disch.	ST	Ex	Im	ST	Load	Disch.	ST											
Case 1: High Scenario																																						
1	Grains	1.01	0.04	1.05	0.68	0.04	0.72	1.77	1.80	0.20	2.00	2.61	0.05	2.66	4.66	2.64	0.20	2.84	3.84	0.05	3.89	6.73																
2	Foods	0.14	0.47	0.61	0.03	0.00	0.03	0.64	0.24	0.82	1.06	0.03	0.09	0.12	1.18	0.42	1.41	1.83	0.08	0.26	0.34	2.17																
3	Timber	0.64	0.00	0.64	0.00	0.00	0.00	0.64	1.13	0.00	1.13	0.00	0.00	0.00	1.13	0.68	0.00	0.68	0.00	0.00	0.00	0.68																
4	Fertilisers	0.68	0.37	1.05	0.01	0.01	0.02	1.07	0.36	0.69	1.05	0.00	0.00	0.00	1.05	0.19	1.24	1.43	0.00	0.00	0.00	1.43																
5	Iron Ore & Scrap	0.62	4.17	4.79	0.08	0.00	0.08	4.87	0.85	6.90	7.75	0.11	0.83	0.94	8.69	0.30	8.30	8.60	0.04	1.00	1.04	9.64																
6	Non-ferrous Ore	0.02	1.07	1.09	0.01	0.10	0.11	1.20	0.00	1.68	1.68	0.00	0.27	0.27	1.95	0.00	1.01	1.01	0.00	0.00	0.00	1.01																
7	Solid Fuel	0.10	1.73	1.83	0.00	0.00	0.00	1.83	0.00	2.11	2.11	0.00	0.00	0.00	2.11	0.00	2.55	2.55	0.00	0.16	0.16	2.71																
8	Crude Oil	0.00	3.14	3.14	0.00	0.07	0.07	3.21	0.00	11.92	11.92	0.00	0.39	0.39	12.31	0.00	16.40	16.40	0.00	0.00	0.00	16.40																
9	Oil & Gas Products	1.38	0.83	2.21	0.00	0.00	0.00	2.21	2.39	1.44	3.83	0.00	0.00	0.00	3.83	1.57	2.47	4.04	0.00	0.46	0.46	4.50																
10	Chemical Products	0.70	0.03	0.73	0.00	0.01	0.01	0.74	0.67	0.00	0.67	0.00	0.00	0.00	0.67	0.36	0.00	0.36	0.00	0.00	0.00	0.36																
11	Chalk, Cement	1.81	0.01	1.82	0.00	0.00	0.00	1.82	1.07	0.00	1.07	0.00	0.00	0.00	1.07	0.64	0.00	0.64	0.00	0.00	0.00	0.64																
12	Ferrous & Non-ferrous Metals	1.33	0.05	1.38	0.06	0.00	0.06	1.44	1.90	0.00	1.90	0.10	0.00	0.10	2.00	1.90	0.00	1.90	0.10	0.00	0.10	2.00																
13	Manufactured Products	0.36	0.35	0.71	0.00	0.00	0.00	0.71	0.63	0.62	1.25	0.07	0.08	0.15	1.40	1.07	1.05	2.12	0.21	0.21	0.42	2.54																
14	Other Cargoes	0.62	0.09	0.71	0.04	0.01	0.05	0.76	1.08	0.16	1.24	0.13	0.02	0.15	1.39	1.85	0.28	2.13	0.36	0.05	0.41	2.54																
	Total	9.41	12.35	21.76	0.91	0.24	1.15	22.91	12.12	26.54	38.66	3.05	1.73	4.78	43.44	11.62	34.91	46.53	4.63	2.19	6.82	53.35																
Case 2: Medium Scenario																																						
1	Grains	1.01	0.04	1.05	0.68	0.04	0.72	1.77	1.50	0.38	1.88	0.50	0.13	0.63	2.51	1.50	0.38	1.88	0.50	0.13	0.63	2.51																
2	Foods	0.14	0.47	0.61	0.03	0.00	0.03	0.64	0.19	0.64	0.83	0.03	0.09	0.12	0.95	0.29	0.96	1.25	0.08	0.26	0.34	1.59																
3	Timber	0.64	0.00	0.64	0.00	0.00	0.00	0.64	1.13	0.00	1.13	0.00	0.00	0.00	1.13	0.68	0.00	0.68	0.00	0.00	0.00	0.68																
4	Fertilisers	0.68	0.37	1.05	0.01	0.01	0.02	1.07	0.48	0.52	1.00	0.00	0.00	0.00	1.00	0.30	0.81	1.11	0.00	0.00	0.00	1.11																
5	Iron Ore & Scrap	0.62	4.17	4.79	0.08	0.00	0.08	4.87	0.85	6.90	7.75	0.11	0.83	0.94	8.69	0.30	6.90	7.20	0.04	0.95	0.99	8.19																
6	Non-ferrous Ore	0.02	1.07	1.09	0.01	0.10	0.11	1.20	0.00	1.39	1.39	0.00	0.22	0.22	1.61	0.00	0.84	0.84	0.00	0.13	0.13	0.97																
7	Solid Fuel	0.10	1.73	1.83	0.00	0.00	0.00	1.83	0.00	2.10	2.10	0.00	0.00	0.00	2.10	0.00	2.10	2.10	0.00	0.00	0.00	2.10																
8	Crude Oil	0.00	3.14	3.14	0.00	0.07	0.07	3.21	0.00	9.33	9.33	0.00	0.39	0.39	9.72	0.00	10.64	10.64	0.00	0.46	0.46	11.10																
9	Oil & Gas Products	1.38	0.83	2.21	0.00	0.00	0.00	2.21	2.82	1.13	3.95	0.00	0.00	0.00	3.95	2.02	1.68	3.70	0.00	0.00	0.00	3.70																
10	Chemical Products	0.70	0.03	0.73	0.00	0.01	0.01	0.74	0.70	0.00	0.70	0.00	0.00	0.00	0.70	0.51	0.00	0.51	0.00	0.00	0.00	0.51																
11	Chalk, Cement	1.81	0.01	1.82	0.00	0.00	0.00	1.82	1.36	0.00	1.36	0.00	0.00	0.00	1.36	0.94	0.00	0.94	0.00	0.00	0.00	0.94																
12	Ferrous & Non-ferrous Metals	1.33	0.05	1.38	0.06	0.00	0.06	1.44	1.90	0.00	1.90	0.10	0.00	0.10	2.00	1.90	0.00	1.90	0.10	0.00	0.10	2.00																
13	Manufactured Products	0.36	0.35	0.71	0.00	0.00	0.00	0.71	0.49	0.48	0.97	0.07	0.08	0.15	1.12	0.73	0.72	1.45	0.21	0.21	0.42	1.87																
14	Other Cargoes	0.62	0.09	0.71	0.04	0.01	0.05	0.76	0.84	0.13	0.97	0.13	0.02	0.15	1.12	1.26	0.19	1.45	0.36	0.05	0.41	1.86																
	Total	9.41	12.35	21.76	0.91	0.24	1.15	22.91	12.26	23.00	35.26	0.94	1.76	2.70	37.96	10.43	25.22	35.65	1.29	2.19	3.48	39.13																

