conditions of port operations. A certain section should be in charge of analysis of those changing situations, correction of related information and research of needs of port users such as steamship companies.

One more aspect of the need of a business-like approach to port problems is the necessity of promotional activities. Port management should not sit and wait for the traffic to come but should make all efforts to attract traffic. A reasonable amount of publicity and close contact with steamship companies and their agents, local and international commerce, industrial organizations and with all actual and potential port users can greatly contribute to improving the image of the port, making known its advantages and opportunities and promoting a steady growth of traffic. Also, those activities of port promotion can bring to light current problems of the port and stimulate their quick resolution.

13.3.2 Terminal Operations

(1) Methods of the terminal operations

The three typical methods of terminal operations that can be adopted by a port administration body are shown below.

Table 13.1.2 Methods of the Terminal Operations

	land (ownership)	facilities (construction & ownership)	cargo handling
method A	EP	EP	EP
B	EP	EP	ST
C	EP	CO	ST

EP: port administration body (ex.Port Enterprise)
ST: stevedoring company
CO: Other company (ex. consignee, stevedoring company etc)

Method A has been adopted by the EPs. This method concentrates many activities in the hands of the port administration body. Under this method, the port administration body becomes not only a public body for administration, maintenance and extension of the port but also a commercial enterprise performing functions which, in other fields of economic activity, are usually performed by private firms.

Method B restricts responsibilities of the port administration body in the field of port operations to administrative activities where it plays the role of coordinator and supervisor. The port administration body is responsible for aspects of port development such as port planning, construction and maintenance of facilities, management and financing. Also, the port administration body owns lands and facilities such as the quay, apron, yard and transit shed.

Method C make the port administration body just a landowner. Lands are leased out to other companies or organizations which can only build facilities that are appropriate to the port plan. The staff of the administration body need not think about the detailed design of facilities, construction and maintenance, operation, financing etc. Co-ordination and determining the amount of rent are the main responsibilities they have. Usually, there is a little work for the port staff to do under this method.

In general, port activities which have a commercial character, such as cargo handling, should be left to private enterprise under the overall control of the port administration. However, the adoption of method C for the entire port are is not realistic. Method C should be applied only to the specialized berths and terminals which handle a single form of cargo. Therefore a combination of method B and C in the port area is advisable.

13.4 Future Management System of the EPs

13.4.1 Organization and its Authority

(1) Organization

The establishment of new companies or organizations

- Privatization or to establish new companies or organizations for some specific port operations should be considered corresponding to the stage of national economic development and of the advancement of liberalization in Algeria. For instance, companies or organizations to be built up for port operations in the future are as follows:

1) Stevedoring companies
2) Tug and Pilot companies

The main reason for establishing new companies is that, in those operations, cost will exceed revenues very easily as we saw in 13.2 and a independent company or organization which handles a specific operation solely can manage better than the management by a department of a big enterprise.

Also, to establish stevedoring companies and to make it responsible for cargo handling through cargo storage at wharves will help to solve the following complaints of port users.

* sometimes a consignee cannot obtain information on their cargo which was surely unloaded at the port.
* sometimes equipment and workers for unloading are absent when a ship arrives at a quay although admission has been granted.

(2) Authority

Land

The EPs do not own the land in the port. It is the government who owns the entire land area in the port. In addition, the boundary between a variety of public corporations is not clear.

- The lands should be owned by the EPs. Also the port area should be defined including future extension area.

Infrastructure planning

The EPs do not have the authority to construct the infrastructure of the

ports. This means that the quick response to the demands of port users, such as construction or improvement of port infrastructures, were almost impossible. The EPs do not have complete authority as a port management and administration body.

- Infrastructure of the ports should be planned, constructed and financed by the EPs themselves. Currently Algeria has very limited foreign currency and it need to coordinate the assignment of the foreign currency for investment into all nation's infrastructures including the ports'.

However, in a future, ports should have the ability to plan their own infrastructures so as to increase its capacity when cargo volumes increase and to upgrade the facilities to modern standerds.

(3) Tariff

Tariff revision procedure

The port tariff was established in 1976 and the only revision was made in 1989. Though the new tariff is currently under revision, only one revision has been introduced in the last 15 years. In the current procedure of tariff revision, Ministry of Economy has the authority to approve the tariff revision and its procedure is strict and severe. Such difficulty of tariff revision is one of the reasons for the financial deficit of the EPs in their operation accounts.

It is understandable that tariff revision falls under government control because Port tariff is the important part of the transportation cost which directry affects consumer's prices. However, EPs' financial status should not be sacrificed just to control the consumer's price. Therefore, the tariff should be revised regularly, for example, every two years.

It is also understandable when we think of this country's inflation, that an indefinitely fixed tariff might stabilize the consumer's price. However, the procedure must be improved to allow easier revision to ensure the EPs' financial independence.

- The procedure should be improved so that it is quick and responsive to the financial situation of the EPs.

Storage charge

Transit tax and depot tax stipulated in the Law of Finance are imposed as a storage charge in a yard or in a transit shed. (see APPENDIX, Port Tariff) This means that one of the principal charges of port depends on the national tax system, although those taxes are transferred to EPs to constitute their revenue.

As a result, the rate of charges which have the largest share in the revenue cannot be revised by the EPs' discretion and it is one of the reasons which prevent quick and proper revision of the port tariff.

- From the view point of port finance, the storage charge has a large share in the revenue of the port administration body. It represents the most basic tariff of the port, and therefore should be included in the port tariff.

13.4.2 Port Related Businesses

Development of the warehouse business

In the port of Algiers, there is a lot of cargo which is stored a long time in transit sheds or yards instead of in an outer-port warehouse. This results in a shortage of storage space in the port. One of the reasons for this is the lack of storage facilities nation wide, such as warehouses.

- Development of a warehouse and warehouse business is required.

