Chapter 6 Master Plan of the Port of Constantza

6.1 Development Scenario of the Port

6.1.1 Review of the Previous Master Plan

The previous Master Plan of the Port of Constantza was prepared by Frederic Harris in 1993. According to the demand forecast conducted as part of the investigation for the Plan, the forecast for 2010 was 84.1 million tons. This was approximately a threefold increase on the actual tonnage in 1992 (see Table 6. 1. 1).

If the forecast for 2000, which is a middle point in the Master Plan, is compared with the actual results obtained in the recent three years (1997-1999), we find that the Romanian economy had not grown as smoothly as estimated earlier. In other words, while the Port's total cargo handling tonnage forecast for 2000 ranged from 33.3 to 42.3 million tons, the actual results in the recent three years were 22.9~31.9 million tons.

When the forecast and actual tonnages of individual items of cargo are compared, the difference in the amount of energy import is conspicuous. For example, against the forecast for 2000 of $10.3 \sim 12.0$ million tons, the actual figure for 1998 was far lower at 6.7 million tons. In the case of containers, the actual figure was 0.4 million tons against the forecast of $0.8 \sim 1.3$ million tons. In contrast, the actual grain export was $0.7 \sim 1.8$ million tons against the forecast 0.6 ~ 0.9 million tons. The actual iron ore import was $4.9 \sim 5.7$ million tons against the forecast $1.7 \sim 2.1$ million tons.

(1) Basic policy for the 1993 Master Plan

The layout plan for the 1993 Master Plan was drawn up using the preconditions for the previous master plan intact. In other words, the construction works which were in progress according to the previous master plan (prepared in the 1980s) such as reclamation for South Port Pier S-1 terminal, reclamation of peripheral areas of Piers S-2 and S-3 and extension (1 km) of East Breakwater were adopted without any modification.

(2) Future area usage outline in the 1993 Master Plan

The outline of the future area usage in the 1993 Master Plan is as shown below.

1) The South Area of the Port: reserved for container terminal expansion, for general cargo or dedicated facilities and for Free Zone distribution and assembly or light

Table 6.1.1	Demand Forecast in t	he N	laster	r Plan (19	93)		(Million 7	Con)
				1992	2000 F Low	orecast High	2010 F Low	orecast High
Bulk	Crude Oil	Ι		8.4	10.3	12.0	15.2	24.7
Commodities	Oil Products		Е	3.1	3.9	4.8	5.5	8.6
	Steam Coal Coking Coal	I I		2.9	3.7	4.8	6.9	12.0
	Iron Ore	Ι		1.6	1.7	2.1	2.0	2.6
	Cement		Е	2.3	2.7	3.7	2.8	4.8
	Agri-bulk	Ι	Е	1.5	0.9	0.6	0.4	2.4
	Phosphate	Ι		0.8	1.0	1.3	1.5	2.5
	Others	Ι		0.1	0.2	0.4	0.4	0.7
	Others		Е	0.1	0.2	0.3	0.3	0.6
				20.8	24.6	30.0	35.0	58.9
Non-Bulk Commodities	Domestic Traffic Free Zone Traffic Transit/ Transhipment			5.7 0.6	7.4 0.6 0.7	9.4 1.6 1.3	11.7 1.5 0.9	17.9 4 3.3
	1			6.3	8.7	12.3	14.1	25.2
Other	Containers			0.4	0.8	1.3	2.8	4.9
(Included	Frozen/ Ref.			0.1	0.2	0.4	0.4	0.9
in	Ro-Ro			0.5	0.7	0.9	1.3	1.7
Non-Bulk)				1.0	1.7	2.6	4.5	7.5
Total	Bulk Traffic Non-Bulk Traffic			20.8 6.3	24.6 8.7	30.0 12.3	35.0 14.1	58.9 25.2
				27.1	33.3	42.3	49.1	84.1

Table 6 1 1 D а Ба st in the Mester Pl n (1003)

Cargo Throughput from 1997-99 and Forecast for 2010

				1997	1998	1999	2010 F	orecast
							Low	High
Bulk	Crude Oil	Ι		7.3	6.7	3.2	9.3	12.3
Commodities	Oil Products		Е	4.7	3.8	2.2	3.9	3.8
	Steam Coal Coking Coal	I I		4.0	3.0	1.8	2.1	2.1
	Iron Ore	Ι		5.2	5.7	4.9	7.8	8.7
	Cement		Е	2.0	1.7	1.8	1.4	1.1
	Agri-bulk	Ι	E	0.7	1.3	1.8	1.0	2.4
	Containers			0.4	0.3	0.4	2.2	3.2
Total				31.9	29.0	22.9	34.4	41.2

manufacturing activities.

- 2) Central Island: reserved for large, waterfront requiring, industrial users.
- 3) The sites at the western part of the South Port: reserved for an expansion of barge related handling activities.
- 4) The land area near the Danube-Black Sea Canal: reserved for industries not requiring waterfront.
- (3) Outline of the 1993 Master Plan Layout

Outline of the previous Master Plan for South Area and Central Island Area of the Port is shown in Fig. 6.1.1.

(South Area of the Port **)**

- 1) The Pier S-1, S-2, S-3 are maintained as per present Layout.
- 2) Future development of the eastern part consists of two basins, 250m wide, oriented in north-south direction in accordance with the governing wind direction. The central part of this development accommodates 6 container berths, each 300m long, with an adequate back-up area 500 m behind the berth for container yard and transport operations. The eastern part of the South Area development is reserved for general cargo or other dedicated facilities.
- 3) Transport corridor for rail and road access is reserved along the South Breakwater.
- 4) The South area is reserved for 'clean type activities' such as container and other general cargo handling, for warehousing and distribution type of activities and for assembly and manufacturing.

【Central Island Area】

The Central Island Area is preferably to be developed without basins. The available length of water frontage is some 4,000 m along the east side and some 3,500 m along the south side. The total land area is approximately 800 ha. The northern waterfront area is reserved for expansion of the coal/ore bulk terminal activity or other dry bulk activities, such as agricultural bulk export facilities; the western waterfront area is reserved for barge traffic related activities.

【Phasing Plan】

- 1) The development is to start with the container terminal at Pier S-2, expanding in later phases over the entire area along the South Breakwater.
- 2) The Central Island development would follow demands for expansion of the bulk facilities and barge operations.

Fig 6.1.1 Layout of the Master Plan (1993)



(4) Evaluation of the 1993 Master Plan

The greatest result of the 1993 Master Plan was the materialization of a new container terminal. However, the reclamation of the sea east of South Port Pier S-2 has not progressed and Central Island remains unutilized. Moreover, work on the 1 km extension of East Breakwater, one of the preconditions for the Master Plan, has yet to be carried out.

Recent actual cargo demand is much smaller than the figure forecast in the Master Plan for the mid-point 2000 due to changes in the Romanian economic structure.

In the Master Plan, the South Port area was supposed to be used in the future as a site to handle clean cargoes, mainly comprising general cargo and containers. However, to enhance the international competitiveness of the Port of Constantza, it is vital that port is able to accommodate larger vessels. From this viewpoint, it is not economical to use the South Port area, which has a depth of 17 m, for the handling of general cargo transported by small ships.

6. 1. 2 Port of Constantza Development Projects after 1993 Master Plan

Since 1993, the following development projects have been underway at the Port of Constantza.

(1) Construction of South Port grain terminal

In 1998, Silotrans constructed a grain terminal with 2 million ton per year handling capacity on Pier S-1 (Berth Nos. 113 and 114). This terminal is equipped with a silo of 100,000 ton storage capacity, two 400 ton/hour pneumatic unloaders and one 800 ton/hour loader.

(2) Materialization of South Port container terminal development project

Using the yen credit extended by Japan, the construction of a container terminal with a capacity of 370,000 TEU per year at South Port S-2 was decided in 1998. Construction is expected to be completed in 2003.

(3) Materialization of Free Trade Zone

Following the enactment of the Law for Free Trade Zone in 1992 (Law No. 84/21.07.1992), a Free Trade Zone was established in the south area of the Port. Currently, 24 ha is plotted as the site for the Free Trade Zone.

6.1.3 Viewpoints for the Preparation of the New Master Plan

In drawing up the New Master Plan, the modernization of the Port of Constantza needs to be planned based on the following viewpoints.

(1) Need to meet the advancement of containerization

The demand for containers at the Port of Constantza is expected to increase greatly by such developments as worldwide advancement of containerization, increase of container cargo following the economic development of the Black Sea and East European countries, and the growth in the container ratio as a result of the development of container transport facilities in these regions (see Chapter 7). This increase will sharply surpass the container handling capacity of 370,000 TEU of the currently planned container terminal (Phase-1). Therefore, to meet the expected increase in demand for container terminals, a

new container terminal needs to be proposed in the New Master Plan.

(2) Coping with increasing ship sizes

In 2020, the sizes of grain, container and other types of ships using the Port of Constantza are expected to be much larger. Consequently, the cargoes hauled by these ships need to be handled at berths deeper than the existing ones. In particular, grains and containers, which are handled at present at North Port, need to be aggregated at South Port.

(3) Realization of internationally competitive of the port

To make the port internationally competitive, it is necessary to renew obsolete facilities and realize efficient cargo operation through aggregating the cargo handling which individual operators are undertaking in small lots.

(4) Improvement of linkage with inland transport system

To realize efficient cargo handling, it is necessary to smoothly link port-area railway transport, road transport and inland water transport with waterfront cargo handling, which at present forms a bottleneck.

(5) Realization of port development integral with regional development plan

It is necessary to consider the smooth linkage of port-area roads with highways currently being planned in the hinterland.

(6) Realization of environmental protection measures

6.1.4 Scenario for the Formulation of New Master Plan

According to the CPA's official view, the current cargo handling capacity of the Port of Constantza as a whole is a huge 80 million tons, which appears sufficient to cope with the cargo demand expected in 2020. However, if individual cargo items are taken up, the capacity is not necessarily sufficient, as in the case of the container terminal whose handling capacity is insufficient in the face of rapidly growing cargo traffic and the grain terminal whose existing berths cannot cope with increasing ship sizes. Furthermore, if the realization of efficient cargo handling by the renewal of obsolete port facilities and the replacement of other facilities for smooth railway, road and inland water transport are

taken into consideration, expansion and modernization of facilities by 2020 are unavoidable. A scenario for the investigation of the New Master Plan in consideration of these requirements is shown in the flow chart (Fig. 6. 1. 2). Outline of the Scenario of the Study is listed below.

- (1) Clarification of the usages of the existing berths and the accommodable maximum ship sizes in consideration of current berth specifications (water depth and length), dredging plan, waterfront facilities (dedicated loaders and unloaders, warehouses, cargo handling equipment and linkage with railways), access channel, turning basin, etc.
- (2) Investigation of standard ship size by cargo type based on trends of marine transport
- (3) Clarification of division of work between North Port and South Port and by each berth
- (4) Forecast of traffic demand for export/import cargo and transit cargo based on the future socio-economic framework and industrial trends in Romania and neighboring countries
- (5) Clarification of modal split for inland transport
- (6) Clarification of berth allocation and handling capacity by cargo type
- (7) Clarification of required facilities and equipment including terminal facilities and barge and land transport facilities in the port
- (8) Drawing basic layout plan alternatives
- (9) Preliminary design and cost estimate
- (10) Preliminary economic analysis of the master plan projects
- (11) Clarification of the phased development plan
- (12) Clarification of the Initial Environment Evaluation



Fig. 6.1.2 Flow Chart for Formulating Master Plan targetted year of 2020

6. 1. 5 Acceptable ship size at existing berths

Table 6.1.2 shows the specifications (berth length, design depth, dredging plan and present depth) of each berth and the resulting physical or dimensional limitations which are necessary to determine acceptable ship sizes (max draft and LOA) at each berth. These limitations are determined by berth depth, berth length and turning basin size. Tables 6.1.3, 6.1.3 (1) and (2) also show superstructure and present usage of each berth.

6. 1. 6 Forecast of standard ship size by cargo type

Table 6.1.4 shows the average and maximum sizes of the ships by cargo type which currently use the Port of Constantza, and the sizes of ships which the Port is expected to receive in future, judging from the general trends of ships currently operating in the sea routes and regions served by the ships using the Port of Constantza, namely the standard ship sizes. Of these, special mention is made below regarding the standard ship sizes for major cargoes which will affect the New Master Plan.

(1) Grains

The average and maximum sizes of grain ships currently calling at the Port of Constantza are 9,500 DWT and 18,000 DWT, respectively. However, the sizes of grain ships calling at the regions to which grains are exported from the Port of Constantza, namely, countries in the Near and Middle East, North Africa and the Mediterranean region are mainly handy types ranging from 20,000 to 50,000 tons. Therefore, for 2020, handy type maximums (30,000 -50,000 DWT) are assumed to be the standard grain ship sizes for the Port of Constantza.

(2) Containers

The average and maximum sizes of container ships currently calling at the Port of Constantza are 13,000 DWT and 21,000 DWT (1,200 TEU), respectively. Taking into account the future traffic increase of container cargo at the Port of Constantza, growth of container terminals in countries around the Black Sea reflecting their economic development, and the increasing sizes of container ships, the Panamax types ranging from 40,000 DWT (3,000 TEU) to 50,000 DWT (4,000 TEU) are considered to be the standard size ships which will call at the Port of Constantza.

6.1.7 Inland Water Transport Cargoes transshipped at the Port of Constantza

Table 6.1.5 shows the amount of the inland water transport cargo (IWT) hauled by barge to the Port of Constantza from within Romania or third countries and that of IWT from the Port of Constantza to these regions, as well as their ratio to the entire marine transport cargoes. As the Table indicates, the ratio of barge transport to inland is high for bulk cargoes such as grains, iron ore, non-ferrous ores, coal and coke, cement and steel products. Crude oil and petroleum products are transported inland by pipeline.

6.1.8 Roles of North and South Ports and Function of Each Berth

Considering aforementioned factors, the roles of North and South Ports and function of each berth are outlined below.

[South Port Area]

(1) Grain terminal

Taking into account the aforementioned grain ship standard size, greater transport ratio from inland by IWT, aggregation effect with Silotrans's grain terminal, etc., it is desirable to locate the grain terminal at South Port Pier S-1 where a maximum draft of 12 m can be accommodated.

(2) Container terminal

Taking into account the aforementioned container ship standard size, aggregation effect with the container terminal currently under development, etc., it is desirable to locate the container terminal at South Port Pier S-2 where a maximum draft of 14 m can be accommodated.

(3) Steel product export terminal

Regarding the steel products which at present are being handled in small lots by operators at their respective berths, it is necessary to realize efficient cargo handling by aggregating handling berths as much as possible and introducing efficient cargo handling systems and machinery. Especially considering that most steel products are hauled by barge from inland to the Port of Constantza, that sufficient yard space is necessary and that the possibility is high that in future 50,000 DWT-class handy max type ships will be used, it is

desirable to locate the steel product export terminal at South Port Pier S-1 or Basin Nos. 8-9 (Berth Nos. 56-60) where a draft of 12 m can be accommodated.

[North Port Area]

(4) Bulk cargo terminal

Regarding the bulk cargo terminal for iron ore, crude oil and petroleum products, cement, fertilizers, etc., it is proposed that the berths which currently handle respective items be continued to be used in consideration of the existing special cargo handling equipment, storage facilities and the linkage with railways.

(5) Terminal for cargoes such as timber which are not containerized

Regarding timber which operators currently handle in small lots at their respective berths, it is necessary to realize efficient cargo handling by aggregating handling berths as much as possible and introducing efficient cargo handling systems and machinery. Especially with regard to timber for export, it is desirable to locate the terminal at North Port Basin Nos. 7-8 (Berth Nos. 46-50) and Basin Nos. 8-9 (Berth Nos. 56-60) where sufficient yard space is available.

(6)General cargo terminal

In the future, the general cargo terminal needs to be able to accommodate 10,000 DWT (8.5 m draft)- to 15,000 DWT (9.5 m draft)-class ships. Most terminals which currently handle general cargo meet this condition. However, the New Master Plan will be drawn up on the assumption that berths of Basin Nos. 1-2 can not be used for cargo handling due to their insufficient depth and extremely limited the back-up area.