Note.

- Figure is rounded, thus a total may not equal to actual sum-up.
- Case 1: Traffic demand of grains was reviewed and separated into net demand and annual fluctuation in the Feasibility Study. After that the imported and discharged to be unloaded were added by taking account of past data as 400,000 tons in maximum. 500,000 tons is considered for facility design.
- Case 2 is the same values as the one studied in the Master Plan.

3.2 Detailed Study of Bulk Grain Demand Forecast

The Grain Terminal Plan was selected as one of the Short-Term Development Plan. The detailed study for the traffic demand of bulk grains was conducted in the following steps.

(1) Step-1

- 1) Comparison of the Grain Traffic Demand Forecast as between the World Bank Study and the JICA Master Plan.
- 2) Setting Up Lower and Upper Limits and Net Traffic Demand as Median Value thereof
- 3) Comparison for Net Traffic Demand of Transit Between the World Bank and the JICA Master Plan

(2) Step-2

- 1) Review of Export Traffic Demand for Hungary and Romania
- 2) Demand Forecast of Transit Cargoes
- 3) Setting Up of Required Capacity
- 4) The Case of Traffic Demand Forecast in the Feasibility Study

The result of the detailed study for the grain traffic demand is “Case-1”. “Case-2” is the same as of the Master Plan Study.

The result is shown in Table 3.5

Table 3.5 Revised Estimation of Median Value of Grain Traffic Demand for Export (Case1:High)

(Unit: Million Tons)

	Median Value (Net Traffics)	Allowance to the annual fluctuation (Due to average change by climatic condition and etc.,)	Total (Required total facility capacity)
1. World Bank Study in 1997			
(1) Grain Traffics in 2010			
Trade	3.40		
Transit	4.30		
Total	7.70		
(2) Required Total Facility Capacity of Grain Terminal			
Trade	3.40	0	3.40
Transit	4.30	0	4.30
Total	7.70	0	7.70
(3) Net Traffic using Annual Fluctuation Allowance (Estimated by JICA*)			
Trade	3.40 - 1.37 = 2.03	*1.37	3.40
Transit	4.30 - 0.62 = 3.68	*0.62	4.30
Total	5.71	*1.99	7.70
2. Detailed Review in the JICA Feasibility Study in 2001			
(1) Grain Traffics in 2010: (Estimated by JICA **)			
Trade	**1.80		
Transit	**2.61		
Total	**4.41		
(2) Required Total Facility Capacity of Grain Terminal			
Trade	**1.80	*1.37	1.80 + 1.37 = 3.17
Transit	**2.61	*0.62	2.61 + 0.62 = 3.23
Total	**4.41	*1.99	6.40

3.3 Preliminary Passenger Traffic Demand Forecast

The passenger traffic demand by ship through the Port of Constantza has not yet been revealed fully because the facilities for handling the passengers are insufficient in spite of the high potentiality of traffic demand.