13.4.3 Terminal Operations

(1) General

There are three methods for management of the terminal operations as mentioned in 13.3.1. and the conclusion is that port activities which have a commercial character, such as cargo handling, should be left to private enterprise or specialized public corporation under the overall control of the port administration. Also some port areas can be left in the hands of the other company if the terminal can be specialized and the other company has sufficient financial resources to construct cargo handling facilities.

Based on this policy, the operation method of newly built terminals will be studied.

(2) Container Terminal

- It should be considered that newly built container terminals are operated by a newly built specialized company for container handling or stevedoring.

Containerization will progress in Algeria, and in the beginning of the containerization, semi container ships or small full container ships operated by various shipping companies will call on the ports rather than big full container mother ships operated by the major shipping companies. This kind of container terminal should not be used as a exclusive bearh but be used as a public bearth.

(3) Cereals Berth

The cargo handling in a terminal, which handles a single form of cargo and uses special equipment should adopt method C in accordance with the conclusion in 13.3.2. In this method, land will be leased out and construction of facilities and operation will be done by a other company such as consignee.

- In the cereals berth, berth and apron should be managed by the port administration body as a public berth and the area used by the silo, unloading equipment and other necessary facilities for operation should be leased out to OAIC.

(4) Other Terminal

- Other newly built or expanded terminals should be managed based on the method B. Terminal facilities should be owned by the port administration body and cargo handling operations should be done by stevedoring companies.

CHAPTER 14 MAINTENANCE FOR CARGO HANDLING EQUIPMENT

14.1 Present Condition of Equipment

Maintenance of cargo handling equipment is one of the most important issues at the ports of Algeria. Good maintenance of cargo handling equipment is an essential element in efficient cargo handling in modern port operation.

A high rate of equipment breakdown not only causes inefficient cargo handling but also hinders profitable operating conditions for the port management.

Almost all of the cargo handling equipment in the ports of Algeria have been in use over their economical working life. Majority of quay cranes have been used over 40 years and forklifts and mobile cranes have been used over 10 years. Moreover, this situation has worsened with the lack of normal maintenance due to shortage of spare parts and proper check up. Consequently, cargo handling equipment in workable condition has been reduced to about 70% on average, i.e. quay cranes 52%, grain unloaders 90%, mobile cranes 63% and fork-lifts 70% as indicated in Table 14.1.

Table 14.1 Cargo handling equipment in workable condition

Type of equipment	Algiers			Oran			Annaba			Total		
	Numbers			Numbers			Numbers			Numbers		
	Total	Active	%	Total	Active	%	Total	Active	%	Total	Active	%
Quay crane	32	15	46	11	9	82	16	7	44	59	31	52
Mobil crane	17	14	82	8	2	82	5	3	60	30	19	63
Fork-lift	287	192	67	130	95	65	85	68	80	502	355	70

Main reasons for such inadequate maintenance of cargo handling equipment are as follows;

a. Insufficient number and inadequate size of equipment.

b. Lack of understanding of the importance of cargo handling equipment

by the port management.

c. Inadequate maintenance system without necessary facilities or tools.
d. Short supply of spare parts for the equipment.
e. Inadequate operation and maintenance of the equipment.
f. Inability to practice basic rules of operation and maintenance for the equipment by operators and workers.
g. Poor working environment for the workers.

Partly because of insufficient numbers of equipment and partly because of lack of adequate check up and service, the cargo handling equipment has a high rate of breakdown. Moreover, most of the fork-lift trucks are over-sized for majority of general cargoes which are less than 1 ton on average. (Chapter 5. Table 5.4.2 and 5.4.3) In fact, according to the information in 1990, average capacity of fork-lifts is 7.3 tons in Algiers, 6.3 tons in Oran, 7.3 tons in Annaba.

The workshops of the EPs are not properly equipped with facilities and tools which are required for major repair work. They were originally installed to service electric driven quay cranes and have not been adapted for combustion engine driven equipment. For overhauling a forklift engine, another fork-lift has to be used for dismantling and mounting the engine rather than a ceiling hoist or a chain block. The workshop floors are not properly surfaced and they are covered with dust. These circumstances are unsuitable for major repair of equipment and cause damage during precision fittings involving bearings and cylinders. City water has often been substituted for distilled water as an engine coolant, resulting in damage to the radiators.

14.2 Equipment Regeneration Plan

In order to regenerate the equipment, expansion of various types of horizontal handling equipment of various capacities, such as forklifts, mobile cranes, bulldozers, trucks, etc., have been contemplated by the EPs. A total of 117 forklifts of which 5 units 3t, 12 4t, 72 6t, 22 8t and 6 10t have already ordered by the EPAL.

In addition, the EPs are planning to purchase the following equipment in near future as listed in Table 14.2. This will certainly increase capacity of equipment in the ports and also reduce the average age of equipment. It is very

difficult, however, to determine suitable distribution of sizes of equipment because of variety of cargo size and types at each port. Generally speaking, average size of forklifts are too large for average size of cargoes to be handled. The use of oversized machines causes damage to the cargoes and also causes wear and tear unnecessarily on the expensive oversized equipment.

Table 14.2 Purchase plan of equipment by EPs

	Forklift Lifting Capacity (tons)									Total (Units)	Mobile Crane	Wheel Loader	Tractor
	1.5	1.8	2	3	4	6	10	18	28				
Algiers	2	-	-	26	-	24	30	-	4	82	-	-	5
Oran	-	-	-	7	-	-	2	-	-	9	1	10	-
Annaba	-	2	2	4	26	20	10	2	1	67	2	-	-

Naturally, undersized machines cannot lift heavier cargo than their capacity. Thus the operators tend to prefer oversized machines rather than suitable sized equipment. Moreover, many machines have reduced their lifting capability due to deterioration. It must be noted that a 10ton forklift may cost 2 or 3 times that of a 2 ton unit.

In order to determine suitable size of equipment, it will be necessary to make a careful analysis of the cargo handling records. All the same, if the machines are properly maintained, and if the EPs wish to reduce total running cost of equipment, use of oversized machines is not advisable.