Table 6.1.2 Physical Limitation of Berths

nomeResResPart <th></th> <th></th> <th></th> <th>Number</th> <th>Design</th> <th>Dredging</th> <th>Present</th> <th>Phyi</th> <th>isical Limit</th> <th>ation</th> <th>Typical</th> <th></th>				Number	Design	Dredging	Present	Phyi	isical Limit	ation	Typical	
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S S< S S S		6-7	199	2	11.5	11.5	10.0	180	10.5	9.1	General Cargo	Dezrobirea
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19 13 14 15 14 16<		17-18	224	2	8.3	8.3	6.7	180	7.5	6.1	Cereal	Agroexport
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$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		59	191	1	12.5	12.5	0.5	160	12.2	86	General Cargo(Chemical Products)	Chimpar
$ \left \begin{array}{c c c c c c c c c c c c c c c c c c c $	9	59-60	463	2	13.5	13.5	9.5	250	12.3	8.0 9.5	General Cargo(Chennear Froducts)	Chimpex
61-62 468 2 115 115 99 200 105 8.7 Bulk(Chenical Products) Chimesea Chimesea 64-65 430 2 115 115 90 200 105 8.7 Bulk(Chenical Products) Minneedl 66 430 2 115 115 90 200 123 8.2 Bulk(Chenical Products) Minneedl Minneedl 66 74.40 2 115 115 115 116 123 8.20 10.5 116 Minneedl M	-			_								
		61-62	468	2	11.5	11.5	9.9	250	10.5	9.0	Bulk(Chemical Products)	Chimpex
$ \frac{66.67}{66} + \frac{240}{66} + \frac{2}{10} + \frac{1}{10} + $		64 65	220	2	11.5	11.5	9.6	250	10.5	8.7		Minmetal
68 208 1 13.5 13.5 13.5 12.3 9.6 Bulk(Cenent) Skim 10 69 327 1 13.5 13.5 10.3 200 12.3 10.5 $Cnde oil & coll product$ 0il Terminal 70 327 1 13.5 13.5 10.3 200 12.3 9.4 (Not Operational) Oll Terminal 71 - 1 - - - - (Not Operational) Oll Terminal 71 - 1 - - - - - (Not Operational) Oll Terminal 71 75 326 1 14 14 122 20 12.7 11.1 Cnuck oil & oil poduct Oil Terminal 73 35 1 14 14 12.2 2.90 17.3 16.5 Cnuck oil & oil poduct Oil Terminal 73 35.0 1 16.5 15.2 300 13.5 16.5 Cnuck oil		66-67	430	2	13.5	13.5	9.0	250	12.3	8.2	Bulk(Ore, coal, coke, bauxite)	Minmetal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		68	208	1	13.5	13.5	10.6	250	12.3	9.6	P. # (C	Sicim
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$											Buik(Cellient)	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	10	69	327	1	13.5	13.5	11.6	250	12.3	10.5	Cruda oil & oil product	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		70	327	1	13.5	13.5	10.3	250	12.3	94	Crude on & on product	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		71	521	1	15.5	15.5	10.5	250	12.5	7.4	(Not Operational)	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	11	72	327	1	13.5	13.5	12.1	250	12.3	11.0	Crude oil & oil product	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		73	329	1	13.5	13.5	12.1	250	12.3	11.0		Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	12	74	326	1	14	14	12.2	250	12.7	11.1	(Not Operational)	Oil Terminal Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	12	76	326	1	14	14	12.2	250	12.7	11.1	Crude oil & oil product	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		77		1							(Not Operational)	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		78	335	1	14	14	12.2	250	12.7	11.1	Bunkerage	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	1-South	79	405	1	19	19	17.8	300	17.3	16.2	Crude oil & oil product	Oil Terminal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		82	292	2	19	16.5	15.2	300	17.3	13.8	Ore Coal Coke	Comvex
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		83-84	500	2	14.5	14.5	12.5	300	13.2	11.4	ore, com, cone	Comvex
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		85	356	1	14.5	14.5	10.1	Barge	Barge	Barge	Ore, coal, coke(Berge)	Minmetal
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		86-87		2				Barge	Barge	Barge	(Under construction)	
River Maritime Basir 90 191 1 9 7 6 Barge Barge Barge Barge For LPG Terminal Maritime Basir 94-96 714 3 7 7 4.1 Barge Cereal (Rail->Barge) (Mast) 102-103 389 2 7 7 6.3 Barge Barge Barge Barge Barge Cereal (Rail->Barge) Mast) 104 180 1 7 7 6.5 5.6 Core Sova Plus Sova Plus Sova Plus Sova Plus		88-89	380	2	9	9	6	Bargr	Bargr	Bargr	Barge Preparation	(Mast)
Kiver Maritime Basir 91-93 94-96 000 714 3 3 7 7 7 4.1 Barge Barge Barge Barge Barge Barge Barge Barge Barge Core, coal, coke (Barge Repair) Convex 97-99 718 3 7 7 4.1 Barge Barge Barge Cereal (Rail->Barge) (Mast) 100-101 383 2 7 7 4.3 Barge Barge Barge Cereal (Rail->Barge) (Mast) 102-103 389 2 7 7 4.5 Barge Barge Barge Private Berth Sova Plus 104 180 1 7 7 4.5 Barge Barge Barge Private Berth Sova Plus 105-107 330 3 9 7.2 6.6 300 10.5 9.5 General cargo(Heavy, Metal) Romtrans 110-112 586 3 14.5 11.5 10.7 300 10.5 9.7 Bulk(Cereals) Silotrans 111 201	Diver	90	191	1	9	7	6	Barge	Barge	Barge	For LPG Terminal	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	Maritime Basir	94-96	714	3	7	7	4.1	Barge	Barge	Barge		Comvex
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		97-99	718	3	7	7	3.4	Barge	Barge	Barge	Ore, coal, coke (Barge Repair)	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		100-101	383	2	7	7	4.3	Barge	Barge	Barge	Cereal (Rail->Barge)	(Mast)
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		102-103	389	2	7	7	6.3	Barge	Barge	Barge	Private Porth	Sargent
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		104	180	1	7	7.2	4.5	Barge	Barge	Barge	Filvate Bertin	Soya Plus
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		108-109	295	2	9	7.2	6.6	300	6.5	6.0		Romtrans
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		110-112	586	3	14.5	11.5	10.4	300	10.5	9.5	General cargo(Heavy, Metal)	Romtrans
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$												
Image: Normal base in the second state in t		113	220	1	14.5	11.5	10.7	300	10.5	9.7		Silotrans
114 201 1 14.3 14.3 12.2 100 13.2 11.1 Model		114	201	1	14.5	14.5	12.2	190	12.2	11.1	Bulk(Cereals)	Silotrong
1S 115-118 904 4 14.5 12.6 300 13.2 11.5 General cargo (Steel product) Romtrans 119 307 1 14.5 14.5 10.7 270 13.2 9.7 Private Berth FTZ/Mast 120 227 1 14.5 14.5 11.2 200 13.2 10.2 Ferry-Boat SNTFM 121 214 1 14.5 14.5 12.7 300 13.2 11.5 Ro-Ro MPAC 122 214 1 14.5 14.5 13.9 300 13.2 12.6 For Container Terminal Decirom 123 212 1 14.5 14.5 13.9 300 13.2 12.6 For Container Terminal Decirom 124-125 441 2 16.5 16.5 126,127= 15.0 12.7 Mast 2S,38 126-130 1070 5 16.5 126,127= 15.0 12.0 <td< td=""><td> </td><td>114</td><td>201</td><td>1</td><td>14.5</td><td>14.5</td><td>12.2</td><td>(Berge)</td><td>13.2</td><td>11.1</td><td></td><td>Shouans</td></td<>		114	201	1	14.5	14.5	12.2	(Berge)	13.2	11.1		Shouans
119 307 1 14.5 14.5 10.7 270 13.2 9.7 Private Berth FZ/Mast 120 227 1 14.5 14.5 11.2 200 13.2 10.2 Private Berth FZ/Mast 120 227 1 14.5 14.5 11.2 200 13.2 10.2 Ferry-Boat SNTFM 121 214 1 14.5 14.5 12.7 300 13.2 11.5 Ro-Ro MPAC 122 214 1 14.5 14.5 13.9 300 13.2 12.6 For Container Terminal Decirom 123 212 1 14.5 14.5 13.9 300 13.2 12.6 For Container Terminal Decirom 124-125 441 2 16.5 16.5 126,127= 15.0 12.7 Mast 2S,38 126-130 1070 5 16.5 126,127= 15.0 Mast(Berth129,130) <tr< td=""><td>18</td><td>115-118</td><td>904</td><td>4</td><td>14.5</td><td>14.5</td><td>12.6</td><td>(Berge) 300</td><td>13.2</td><td>11.5</td><td></td><td>Romtrans</td></tr<>	18	115-118	904	4	14.5	14.5	12.6	(Berge) 300	13.2	11.5		Romtrans
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	15	.1.5 110	704		14.5	14.5	12.0	500	1.5.2	11.5	General cargo (Steel product)	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		119	307	1	14.5	14.5	10.7	270	13.2	9.7	Private Berth	FTZ/Mast
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		120	227	1	14.5	14.5	11.2	200	13.2	10.2	Ferry-Boat	SNTFM
122 124 1 14.5 13.7 300 13.2 12.6 For Container Terminal Deciron 123 212 1 14.5 14.5 13.9 300 13.2 12.6 For Container Terminal Deciron 124-125 441 2 16.5 16.5 14.0 300 15.0 12.7 Mast 2S,3S 126-130 1070 5 16.5 126,127= 15.0 Mast(Berth129,130) 131-137 7 16.5 16.5 15.0 15.0 Under construction Inder construction		121	214	1	14.5	14.5	12.7	300	13.2	11.5	КО-КО	Decirom
124-125 441 2 16.5 14.0 300 15.0 12.7 Mast 2S,3S 126-130 1070 5 16.5 16.5 126,127= 15.0 Mast(Berth129,130) 131-137 7 16.5 16.5 15.1 15.0 Under construction	1		214	1	14.5	14.5	15.9	500	15.2	12.0	For Container Terminal	Deenom
2S,3S 126-130 1070 5 16.5 126,127= 15.0 Mast(Berth129,130) 131-137 7 16.5 16.5 15.0 Under construction Mast(Berth129,130)		122	212	1	14.5	14.5	13.9	300	13.2	12.6		
131-137 7 16.5 16.5 15.0 Under construction		122 123 124-125	212 441	1	14.5 16.5	14.5 16.5	13.9 14.0	<u>300</u> <u>300</u>	13.2 15.0	12.6 12.7		Mast
	28,38	122 123 124-125 126-130	212 441 1070	1 2 5	14.5 16.5 16.5	14.5 16.5 16.5	13.9 14.0 126,127=	300 300	13.2 15.0 15.0	12.6 12.7		Mast Mast(Berth129,130)