3.3.1 International Passenger

(1) International Tourists (Arrivals at Romania of Foreign Visitors) by Mode

International tourists (arrivals at Romania of foreign visitors) by mode was forecast as follows: (i) Three growth scenarios were set up for annual average growth rate of GDP of major originating countries as low 3%, medium 4% and high 6%. (ii) the ratio of visitors destined to Constantza area by mode, (iii) the ratio of visitors to use ship at the Port of Constantza by mode. The number of passengers from foreign countries to use the Port of Constantza is forecast as 250,000 for low growth scenario and 963,000 for high growth scenario.

(2) International Tourists (Departures of Romanian Visitors) by Mode

Romanian international tourists (departures of Romanian visitors) by mode was forecast as follows: (i) Three growth scenarios (high, medium and low) were set up on the basis of the Master Plan (Case-1 for high and Case-2 for low) by taking account of GDP growth scenario. (ii) the diversion ratio of passengers via the Port of Constantza by mode. (iii) the ratio of visitors to use ship at the Port of Constantza. . The number of passenger going abroad from Romania to use the Port of Constantza is forecast as 450,000 for low growth scenario and 1,088,000 for high growth scenario.

(3) Domestic Passengers

Domestic passengers by mode was forecast as follows : (i) The same three growth scenarios as the ones for international tourists (departures of Romanian visitors) by mode was adopted. (ii) the diversion ratio of visitors destined to Constantza area by mode. (iii) the ratio of visitors to use ship at the Port of Constantza. The number of passengers to make travel by ship through the Port of Constantza is forecast as 987,000 for low growth scenario and 4,877,000 for high growth scenario.

(4) Cruise Ship Passengers

The traffic demand of cruise ship passengers has different characteristics from the above mentioned passenger traffic demand. The key factors to boost the traffic demand for cruise ship passengers are: (i) attractiveness of tourist resources, (ii) accommodations such as hotels and restaurants, (iii) the convenient linkage of inland transport between the Port of Constantza and inland scenic points and (iv) modernized and convenient passenger terminal facilities at the Port of Constantza. The high potential passenger traffic demand by cruise ship are revealed when the key factors mentioned above are improved and strengthened.

Chapter 4 Inland Transportation

4.1 Introduction

The cargo transport demand forecast for use in the Constanta Port planning needs to include not only a maritime cargo volume a forecast but also a 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

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.

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.

(1) 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. 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)

(2) Ratio of the river cargo to the maritime cargo (R/M 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 4.2.1. 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.

4.2.2 Estimation of R/M Ratio Traffic of IW Transportation in 2010 and 2020

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.

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.

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 4.2.2.

Table 4.2.1 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

Table 4.2.2 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		
	1999(Actual)	2010	2020	Actual Yearly Ave.(1998-2000)	Assumption 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.

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. 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).

4.4 Railway and Road Transport

4.4.1 Evolutions in Railway Cargoes

Of the export/import cargoes handled at the Port of Constantza, 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)

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 Constantza 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.

Table 4.4.1 Evolution of Railway Cargoes delivered from and transported to the Port of Constantza 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%
	Export 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%
	Total	10,338	100%	9,389	100%	10,632	100%	10,120	100%

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 Products	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 Unloading 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 Products	-	-	-	-	-	-	-	-	-
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 Administration on a long-term basis

5.1 Institutional Framework and Organization

Recommendation on clarification of CMPA's responsibility

(1) Port planning

As for the framework of port infrastructure investment, it is necessary to refer to the port planning body and the administrative authority of CMPA.

The port planning should be done by CMPA which is well versed in the port of Constantza and is suitable for the coordination of various interests among port users. MPWTH should bear the responsibility of approving the port plan.

(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:

A database on port activities related to ships, operators, cargo volume, major shippers/consignees

Checking the receipt of charges and fees from the ports users

Access control system: issuing gate permits and receiving entrance fees for vehicles

Database regarding CMPA's employees: wage calculation, labor contract data

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

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 Constantza is Bulgarian ports (Varna, Bourgas). The tariff 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

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.

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.