14.3 Equipment management system

The management system of the cargo handling equipment at EPs has serious problems in respect of efficient maintenance of machines as well as good planning of operations. Besides lack of budget for acquiring spare parts, supply and tools, procedure of procurement for such materials is not fit for effective operation of the workshop. Even though the administration enforces tight budget control, the present operation does not seem to be cost conscious.

In order to cope with this present difficult situation, several alternative

systems can be considered. The most important factor is to impress upon related staff of cargo handling operations and equipment maintenance, including managers and workers, the need to be more cost conscious. If such education is difficult, an alternative system may be to place the responsibility of equipment management on private operators who are also responsible for the cargo handling operation of the port. An advantage in allowing the private sector to operate the maintenance workshop is the elimination of various hindrances involved in procurement procedures. A private workshop can also work commercially outside of the port. Thus it can improve its business flexibility.

14.4 Measures in Future

On the other hand, such a drastic change in the system requires some time for preparation. And it cannot be applied as an immediate solution to the present problems. Therefore, there must be certain provisional measures before the port operation system can be reformed.

Items to be included for the long term and immediate measures are:

a. Establishment of a routine service system for all equipment in the ports.
b. Allocation of neat and tidy maintenance shops with necessary facilities and tools for daily maintenance and minor repair.
c. Improvement of existing workshop for major repair works by introducing suitable facilities for modern cargo handling equipment.
d. Adequate inventory of spare parts for maintenance requirements.
e. Establishment of training system for the equipment operators and maintenance workers.
f. Improvement of working environment for the operators and workers.
g. Establishment of organization for the equipment operation and maintenance system.
h. Opening of a commercial repair service for outside vehicles to be run by the workshops or allowing an outside private workshop that can handle major port repair jobs to perform this function.

Of these measures, items from a to f require urgent implementation.

Routine cleaning, checking or adjustment and service according to service manuals are key elements for the sound maintenance of equipment. With regular check-ups machines can be used without much trouble and minimal repair costs.

With regard to item g and h above, however, the degree of capital investment in the existing maintenance shop must be carefully studied. If and when a different service system is introduced to the ports of Algeria, particularly when outside workshops become involved, existing workshops may become redundant.

As suggested in Chapter 13, some part of the port operation can be transferred to private terminal operator(s). In such circumstances, cargo handling equipment can be leased out to the operator and daily maintenance for the equipment be placed under his responsibility. Major repair of leased machines can be handled at the existing EP's workshop. However, acquisition of new equipment or use of private garage for major repair by the private operator(s) may be encouraged to ensure efficient conditions of these machines.

APPENDIX

A.1 Principal Ports in Algeria

A.1.1 The Ports of Arzew/Bethioua

(1) General

There are two commercial ports in Arzew; the Port of Arzew and the Port of Bethioua. The Port of Arzew is an ancient port and the Port of Bethioua is a new port which was constructed east to the ancient port and has been in operation since 1978. Both ports are administrated by Entreprise Portuaire D'Arzew.

(2) The Port of Arzew

The Port of Arzew is used mainly to load crude petroleum, hydrocarbon gas and refined petroleum. The port is also used to receive general cargoes, though the amount is small. Major port facilities of the port are shown as follows:

- Breakwaters and Jetties: Jetee du large: 1,000 m
  Jetee abri: 250 m
  Jetee methanier: 600 m
  Jetee secondaire: 800 m
  Jetee militaire: 600 m

- Access Channel: Breadth: 380 m
  Water depths: 13-19 m

- Berths:

Wharf	Berth	Water depths(m)	Berth length(m)	Utilization
No.2		4.5	230	Fishing boats
No.3	No.1	4	145	General cargoes
	No.2	8	145	General cargoes
	No.3	8	100	General cargoes
	No.4	8	130	General cargoes
	No.5	5	130	General cargoes
	No.4	8.5	160	Cement in bulk

Jetee dularge	P0	10	160	Butane & refined petroleum
	P1	13.5	220	Crude petroleum
	P2	15.5	265	Crude petroleum
Jetee CAMEL	C1	10	250	Methane
	C2	10	250	Methane,methanol,ethylene
Jetee Secondaire	S1	10	150	Refined petroleum
	S2	11.5	200	Butane, propane, ammonia
	S3	13	200	Refined petroleum

(3) The Port of Bethioua

The Port of Bethioua is protected by a breakwater with length of 2,000 m facing to the Mediterranean Sea. Inside the breakwater, there are seven berths which are presently in operation. Outline of the berths is as follows:

Berth	Utilization	Remarks
M2, M3, M4, M5	LNG	LNG tanker of 25,000 cu.m
D1, M6	LPG	
B1	Crude Petroleum	Water depth of 23 m

A.1.2 The Port of Skikda

(1) General

The Port of Skikda is composed of two ports; an ancient port and a new port which was constructed 3km east to the ancient port in 1984 along with development of a petrochemical complex located adjacent to the port. Both ports are administrated by Entreprise Portuaire De Skikda.

(2) Ancient Port

The Ancient Port is used to load hydrocarbons and discharge cereals, general cargoes, etc. Major port facilities of the port are as follows:

- Breakwater: Grande Jetee: 1,625 m

- Berths:

Quay	Berth	Water depths(m)	Berth length(m)	Utilization
Chateau Vert	No.1	8.5	140	General cargoes, wood
	No.2	8.5	140	General cargoes, wood
Marinelle		9	290	Soya, Containers
Avant Port	No.3	5.6	80	Bitumen, foodstuffs
	No.4	8.5	160	Bitumen, foodstuffs
Traverse Sud	No.5	6	100	Car ferry, Ro-Ro
Sud	No.6	6	125	Semolina, general cargoes
	No.7	6	135	Semolina, general cargoes
	No.8	6	140	Semolina, general cargoes
Sud-East	No.9	6	120	Cereals, general cargoes
	No.10	6.4	160	Cereals, general cargoes
East	No.11	6	155	Bitumen, Ro-Ro
Nord	No.12	9	155	Foodstuffs, cereals
Divers		10.5	240	Wood, marble
Grand Jetee	P1			Hydrocarbons, 50,000 DWT
	P2			Hydrocarbons, 30,000 DWT
	P3			Hydrocarbons, 2,5000 DWT
	P4			Bitumen