Table 6.1.3 Berths' Superstructures

			Number	Design	Dredging	Present		Sup	er Structure &	& Equipment	r	
Basin No.	Berth	Length	of	Depth	Plan	Depth	Railway	Special	Warehouse	Open	Equipment	Operator
		(m)	Berth	(m)	(m)	(m)	Connection	facility		Storage	(Jib Type Crane)	
1	Passenger	296	1	13.5	13.5	12.3						
	RoRo-5 RoRo-4	364	1	13.5	13.5	6.8 8.7						
	RoRo-3	91	1	13.5	13.5	10.9						
l İ	RoRo-2	104	1	11.5	9	8.7						
	1-5	600	5	11.5	11.5	10.0	Under Crane	-	-	Nallow	11	Dezrobirea
	6-7	199	2	11.5	11.5	10.0	Under Crane	-	1	Nallow	2	Dezrobirea
2	8	130	2	11.5	9	8.1	- Under Crane	-	-	Nallow	-	Phoenix
	11-12	279	2	83	83	74	Under Crane	-	- 1	Refrigated	- 4	Dezrohirea
		217	~	0.5	0.5	<i></i>	ender ender			Warehouse		Democrica
	13-16	488	4	8.3	8.3	7.4	Under Crane	-	5	-	6	Dezrobirea
	17-18	224	2	8.3	8.3	6.7	Under Crane	Belt Conveyor	Silo(3)	-	Grain Loader(5)	Agroexport
	19	128	1	8.3	8.3	7.0	Under Crane	Pipe Line	Tank	-	Edible oil loader	Frial/Agroexprt
	20	125	1	8.5	8.3	7.0	Under Crane	-		-	2	Dezrobirea
	22	98	1	8.3	8.3	7.3	-	-	-	-	-	Phoenix
3	23	141	1	8.3	8.3	7.3	Under Crane	-	-	Nallow	4	Decirom
	24	137	1	8.3	8.3	8.1	Under Crane	Belt Conveyor	-	-	Grain Loader(2)	Agroexport
3-5												SNC
6	30	674	2	11.5	11.5	8.7	Under Crone				Nonumatia II/I (2) (6	Agroavport
	34	197	3	11.5	11.5	9.7	Under Crane	-	-	-	Newmanc U/L(2)+6	Petromar
	35-37	624	3	11.5	11.5	10.3	Under Crane	-	5	-	12	Socep
			-									
		1								1		
	38	206	1	11.5	11.5	10.4	Under Crane	-	-		3	Umex
	39	200	1	13.5	13.5	10.6	-	-	-		3	Umex
7	40	205	1	13.5	13.5	10.5	Under Crane	-	-		3	Umex
	41-43	625	3	13.5	13.5	10.5	Under Crane	-	5	-	12	Socep
		1								1		
		1								1		
l i	44	220	1	13.5	13.5	10.5	Backword	-	1		3	Umex
l İ	45-46	448	2	13.5	13.5	10.5	Under Crane	-	-		5	Minmetal
l I												
	47-48	460	2	13.5	13.5	10.5	Under Crane	-	-		4	Decirom
8	49-50	464	2	13.5	13.5	8.9	Under Crane	-	-		11	Decirom
	52	235	1	13.5	13.5	10.5					Gantry Crane(1)	Socep
	53	241	1	13.5	13.5	8.7	Backword	_	Refrigated		Ganuy Crane(1)	Frial
	55	220	•	15.5	15.5	0.7	Duckword		Warehouse			
	54-57	936	4	13.5	13.5	9.7	Under Crane	-	5	-	14	Chimpex
0	58	181	1	13.5	13.5	9.5	-	-	-	Nallow	3	Chimpex
9	39-00	403	2		13.3							I IIIIIIV-V
		405		15.5		10.5			-	-	2	Chimpex
	61-62	468	2	11.5	11.5	9.9	Under Crane	Phosfate Silo	3	-	Phosfate Unloader (3)	Chimpex
	61-62 63	468 220	2 1	11.5 11.5	11.5 11.5	9.9 9.6	Under Crane Backword	Phosfate Silo	3 1	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2)	Chimpex Chimpex
	61-62 63 64-65	468 220 430	2 1 2	11.5 11.5 11.5	11.5 11.5 11.5	9.9 9.6 9.0	Under Crane Backword Under Crane	Phosfate Silo - Yard Facilities	3 1 -	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3)	Chimpex Chimpex Minmetal
	61-62 63 64-65 66-67	468 220 430 430	2 1 2 2	11.5 11.5 11.5 13.5	11.5 11.5 11.5 13.5	9.9 9.6 9.0 9.0	Under Crane Backword Under Crane Under Crane	Phosfate Silo - Yard Facilities Yard Facilities	3 1 -	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3)	Chimpex Chimpex Minmetal Minmetal
	61-62 63 64-65 66-67 68	468 220 430 430 208	2 1 2 2 1	11.5 11.5 11.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim
10	61-62 63 64-65 66-67 68	468 220 430 430 208	2 1 2 2 1	11.5 11.5 11.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo - Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim
10	61-62 63 64-65 66-67 68 69	468 220 430 430 208 327	2 1 2 2 1	11.5 11.5 11.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6 11.6	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal
10	61-62 63 64-65 66-67 68 69 70	468 220 430 430 208 327 327	2 1 2 1 1	11.5 11.5 11.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6 11.6	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Sicim Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71	468 220 430 430 208 327 327	2 1 2 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6 11.6 10.3	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse	-	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 71 72	468 220 430 430 208 327 327 327	2 1 2 1 1 1 1 1 1	13.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6 11.6 10.3	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse	- - - - -	Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 72 73	468 220 430 430 208 327 327 327 329	2 1 2 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 72 73 74 74	468 220 430 430 208 327 327 327 329 	2 1 2 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	9,9 9,6 9,0 9,0 10,6 11,6 10,3 12,1 12,1 12,1	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 72 73 74 74 75 76	403 468 220 430 208 327 327 327 327 329 326 326	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.4 14	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.4 14	9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2	Under Crane Backword Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77	403 468 220 430 208 327 327 327 327 327 329 326 326 326	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5	9,9 9,6 9,0 10,6 11,6 10,3 12,1 12,1 12,2 12,2	Under Crane Backword Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78	468 220 430 208 327 327 327 327 326 326 335 335	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.4 14 14 14 14	11.5 11.5 11.5 13.5 14 14 14	9.9 9.6 9.0 9.0 10.6 10.3 11.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2	Under Crane Backword Under Crane Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 75 76 77 78 79	403 468 220 430 430 208 327 327 327 327 329 326 326 326 326 325 405	2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 11.5 13.5 14 14 19	11.5 11.5 13.5 14 14 19	9.9 9.6 9.0 9.0 10.6 10.3 10.4 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 17.8 12.4 12.4 12.4 12.4 12.4 12.4 12.2 12.2 12.2 12.2 12.2 12.3 12.4 14.4 14.	Under Crane Backword Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 72 73 74 75 76 77 77 78 99 80-81	403 468 220 430 208 327 327 327 327 327 329 326 326 326 326 326 326 326 326	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 14 14 19 19 19 19	11.5 11.5 11.5 13.5 14 14 19 19 19	9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.8 18.2 18.2 18.2 18.2 14.	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 75 76 77 78 79 80-81 82	403 468 220 430 430 208 327 327 327 327 327 327 326 326 326 335 606 292 272	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2	11.5 11.5 11.5 13.5 14 14 19 19 16.5 14	11.5 11.5 11.5 13.5 14 14 19 10.5 10.5	9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 17.8 18.2 15.2	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 82 83-84 82 83-84 82	403 468 220 430 430 208 327 327 327 327 327 326 326 326 325 606 292 500 257	2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 14 14 19 16.5 14.5	11.5 11.5 11.5 13.5 14 14 19 16.5 14.5	9,9 9,6 9,0 9,0 10.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.3 18.2 15.2 15.2 12.5 10.5	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87	468 220 430 208 327 327 327 327 329 326 326 326 326 326 326 325 405 606 292 292 500 356	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14 14 19 16.5 14.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5	9.9 9.6 9.0 9.0 9.0 9.0 10.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 75 76 77 78 80-81 82 83-84 85 85 86-87 88-89	468 220 430 430 208 327 327 327 327 327 327 329 326 326 326 326 326 500 356 500 356	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14 14 19 16.5 14.5 14.5	9.9 9.6 9.0 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6	Under Crane Backword Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Minmetal
10 11 12 1-South	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 90	468 220 430 430 208 327 327 327 327 327 327 326 326 326 326 325 606 292 500 356 380 191	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2 1 2 2 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5	11.5 11.5 11.5 13.5 14.1 19 19 16.5 14.5 9 7	9.9 9.6 9.0 9.0 9.0 9.0 10.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.3 15.2 15.2 10.1 6 6	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Minmetal
10 11 12 1-South	61-62 63 64-65 66-67 69 70 71 72 73 74 75 76 77 78 78 80-81 82 83-84 85 86-87 88-89 90 91-93	468 220 430 430 430 208 327 327 327 329 326 326 335 606 292 500 356 356 380 35 405 606 292 500 356 191 600 600	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 2 2 1 1 2 2 1 3	11.5 11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14 14 19 19 16.5 14.5 9 9 7	11.5 11.5 11.5 13.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 7 7 7	9,9 9,6 9,0 9,0 10.6 10.3 11.6 10.3 12.1 12.1 12.2 12.2 12.3 12.1 12.1 12.2 12.2 12.2 12.3 15.2 15.2 15.2 10.4 10.4 6 6 4.1 10.4	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 83-84 83-84 85 88-87 88-89 90 91-93 94-96 67 77	468 220 430 220 327 327 327 327 327 329 326 326 326 326 326 326 326 325 405 606 292 500 356 380 191 601 602 714 400 714 400 714 400 714 714 714 714 714 714 714 714	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.14 19 16.5 14.5 9 9 7 7 7	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 7 7 7 7	9.9 9.6 9.0 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12.2 12.2 17.8 18.2 15.2 15.2 16.3 6 6 4.1 4.1 4.1	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 83-84 85 86-87 88-89 90 91-93 94-96 97-99 9100 101	468 220 430 430 208 327 327 327 327 327 327 327 329 326 326 326 326 326 500 356 191 600 714 718 292	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14 14 19 16.5 14.5 14.5 14.5 14.5 7 7 7 7	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.14 19 19,5 14.5 14.5 14.5 7,7 7 7 7 7	9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 4.1 3.4 4.2	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 9100-101 102-103	468 220 430 430 208 327 327 327 327 327 327 327 329 326 326 326 326 326 326 325 405 606 292 500 356 191 600 714 718 389	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 14.14 19 19.5 14.5 9 9 7 7 7 7	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.5 14.5 14.5 14.5 7 7 7 7 7 7 7 7 7 7 7 7 7 7	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 3.4 4.3	Under Crane Backword Under Crane Under Crane	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement C	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Minmetal Comvex
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104	468 220 430 430 208 327 327 327 327 327 327 326 326 326 326 326 325 606 292 500 606 292 500 714 718 383 389 180	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 14.14 19 16.5 14.5 9 9 9 7 7 7 7 7	11.5 11.5 11.5 13.5 14.14 19 19 16.5 14.5 9 7 7 7 7 7 7 7 7	10.3 9.9 9.6 9.0 9.0 9.0 9.0 10.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 10.3 6.3 6 4.1 4.3 6.3 4.5 5.5	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex (Mast) Sargent Sargent Sova Plus
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 71 72 73 74 75 76 77 78 79 80-81 82 83-84 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107	468 220 430 220 327 327 327 327 327 327 329 326 326 326 326 326 326 326 326	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	9.9 9.6 9.0 9.0 9.0 9.0 10.6 10.3 11.6 10.3 12.1 12.1 12.2 12.2 12.3 12.1 12.2 17.2 12.2 17.2 15.2 12.5 10.1 6 6 4.1 4.3 4.3 6.3 4.2	Under Crane Backword Under Crane Under Crane Under Crane Inder Cra	Phosfate Silo	3 1 Cement Warehouse 		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 83-84 83-84 83-84 83-84 83-84 85 86-87 88-89 90 91-93 94-96 97-99 910-101 102-103 104 105-107	468 220 430 208 327 327 327 327 327 327 327 329 326 326 325 405 606 292 500 356 380 191 606 380 191 611 714 718 389 180 330 295	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14 14 19 195 14.5 14.5 14.5 9 7 7 7 7 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 14.5\\ 17.7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7$	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 15.2 12.5 10.1 6 6 4.1 3.4 4.3 4.5 6.2 6.6 6	Under Crane Backword Under Crane Under Crane	Phosfate Silo	3 1 - Cement Warehouse		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 89 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112	468 220 430 430 208 327 326 325 500 356 500 356 500 356 500 356 500 3580 191 600 389 180 330 320 586	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 3.4 4.3 4.5 6.6 10.4 10.4	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement C	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Soya Plus Soya Plus Soya Plus Romtrans Romtrans
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 90 91-93 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 104	468 220 430 430 208 327 328 329 326 326 326 326 326 326 3380 191 600 718 330 295 586	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\ 14.5\\ 14.5\\ 9\\ 9\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 7\\ 9\\ 9\\ 14.5\\ 14$	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	10.3 9.9 9.6 9.0 9.0 10.6 10.3 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 16.3 16.4 16.5 16.1 17.8 18.2 15.2 12.5 10.1 6 6 6 4.1 3.4 4.3 6.3 4.5 6.2 6.6 10.4	Under Crane Backword Under Crane Under Cra	Phosfate Silo	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Minmetal Comvex Minmetal Sargent Saya Plus Soya Plus Romtrans Romtrans
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 99-90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 113	468 220 430 220 327 327 327 327 327 327 329 326 326 326 326 326 326 326 326	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 13.5 14 14 19 16.5 14.5 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7	9.9 9.6 9.0 9.0 9.0 9.0 10.6 10.3 11.6 10.3 12.1 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 15.2 12.5 10.1 6 6 4.1 4.3 6.3 4.5 6.2 6.6 10.4 10.7 10.7	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 113	468 220 430 220 430 208 327 327 327 327 327 327 327 327 327 327 327 327 327 327 326 326 326 326 326 326 327 329 320 320 380 191 606 292 500 380 191 606 205 586 220	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.1 12.1 12.2 12.2 12.3 12.2 12.4 12.2 12.5 10.1 6 6 4.1 3.4 4.3 6.3 4.5 6.2 6.6 10.4 10.7	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement	3 1 - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 96-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114	468 220 430 208 327 326 325 500 356 90 500 356 91 600 714 718 389 180 330 295 586 201	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.5 14.5 14.5 14.5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 11.5 14.5	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 3.4 4.5 6.2 10.4 10.7 12.2	Under Crane Backword Under Crane Under Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement C	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Chimpex Minmetal Sicim Oil Terminal Oil Terminal Silotrans
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 90 91-93 94-96 97-99 100-101 102-103 104 105-107 113 114	468 220 430 430 220 327 327 327 327 327 327 327 327 327 326 326 326 326 326 326 335 405 606 292 500 356 380 191 600 714 718 383 389 180 330 295 586 586 220 201	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.5 9 7 7 7 7 7 7 7 7 7 7 7 7 7 7 11.5 14.5	10.3 9.9 9.6 9.0 9.0 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 4.3 4.3 6.3 4.4.5 6.2 6.6 10.4 10.7 12.2 12.2	Under Crane Backword Under Crane Under Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement	3 3 1 - - - - - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex
10 11 12 1-South Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 99-99 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 115-118	468 220 430 220 430 208 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 328 380 191 600 714 718 383 389 180 330 295 586 220 201 904	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 11.5 13.5 14 14 19 19 16.5 14.5 14.5 14.5 11.5 11.5 14.5 14.5	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12.2 12.2 12.2 15.2 15.2 15.2 15.2 15.2 15.2 15.2 15.2 16.6 6 6 6 6.3 4.5 6.2 6.6 10.4 10.7 12.2 12.6	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Vard Facilities Vard Facilities Cement Cilo I <	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Lo	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin 15	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 90-99 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118	468 220 430 220 430 208 327 320 380 191 606 292 500 380 191 605 205 586 220 201 904	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 15.2 10.1 6 6.4.1 4.1 3.4 4.5 6.2 6.6 10.4 10.7 12.2 12.6	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement	3 1 - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 96-97 90.91 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120	468 220 430 208 327 326 326 327 328 335 405 606 292 500 356 600 714 718 389 180 330 295 586 201 904 307 27	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 14 14 19 19 16.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 19 16.5 14.5 14.5 14.5 11.5 11.5 14.5 14.5 14.5	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 3.4 4.5 6.2 10.7 12.2 12.2 10.7 12.2 12.2	Under Crane Backword Under Crane Under Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cament	3 3 1 - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Sargent Soya Plus Soya Plus Silotrans Silotrans Silotrans Silotrans
10 11 12 1-South River Maritime Basin 1S	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 78 79 80-81 82 83-84 85 86-87 99-91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 121 121	468 220 430 430 208 327 328 380 191 600 201 307 220 201 904 307 221	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 14 14 14 14 14 9 9 7 7 7 7 7 7 9 14.5 14.5 14.5 14.5 14.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 19 19 16.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5	10.3 9.9 9.6 9.0 9.0 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 3.4 4.3 6.3 4.5 6.2 6.6 10.7 12.2 12.6 10.7 12.2 12.6 10.7 12.2	Under Crane Backword Under Crane Under Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cement	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Onwex Sargent Soya Plus Soya
10 11 12 1-South Maritime Basin	61-62 63 64-65 66-67 68 69 70 71 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 121 122	468 220 430 220 430 208 327 328 380 191 600 714 714 714 718 383 389 180 330 295 586 220 201 904 307 227 214	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 11.5 13.5 14.1 14 19 19 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5	10.3 9.9 9.6 9.0 9.0 10.3 11.6 10.3 12.1 12.1 12.1 12.1 12.1 12.1 12.1 12.2 12.2 17.8 18.2 15.2 15.2 15.2 15.2 16.6 6 6 6 4.1 3.4 4.3 6.3 4.5 6.2 6.6 10.4 10.7 12.2 12.6 10.7 12.2 13.9	Under Crane Backword Under Crane Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Yard Facilities Vard Facilities Cement Cilo I <	3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Lo	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Termi
10 11 12 1-South River Maritime Basin 1S	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 121 122 123	468 220 430 220 430 208 327 328 405 606 292 500 380 191 606 292 500 389 180 389 180 300 201 904 307 227 214	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 11.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 19 19 10.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5	10.3 9.9 9.6 9.0 9.0 10.6 9.0 11.6 10.3 12.1 12.1 12.2 12.2 12.1 12.1 12.2 12.2 17.8 18.2 15.2 12.5 10.1 6 6 4.1 3.4 4.3 6.3 4.5 6.6 10.4 10.7 12.2 12.6 10.7 12.7 13.9	Under Crane Backword Under Crane Under Crane Inder Cra	Phosfate Silo	3 1 - Cement Warehouse 4 4 4 4 4 4 4 4 4 4 4 4 4		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Lo	Chimpex Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal O
10 11 12 1-South River Maritime Basin 1S	61-62 63 64-65 66-67 68 69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 121 122 123 124-125 124-125	468 220 430 220 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 328 405 606 292 500 356 606 292 500 356 600 292 500 380 191 600 292 586 201 904 307 227 214 214 214	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 19 19 16.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 16.5	10.3 9.9 9.6 9.0 9.0 10.6 11.6 10.3 12.1 12.1 12.1 12.2 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.2 10.1 6 6 4.1 3.4 4.3 6.3 6.5 10.4 10.7 12.2 12.2 12.2 10.7 12.2 12.2 12.2 12.2 12.2 13.9 14.0	Under Crane Backword Under Crane Under Cra	Phosfate Silo Yard Facilities Yard Facilities Cement Cilo Cament	3 3 1 - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3)	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Comvex Comvex Sargent Soya Plus Soya Plus Soya Plus Solotrans Silotrans Silotrans Silotrans Silotrans Silotrans Silotrans Silotrans Oil Terminal Oil Termina
10 11 12 1-South River Maritime Basin 1S 2S,3S	61-62 63 64-65 66-67 68 69 70 71 73 74 75 76 77 73 74 75 76 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 105-107 108-107 108-107 110-112 113 114 115-118 119 120 121 122 123 124-125 126-130	468 220 430 430 208 327 328 329 326 326 326 326 326 335 380 191 600 714 307 221 904 307 221 904 307 214 214 214	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	11.5 11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 14 14 14 14 14 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 16.5	11.5 11.5 11.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 13.5 14.1 14 14 14 19 19 16.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 16.5	10.3 9.9 9.6 9.0 9.0 10.6 9.0 11.6 10.3 12.1 12.1 12.1 12.1 12.2 12.2 12.2 12.2 12.2 12.2 12.2 12.5 10.1 6 6 4.1 4.3 6.3 4.5 6.2 6.6 10.4 10.7 12.2 12.6 10.7 12.7 13.9 13.9 14.0 126,127= 12.6	Under Crane Backword Under Crane Under Crane Under Crane Instruction Instructi	Phosfate Silo Yard Facilities Yard Facilities Yard Facilities Cement Cilo Image: Cement Cilo <td>3 1 -</td> <td></td> <td>Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Load</td> <td>Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Onwex Soya Plus Soya Plu</td>	3 1 -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Load	Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex Comvex Onwex Soya Plus Soya Plu
10 11 12 1-South River Maritime Basin 15 28,35	61-62 63 64-65 66-67 68 69 70 71 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 123 124-125 123 124-125 123 124-125	468 220 430 220 430 208 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 327 328 335 405 606 292 500 356 292 500 388 389 180 330 295 586 220 201 904 307 227 214 212 441 1070	2 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	$\begin{array}{c} 13.5\\ 11.5\\ 11.5\\ 11.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 13.5\\ 14.5\\$	11.5 11.5 11.5 13.5 14.1 14 19 16.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 14.5 16.5 16.5 16.5	10.3 9.9 9.6 9.0 9.0 10.3 11.6 10.3 12.1 12.1 12.1 12.2 12.1 12.2 12.2 12.2 12.2 12.2 15.2 12.5 10.1 6 6 6 6 6.3 4.5 6.6 10.4 4.3 4.5 6.6 10.7 12.2 12.6 10.7 12.6 10.7 12.6 10.7 12.6 11.6 12.6 11.2 12.1	Under Crane Backword Under Crane Under Crane Under Crane Inder Cra	Phosfate Silo Yard Facilities Vard Facilities Vard Facilities Cement Cilo I <	3 3 1 - - Cement Warehouse - - - - - - - - - - - - -		Phosfate Unloader (3) Bulk Fertilizer Loader(2) Gantry Type Unloader(3) Gantry Type Unloader(3) Bulk Cement Loader(3) Bulk Cement Lo	Chimpex Chimpex Chimpex Chimpex Minmetal Minmetal Sicim Oil Terminal Oil Terminal O