- Silos: Capacity of 20,000 tons for cereals (OAIC)
  Capacity of 20,000 tons for soya (ONAB) under construction

(3) New Port

The New Port has eight berths which are presently in operation. Major port facilities are as follows:

- Berths:

Berth	Water depth(m)	Utilization	Remarks
M1, M2	-12.2	LNG	LNG tanker of 40,000 cu.m
P5	-11.5	Butane	
A1	-11.5	Ethylene, polyester	
P1,P2	-14	Petroleum	Tanker of 50,000 DWT

P3	-16	Petroleum	Tanker of 100,000 DWT
-		General cargoes	General cargo vessel of 25,000 DWT

- Access channel: Breadth: 250 m
  Water depth: 18 m at the entrance

- Turning basin: Diameter: 550 m
  Water depth: 16 m

A.1.3 The Port of Mostaganem

The Mostaganem Port is serving the regional economy around the port mainly by receiving various cargoes comprising cereals, foodstuffs and iron products, cement, etc. The major port facilities are listed as follows:

- Access channel: Breadth: 100 m
  Water depth: between the entrance and the Sud-Ouest Wharf: 12 m
  between the entrance and the Independance Wharf: 9 m

- Berths:

Quay	Berth	Water depths(m)	Berth length(m)	Utilization
Nord		4.5-5.5	80	Coastal guard
Nord/Est	No.0	6.7	117	General cargoes, bitumen
Maghreb	No.1	7.5	139	Raw sugar
	No.2	7.5	139	General cargoes
	No.3	7.5	134	General cargoes
Independance	No.4	7.5	135	Cereals, general cargoes
	No.5	7.5	135	Cereals, general cargoes
Nouveau	No.1	8.5	118	General cargoes
	No.2	7.5	119	Ro-Ro, general cargoes
Rampe Ro-Ro		7.5	80	Ro-Ro
Estacade de Peche		2.5	120	Fishing boats

Appontement de Peche		4.5-5	180	Fishing boats
Peche		5	130	Fishing boats
Sud/Ouest	No.6	7	140	Wine general cargoes
	No.7	8	140	General cargoes

- Silos: Capacity of 30,000 tons for cereals (OAIC)
  Capacity of 15,000 tons for raw sugar

A.1.4 The Port of Bejaia

The Port of Bejaia is used mainly to load crude petroleum and unload various kinds of cargoes such as cereals, foodstuffs, cement, refined petroleum, wood and iron. The port has space for future expansion west of the port. Major port facilities of the port are shown as follows:

- Breakwaters: Jetee Est: 650 m
  Jetee Sud,
  Jetee du large,
  Jetee de fermeture: Total length: 2,750 m

- Access channels: Passe de l'avant port: Breadth: 330 m
  Water depth: 14 m
  Passe Abdelkader: Breadth: 80 m
  Passe de la Casbah: Breadth: 120 m

- Berths:

Quay	Basins	Water depths(m)	Berth length(m)	Utilization
	Avant Port	11.5	260	Crude petroleum
	Avant Port	12.5	260	Crude petroleum
Port de peche	Avant Port			
	Vieux Port	13.0	260	Crude petroleum
Nord No.2	Vieux Port	6.5	95	Car ferry
Nord No.2	Vieux Port	6.5	95	Car ferry
No.3	Vieux Port	6.7	140	General cargoes
No.3	Vieux Port	6.7	130	General cargoes
Casbah No.4	Vieux Port	6.3	130	General cargoes

Casbah No.4	Vieux Port	6.3	120	General cargoes
Passe No.5	Vieux Port	9.0	150	Minerals
Sud-Ouest No.6	Arriere-Port	9.0	230	Cereals
Gare	Arriere-port	12.0	430	General cargoes, oil

A.1.5 The Port of Djen Djen

The Port of Djen Djen was newly constructed to unload raw materials such as iron ore and coal and load iron products so as to serve a steel-making manufactory which is planned to be constructed in Belala 50 km far from the port. For that purpose, berths of 10.5-18.7 meter deep were constructed. Moreover, in order to handle general cargo vessels, berths with a total length of 1,094 meters including Ro-Ro berths were also prepared. The major port facilities are listed as follows:

- Breakwaters or seawalls: Ouest
  Nord
  Est

- Berths:

Quay	Water depths(m)	Berth length(m)	Utilization
Sider	10.5-18.7	1,081	Steel-making manufactory
General Cargoes	11.0	762	General cargoes
Ro-Ro	11.0	76	Ro-Ro
Multipurpose	11.0	256	General cargoes and containers

In addition to the above existing facilities, two berths are planned to be constructed so as to receive large cereal carriers of Panamax type and one berth for feeder vessels to ply between the Port of Djen Djen and other domestic ports such as Bejaia, Skikda, Mostaganem and Tenes. The outline of the plan is shown as follows:

- Berths: 2 berths for ocean-going vessels: Water depth: 16.5 m
  1 berth for feeder vessels: Water depth: 11.0 m

- Silos: Capacity of 100,000 tons for cereals

A.2 Record of Vessels that Called at the Port of Algiers

Period: April and October, 1990

Table A.2.1 Record of Unloading of Cargoes at the Port of Algiers in April and October, 1990 (continued)

Quay	Post	S.T (1)	Mono (2)	Commod. (1) (3)	Commod. (2) (4)	Package(1)	Package(2)	Import. (1) (5)	Import. (2)	G.T.W. (6)	Cargo(1)	Cargo(2)	TJB	TJN	Arrival D.	Dp	Origin	Storage	Days	No. (8)
9	1	1		EMBALLAGE	PNEUS	PALETTE	PALETTE	ENAPAL	NAPTAL	437	348	78	3,089	2,027	22.4.90	E	YOUGOSLAVIE	TP+MG	26	34
9	2	1		P.TERRE	---	SACS	SACS	ONAPSA	---	2,250	2,250	---	1,599	89,761	21.10.90	E	EUROPE/OUEST	---	S P	72
9	1	1		CRAYON	---	PALETTES	---	ENPEC	---	950	950	---	35,510	11,408	05.10.90	E	ASIE	---	21	50
10		1		COLIRANT	---	PALETTES	---	DIVERS	---	234	234	---	499	341	21.10.90	E	E-O	---	21	41
10		1		TERGENT	---	PALETTE	---	DIPROCHIM	---	737	737	---	2,883	1,297	14.4.90	A	ITALIE	MG	13	28
17		1		DIVERS	---	DIVERS	---	EN SIDER	---	2,000	2,000	---	1,142	2,450	09.10.90	E	E-O	---	21	43
17		1		PROD.SIDER	FUT D'ACID	---	PUTS	ENCC	ENIEM	1,532	105	45	2,406	1,672	07.4.90	E	BELGIQUE	TP	10	54
18	2	1		DIVERS	---	COLIS	---	ENTPL	---	3,597	3,597	---	3,659	2,317	03.10.90	E	ASIE	---	42	127
18	1	1		POICHICHE	---	SACS	VRAC	OAIC	---	2,960	2,960	---	1,908	1,478	22.10.90	E	EUROPE/OUEST	---	S P	85
18	2	1		SOUDE	---	PALETTES	---	DIVERS	---	1,534	1,534	---	2,194	1,329	18.10.90	E	E-O	---	51	38
18	2	1		PRD.PHARPA	---	PALETTE	---	ENMEDI	---	3,428	3,428	---	2,892	1,768	01.4.90	E	ITALIE	TP	18	53
18	1	1		DIVERS	---	DIVERS	---	DIVERS	---	293	293	---	999	671	06.10.90	E	EUROPE/OUEST	---	25	117
19		1		DIVERS	---	DIVERS	---	DIVERS	---	146	146	---	1,582	1,046	10.10.90	E	EUROPE/OUEST	---	---	129
20	1	1		DIVERS	---	DIVERS	---	NAPTAL	---	1,523	1,523	---	1,557	756	20.10.90	E	E-O	---	21	39
20	1	1		P.TERRE	---	SACS	VRAC	ENAPSA	---	2,028	2,028	---	977	674	27.10.90	E	EUROPE/OUEST	---	S P	75
20	2	1		DIVERS	---	DIVERS	---	DIVERS	---	104	104	---	5,310	2,939	16.10.90	E	AMERIQUE/SUD	---	21	52
20	2	1		DIVERS	---	DIVERS	---	DIVERS	---	478	478	---	1,599	1,116	06.10.90	E	E-O	---	21	40
20	2	1		CAISSE	PIECE	PALETTE	CAISSE	EC. OUARGL	ENCC	579	579	40	1,570	1,165	14.4.90	E	R.F.A	TP	29	56
20	2	1		TUBE	PNEUS	COLIS	COLIS	MON/CPA	DP.AP	350	292	22	1,599	972	17.4.90	E	YOUGOSLAVIE	TP+MG	50	78
20	2	1		DIVERS	T	DIVERS	---	DIVERS	---	593	593	---	9,530	6,412	27.10.90	E	AMERIQUE/NORD	---	21	126
20	2	1		DIVERS	---	DIVERS	---	DIVERS	---	1,306	1,306	---	1,599	997	05.10.90	E	EUROPE/OUEST	---	31	98
20	2	1		MOUVEMENT	---	---	---	---	---	443	---	---	1,580	622	19.4.90	E	IRLANDE	TP	SP	72
22	1	1		DIVERS	---	DIVERS	---	DIVERS	---	1,828	1,628	---	1,856	807	02.4.90	E	JAPON	TP+MG	15	47
22	1	1		DIVERS	---	DIVERS	---	DIVERS	---	453	453	---	12,930	7,389	20.10.90	E	ASIE	---	21	51
22	2	1		PEICES	MATERIEL	PALETTE	PALETTES	PROMETAL	DOWEL	253	1	49	999	678	17.10.90	E	EUROPE/OUEST	---	51	118
22	2	1		DIVERS	---	DIVERS	---	DIVERS	---	335	335	---	5,754	2,756	11.10.90	E	EUROPE/EST	---	52	123
22	3	1		DETERGENT	---	PALETTE	---	DIPROCHIM	---	708	708	---	2,883	1,297	29.4.90	A	ITALIE	MG	10	52
22	1	1		MIELE	CABLE	CAISSE	CAISSE	ENAD	PTT	1,464	2	6	4,812	3,202	29.10.90	A	E-O	---	54	101
22	1	1		LAIT	CAISSE	PALETTE	CAISSE	ORLAC	APL.TAMARA	414	268	61	1,593	1,096	15.4.90	E	BELGIQUE	TP	39	51
22	2	1		LAIT. DIVE	---	PALETTE	---	DIVERS	---	2,838	2,838	---	1,599	897	05.4.90	E	R.F.A	TP+MG	10	48
22	3	1		COTON	BARET. FER	PALETTE	---	ENAPAL	DAEWOO	824	577	42	1,571	870	09.4.90	E	ITALIE	TP+MG	31	50
23	1	1		PAPIER	---	ROULEAUX	---	DIVERS	---	2,482	2,482	---	9,393	4,720	14.10.90	E	AMERIQUE/SUD	---	21	44
23	3	1		PETIT NOI	---	SACS	VRAC	ENAPSA	PTT	1,700	1,700	---	1,599	1,094	30.10.90	E	EUROPE/OUEST	---	S P	82
23	2	1		LAIT	LEVURE	SACS	PALETTE	ORLAC	ENAPAL	1,658	814	512	1,058	708	04.4.90	E	BELGIQUE	TP+MG	SP	94
23	2	1		DIVERS	---	DIVERS	---	DIVERS	---	401	401	---	999	678	29.4.90	E	BELGIQUE	TP	16	89
23	1	1		PEICES	---	CAISSE	---	BNA	---	500	1	---	989	625	21.10.90	E	EUROPE/OUEST	---	28	119
23	3	1		DIVERS	---	DIVERS	---	DIVERS	---	1,561	1,561	---	2,784	1,948	02.4.90	A	GRECE	TP	SP	91
23	2	1		DIVERS	---	DIVERS	---	DIVERS	---	480	480	---	1,599	1,128	27.10.90	E	EUROPE/OUEST	---	60	116
23	1	1		EQUIPEMEN	---	CAISSE	---	ORAC	---	148	148	---	390	210	20.10.90	E	E-O	---	21	54
23	2	1		PIECES	---	CAISSE	CAISSE	DVP	SONATRACH	3,073	10	3	8,384	5,096	08.10.91	A	ASIE	---	47	95