					Number	Design	Dredgin	Present						Export /	Impor
	Commodity	Detailed Item	Berth	Length	of	Depth	Plan	Depth	DB	BB	BB	CO	LB	Export	Import
	Commodity	Detailed Rem		(m)	Berth	(m)	(m)	(m)	DD	DD	(Ref)	0	Цр	Export	mport
1	Cereals	Grain (Bulk,Export)	17-18	224	2	8.3	8.3	6.7	Х					х	
		Barley (Bulk, Transit)	24	137	1	8.3	8.3	8.1	х					х	
		Rice (Bag, Import)	31-33	674	3	11.5	11.5	10.1		х					х
		Sugar (Bulk, Import)	113	220	1	14.5	11.5	10.7	х						х
			114	201	1	14.5	14.5	12.2							
2	Food, Beverages, Tobacco	Banana	11-12	279	2	8.3	8.3	7.4			х				Х
		Onion	53	220	1	13.5	13.5	8.7			х				х
2-1	Edible Oil & Molasses	Urea Formaldehyde (liquid)	19	128	1	8.3	8.3	7.0					х	х	
4	Natural / Chemical Fertilizer	Phosphate (Bulk)	61-62	468	2	11.5	11.5	9.9	x						x
-		Urea (Bulk)	63	220	1	11.5	11.5	9.6	x				x	x	
		Ammonium Sulfate (Bulk)	05	220	1	11.5	11.5	9.0	v				~	x v	
		Ammonium Sulfate (Bag)							л	v				л 	
-	1 0	Ammonium Suitate (Bag)	CA 67	100	2	11.5	11.7	0.0		X				X	
5	Iron Ore	Iron Ore	64-65	430	2	11.5	11.5	9.0	х						х
	N. C. O	D. I.	66-67	430	2	13.5	13.5	9.0							
6	Non-ferrous Ore	Bauxite	80-81	606	2	19	19	18.2	х						Х
		Bentnite	82	292	1	16.5	16.5	15.2	х					X	
7	Solid Fuel (Coal Coke)	Petro Coke	83-84	500	2	14.5	14.5	12.5		х					х
8	Crude Oil	Crude Oil	69	327	1	13.5	13.5	11.6					х		х
9	Oil and Gas Product	Acrylonitorite (chemical)	70	327	1	13.5	13.5	10.3					х	Х	
		Caustic Soda (chemical)	72	327	1	13.5	13.5	12.1					х	х	
		Methanol	73	329	1	13.5	13.5	12.1					х	х	
		Perclorate (chemical)	75	326	1	14	14	12.2					x	x	
		Tricloroethylene	76	326	1	14	14	12.2					v	v	
		Diesel Oil	70	320	1	14	14	12.2					л v	A v	
		Uran Formaldahada (lin 11)	78	333	1	14	14	12.2					<u>л</u>	А	
		Diea Formaidenyde (liquid)	/9	405	1	19	19	17.8					X		
L	a	Benzene									<u> </u>		Х	Х	
11	Chalk, Cement,	Cement (Bulk)	68	208	1	13.5	13.5	10.6	Х				L	Х	
	& Construction Materials	Clinker							х					х	
		Caoline							х						х
		Cement (Bag)	1-5	600	5	11.5	11.5	10.0		х				х	
		Sodium Sulfate(Bag)	6-7	199	2	11.5	11.5	10.0		х					х
		Barium	8	130	1	11.5	9	8.1		x					x
10	Chemical Product	Soda (Bag)	13.16	190	4	83	\$3	7.4		x				x	~
10	chemieur Product	Caustic Soda (Bag)	20	105	1	0.5	0.5	7.4		v				N N	
		Nites and and	20	125	1	8.5	8.5	7.0		л 				л 	
		Nitrogenous	21	125	1	8.3	8.3	7.0		X				X	
		Calcium Carbide(Bag)	22	98	1	8.3	8.3	7.3		Х				X	
		Chemical Product (Bag)	23	141	1	8.3	8.3	7.3		Х				х	
		Caustic Soda (Bag)	35-37	624	3	11.5	11.5	10.3		x				х	
			38	206	1	11.5	11.5	10.4		Х				х	
3	Timber, Charcoal	Timber	39	200	1	13.5	13.5	10.6		Х				х	
5	Scrap	Scrap	40	205	1	13.5	13.5	10.5		х				х	
12	Ferrous / Non-ferrous Metals	Ferrous Metal	41-43	625	3	13.5	13.5	10.5		х				х	
		Nonferrous Metal	44	220	1	13.5	13.5	10.5		x				x	
		Steel Product (Pipe)	15 16	118	2	13.5	13.5	10.5		v				v	
		Steel Product (Tube)	43-40	440	2	12.5	12.5	10.5		л 				л 	
		Steel Product (Tube)	47-48	400	4	13.5	13.3	10.5		A 1				A T	
		Steel Product (C011)	49-50	464	2	13.5	13.5	8.9		X				X	
		Steel Product (Plate)	54-57	936	4	13.5	13.5	9.7		Х	<u> </u>			Х	
		Steel Product (Shape)	58	181	1	13.5	13.5	9.5		Х				Х	
		Steel Billet	59-60	463	2	13.5	13.5	10.5		Х				Х	
		Aluminum Product	108-109	295	2	9	7.2	6.6		х				х	
		Zinc Ingot	110-112	586	3	14.5	11.5	10.4		х				х	
		Ammonium Ingot	115-118	904	4	14.5	14.5	12.6		х				х	
		Lead Concentrate	1							х				х	
		Copper	1							х				х	
		Zinc Concentrate	1							x				x	
		Manganese	1							v				~	v
12	Various Manufactured Products	Tractor	1							A V				v	л
13	various ivialiuractured Products	Danas (Dall & Deels)								X				Ň	
14	Other Cargoes	raper (KOII & Pack)	1							X				X	
		Melamine	1							Х					Х
		Equipment								Х				Х	
		Tire								х					х
15	Container	Container	51	235	1	13.5	13.5	10.5				х		Х	х
			52	241	1	13.5	13.5	10.1							
			122	214	1	14.5	14.5	13.9							
			123	212	1	14.5	14.5	13.9							
16	Railway / Road Ferry		120	227	1	14.5	14.5	11.2			<u> </u>				
17	Ro-Ro		RoPo 5	00	1	12.5	12.5	68							
1/	10 10		RoRo-J	364	1	12.5	13.5	0.0							
			Roko-4	01	1	13.5	13.5	0./							
			ROKO-3	91	1	13.5	13.5	0.9	l						
			121	104	1	11.5	14.5	8./							
10	P		121	214	1	14.5	14.5	12.7							
18	Passanger	1	Passenger	296	1	13.5	13.5	12.3			1	1	1		

 Table 6.1.3(1)
 Commodity-wise Berth Usage

Table 6.1.3(2)	Usage of	Berths
	Couge or	Dertins

Basin No	Berth	Length	Number	Typical Usage	Actual Lisage	Operator
Dasin No.	Belui	(m)	Berth	Typical Osage	(September-October, 2000)	Operator
1	Passenger PoPo 5	296	1			
	RoRo-4	364	1	Ro-Ro		
	RoRo-3	91	1			
	1-5	600	5		Scrap	Dezrobirea
	6-7	199	2	General Cargo	Banana (D), Timber	Dezrobirea
2	9-10	130	2	(Technical Vessels)	Timber, Paper Koll, Melamine(D)	Phoenix
	11-12	279	2	General Cargo(Refrigerated products)	PVC	Dezrobirea
	13-16	488	4	General Cargo	Timber, Caustic Soda, Soda (Bag)	Dezrobirea
	17-18	224	2	Cereal	Grain, Barley	Agroexport
	19 20	128	1	Edible Oil & Molasses General Cargo	Urea Formaldehyde	Frial/Agroexprt Dezrobirea
	21	125	1	General Cargo(Edible Oil & Molasses)	Nitrogenous (Chemical), Timber, Rice (D), Metal prod.	Dezrobirea
3	22	98 141	1	General Cargo General Cargo(Cement Bag)	Nitrogenous (Chemical), Timber Timber, Soda (Bag), Paper Roll, Rice(D)	Phoenix Decirom
5	23	137	1	Cereal	Grain, Barley	Agroexport
3-5	30	131	1	<pre> <shipyard> <shipyard></shipyard></shipyard></pre>		SNC
0	31-33	674	3	Cereal	Barley, Sugar (D)	Agroexport
	34	197	1	(Not for Cargo)	Timbar Soran Staal Dina/Tuba/Dar Zing Ingat Aluminum	Petromar
	55-57	024	5		Paper Roll, Suger(D), Urea(Bag), Soda(Bag),	Socep
				General Cargo	Nitrogenous (Chemical), Calcium Carbide, Sunflower	
	20	20.6			Suger, Urea, Soda	**
	38	206	1	Container	Container (D/L), Timber	Umex
7	40	205	1	General Cargo(Equipment)	Equipment, Scrap, Nonferrous Ore(D), Timber, Rice(D)	Umex
	41-43	625	3	a 10	Timber, Scrap, Steel Roll, Steel Pipe/Tube/Bar, Tire(D), Petro Coke Paper Roll, Urea (Bag), Soda (Bag), Sodium Sulfate(D)	Socep
				General Cargo	Nitrogenous (Chemical), Calcium Carbide,	
	44	220	1	General Cargo(Equipment)	Urea, Soda Equipment Steel pipe/Bar Ferros/Nonferros Metal Barium(D) Rice(D)	Umex
	45-46	448	2	General Cargo(Metal products)	Almi Ingot, Timber, Ferros/Nonferros Metal, Steel Pipe,	Minmetal
	47-48	460	2	statute ange(transporter)	Soda(Bag), Timber Paper Roll Ferros/Nonferros Metal Steel Bar Cement(Bag) Scrap	Decirom
8	49-50	464	2	General Cargo (Cement, building material)	Timber, Steel pipe, Calcium Carbide, Scrap, Cement(Bag), Paper Roll, Rice(D)	Decirom
	51	235	1	Container	Container(D/L)	Socep
	52	241	1		Container(D/IL) Onion(D), Rice(D), Banana(D), Timber, Bentonite,	Frial
	54.55	026		General Cargo(Refrigerated good)		a :
	54-57	936	4		Almi Ingot, Timber, Almina(D), Almina(Bulk) Urea(Bag), Chemical Products, Calcium Carbide, Sodium sulfate, Nitrogenous	Chimpex
	58	181	1	General Cargo(Chemical Products)	Scrap	Chimpex
9	59-60	463	2		Chemical products, Ferros/Nonferros Products, Ammonium Sulfate(Bulk), Sodium Sulfate	Chimpex
	61-62	468	2	Bulk(Chemical Products)	Phosphate(D)	Chimpex
	63 64-65	220 430	2		Urea(Bulk) Bauxite(Bulk), Steel Coil, Ferros/Nonferros Products.	Minmetal
	66-67	430	2	Bulk(Ore, coal, coke, bauxite)	Bauxite(Bulk), Steel Coil, Ferros/Nonferros Products,	Minmetal
	68	208	1	Bulk(Cement)	Cement(Bulk), Clinker(Bulk), Cement(Bag)	Sicim
10		327	1		Petro/Gas products, Acrylonitorite, Caustic Soda, Methanol, Urea(Liquid),	Oil Terminal
	69	347		Crude oil & oil product		011 1 01111111
	69	327			Perclorate, Tricloethylene	
	69 70 71	327	1	(Not Operational)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol	Oil Terminal Oil Terminal
11	69 70 71 72	327 327 327	1 1 1	(Not Operational) Crude oil & oil product	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol	Oil Terminal Oil Terminal Oil Terminal
11	69 70 71 72 73 74	327 327 327 329	1 1 1 1 1	(Not Operational) Crude oil & oil product (Not Operational)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
11	69 70 71 72 73 74 75	327 327 327 329 326	1 1 1 1 1	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
11	69 70 71 72 73 74 75 76 77	327 327 329 326 326	1 1 1 1 1 1 1 1 1	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?)	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
11	69 70 71 72 73 74 75 76 77 77 78	327 327 329 326 326 326 335	1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80.81	327 327 329 326 326 326 335 405 606	1 1 1 1 1 1 1 1 1 1 1 1 1 2	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Inon Ore/Bulk(#80), Bauxite(Bulk/#81)	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Coil Terminal Coil Terminal Oil Terminal Coil Terminal Oil
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80-81 82	327 327 329 326 326 326 326 335 405 606 292	1 1 1 1 1 1 1 1 1 1 1 2 1	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk)	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Coll Terminal Comvex
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 82 83-84	327 327 329 326 326 326 326 335 405 606 292 500	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2 1 2	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Balk)(#80), Bauxite(Balk)(#81) Bauxite(Balk) Bauxite(Balk)	Oil Terminal Oil T
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87	327 327 329 326 326 326 326 326 326 00 292 500 356	1 1 1 1 1 1 1 1 1 1 2 1 2 1 2	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, coal, Coke Ore, coal, coke(Berge) (Under construction)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex Minmetal
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 88-89	327 327 329 326 326 326 326 405 606 292 500 356 380 380	1 1 1 1 1 1 1 1 1 1 1 2 1 2 1 2 2 2 2	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, coal, coke(Berge) (Under construction) Barge Preparation	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex Minmetal Mast)
11 12 1-South	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 85-86 85 86-87 88-89 90 91-93	327 327 329 326 326 326 326 405 606 292 500 356 356 380 191 90	1 1 1 1 1 1 1 1 1 1 1 2 1 2 2 1 2 2 1 3	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Feel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex (Mast)
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 94-96	327 327 329 326 326 326 326 326 326 606 606 606 600 714	1 1 1 1 1 1 1 1 1 1 1 1 1 2 1 2 1 2 2 1 3 3 3 2	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Renair)	Perclorate, Tricloethylene Diesel Oil, Ureat(Liquid), Benzene, Methanol Diesel Oil, Ureat(Liquid), Benzene, Methanol Benzene, Diesel Oil Benzene, Titei(?) Bunkerage Crude Oil Ion OreeBukk(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Garge Loading Berth Garge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Minmetal (Mast) Comvex
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101	327 327 329 326 326 326 326 326 326 326 292 500 356 292 500 356 380 191 91 90 714 714 383	1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>Barge)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Garge Loading Berth Garge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Minmetal (Mast) Comvex (Mast)
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103	327 327 329 326 326 325 606 292 500 356 500 356 191 600 356 714 718 389	1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Garge Loading Berth Garge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Minmetal Comvex (Mast) Sargent
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105,107	327 327 329 326 326 326 335 606 292 500 356 292 500 356 191 600 714 718 389 180 320	1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>Barge) Private Berth	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex Minmetal (Mast) Comvex (Mast) Sargent Soya Plus
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109	327 327 327 329 326 326 326 326 325 606 292 500 356 91 191 600 714 718 389 180 330 295	1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>Barge) Private Berth	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth Garge Loading Berth Barge Loading Berth	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Minmetal (Mast) Comvex (Mast) Sargent Soya Plus Soya Plus Romtrans
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 83-84 85 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112	327 327 327 329 326 326 326 326 325 405 606 292 500 356 380 191 600 714 718 383 180 330 295 586	$\begin{array}{c} 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ $	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, coal, coke(Berge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>Barge) Private Berth General cargo(Heavy, Metal)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth Garge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Carea Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Carea Loading Berth Barge Loading Berth Barge Loading Berth Carea Loading Berth Barge	Oil Terminal Oil T
11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113	327 327 327 329 326 326 326 326 326 500 355 600 714 718 383 380 714 718 383 389 586 220	1 1 1 1 1 1 1 1 1 1 1 1 1 1	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, coal, coke(Barge) (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>Barge) Private Berth General cargo(Heavy, Metal)	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Garge Loading Berth Garge Loading Berth Garge Loading Berth Garge Loading Berth Garge Loading Berth Garge Loading Berth Cereals (Import, Processing) Cereals (Import, Processing) Ce	Oil Terminal Oil T
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11 12 1-South River Maritime Basin 15	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 90 91-93 94-96 97-99 90-90 91-93 102-103 104 105-107 108-109 110-112 113 114 115-118	327 327 327 327 326 326 326 326 326 325 500 355 500 356 380 191 914 714 718 389 180 329 586 220 201 904	1 1 1 1 1 1 1 2 1 2 1 2 1 3 3 2 1 3 2 1 3 2 1 3 2 1 3 3 2 1 3 3 2 1 3 4	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Crude oil & oil product Ore, Coal, Coke Ore, C	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth Garge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Creaels (Import, Processing) Cereals (Import, Processing) Cereals (Import, Processing) Cereals (Import, Processing) Timber, Steel pipe, Lead Concentrate, Zinc Ingot, Paper Roll, Ferros/Nonferos Products, Serap, Barley(D), Phosphate, Aluminam Ingot Steel pipe, Equipment Barley(D), Grain, Steel Pipe	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex (Mast) Comvex (Mast) Soya Plus Soya Plus Romitrans Romitrans Silotrans Romitrans R
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11 12 1-South River Maritime Basin	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 100-101 102-103 104 105-107 108-109 110-112 113 114 115-118 119 120 121 122 123 124 125 125 125 125 125 125 125 125	327 327 327 329 326 326 326 326 326 326 326 326	1 1 1 1 1 1 1 1 2 1 2 1 2 1 2 1 2 2 1 2 2 1 2 2 1 2 3 2 1 3 1 1 1 1 1 1 2	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Crude oil & oil product Barge Preparation For LPG Terminal Ore, Coal, coke (Barge Repair) Cereal (Rail>>Barge) Private Berth General cargo (Heavy, Metal) Bulk(Cereals) General cargo (Steel product) Private Berth Ferty-Boat Ro-Ro For Container Terminal	Perclorate, Tricloethylene Diesel Oil, Ureat(Liquid), Benzene, Methanol Diesel Oil, Ureat(Liquid), Benzene, Methanol Benzene, Diesel Oil Benzene, Diesel Oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Ion OrefBulk(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth Barge Loading Berth Garge Loading Berth Barge Loading Berth Barge Loading Berth Carge Loading Berth Barge Loading	Oil Terminal Oil T
11 12 1-South River Maritime Basin 1S 25,35	69 70 71 72 73 74 75 76 77 78 79 80-81 82 83-84 85 86-87 90 91-93 94-96 91-93 94-96 91-93 94-96 91-93 94-96 91-93 100-101 102-103 104 105-107 104 115-118 119 122 123 124-125 126-130	327 327 327 329 326 326 326 326 326 326 326 326	1 1 1 1 1 1 1 1 2 1 2 1 2 1 2 1 2 1 3 3 2 1 3 3 2 1 3 3 3 3 1 3 1 1 1 1 1 1 1 1 2 5	(Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Crude oil & oil product Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail>>Barge) Private Berth General cargo(Heavy, Metal) Bulk(Cereals) General cargo (Steel product) Private Berth Ferty-Boat Ro-Ro For Container Terminal	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel oil Benzene, Diesel oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Ion Oref Bulk(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge L	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex (Mast) Comvex (Mast) Comvex (Mast) Sargent Soya Plus Comvex Co
11 12 1-South River Maritime Basin 1S 2S,3S	69 70 71 72 73 74 75 76 77 78 80-81 82 83-84 85 86-87 88-89 90 91-93 94-96 97-99 94-96 97-99 100-101 102-103 104 105-107 104 105-107 104 115-118 114 115-118 119 120 121 122 123 124-125 126-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-130 145-135 125-135 125-130 145-135 125-1	327 327 327 327 326 326 326 326 326 325 500 350 380 191 600 380 191 600 380 191 405 500 380 191 600 714 718 383 190 295 586 220 201 904 904 307 227 214 214 212 212 214 212 212 212	1 1 1 1 1 1 1 2 1 2 1 2 1 2 1 2 1 3 2 3 2 3 2 3 2 3 2 3 4 1 2 1 2 3 1 4 1 2 5	(Not Operational) (Not Operational) Crude oil & oil product (Not Operational) Crude oil & oil product (Not Operational) Bunkerage Crude oil & oil product Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke Ore, Coal, Coke (Under construction) Barge Preparation For LPG Terminal Ore, coal, coke (Barge Repair) Cereal (Rail->Barge) Private Berth General cargo(Heavy, Metal) Bulk(Cereals) General cargo (Steel product) Private Berth Ferry-Boat Ro-Ro For Container Terminal	Perclorate, Tricloethylene Diesel Oil, Urea(Liquid), Benzene, Methanol Benzene, Diesel Oil Benzene, Diesel Oil Benzene Fuel, Titei(?) Bunkerage Crude Oil Iron Ore(Bulk)(#80), Bauxite(Bulk)(#81) Bauxite(Bulk) Bauxite(Bulk) Bauxite(Bulk) Barge Loading Berth Barge Loading Berth Barge Loading Berth Garge Loading Berth Garge Loading Berth Garge Loading Berth Cereals (Import, Processing) Cereals (Import, Processing) Cereals (Import, Processing) Cereals (Import, Processing) Timber, Bentonite, Zinc Ingot, Almina, Phosfate Timber, Steel Pipe, Lead Concentrate, Zinc Ingot, Paper Roll, Ferros Nonferros Products, Steel Coil/Pipe, Copper, Scrap, Barley(D), Phosphate, Aluminum Ingot Steel Pipe Alminaf Timber, Steel Pipe/Coil, Lead/Zinc/Copper Concentrate, EA Alminaf Timber, Steel Pipe/Coil, Lead/Zinc/Copper Concentrate, EA Alminaf Steel Pipe Alminaf Materials, cement Seenent(Bulk), Grain, Steel Coil	Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Oil Terminal Comvex Comvex Comvex Comvex (Mast) Comvex (Mast) Comvex (Mast) Sargent Soya Plus Romtrans Romtrans Silotrans Silotrans Silotrans FTZ/Mast Silotrans FTZ/Mast Silotrans FTZ/Mast Mast(Berth129,130)