Note (1): Ship type code: 1=General Cargo vessel, 2=Ro-Ro vessel, 3=Cereal carrier, 4=Tanker, 5=Car ferry
(2): Commodity code: 1=GRANULE, 2=SEMOULE, 3=FARINE, 4=CEMENT, 5=BOIS, 7=FER, 10=GRUME, 11=TOMATE, 12=BUERRE, 13=LAIT, 14=SEMENCE, 15=PLACON, 16=SOUDE, 17=CRAIE, 18=SOJA, 19=TABAC, 20=SUCRE, 21=AVOINE, 22=RESINE, 23=GRAIN, 24=AMIANTE, 25=MARBRE, 26=BETUMEN, 27=VIN, 28=BUTANE, 29=GASOIL, 30=ESSENCE, 31=PETROLE, 32=SODIUM, 33=VEUICLE(CAR CARRIER), 34=PEMENT, , 35=CUIVRE, 36=DETERGENT, 37=BLE, 38=BUTANE, 39=HOUILE
(3): Major commodity (1) of the largest portion
(4): Major commodity (2) of the second largest portion
(5): Major importer corresponding (3)
(6): Total cargo weight in metric tons by ship
(7): E: Foreign flag; A: Algieran flag
(8): Identification number of each calling vessel

Table A.2.1 Record of Unloading of Cargoes at the Port of Algiers in April and October, 1990 (continued)