Source: CPA, Constantza Port Handbook 2000-2001, etc

			Present	i Calling el Size	Year 2010	Year 2020		
			Average (DWT)	Max (DWT)	Max (DWT)	Max (DWT)		
	Cereals	в	9,500	18,000	30,000	50,000	Export	1 Cercals
en	Iron Ore	8	160,000	180,000	150,000	150,000	Import	9 Iron Ore (Import)
÷	Non Ferrous Ore (Bauxite,Zine Concentrate,etc.)	в	40,000	75,000	80,000	80,000	Import	10 Nonferrous Ore
4	Solid Fuels (Coa,l Coke, etc)	В			100,000	100,000	Import	13 Solid Fuels
\$	Crude Oil	LB	22,000	170,000	150,000	150,000	Import	14 Crude Oil
5	Petroreum Prodduct	LB	13,000	90,000	100,000	100,000	Ex/Im	15 Oil & Gas Products
(14)	Chemical products (Liquid Cargo)	LB	7,500	40,000	50,000	50,000	Export	17 Chemical Products
2	Phosphate	в	11,000	20,000	30,000	30,000	Import	7 Natural & Chemical Fertilizer
œ	Chemical Fertilizer	В	5,000	20,000	30,000	30,000	Export	7 Natural & Chemical Fertilizer
6	Cement	DB	18,000	45,000	50,000	50,000	Export	18 Cemenri, Chark, construction Materials
(6)	Cement	BB	17,000	45,000	15,000	15,000	Export	18 Cemenri, Chark, construction Materials
10	Scrap	BB	6,000	45,000	15,000	15,000	Export	9 Iron Ore (Export)
Ξ	Steel producs	BB	11,000	45,000	50,000	50,000	Export	20 Ferrous / Non-ferrous Materials
12	Non Ferros Metel Products	BB	5,500	40,000	50,000	50,000	Export	20 Ferrous / Non-ferrous Materials
11	General Cargo(Tinber)	BB	3,500	12,000	15,000	15,000	Export	6 Timber, Charcoal
(2)	Non Ferrous Ore (Bauxite,Zinc Concentrate,etc.)	BB	5,000	15,000	15,000	15,000	Import	10 Nonferrous Ore
1	General Cargo (Chemical products)	88	5,000	15,000	15,000	15,000	Export	17 Chemical Products
96	Chemical Fertilizer	BB	5,000	000'6	15,000	15,000	Export	7 Natural & Chemical Fertilizer
15	General Cargo (Various Manufactured Products)	BB	5,000	15,000	15,000	15,000	Export	23 Various Manufactured Products
16	General Cargo (Other Cargoes)	BB	5,000	15,000	15,000	15,000	Export	24 Other Cargoes (2,3,5,8,11,12,16,19,21,22)
11	General Cargo (Other Cargoes)	BB	5,000	15,000	15,000	15,000	Ex/Im	4 Food Veverages Tobbaco
18	Container	00	13,000	21,000	40,000	60,000	Ex/lm	4 Food Veverages Tobbaco 23 Various Manufactured Products
				(1,2001EU)	(DUNNIER)	(031000/e)		24[Other Cargoes (2,3,5,8,11,12,16,19,21,22)

											Ratio c	fIWT
	Cargo Classification	Thro	ughput by In	land Waterw	ay Transpo	rt	Ratio to	o Total Mar	ritime Thro	ughput	Cargo '	Volume
				(Ton)							to	to
											Total	Domestic
		1996	1997	1998	1999	Total	1996	1997	1998	1999	IWT	IWT
1	Cereals	841,125	359,212	1,215,578	665,342	3,081,257	50%	%05	92%	38%	50%	30%
7	Fruits and Vegetables	0	0	0	0	0						
ю	Livestock,Sugar cane	0	0	0	0	0						
4	Foods, Beverages, Tobacco, Fodder	87,984	9,031	35,866	70,119	203,000	11%	2%	5%	11%		
S	Seeds, Edible oils, Fats	0	7,645	27,393	116,517	151,555	0%	3%	23%	40%		
9	Timber, fire wood	1,320	2,201	1,750	8,918	14,189	0%	0%	0%	1%		
7	Natural and chemical fertilizers	21,488	147,756	149,802	86,074	405,120	1%	6%	18%	8%		
∞	Mineral rough products(quarry)	5,420	45,723	40,619	45,235	136,997						
6	Iron ore, Scrap	4,980,868	4,848,147	5,175,700	3,831,502	18,836,217	98%	94%	91%	79%	%06	75%
10	Non metal ore	841,926	683,942	547,117	706,249	2,779,234	73%	61%	56%	59%	60%	25%
11	Textile, Fablics, Hides, Furs	0	3,000	0	0	3,000						
12	Paste, recycled paper	4,742	492	0	0	5,234						
13	Solid fuel, (coal, coke, etc)	1,991,900	2,800,671	2,415,224	1,688,433	8,896,228	%09	%69	%68	92%	%0 <i>L</i>	60%
14	Crude Oil	0	14,569	0	54,546	69,115	0%	%0	0%	2%		
15	Gas and Oil Products	0	58,336	43,869	133,250	235,455	0%	1%	1%	%9		
16	Coal and Natural Gas Tars	0	11,063	31,362	4,813	47,238						
17	Chemical Products	49,760	11,759	15,516	550	77,585	6%	1%	2%	%0		
18	Chalk, cement, construction materials	260,000	433,272	549,950	742,748	1,985,970	14%	21%	32%	41%	30%	30%
19	Glass, ceramic products	802	0	6,000	0	6,802	3%	%0	29%	%0		
20	Iron / Non Iron Metals	230,718	571,033	588,336	803,454	2,193,541	19%	28%	35%	55%	30%	30%
21	Metal Fabricated Products	24,608	163,943	136,351	222,179	547,081	15%	137%	91%	168%		
22	Cars, transport materials	702	1,818	4,763	40	7,323	1%	2%	7%	0%		
23	Various Products, fabric	10,006	1,164	1,751	8	12,929	1%	%0	0%	%0		
24	Other Products	25,936	2,005	2,119	71,967	102,027	22%	2%	1%	34%		
25	Totals	9,379,305	10,176,782	10,989,066	9,251,944	39,797,097	27%	32%	38%	40%		

Transport
Maritime
Proportion to
Volume and J
Transportation
Waterway
Inland
Table 6.1.5

6.2 Optimum Cargo Handling System by Commodities and Requirement for Port Development

6.2.1 Introduction

This section deals with the required cargo handling capacity for each commodity.

Through cargo demand forecast described in previous chapter, Table 6.2.1(a) to Table 6.2.1(d) summarize the demand forecast by commodity and by type of cargoes. Type of cargoes is divided into four types, namely, Dry Bulk, Break Bulk, Liquid Bulk and Container. Each type of cargoes include following commodities.

Dry Bulk;	Cereals
	Ore/Coal/Cokes
	Phosphate/Fertilizer
	Cement (Bulk)
Break Bulk	Bag (Non-ferrous ore, Chemical products, Chemical fertilizer,
	Cement)
	Scrap
	Metal products
	Timber
	Foods, Beverages, Tobaccos
	Other general cargo
Liquid Bulk	Crude oil
	Petroleum products
	Chemical products (Liquid)
Container	

From these tables we can say that;

- 1) Constantza Port has a function as an industrial port which imports raw materials such as crude oil, iron ore, cokes and coal, and this is not expected to change rapidly.
- 2) Container cargo volume will steadily increase, reaching 790,000 TEUs in 2020 in demand forecast Case 1, and 580,000 TEUs in demand forecast Case 2.
- 3) Major differences between demand forecasts Case-1 and Case-2 come from Container, Cereal, Crude Oil and Petroleum Products and Ores.

Table	6.2.1(a)	Summary	of	Demand	Forecast	(2020	Case-1)
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Туре	Commodity		2020 case-1							
					Loading			Unloading		Total
				Export	Transit	Total	Import	Transit	Total	
						(Million	tons or 100	0 TEUs)		
	(Dry Bulk)									
1	Cereals	В		2.640	3.840	6.480	0.100	0.100	0.200	6.680
2	Iron Ore	В					9.300		9.300	9.300
3	Non-ferros ore (Bulk)	В					0.808	0.128	0.936	0.936
4	Solid Fuels (Coal, Coke etc)	В					2.550		2.550	2.550
2-4	Ore/Coal (Sub Total)	В					12.658		12.786	12.786
5	Phosphate	В					0.496		0.496	0.496
6	Chemical Fertilizer (Bulk)	В		0.133		0.133	0.744		0.744	0.877
5-6	Phosphate/Fertilizer(Sub Total)	В		0.133		0.133	1.240		1.240	1.373
7	Cement (Bulk)	В		0.448		0.448				0.448
1-7	Dry Bulk Total	В		3.221	3.840	7.061	13.998	0.100	14.226	21.287
	(Break Bulk)									
8	Non-ferros ore (Bag)	BB					0.188	0.032	0.220	0.220
9	Chemical Products (Bag)	BB		0.180		0.180				0.180
10	Chemical Fertilizer (Bag)	BB		0.057		0.057				0.057
11	Cement (Bag)	BB		0.192		0.192				0.192
8-11	Bag (Sub Total)	BB		0.429		0.429	0.188	0.032	0.220	0.649
12	Scrap	BB		0.340		0.340				0.340
13	Steel Products	BB		1.800		1.800				1.800
14	Non Ferros Metal Products	BB		0.200		0.200				0.200
13-14	Metal Products (Sub Total)	BB		2.000		2.000				2.000
15	Timber	BB		0.680		0.680				0.680
16	General Cargo (Foods, Beverages, Tobaccos)	BB		0.050		0.050	0.167		0.167	0.217
17	General Cargo (other)	BB		0.349		0.349	0.159		0.159	0.508
8-17	Break Bulk Total	BB		3.848		3.848	0.514	0.032	0.546	4.394
	(Liquid Bulk)									
18	Crude Oil	LB					16.400	0.460	16.860	16.860
19	Petroleum Products	LB		1.570		1.570	2.470		2.470	4.040
20	Chemical Products (Liquid)	LB		0.180		0.180				0,180
18-20	Liquid Bulk Total	LB		1.750		1.750	18.870	0.460	19.330	21.080
	•									
1-20	Bulk Total (Million tons)			8.819	3.840	12.659	33.382	0.592	34,102	46.761
	(Container)									
21	General Cargo (Food products, Beverage, Tobaco	CO		0.360	0.090	0.450	1.273	0.230	1.503	1.953
22	General Cargo (other)	CO		2.628	0.513	3.141	1.211	0.220	1.431	4.572
21-22	Container Total (Million tons)	CO		2.988	0.603	3.591	2.484	0.450	2.934	6.525
	Laden Container (1000 TEUs)	CO		299	60	359	248	45	293	653
	Empty Container (1000 TEUs)	CO		30	6	36	81	21	102	138
	Container Total (1000 TEUs)	CO		329	66	395	329	66	395	790
1-22	Grand Total (Million tons)			11.807	4,443	16.250	35,866	1.042	37.036	53,286
		1								

Table 6.2.1(b) Summary of Demand Forecast (2020 Case-2)

Image: constraint of the second sec	Туре	Commodity		2020 case-	2020 case-2						
Export Transit Total Import Transit Total (Dry Bulk) Import Import Transit Total Import Transit Total 1 Cereals B Import Transit Total Total Total 2 Import Transit Total <					Loading			Unloading		Total	
(Dry Bulk) (Million tons or 1000 TEUs) 1 Cereais 8 1.500 0.500 2.000 0.380 0.130 0.510 2.510 2 Iron Ore B 0.672 0.104 0.7850 7.850 7.850 7.850 3 Non-ferros ore (Bulk) B 0.672 0.104 0.778 0.776 4 Solid Fuels (Coal Coke etc) B 0.210 0.2100 2.100 2.100 2-4 Ore/Coal (Sub Total) B 0.210 0.2210 0.486 0.898 56 Phosphate/Factilizer(Sub Total) B 0.210 0.210 0.810 1.020 7 Cenent (Buk) B 0.268 0.500 2.868 0.858 1-7 Dry Buik Total B 2.366 0.500 2.868 11.812 0.130 12.046 14.914 (Break Bulk) B 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.				Export	Transit	Total	Import	Transit	Total		
(Dry Bulk) Image: constraint of the second sec						(Million	tons or 100	0 TEUs)			
I Cereais B 1.500 0.500 2.000 0.330 0.130 0.510 2.550 3 Non-ferros are (Bulk) B 0.672 0.104 0.772 0.104 0.778 0.778 4 Solid Fuels (Coal, Coke etc.) B 0.672 0.104 0.776 0.776 2+4 Orc/Coal (Sub Total) B 0.210 0.246 0.324 0.324 0.324 0.324 0.324 0.324 0.324 0.324 0.324 0.324 0.326 0.376 5 Prosphate/Fertilizer (Bulk) B 0.210 0.210 0.486 0.466		(Dry Bulk)									
2 Iron Ore B 7.850 <t< td=""><td>1</td><td>Cereals</td><td>В</td><td>1.500</td><td>0.500</td><td>2.000</td><td>0.380</td><td>0.130</td><td>0.510</td><td>2.510</td></t<>	1	Cereals	В	1.500	0.500	2.000	0.380	0.130	0.510	2.510	
3 Non-ferros ore (Bulk) B 0.672 0.074 0.776 0.726 0.324 0.326 0.176 0.176	2	Iron Ore	В				7.850		7.850	7.850	
4 Solid Fuels (Coal, Coke etc) B 2.100 2.100 2.100 2.100 2.100 2.100 2.100 2.100 2.100 2.100 0.221 10.222 10.228 10.228 10.228 10.228 10.228 10.228 10.228 10.228 10.228 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.224 10.251 10.265 10.265 10.265 10.265 10.265 10.265 10.265 10.265 10.266 11.812 0.130 12.046 14.914 (Break Bulk) B 0.260 2.866 11.812 0.130 12.046 14.914 (Break Bulk) B 0.260 0.260 0.260 0.260 0.260 0.260 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.262 10.263 10.261 10.261 10.2	3	Non-ferros ore (Bulk)	В				0.672	0.104	0.776	0.776	
2-4 Ore/Coal (Sub Tota) B 10.622 10.726 10.726 5 Phosphate B 0.324 0.48 0.168 0.168 0.168 0.168 0.260 0.168 0.260 0.260 0.260 0.260 0.260 0.260 0.262 0.262 0.262 0.262 0.262 0.262 0.262 0.262 0.262 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 <	4	Solid Fuels (Coal, Coke etc)	B				2.100		2.100	2.100	
5 Phosphate B 0.210 0.210 0.210 0.486 0.4	2-4	O re/Coal (Sub Total)	В				10.622		10.726	10.726	
6 Chemical Fertilizer (Buk) B 0.210 0.486 0.458 0.458 0.458 0.458 0.458 0.458 0.456 0.458 0.456 0.456 0.456 0.456 0.456 0.458 0.456 0.458 0.450 0.458 0.450 0.458 0.450 0.456 0.450 0.456 0.456 0.456 0.456 0.466 0.260 0.260 0.260 0.260 0.260 0.262 0.184 0.262 0.184 0.262 0.184 0.262 0.184 0.262 0.282 0.282 0.282	5	Phosphate	В				0.324		0.324	0.324	
5-6 Phosphatz/Fertilizer(Sub Total) B 0.210 0.210 0.810 0.610 1.020 7 Cement (Buk) B 0.558 0.658 0.658 0.658 1-7 Dry Bulk Total B 2.368 0.500 2.868 11.812 0.130 12.046 14.914 (Break Bulk) B - - 0.68 0.020 12.046 14.914 (Break Bulk) B - - 0.168 0.026 0.194 0.194 8 Non-ferros ore (Bag) BB 0.280 0.280 0.280 0.280 0.280 0.280 0.280 0.280 0.280 11 Cement (Bag) BB 0.282 0.282 0.282 0.280	6	Chemical Fertilizer (Bulk)	В	0.210		0.210	0.486		0.486	0.696	
7 Cement (Buk) B 0.658 0.658 0.658 0.658 1-7 Dry Bulk Total B 2.368 0.500 2.868 11.812 0.130 12.046 14.914 (Break Bulk) B 0.168 0.026 0.168 0.026 0.194 0.194 9 Chemical Products (Bag) BB 0.260 0.260 0.0090 0.090 10 Chemical Ferdizer (Bag) BB 0.022 0.282 0.282 0.282 8-11 Bag (Sub Total) BB 0.632 0.632 0.168 0.026 0.194 0.340 11 Cement (Bag) BB 0.240 0.340 0.340 0.340 0.340 12 Steel Products BB 0.440 0.340 0.2200 0.2200 0.2200 13 Steel Products (Sub Total) BB 2.000 0.200 0.200 0.200 0.200 15 Timber BB 0.256 0.037 0.037 0.122 0.122 0.159 17 General Cargo (Foods, Beverages, Tobaccos) BB 0.250 0.256 0.117 0.117 0.117 0.370	5-6	Phosphate/Fertilizer(Sub Total)	В	0.210		0.210	0.810		0.810	1.020	
1-7 Dry Bulk Total B 2.368 0.500 2.868 11.812 0.130 12.046 14.914 (Break Bulk) B -	7	Cement (Bulk)	В	0.658		0.658				0.658	
(Break Bulk) BB Output Output Output 8 Non-ferros ore (Bag) BB 0.168 0.026 0.194 0.194 9 Chemical Products (Bag) BB 0.260 0.260 0.260 10 Chemical Products (Bag) BB 0.090 0.090 0.090 11 Cement (Bag) BB 0.282 0.282 0.282 8-11 Bag (Sub Total) BB 0.632 0.632 0.632 0.168 0.026 0.194 0.326 12 Scrap BB 0.340 0.340 0.400 0.400 0.400 0.400 13 Steel Products BB 0.200 0.200 0.200 0.200 13 Imber BB 0.200 0.200 0.200 0.400 16 General Cargo (Foods. Beverages, Tobaccos) BB 0.266 0.117 0.117 0.373 17 General Cargo (Foods. Beverages, Tobaccos) BB 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260 0.260	1-7	Dry Bulk Total	В	2.368	0.500	2.868	11.812	0.130	12.046	14.914	
(Break Bulk) B Out Out <thout< th=""> Out <thout< th=""> <thout< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thout<></thout<></thout<>											
8 Non-ferros ore (Bag) BB 0.260 0.168 0.026 0.194 0.260 10 Chemical Fertilizer (Bag) BB 0.020 0.090 0.090 0.090 0.090 11 Cement (Bag) BB 0.282 0.282 0.282 0.282 0.282 8-11 Bag (Sub Total) BB 0.632 0.632 0.632 0.184 0.286 12 Sorap BB 0.340 0.340 0.340 0.340 0.340 13 Steel Products BB 0.200 0.200 0.200 0.200 14 Non Ferros Metal Products BB 0.200 2.000 0.020 0.200 15 Imber BB 0.026 0.680 0.680 0.680 0.680 16 General Cargo (Foods. Beverages, Tobaccos) BB 0.256 0.217 0.117 0.117 0.373 17 General Cargo (Foods. Beverages, Tobaccos) BB 0.260 0.260 0.433 4.378 17 General Cargo (Foods. Beverages, Tobaccos) BB 0.260 0.260 0.403 0.433 4.378 17 General Cargo (Foods. Beverages, Tobaccos) <t< td=""><td></td><td>(Break Bulk)</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		(Break Bulk)									
9 Chemical Products (Bag) BB 0.260 0.260 0.260 10 (Chemical Products (Bag) BB 0.090 0.090 0.090 11 Cement (Bag) BB 0.322 0.282 0.282 8-11 [Bag (Sub Total) BB 0.632 0.632 0.168 0.026 0.194 0.282 8-11 [Bag (Sub Total) BB 0.632 0.632 0.168 0.026 0.194 0.826 12 Sorap BB 0.340 1.800 1.800 1.800 0.340 13 14 Metal Products BB 0.200 2.000 2.000 2.000 13 14 Metal Products (Sub Total) BB 0.266 0.680 0.680 0.680 16 General Cargo (Foods, Beverages, Tobaccos) BB 0.037 0.037 0.122 0.122 0.122 17 General Cargo (other) BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) LB 2.020 2.020 1.680 1.1100 11.100 11.90 11.90 11.90 11.90 1.92 0.260 0.260 0.	8	Non-ferros ore (Bag)	BB				0.168	0.026	0.194	0.194	
10 Chemical Fertilizer (Bag) BB 0.090 0.090 0.090 11 Cement (Bag) BB 0.282 0.282 0.282 8-11 Bag (Sub Total) BB 0.632 0.632 0.168 0.026 0.194 0.326 12 Sorap BB 0.340 0.340 0.340 0.340 0.340 13 Steel Products BB 1.800 1.800 1.800 0.200 14 Non Feros Metal Products BB 0.200 0.200 0.200 15 Timber BB 0.680 0.680 0.680 0.680 16 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.313 8-17 Break Bulk <total< td=""> BB 0.260 0.260 0.433 4.378 (Liquid Bulk) IB 0.200 2.020 1.680 1.100 11.100 19 Petroleum Products LB 0.200 0.260 0.2260 0.2260 0.2260 18 Crude Oil LB 0.260 0.260 0.260 0.260 0.260 18 Crude Oil LB 0.260 0</total<>	9	Chemical Products (Bag)	BB	0.260		0.260				0.260	
11 Cement (Bag) BB 0.282 0.282 0.632 0.688 0.026 0.194 0.826 12 Sorap BB 0.340 0.340 0.340 0.340 0.340 13 Steel Products BB 0.200 0.200 0.200 0.200 13*14 Metal Products (Sub Total) BB 0.037 0.037 0.022 0.020 0.200 15 Timber BB 0.037 0.037 0.023 0.117 0.0117 0.373 16 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Buik Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) LB 2.020 1.0640 0.460 11.100 11.100 11.100 11.100 11.600 1.680 3.700 20 Chemical Products LB 2.020 1.880 3.700 0.280 1.680 3.700 19 Petroleum Products LB 2.020 1.0640 0.460	10	Chemical Fertilizer (Bag)	BB	0.090		0.090				0.090	
8-11 Bag (Sub Total) BB 0.632 0.683 0.168 0.026 0.194 0.826 12 Sorap BB 0.340 0.340 0.340 0.340 0.340 13 Steel Products BB 1.800 1.800 0.200 0.200 0.200 14 Non Ferros Metal Products BB 0.200 0.200 0.200 0.200 0.200 13+14 Metal Products (Sub Total) BB 0.200 0.200 0.122 0.122 0.122 16 General Cargo (other) BB 0.037 0.037 0.037 0.122 0.122 0.117 17 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 0.260 0.260 0.400 11.100 11.100 18 Crude Oil LB 2.020 2.020 1.680 1.680 3.700 20 Chemical Products (Liquid) LB 2.280 2.280 12.320 0.460 12.780 15.060 18 Crude Oil LB 2.280 2.280 12.320 0.616 25.259 <td< td=""><td>11</td><td>Cement (Bag)</td><td>BB</td><td> 0.282</td><td></td><td>0.282</td><td></td><td></td><td></td><td>0.282</td></td<>	11	Cement (Bag)	BB	 0.282		0.282				0.282	
12 Scrap BB 0.340 0.340 0.340 0.340 13 Steel Products BB 1.800 1.800 1.800 1.800 14 Non Ferros Metal Products BB 0.200 0.200 0.200 0.200 13 +14 Metal Products Cub Total BB 0.200 0.200 0.200 0.200 15 Timber BB 0.680 0.680 0.680 0.680 0.680 16 General Cargo (Foods, Beverages, Tobaccos) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 3.245 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) Image: Crude Oil I	8-11	Bag (Sub Total)	BB	 0.632		0.632	0.168	0.026	0.194	0.826	
13 Steel Products BB 1.800 1.800	12	Scrap	BB	0.340		0.340				0.340	
14 Non Ferros Metal Products BB 0.200 0.200 0.200 13+14 Metal Products (Sub Total) BB 2.000 2.000 2.000 15 Timber BB 0.680 0.680 0.680 0.680 16 General Cargo (Foods, Beverages, Tobaccos) BB 0.037 0.022 0.122 0.122 0.122 0.122 0.135 17 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) LB L 10.640 0.400 11.100 11.100 11.100 18 Crude Oil LB 2.020 2.020 1.680 11.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 0.260 18 Crude Oil LB 2.280 2.280 12.320 0.460 12.780 15.060 18 Crude Oil LB 0.260 0.260 0.260 0.261 0.233 0.844 0.234 1.098	13	Steel Products	BB	 1.800		1.800				1.800	
13+14 Metal Products (Sub Total) BB 2.000 2.000 2.000 2.000 2.000 15 Timber BB 0.680 0.680 0.680 0.680 16 General Cargo (Foods, Beverages, Tobaccos) BB 0.0256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 2.020 3.945 0.407 0.026 0.433 4.378 18 Crude Oil LB 2.020 2.020 1.0.640 0.460 11.100 11.100 19 Petroleum Products (Liquid) LB 2.020 0.200 0.200 0.200 0.200 0.200 0.200 0.2	14	Non Ferros Metal Products	BB	 0.200		0.200				0.200	
15 Timber BB 0.680 0.680 0.680 0.680 0.680 16 General Cargo (Foods, Beverages, Tobaccos) BB 0.037 0.037 0.122 0.122 0.132 17 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) Image: Crude Oil LB 2.020 2.020 1.680 11.100 11.100 19 Petroleum Products LB 2.020 2.020 1.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.280 Image: Container 0.260 18 Octaol Container/ Image: Container Conducts, Beverage, Tobacc CO 0.261 0.72 0.333 0.864 0.234 1.098 1.431 22 General Cargo (food products, Beverage, Tobacc CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 <td>13+14</td> <td>Metal Products (Sub Total)</td> <td>BB</td> <td>2.000</td> <td></td> <td>2.000</td> <td></td> <td></td> <td></td> <td>2.000</td>	13+14	Metal Products (Sub Total)	BB	2.000		2.000				2.000	
16 General Cargo (Foods, Beverages, Tobaccos) BB 0.037 0.037 0.122 0.122 0.159 17 General Cargo (other) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) Image: Conde Oil Image:	15	Timber	BB	0.680		0.680				0.680	
17 (General Cargo (other)) BB 0.256 0.256 0.117 0.117 0.373 8-17 Break Bulk Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) Image: Conde Oil LB Image: Conde Oil I	16	General Cargo (Foods, Beverages, Tobaccos)	BB	0.037		0.037	0.122		0.122	0.159	
8-17/Break Bulk Total BB 3.945 3.945 0.407 0.026 0.433 4.378 (Liquid Bulk) (Liquid Bulk) 10.640 0.400 11.100 11.100 18 Crude Oil LB 2.020 1.680 0.460 11.100 11.100 19 Petroleum Products LB 2.020 2.020 1.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Container) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) CO 1.612 0.692 2.304 0.8	1/	General Cargo (other)	RR	0.256		0.256	0.117		0.117	0.3/3	
(Liquid Bulk) LB 10 10 10 11.100 18 Crude Oil LB 2.020 1.680 11.100 11.100 19 Petroleum Products LB 2.020 2.020 1.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 9.093 24.539 0.616 25.259 34.352 10 Container) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 21 General Cargo (Food products, Beverage, Tobacd CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788	8-17	Break Bulk Total	BB	3.945		3.945	0.407	0.026	0.433	4.3/8	
18 Crude Oil LB 10.640 0.460 11.100 11.100 19 Petroleum Products LB 2.020 1.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total (Million tons) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 10 Container) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 21 General Cargo (Food products, Beverage, Tobacd CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.873 0.764 2.637 1.683 3.357											
18 Crude Oil LB 10.440 0.460 11.100 11.100 19 Petroleum Products LB 2.020 1.680 1.680 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 18-20 General Cargo (Food products, Beverage, Tobacc 0.500 9.093 24.539 0.616 25.259 34.352 21 General Cargo (Food products, Beverage, Tobacc CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187	10						10.040	0.400	11 100	11 100	
19 Petroleum Products LB 2.020 1.080 1.080 3.700 20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 2.280 12.320 0.460 12.780 15.060 Bulk Total (Million tons) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) 0 0 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187 76 264 168 37 75 101 Container Total (Million tons) CO 206 84 290 206	18		LB	0.000		0.000	10.640	0.460	11.100	11.100	
20 Chemical Products (Liquid) LB 0.260 0.260 0.260 0.260 18-20 Liquid Bulk Total LB 2.280 12.320 0.460 12.780 15.060 Bulk Total (Million tons) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) 8 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (Food products, Beverage, Tobacd CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187 76 264 168 47 215 479 Empty Container (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206	19	Petroleum Products		2.020		2.020	1.680		1.080	3.700	
18-20 Liquid Buik Total LB 2.280 12.320 0.460 12.780 15.000 Bulk Total (Million tons) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) 6 7	20	Chemical Products (Liquid)		0.260		0.260	10.000	0.460	10 700	15.000	
Bulk Total (Million tons) 8.593 0.500 9.093 24.539 0.616 25.259 34.352 (Container) (Container) <td< td=""><td>18-20</td><td>Liquid Buik Total</td><td>LB</td><td>2.280</td><td></td><td>2.280</td><td>12.320</td><td>0.400</td><td>12.780</td><td>15.000</td></td<>	18-20	Liquid Buik Total	LB	2.280		2.280	12.320	0.400	12.780	15.000	
Built Fortal (Million tons) 8.393 0.300 9.093 24.339 0.616 23.239 34.322 (Container) (CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 1.877 76 264 168 47 215 479 Empty Container Total (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140				0 500	0 500	0.000	04 500	0.010	05.050	24.250	
(Container) 0 0.072 0.333 0.864 0.234 1.098 1.431 21 General Cargo (Food products, Beverage, Toback CO 0.261 0.072 0.333 0.864 0.234 1.098 1.431 22 General Cargo (other) CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187 76 264 168 47 215 479 Empty Container Total (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140		Duik Tolai (Million Lons)		0.093	0.500	9.093	24.009	0.010	20.209	34.302	
Container/ Container/ <td></td> <td>(Container)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		(Container)									
21 General Cargo (view products, Beverage, robacto) 0.201 0.072 0.303 0.007 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.612 0.692 2.304 0.819 0.234 1.053 3.357 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187 76 264 168 47 215 479 Empty Container (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140	21	General Cargo (Food products, Beverage, Tobacc	00	0.261	0.072	0 3 3 3	0.864	0.234	1 009	1 4 2 1	
21-22 Container Total (Million tons) CO 1.872 0.302 2.007 0.019 0.234 1.003 3.307 21-22 Container Total (Million tons) CO 1.873 0.764 2.637 1.683 0.468 2.151 4.788 Laden Container (1000 TEUs) CO 187 76 264 168 47 215 479 Empty Container (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140	21	General Cargo (roou products, Deverage, Tobacc	00	1 612	0.072	2 304	0.004	0.234	1.030	3 357	
Laden Container (1000 TEUs) CO 187 76 264 168 47 215 479 Empty Container (1000 TEUs) CO 187 76 264 168 47 215 479 Container Total (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140	21_22	Container Total (Million tona)	<u>co</u>	1.012	0.032	2.004	1 692	0.2.04	2 151	4 799	
Empty Container (1000 TEUs) CO 19 8 26 38 37 75 101 Container Total (1000 TEUs) CO 206 84 290 206 84 290 580 Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140	21 22	Laden Container (1000 TELls)	00	1.073	76	2.037	169	<u>0.400</u> <u>/</u> 7	2.131	4.700	
Container Total (1000 TEUs) CO 16 CO 20 38 37 73 101 Grand Total (Million tons) CO 206 10.466 1.264 11.730 26.222 1.084 27.410 39.140		Empty Container (1000 TEUs)	00	10/	/0 0	204	30	37	213	101	
Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140		Container Total (1000 TEUs)	CO	206	84	20	206	84	200	580	
Grand Total (Million tons) 10.466 1.264 11.730 26.222 1.084 27.410 39.140			50	200		200	200	04	200		
		Grand Total (Million tons)		10.466	1 264	11 720	26 222	1 084	27 410	30 140	
				10.400	1.204	11.730	20.222	1.004	27.410	00.140	