Quay	Pos	U.T (1)	None (2)	Commod.(1) (3)	Commod.(2) (4)	Package(1)	Package(2)	Import.(1) (5)	Import.(2)	G.T.W. (6)	Cargo(1)	Cargo(2)	TJB	TJN	Arrival D.	Dp (7)	Origin	Storage	Days	No. (8)
27	2	1		CONTENEUR	---	COLIS	---	BNA	---	925	70	---	9,368	8,821	28.10.90	E	ASIE	---	39	29
28		1		TOMULE+DIV	---	PALETTE	---	DIVERS	---	1,143	1,143	---	1,315	685	09.4.90	E	ESPAGNE	TP	22	7
29	1	1		DIVERS	---	DIVERS	---	DIVERS	---	2,248	2,680	---	5,328	3,811	01.4.90	A	BELGIQUE	TP	41	4
29	2	1		DIVERS	---	DIVERS	---	DIVERS	---	567	567	---	1,599	897	25.10.90	E	EUROPE/OUEST	---	15	84
29	1	1		DIVERS	---	DIVERS	---	DIVERS	---	2,514	2,514	---	5,331	3,812	21.4.90	A	BELGIQUE	TP	38	12
30		1		DIVERS	---	DIVERS	---	DIVERS	---	2,108	2,108	---	5,329	3,812	04.10.90	A	E-O	---	52	102
30		1		DIVERS	---	DIVERS	---	DIVERS	---	3,427	3,427	---	5,329	3,812	20.10.90	A	E-O	---	49	104
31	3	1		DIVERS	---	DIVERS	---	DIVERS	---	2,723	2,723	---	4,805	3,306	31.10.90	A	EUROPE/OUEST	---	18	99
31	2	1		DIVERS	---	DIVERS	---	DIVERS	---	3,789	3,789	---	4,805	3,307	16.10.90	A	AMERIQUE/NORD	---	18	96
31	1	1		DIVERS	---	DIVERS	---	DIVERS	---	628	628	---	4,805	3,307	18.10.90	A	E-O	---	51	103
31	2	1		PAPIERS	PALETTE STP	PALETTE	PALETTE	NAEC	CERAMBEL	596	596	---	2,194	1,407	14.4.90	E	ESPAGNE	TP	34	9
31	2	1		CONT. FIL	---	PALETTE	---	ENADITEX	---	1,473	1,473	---	1,599	940	31.3.90	E	BULGARIE	TP	35	3
31	1	1		ACIER	PAPIERS	PARDEAUX	BOBINE	SNVI	SNTA	3,418	4	229	4,802	3,305	28.10.90	A	E-O	---	20	100
31	3	1		CONTENEUR	CONTENEUR	CONTENEUR	CONTENEURS	ERC/AND	ECOREP	2,477	2,477	69	4,805	3,305	17.4.90	A	PORTUGAL	TP	39	87
31	2	1		PEICES	PEICES	CAISSE	CAISSE	SONELGAZ	ERCC	547	28	10	4,805	3,307	---	A	E-O	---	04	105
31	1	1		DIVERS	---	DIVERS	---	DIVERS	---	4,243	4,243	---	12,797	8,351	14.3.90	A	SINGAPOUR	TP	40	2
32		1		DIVERS	---	DIVERS	---	DIVERS	---	5,026	5,026	---	1,599	897	03.4.90	E	R.F.A	TP	20	85
32		1		VACHE	---	VRAC	---	DIVERS	---	369	369	---	492	310	15.4.90	E	FRANCE	TP	3	86
33	3	1		DIVERS	---	DIVERS	---	DIVERS	---	504	504	---	9,771	6,786	12.10.90	E	ASIE	---	52	115
33	3	1		DIVERS	---	DIVERS	---	DIVERS	---	243	243	---	6,550	3,310	02.10.90	E	E-E	---	21	49
33	3	1		TOLE	---	?	---	DIVERS	---	1,421	1,421	---	2,863	1,297	23.4.90	A	FRANCE	TP	42	76
33	3	1		DIVERS	---	DIVERS	---	DIVERS	---	1,904	1,904	---	2,870	2,009	02.10.90	A	AMERIQUE/NORD	---	30	97
33	3	1		DIVERS	---	DIVERS	---	DIVERS	---	156	156	---	3,496	1,583	02.10.90	E	EUROPE/OUEST	---	17	122
34	1	1		PAQUETS	---	PAQUETS	---	ENATB	---	18,255	18,255	---	15,570	11,091	14.4.90	E	CANADA	TP	10	79
34	2	1		DIVERS	---	DIVERS	---	DIVERS	---	3,602	3,602	---	5,331	3,145	29.3.90	A	BELGIQUE	TP	30	1
36		1		POICHICHE	---	SACS	VRAC	OAIC	---	198	198	---	498	299	13.10.90	E	EUROPE/OUEST	---	S P	88
36		1		PASCHI	---	SACS	VRAC	OAIC	---	222	222	---	498	299	13.10.90	E	ASIE	---	57	128
					General Cargo Vessels: Various cargoes: Subtotal					112,945										
									Share (%)	18.7										
17		1	1	GRANULE	---	VRAC	---	OAIC	---	2,500	2,500	---	1,549	1,048	14.4.90	E	ALGERIE	TP	SP	57
5	2	1	2	SEMOULE	---	SACS	---	ENIAL	---	1,279	1,279	---	398	233	17.4.90	E	ESPAGNE	TP	SP	71
5		1	2	SEMOULE	---	VRAC	SACS	ENIAL	---	1,722	1,722	---	961	511	28.10.90	E	EUROPE/OUEST	---	S P	67
5		1	2	SEMOULE	---	VRAC	SACS	ENIAL	---	2,191	2,191	---	998	570	23.10.90	E	EUROPE/OUEST	---	S P	68
5	1	1	2	SEMOULE	---	SACS	---	ENIAL	---	1,943	1,943	---	1,575	947	10.4.90	E	ESPAGNE	TP	SP	69
8		1	2	SEMOULE	---	VRAC	---	ENIAL	---	2,250	2,250	---	1,598	942	16.10.90	E	EUROPE/OUEST	---	S P	63
9	2	1	2	SEMOULE	---	SACS	---	ENIAL	---	2,393	2,393	---	1,598	910	01.4.90	E	ITALIE	TP	SP	65
10		1	2	SEMOULE	---	VRAC	SACS	ENIAL	---	3,800	3,800	---	2,890	1,980	06.10.90	E	EUROPE/OUEST	---	S P	66
22	1	1	2	SEMOULE	---	SACS	VRAC	ENIAL	SNTA	2,240	2,240	---	2,804	1,389	04.10.90	E	EUROPE/OUEST	---	S P	81
5	1	1	3	FARINE	---	SACS	---	ENIAL	---	2,100	2,100	---	1,597	908	01.4.90	E	FRANCE	TP	SP	66
8		1	3	FARINE	---	VRAC	---	ENIAL	---	2,020	2,020	---	1,558	805	27.10.90	E	EUROPE/OUEST	---	S P	64
11	1	1	3	FARINE	---	VRAC	---	ENIAL	---	1,253	1,253	---	496	284	23.10.90	E	EUROPE/OUEST	---	S P	65
11	1	1	3	FARINE	---	SACS	---	ENIAL	---	2,114	2,114	---	2,113	1,022	08.4.90	E	FRANCE	TP	SP	66
11	1	1	3	FARINE	---	VRAC	---	ENIAL	---	2,004	2,004	---	1,575	947	10.10.90	E	EUROPE/OUEST	---	S P	62
19		1	3	FARINE	---	VRAC	SACS	ENIAL	---	1,810	1,810	---	1,441	1,047	14.10.90	E	EUROPE/OUEST	---	S P	69
20	1	1	4	CIMENT	---	SACS	---	ERCC	---	4,372	4,372	---	1,599	1,140	08.4.90	E	GRECE	TP	SP	77
34	2	1	4	CIMENT	---	VRAC	---	ASMIDAL	---	11,473	11,473	---	7,311	4,300	22.10.90	E	E-O	---	S1	137
18	2	1	5	BOIS	---	PARDEAUX	---	ENAB	---	2,865	2,865	---	2,896	1,612	28.4.90	E	FINLANDE	TP	13	83
18	1	1	5	BOIS	---	PARDEAUX	---	ENAB	---	16,663	16,663	---	15,570	11,091	18.4.90	E	CANADA	TP	20	82
21		1	5	BOIS	---	PARDEAUX	---	ENAB	---	535	535	---	2,193	1,579	28.4.90	E	YOUGOSLAVIE	TP	51	80
34		1	5	BOIS	---	VRAC	---	ENAB	---	20,125	20,125	---	16,283	1,124	12.10.90	E	AMERIQUE/SUD	---	2	45
34		1	5	BOIS	---	VRAC	---	ENAB	---	4,020	4,020	---	22,531	12,548	31.10.90	E	AMERIQUE/NORD	---	21	55
18		1	7	FER	---	ROULEAUX	---	SNCF	---	4,417	4,417	---	7,066	117	08.10.90	E	E-O	---	2	42
21		1	7	FER	---	PARDEAUX	---	FN SIDER	---	2,582	2,582	---	1,599	1,156	01.4.90	E	TURQUIE	TP	22	45

Table A.2.1 Record of Unloading of Cargoes at the Port of Algiers in April and October, 1990 (continued)