Туре	Commodity			2010 case	e-1					
					Loading			Unloading	5	Total
				Export	Transit	Total	Import	Transit	Total	
						(Million t	ons or 10	00 TEUs)		
	(Dry Bulk)									
1	Cereals	В		1.800	2.610	4.410	0.100	0.100	0.200	4.610
2	Iron Ore	В					7.730		7.730	7.730
3	Non-ferros ore (Bulk)	В					1.344	0.216	1.560	1.560
4	Solid Fuels (Coal, Coke etc)	В					2.110		2.110	2.110
2-4	Ore/Coal (Sub Total)	В					11.184	0.216	11.400	11.400
5	Phosphate	В					0.144		0.144	0.144
6	Chemical Fertilizer (Bulk)	В		0.483		0.483	0.216		0.216	0.699
5-6	Phosphate/Fertilizer(Sub Total)	В		0.483		0.483	0.360		0.360	0.843
7	Cement (Bulk)	В		0.750		0.750				0.750
1-7	Dry Bulk Total	В		3.033	2.610	5.643	11.644	0.316	11.960	17.603
	(Break Bulk)									
8	Non-ferros ore (Bag)	BB					0.336	0.054	0.390	0.390
g	Chemical Products (Bag)	BB		0.340		0.340				0.340
10	Chemical Fertilizer (Bag)	BB		0.207		0.207				0.207
11	Cement (Bag)	BB		0.320		0.320				0.320
8-11	Bag (Sub Total)	BB		0.867		0.867	0.336	0.054	0.390	1.257
12	Scrap	BB		0.960		0.960				0.960
13	Steel Products	BB		1.800		1.800				1.800
14	Non Ferros Metal Products	BB		0.200		0.200				0.200
13+14	Metal Products (Sub Total)	BB		2.000		2.000				2.000
15	Timber	BB		1.130		1,130				1,130
16	General Cargo (Foods, Beverages, Tobaccos)	BB		0.054		0.054	0.182		0.182	0.236
17	General Cargo (other)	BB		0.382		0.382	0.176		0.176	0.558
8-17	Break Bulk Total	BB		5.393		5.393	0.694	0.054	0.748	6.141
	(Liquid Bulk)									
18	Crude Oil	LB					11.920	0.390	12.310	12.310
19	Petroleum Products	LB		2.390		2.390	1.440		1.440	3.830
20	Chemical Products (Liquid)	LB		0.340		0.340				0.340
18-20	Liquid Bulk Total	LB		2,730		2.730	13.360	0.390	13,750	16,480
	Bulk Total (Million tons)			11,156	2.610	13,766	25,698	0.760	26,458	40.224
							20.000		20	
	(Container)		1							
21	General Cargo (Food products, Beverage, Tobac	dCO	1	0.194	0.022	0.216	0.655	0.073	0.728	0.944
22	General Cargo (other)	CO		1.375	0.153	1.528	0.634	0.070	0.704	2.232
21-22	Container Total (Million tons)	CO		1 570	0174	1 744	1 289	0 143	1 432	3 1 76
	Laden Container (1000 TEUs)	CO		157	17	174	129	14	143	318
<u> </u>	Empty Container (1000 TELIs)	00	1	16	2	17	44	5	40	88
<u> </u>	Container Total (1000 TELle)	C O		173	10	102	172	10	102	384
├ ──						102			102	0.04
	Grand Total (Million tons)			12 726	2 784	15 510	26 987	0 903	27 800	43 400
				12.720	2.704	10.010	20.307	0.303	27.030	10.100
L		1								

Table 6.2.1(c) Summary of Demand Forecast (2010 Case-1)

Туре	Commodity		2010 case	-2					-
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Loading			Unloadin	g	Total
			Export	Transit	Total	Import	Transit	Total	
					(Million t	ons or 100)0 TEUs)		
	(Dry Bulk)								
1	Cereals	В	1.500	0.500	2.000	0.380	0.130	0.510	2.510
2	Iron Ore	В				7.730		7.730	7.730
3	Non-ferros ore (Bulk)	В				1.112	0.176	1.288	1.288
4	Solid Fuels (Coal, Coke etc)	В				2.100		2.100	2.100
2-4	O re/Coal (Sub Total)	В				10.942	0.176	11.118	11.118
5	Phosphate	В				0.208		0.208	0.208
6	Chemical Fertilizer (Bulk)	В	0.336		0.336	0.312		0.312	0.648
5-6	Phosphate/Fertilizer(Sub Total)	В	0.336		0.336	0.520		0.520	0.856
7	Cement (Bulk)	В	0.950		0.950				0.950
1-7	Dry Bulk Total	В	2.786	0.500	3.286	11.842	0.306	12.148	15.434
	(Break Bulk)								
8	Non-ferros ore (Bag)	BB				0.278	0.044	0.322	0.322
9	Chemical Products (Bag)	BB	0.350		0.350				0.350
10	Chemical Fertilizer (Bag)	BB	0.144		0.144				0.144
11	Cement (Bag)	BB	0.410		0.410				0.410
8-11	Bag (Sub Total)	BB	0.904		0.904	0.278	0.044	0.322	1.226
12	Scrap	BB	0.960		0.960				0.960
13	Steel Products	BB	1.800		1.800				1.800
14	Non Ferros Metal Products	BB	0.200		0.200				0.200
1 3+14	Metal Products (Sub Total)	BB	2.000		2.000				2.000
15	Timber	BB	1.130		1.130				1.130
16	General Cargo (Foods, Beverages, Tobaccos)	BB	0.044		0.044	0.146		0.146	0.190
17	General Cargo (other)	BB	0.306		0.306	0.142		0.142	0.448
8-17	Break Bulk Total	BB	5.344		5.344	0.566	0.044	0.610	5.954
	(Liquid Bulk)								
18	Crude Oil	LB	0.000			9.330	0.390	9./20	9./20
19	Petroleum Products	LB	2.820		2.820	1.130		1.130	3.950
20	Chemical Products (Liquid)	LB	0.350		0.350	10,400	0.000	10.050	0.350
18-20	Liquid Bulk Total	LB	3.170		3.170	10.460	0.390	10.850	14.020
			11.000	0 500	11.000	00.000	0.740	00.000	05 400
	Buik I otal (Million tons)		11.300	0.500	11.800	22.808	0.740	23.008	35.408
	(Comtain our)								
21	Concerna (Food products, Boyerage, Tobac	0.0	0 159	0.018	0 176	0 526	0.058	0 594	0.760
21	Conoral Cargo (roou products, Deverage, Tobacc	00	 1 102	0.010	1 224	0.520	0.050	0.560	1 702
21-22	Container Total (Million tona)		1.102	0.122	1 400	1 027	0.007	1 152	2 552
21-22	Ladan Cantainer (1000 TELla)		1.200	14	1.400	1.037	10	115	2.002
L	Empty Container (1000 TEUs)	00	 120	14	140	25	12	20	200
	Container Total (1000 TEUs)	00	120	15	154	120	4	154	200
<u> </u>		00	109	10	134	109	10	1.04	000
	Grand Total (Million tons)		12 560	0.640	13 200	23 005	0.855	24 760	37.060
			12.000	0.040	10.200	20.000	0.000	24.700	37.300

Table 6.2.1(d) Summary of Demand Forecast (2010 Case-2)

6.2.2 Balance Between the Port Capacity and Future Traffic

Table 6.2.2 shows balance between the existing cargos handling capacity vs. forecasted cargo demand by commodity.

Existing cargo handling capacities of the Port are presented by commodity. These capacities are based on data provided by IPTANA using Quay Crane Theory, and on interviewing some operators by the Study team.

Relocating Capacity means the capacity of existing berth that will not be utilized for the future due to various reasons such as insufficient berth depth, aged equipment, etc. As for handling general cargo, for example, it is assumed that a lot of berths in Old North Port will not be utilized for cargo handling in future (see Table 6.2.3).

Following observation can be made from Table 6.2.2.

1) As for container cargo, besides the ongoing Phase I of the new container terminal construction project at S-2, additional terminal capacity would be necessary. The required additional capacity in 2020 for Case-1 is 415,000 TEUs and Case-2 is 205,000 TEUs.

2) As for grains, in consideration of annual fluctuation of grain export, shortage of handling capacity for grains will be occur and an additional facilities will be necessary.

3) As for crude oil, petroleum products and ores, the existing capacities are enough to handle these commodities.

Table 6.2.2 Balance betw	reen the Exist	ting Cargo F	Handling Ca	pacity a	nd Dema	ind Fore	cast		(1000 Tc	ons or 100) TEUs)
	Ha	ndling Capaci	ty	Case-1	2020	Case-1	2010	Case-2	2 2020	Case-2	2010
		*2)									
Commodity	Existing	Relocating	Balance	Demand	Balance	Demand	Balance	Demand	Balance	Demand	Balance
	A	В	C=A-B	D	E=C-D	D	E=C-D	D	E=C-D	D	E=C-D
(Dry Bulk)				*3)							
Grain	3,750	0	3,750	8,500	-4,750	6,400	-2,650	4,500	-750	4,500	-750
Coal/Ore/Cokes	24,000	0	24,000	12,800	11,200	11,400	12,600	10,700	13,300	11,100	12,900
Phosphate/Fertilizer	1,500	0	1,500	1,400	100	840	660	1,020	480	098	640
Cement	2,500	0	2,500	450	2,050	750	1,750	650	1,850	950	1,550
(Break Bulk)											
General Cargo	7,500	1,500	6,000	4,400	1,600	6,100	-100	4,400	1,600	6,000	0
(Liquid Bulk)											
Crude Oil/Oil Products	36,000	0	36,000	21,100	14,900	16,500	19,500	15,100	20,900	14,000	22,000
(Container)	*1										
Container (1000TEUs)	465	06	375	190	-415	384	6-	580	-205	308	67

ainer includes capacity of S2 New Container Terminal (375,000 TEUs.) acity which will not be utilized in future due to various reasons such as	d equipment or narrow apron width.	s net volume plus annual fluctuation of 2 million tons.
1) Existing Capacity for container includes ca 2) Relocating Capacity : Capacity which will	insufficient berth depth, aged equipment or 1	3) Demand for grain includes net volume plue

	E F	I Otal		634	101	171	257	101	700	000	50	152	203	771			1,227	810	264	610	582	12,000		1,750	500	743	/45	2.501	36.000	12,000	652	2,000				76.567	
	Bulk	Edible Oil								220	000																									550)))
ons)	Liquid F	Crude Oil Oil Products																											36.000							36.000	222622
/ (x 1,000 to		Cement																				l						2.501	toof.							2.501	12221
ing Capacity	Bulk	Phosphate Fertilizer																								743	/45									1.486	22.61
argo Handl	Dry F	Coal/Ore																				12,000								12,000						24.000	222511
C		Grain						c G	700	nnc							250								500							2,000			T	3.750	
	Container	Container																810									T									810	- > - >
	Break Bulk	General Cargo		634	101	171	257	101			93	152	203	771			977		264	610	582	107		1,750							652					7.470	
	Handling Operation		oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading	Intoaung	oading, Unloading	oading. Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	Juloading	oading	oading, Unloading	oading	Inloading	oading	oading, Unoaung	oading. Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	oading, Unloading	ouung, omoumg	
	Handling Commodities E		General Cargoes (timber, etc.)	General Cargoes (steel scrap, timber, etc.) L	General Cargoes (fruits, etc.)	General Cargoes (timber, etc.)	General Cargoes (kaolin, soda, timber, etc.) L	General Cargoes (timber, etc.)	Bulk Cargoes (grains)	Burk Cargoes (grains)	General Carones (rice etc.)	General Cargoes & Refrigerated Food	General Cargoes (timber, rice, etc.) L	General Cargoes (timber, Steel scrap, cement, etc.) L	General Cargoes (timber) L	General Cargoes (timber, rice, etc.)	General Cargoes (bulk soda, steel scrap, timber, etc.) L	Containerized Cargoes	General Cargoes (timber etc.)	General Cargoes (timber, steel scrap, cement, etc.) L	General & Containerized Cargoes	Bulk Cargoes (coals, ores)	Bulk Cargoes (coals, ores) L	General Cargoes (timber, etc.)	Bulk Cargoes (grains) L	Bulk Cargoes (phosphate ores)	Bulk Cargoes (Tertuizers)	General Cargoes L Bulk Cargoes (cement)	Liquid Bulk (crude oil, metanol, chemical liquids, etcL	Bulk Cargoes (coals, ores)	18 General Cargoes (timber, ferrous/non-ferrous metal, eL	Bulk Cargoes (grains) L	General Cargoes (meat, etc.)	General Cargoes L	General Cargoes		
	Berth No.		Berth RR4	Berth 0 - 5	Berth 6,7	Berth 11,12	Berth 13-16	Berth 20	Berth 17,18 & 24	Berth 31-33	Berth 21	Berth 53	Berth 23	Berth 47-50	Berth 8	Berth 22	Berth 35-37 & 41-43	Berth 51,52	Berth RR4	Berth 38-40	Berth 45 46	Berth 64-66	Berth 85	Berth 54-60	Berth 61	Berth 62	Berth 63	Berth 68	Berth 69-79	Berth 80-84	Berth 107-112 & 115-11	Berth 113 & 114	Berth 119A-119B	Berth 120	A Berth 120 Douth 124 125	anacity	an actual to a second sec
	Operator	'	ROTRAC	DEZROBIREA					AGROEXPORT	EDIAI	LINAL		DECIROM		PHOENIX		SOCEP		UMEX		MINMETAI			CHIMPEX				SICIL	OIL TERMINAL	COMVEX	ROMTRANS	SILOTRANS	FREE ZONE ADMIN.	SNTFM	CPA RO-RO TERMINA MA CT	Total Caroo Handlino Ca	
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6.2.3 Present Cargo Handling Productivity

Table 6.2.4 shows the average cargo handling productivity data by commodity. Average cargo handling productivity was obtained from total cargo handled for each vessel divided by berth time (hour). Necessary data was obtained from actual records in September and October in 2000.

	Commodity	Туре	Average Productivity
			(tons/hour/vessel)
1	Grain (Total)	Bulk	59
1'	Grain (Bulk) at Silotrans (Berth	Bulk	172
	No.113 & 114)		
2	Iron Ore	Bulk	2,217
3	Non-ferrous Ore (Bauxite)	Bulk	403
4	Non-ferrous Ore	Bag	45
5	Solid Fuels (Coal, Coke)	Bulk	N/A
6	Crude Oil	Liquid Bulk	867
7	Petroleum Products	Liquid Bulk	265
8	Chemical Products	Liquid Bulk	92
9	Chemical Products	Bag	35
10	Phosphates	Bulk	94
11	Chemical Fertilizer	Bulk	126
12	Chemical Fertilizer	Bag	36
13	Cement	Bulk	156
14	Cement	Bag	35
15	Scrap	Bulk	39
16	Steel Products	BB	50
17	Non-ferrous Metal Products	BB	35
18	Timber	BB	16
19	General Cargo	BB	20

 Table 6.2.4 Present Commodity-wise Cargo Handling Productivity

Source: CPA

From Table 6.2.4, it is observed that productivities of "Steel products", "Non-ferrous products" and "Timber" are particularly low compared to the performance at other ports. For example in Japan, steel products can be handled at about 100 tons/hour/vessel or timber can be handled at about 75 tons/hour/vessel.

One reason for this low productivity is the direct loading from railway wagon to vessel. Another factor is the scattered or dispersed use of berths. In order to improve productivity, it is advisable to handle the same type of commodity collectively at a spatial and dedicated terminal, as well as discontinue direct transfer from the rail wagons to vessel.

6.3 Required Port Facilities

6.3.1 Introduction

This section deals with the required port facilities that should be included in the Master Plan.

Table 6.3.1 outlines development projects related to the Master Plan. There are three categories in the table, namely (1) New Master Plan Projects, (2) Existing Projects and (3) Future Expansion Area.

(1) New Master Plan Projects

"New Master Plan Projects" are the set of projects that are recommended by the Study Team to be included in the Master Plan for Constantza Port and they will be explained in the next section.

(2) Existing Projects

"Existing Projects" are projects that are already ongoing or will be implemented mainly by the private sector, thus in the Master Plan they are treated as given projects.

(3) Future Expansion Area

"Future Expansion Area" is a study team proposal for the future expansion area beyond the year 2020.

6.3.2 Outline of the Master Plan Project

Projects of the New Master Plan can be divided into three groups according to their purposes.

(1) Projects to meet future cargo demand

The objective of the first group projects is to meet the increasing traffic demand of the port in the future. One of the projects of this group is the development of new container terminal and the other is construction of grain terminal.

As for the container terminal, both demand forecast Case-1 and Case-2 are adopted to determine the size of the new terminal.

As for the grain terminal, demand forecast Case-1 and annual fluctuation of grain export demand are adopted to determined the size of the terminal.

(2) Projects to improve port operation

The second group projects are to improve the present port operation. Cargoes are currently handled by each operator in small scale on scattered terminals in the Port of Constantza. Some cargoes are to be integrated in one or two places in a specialized and aggregated manner, thereby raising the cargo handling efficiency and adapting it to the future maritime transport trends such as increase in ship size.

Regarding bulk cargoes such as ores, coals and oil, these cargoes are handled with the existing specialized terminals which have sufficient cargo handling capacity. General cargo will be gradually containerized, so that remaining break bulk cargoes and large lot cargoes will be steel products and timber.

So the Study Team proposes several projects such as Steel Product Terminal, Timber Terminal and relocation of General Cargo Terminals in the Master Plan.

(3) Projects to improve port transportation system

In this group, projects are to improve accessibility of the port terminal in the port to the inland transportation network. The Port of Constantza has inland transportation system such as inland waterways, railway and road. Three projects are proposed to secure smooth and efficient intermodal transportation in the port.

One is to develop barge related facilities in the port for promoting the inland waterways transport using the Black Sea-Danube Canal. The second is to improve railways in the port and the third is to improve road alignment in the port.

		Project		Purpose of the project	Location	Relationship to the Master Plan	01	chedule	
							2010	2020	2020-
I	-	Control Torminol	Forecast Case-1		S2(122,123,128-130)		Phase 1	Phase 2&3	
	1		Forecast Case-2		S2(122,123)		Phase 1	Phase 2	
I	2A		Location Plan-A	to meet cargo demand in the future	S1(Berth115,112) or S3				
1	2B	Gran Lerminal	Location Plan-B		Berth 31-33				
New Master Plan Projects	3A	Steel Product Terminal (Multi Purpose	Location Plan-A		S1(Berth116-118,110,111)	Master Plan Proposal			
I	3B	Terminal)	Location Plan-B		Berth 45-52 or 56-60				
	4	Timber Terminal (Multi Purpose Terminal)		to improve port operation	Berth 45-50				
	5	Relocation of GC Terminals			Old North port, North Port				
	9	Barge Basin			Central Island and River Basin				
	7	Railway Improvement		To improve port transportation system	Old North Port	Concept			
	8	Road Alignment Improvement			Between Gate 5 & 6 and other	Master Plan Proposal			
	6	LPG Terminal		Expansion of Energy Resource	Berth 91-93 & Central Island	Private Sector promoting Project			
	10	Passenger Terminal		Commersialization	Passenger Terminal	Private Secrtor and CPA Jointly			
Exising Projects	11	Business Center		Commersialization	Old North Port	Promoting Project			
(considered to be given Project	12	Breakwater Rehabilitation & Extension		Safety Improvement		EU Techninal & Financial			
	13	Ecologization Project		Environmental Improvement	Oilterminal & Near Gate 6	Supporting Projects			
	14	Port Management & Information System		Improvement of Effective Port Ma	nagement & Operation	CPA Project			
	15	Dredging Project		Safty and Efficency Improvement	Channel and Basin	CPA Project			
Future Expansion Area	16	Future Expansion Area		Indicate Appropriate Expansion Area	South Port & Central Island	Study Team Proposal			
			_						

Table 6.3.1 Outline of Master Plan Project and Related Projects of the Port of Constantza

6.3.3 Container Terminal

At present a container terminal at South Port S-2 is under processing to tender. This project has been financed by the Romanian Government and JBIC (Japan Bank for International Cooperation) and is as the stage of the Phase I, which will provide terminal capacity of about 375,000 TEUs.

Currently, two operators in Constantza, namely SOCEP at the Berth No.52 and UMEX at the berth No.39 handle containers. However, both berths can only provide the draft -13.5 and area of backyards cannot be expanded.

In order to realize combined scale merit of container handling, it is advisable to develop a new container terminal at the same S-2 Pier as Phase II and III of on-going Phase I terminal development.

Table 6.3.2 shows the required facilities for container handling.

			8	
	Cargo Forecast	Required	Berth Length	Required
	(million TEUs)	Berth	(m)	Gantry Crane
Case-1 2010	384	2	625	4
Case-1 2020	790	2+1 *)	625+500	6+2 *)
Case-2 2010	308	2	625	3
Case-2 2020	580	2	625	6

Table 6.3.2 Required Facilities for Container Handling

*) "+1" means construction of additional berth at the other (east) side of S2 Pier.
**) Required numbers of gantry cranes are based on SAPROF study.

Additional Phase II and III development plan which include additional one berth (500m) with three Gantry Cranes and 23.5ha of yard space will be required.

It is advisable to widen the slip width in front of proposed Phase III Container Berth from 250m to 400 m by removing revetment of S-3.

The works will consist of the civil works and provision of cargo handling equipment. The former will cover the pavement work, railway laying, supplemental quay strengthening, and others. The latter will include the quayside cranes and yard transfer cranes.

6.3.4 Grain Terminal

From Table 6.2.2, an additional grain silo, capacity of 2,000,000 tons is required for the year 2020. The forecasted vessel size which is explained in Section 6.1 is from 30,000 to 50,000 DWT, thus existing facilities except S-1 Silotrans terminal cannot serve these vessels. In consideration of accommodating larger vessels and accessibility for barge transport which is major inland transport mode of grains, it is recommended to construct an additional silo in South Port.

Scale of required facilities can be calculated as follows:

(1) Number of required berths for grain vessels

N = Ct / Uf

N: Required number of berths	
Ct: Future cargo throughput per yea	r (ton) : 2,000,000 ton
Uf: Cargo handling efficiency per y	ear and berth (ton)
$Uf = BOR \times WD \times H$	
BOR: Berth Occupancy Ratio	0.5
WD: Working days per annum	355 (days)
HR: Working hours per day	22 (hour)
Cargo handling rate per hour	800 (ton / hour)

N = 0.64 1 Berth

(2) Number of required berths for grain barges

N = Ct / Uf	
N: Required number of berths	
Ct: Future cargo throughput per year	r (ton) : 1,100,000 ton
Uf: Cargo handling efficiency per ye	ear and berth (ton)
$Uf = BOR \times WD \times H$	
BOR: Berth Occupancy Ratio	0.6
WD: Working days per annum	355 (days)
HR: Working hours per day	22 (hour)
Cargo handling rate per hour	150 (ton / hour)

N = 1.56 2 Berth

Using computer simulation method, one berth for seagoing vessel and two for barge are

required.

(3) Required storage capacity of silo

 $V = (N \times C) / (R \times a)$ = (2,000,000 x 1.3) / (40 x 0.7) = 93,000 100,000 ton Where, V: Required storage capacity (ton) N: Annual handling volume of cargo C: Peak Ratio (1.3) R: Turnover ratio (40) a: Utilization ratio (0.7)

This is the same size of existing Silotrans storage capacity.

Details are described in PART III Short Term Development Plan.

6.3.5 Steel Product Terminal

Currently many general cargo berths are handling steel products and non-ferrous metal product.

According to the cargo volume forecast for 2020, steel demand will rise to 1.8 million tons. One of planning concepts of the steel products terminal is to integrate physically at one location for easy maintenance and economic operation.

Scale of facilities of the steel products terminal is determined as follows;

(1) Number of required berths

N = Ct / Uf

N: Required number of berths

Ct: Future cargo throughput per year (ton) : 1,800,000 ton (in 2020)

Uf: Cargo handling efficiency per year and berth (ton)

 $Uf = BOR \times WD \times H$

BOR: Berth Occupancy Ratio	0.6
WD: Working days per annum	355 (days)
HR: Working hours per day	22 (hour)
Cargo handling rate per hour	70 (ton / hour)

N = 5.49 6 Berth

(2) Required storage area

$\mathbf{A} = \mathbf{C}\mathbf{t} / \left(\mathbf{R} \mathbf{x} \mathbf{k} \mathbf{x} \mathbf{w} \mathbf{x} \mathbf{a}\right)$	
A: Required open storage area (sq.m)	
Ct: Future cargo throughput per year (t	ton) : 1,800,000 ton (in 2020)
R: Cargo rotation per year	24
w: Stored cargo volume per unit area	3 (ton / sq.m)
k: occupancy rate	0.7
a: coefficient to calculate gross area	0.6
A = 59528 60000 (sq.m)	

(3) Location and development

The required works will mainly consist of the civil works and minor provision of cargo handling equipment. The former will cover the pavement works and overlay works on the existing quay crane foundations. If necessary, supplemental civil works in rehabilitation will be added. The latter will include only minor repair works on the existing equipment as needed.

There are several location alternatives. One is to locate the Steel Terminal at South Port (pier S1:berth 116-118 and 110-111), the other is to locate the Steel Terminal at North Port, (pier 3:berth 45-52 or pier 4:berth 56-60).

Fig. 6.3.1 shows conceptual layout of the steel product terminal in case of location at South Port.

Table 6.3.3 shows the areas required for facilities at the steel product terminal in 2020 based on the export steel product volumes (1.8 million tons) and interviews with cargo handling operators. Preconditions of the estimation are as follows: the number of berths: 9, the number of users: 3, the ratio of cargo volume and the number of berths for each terminal operator (user) are estimated from the shares of steel product cargo handling volumes by top three operators during the past three years (1998, 1999 and 2000).

There is another option to locate the steel product terminal at North Port pier 3, where a sufficient yard space will be available.



	Table 6.3.	3 Land	Use of	Steel	Products	Terminal
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Area	Area(m ²)	Note
Apron of quay	68,000	
Railway	26,000	
Service area	13,000	
Shed	19,000	
Open storage yard and Others	61,000	

Service area: Area of Office and Guared office, Parking space for cargo handling equipment and Repair shop.

Others: Main roads, dead space and etc.

Railway: Some part of area of railway and apron of quay are overlapping.

 $(17,000m^2)$

According to interviews with cargo handling operators, the flow of export steel products inside the port area in general is shown Fig. 6.3.2.

Figure 6.3.2 Cargo Flow of Export Steel Products



6.3.6 Timber Terminal

Currently general cargo berths at the North Port area are handling timber products. Since a high demand in timber trade has been observed and it is comparatively easy handling work, all the general cargo berths at the North Port area are capable to handle timber by operators providing related services. Existing handling of timber is carried out through berths no. 45 to 52 of Minmetal, Decirom, and Socep. Handling capacity of these berths is estimated as of 0.5 million tons .

According to cargo volume forecast for 2010, timber demand will rise to 1.13 million tons and the estimated volume for 2020 will be 0.68 million tons. One of planning concepts of timber berths should be physical integration at one location for easy maintenance and economic operation.

Scale of the timber terminal is calculated as follows;

(1) Number of required berths

N = Ct / Uf

N: Required number of berths

- Ct: Future cargo throughput per year (ton) : 1,130,000 (in 2010)
- Uf: Cargo handling efficiency per year and berth (ton)
- $Uf = BOR \times WD \times H$

BOR: Berth Occupancy Ratio	0.6
WD: Working days per annum	355 (days)
HR: Working hours per day	22 (hour)
Cargo Handling rate per hour	30 (ton / hour)

N = 8.0 8 Berth

(2) Required storage area

A = Ct / (R x k x w x a) A: Required open storage area (sq.m) Ct: Future cargo throughput per year (ton) : 1,130,000 ton (in 2010) R: Cargo rotation per year 25 w: Stored cargo volume per unit area 1 (ton / sq.m) k: occupancy rate 0.7 a: coefficient to calculate gross area 0.6 A = 107,619 105,000 to 110,000 (sq.m)

(3) Location and development

The work will consist of the civil works and supplemental provision of cargo handling equipment. The former will cover the pavement works and overlay works on the existing quay crane foundations. If necessary, supplemental civil works in rehabilitation will be added. The latter will include only minor repair works on the existing equipment as needed.

It is assumed that one specified area at North Port would be selected for future timber terminal, namely triangular terminal (pier 3:from berth No. 45 to 52). Fig. 6.3.3 shows conceptual layout of the timber terminal at North Port.

The ratio of storage cargo to the total export timber and the average dwelling time of storage cargo for export timber are approximately 80% and one month respectively according to interviews with cargo handling operators.

Table 6.3.4 shows the areas required for facilities at the timber terminal in 2010 based on above paragraph. Preconditions of the estimation are as follows: number of berths: 8,

Number of users: 3, the ratio of cargo volume and number of berths for each terminal operator (user) are estimated from the shares of timber cargo handling volume by top three each operators during the past three years (1998 to 2000).

Area	Area(m ²)	Note
Apron of quay	71,000	
Railway	23,000	w:10m, two-line
Service area	12,000	
Open shed (without wall)	40,000	
Open storage yard and Others	105,000	

Table 6.3.4 Land Use at Timber Terminal

Service area: area of Office and Guard office, Parking space for cargo handling equipment and Repair shop.

Others: Apron of the railway, main roads, dead space and etc..

Railway: Some part of area of railway and apron of quay are overlapping $(17,500m^2)$.



According to interviews with cargo handling operators, the flow of export timber inside the port area in general is shown Fig. 6.3.4.



Figure 6.3.4 Cargo Flow of Timber

6.3.7 Reorganization of General Cargo Terminal

Almost all general cargo will be containerized in the future and timber and steel products will be shifted to the aggregated terminal. Considering these conditions, the New Master Plan recommends the berths in the Old North Port should be tend not to be used in the future for cargo handling, due to their insufficient depth and limited space of back up area.

6.3.8 Barge Basin

It is supposed that this mode will mostly provide port users with collection and delivery services of dry bulk cargoes and a few general cargoes. This mode will predominant in the long haul transport of dry bulk.

Major commodities to be carried by barges will be:

a)	Iron ore and scrap	75% share
b)	Chalk, cement and construction materials	70% share
c)	Ferrous and non-ferrous metals	60% share
d)	Crude oil	50% share
e)	Solid fuel, coal, coke	25% share

The required facilities in the Master Plan are the supporting civil facilities such as mooring quay walls for temporary berthing before loading/unloading cargo on barge and assembling new convoy to next trip. Since it is estimated that the cargoes to be carried by barges will increase to 20 million tons in 2020, a large wet basin should be reserved for this transport mode. Mooring facilities for pushers and tugs of convoys are also required.

Figure 6.3.1 shows the outline of barge related facilities. Details are described in Part III Short Term Development Plan.

6.3.9 Railway and Road Improvement

(1) Railway

Railway facilities including the related system occupy a large portion of the port area of Constantza. It is estimated that the railway area is currently twice as large as the road area. Railway system plays a great role for port access.

The Study Team has examined the present railway capacity in the port, reviewing existing railway station facilities and conducting Railway Traffic Survey. So that it is considered that the present capacity will be able to meet the future cargo demand in the Master Plan.

Traffic of railway cargo in the port of Constantza reached a peak in 1989 and decreased recent year.

The railway station capacity for marshalling of wagons in the North Port at Constantza can sufficiently meet the future cargo demand in the New Master plan. However, it will become more important that railway cargoes are marshaled efficiently and smoothly between railway stations and each berth, if each terminal operator is engaged in handling small lots of cargoes such as general cargo.

As for railway in South Port, container terminal project and Free Zone project include railway plans, so it is more important to secure expansion space after 2020.

Details are described in PART III Short Term Development Plan.

(2) Road

In contrast to the railway facilities, it seems that a lower priority has been given to the road system in the port area.

Industrialization will require more integrated and convenient transport services between the port and factories. Present road access has to be examined on the following items:

- a) Access to the quay
- b) Access to the open storage areas
- c) Access road alignment, especially for large trucks and trailers.

d) Parking areas for car and trucks

The Study Team has examined the present road capacity in the port, reviewing existing road facilities and conducting Road Traffic Survey.

So that the Study Team suggests constructing bypass road of the Gate 5, which is located on the middle of the North Port, in order to avoid traffic jam of the Gate 5 due to steep and narrow road alignment.

In the North Port, repair and maintenance works of roads in several points are also requires.

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. Furthermore, the existing roads in the south port have many crossing points with the railway, so it is necessary to construct flyovers and increase the number of traffic lanes. These projects are made part of the Existing Projects in the Master Plan, since CMPA is at present formulating these plans.



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6.3.10 Existing Projects

Projects that are already on going or will be implemented mainly by private sectors are basically treated as given projects in the Master Plan.

Following projects are considered as given projects:

- Breakwater Rehabilitation
- LPG terminal, Bitumen terminal, Soya Bean terminal
- Grain Terminal in the north port
- International Business Center
- Passenger maritime station
- Waste Management
- Dredging Project

In addition, the projects that are not yet fully justified or identified by traffic demand forecast are considered as the possible projects related to the Master Plan. Following projects are referred:

- Import / export / transit car terminal
- Exotic fruit terminal (citric, bananas etc.)
- Fruit juice and edible oil terminal
- Car and passenger terminal for short sea shipping
- Heavy and oversized cargo terminal.

6.3.11 Future Expansion Area

The Port of Constantza has much potential for development in views of its geographical location, multi-modal transportation infrastructure. So beyond the year 2020, it is important to consider and allocate future expansion area in the Master Plan.