Quay	Post	S.T (1)	Mono (2)	Commod. (1) (3)	Commod. (2) (4)	Package(1)	Package(2)	Import.(1) (5)	Import.(2)	T.W. (6)	Cargo(1)	Cargo(2)	TJB	TJN	Arrival D.	Dp (7)	Origin	Storage	Days	No. (8)
31	3	1	7	FER	---	PARDEAUX	---	EN SIDER	---	6,039	6,039	---	5,854	4,026	10.4.90	E	ITALIE	TP+MG	43	75
33	2	1	7	FER	---	PARDEAUX	---	EN SIDER	---	5,353	5,353	---	4,837	2,785	04.10.90	E	EUROPE/OUEST	---	15	120
33	3	1	7	FER	---	VRAC	---	EN SIDER	---	3,990	3,990	---	4,497	2,264	18.10.90	E	E-E	---	21	48
33	5	1	7	FER	---	VRAC	---	EN SIDER	---	3,772	3,772	---	4,497	2,264	21.10.90	E	URSS E-E	---	21	47
34	1	1	7	FER	---	PARDEAUX	---	EN SIDER	---	9,349	9,349	---	6,017	4,182	05.4.90	E	QUATAR	TP	20	74
6		1	8	CAFE	---	SACS	VRAC	ENAPAL	---	1,513	1,513	---	6,555	3,315	21.10.90	E	AMERIQUE/SUD	---	S P	74
22	1	1	8	CAFE	---	CARTON	---	ENAPAL	---	3,000	3,000	---	9,002	6,707	25.3.90	E	SINGAPOUR	TP	SP	83
17		1	9	GRUME	---	VRAC	---	SNTA	---	490	490	---	3,883	2,478	03.4.90	E	BELGIQUE	TP	44	81
10	1	1	10	VIANDE	---	CARTON	---	OREVIC	---	2,014	2,014	---	4,426	2,222	01.4.90	E	AUSTRALIE	TP	SP	84
23	1	1	11	TOMATE	---	PUTS	---	ENAJUC	---	1,041	1,041	---	1,598	847	05.4.90	E	ITALIE	TP	30	67
21		1	12	BEURRE	---	CARTON	---	ENAPAL	---	1,212	1,212	---	1,580	822	11.4.90	E	IRLANDE	TP	SP	70
9	1	1	13	LAIT	---	CARTON	PALETTES	ENIAL	---	3,000	3,000	---	10,322	5,657	31.10.90	E	EUROPE/OUEST	---	S P	71
22	4	1	13	LAIT	---	PALETTE	---	ENAPAL	---	469	469	---	8,580	5,147	21.4.90	E	BELGIQUE	TP	SP	73
17		1	17	CRAIE	---	PALETTES	---	ENAD	---	2,501	2,501	---	1,566	1,198	20.10.90	E	E-O	---	21	53
26		1	18	SOJA	---	VRAC	---	ONAB	---	16,287	16,287	---	12,838	8,049	29.10.90	A	AMERIQUE/NORD	---	S P	56
20	2	1	19	TABAC	---	BALLE	VRAC	SNTA	---	451	451	---	746	417	09.10.90	E	EUROPE/OUEST	---	S P	79
22	1	1	19	TABAC	---	VRAC	---	ANTA	---	1,802	1,802	---	2,863	1,297	23.10.90	A	EUROPE/OUEST	---	S P	61
23	1	1	19	TABAC	---	BALLE	PALETTES	SNTA	ENPEC	841	830	15	1,571	870	02.10.90	E	EUROPE/OUEST	---	S P	76
9	1	1	20	SUCRE	---	VRAC	SACS	ENIAL	---	14,000	14,000	---	9,084	6,403	19.10.90	E	EUROPE/OUEST	---	S P	70
9	2	1	21	AVOINE	---	SACS	VRAC	ONAB	---	1,200	1,200	---	1,401	832	13.10.90	E	EUROPE/OUEST	---	S P	84
9	2	1	21	AVOINE	---	SACS	VRAC	ONAB	---	1,000	1,000	---	1,401	832	25.10.90	E	EUROPE/OUEST	---	S P	83
21		1	22	RESINE	---	SACS	VRAC	SONELGAZ	---	1,960	1,960	---	1,823	1,045	19.10.90	E	EUROPE/OUEST	---	S P	87
8	2	1	23	GRAINS	---	SACS	---	ENAPSA	---	600	600	---	499	299	03.10.90	E	EUROPE/OUEST	---	S P	91
22	PC	1	24	AMIANTE	---	VRAC	---	ENCEP	---	1,300	1,300	---	2,992	1,679	11.10.90	E	APRIQUE	---	16	121
17		1	25	MARBRE	---	VRAC	---	ENAMARBRE	---	2,900	2,900	---	1,598	1,182	13.10.90	E	LITTORAL ALG	---	13	125
17		1	25	MARBRE	---	VRAC	---	ENAMARBRE	---	2,950	2,950	---	1,598	1,182	28.10.90	E	LITTORAL ALG	---	10	124
5		1	37	BLE	---	SACS	VRAC	OAIC	---	2,240	2,239	---	1,599	1,160	05.10.90	E	EUROPE/OUEST	---	S P	80
					General Cargo Vessels: Monocommodity:				Subtotal	191,945										
									Share (%)	31.8										
7	2	2		ACIER	CUIVRE	COLIS	PAETTES	ENIEM	SOPAPP	1,204	73	21	3,628	1,326	06.10.90	A	E-O	---	29	6
7	2	2		TOLES	PALET. CON	PARDEAUX	PALETTE	EN. SIDER	EMAC	491	148	39	3,624	1,336	28.4.90	A	FRANCE	TP+MG	9	45
7	2	2		DIVERS	---	DIVERS	---	DIVERS	---	239	239	---	1,598	863	11.10.90	A	E-O	---	40	112
7	2	2		DIVERS	---	DIVERS	---	DIVERS	---	1,542	1,542	---	3,990	1,823	31.3.90	E	FRANCE	MG	23	40
7	2	2		VEHIC. DIV	---	VEHIC. DIV	---	DIVERS	---	497	497	---	3,624	1,336	20.4.90	A	FRANCE	TP+MG	26	44
7	2	2		DIVERS	---	DIVERS	---	DIVERS	---	404	404	---	3,598	1,213	15.4.90	A	ITALIE	TP+MG	26	42
7	2	2		FLACONS	MEDICAMEN	PALETTE	---	ENAPHARM	ENAPHARM	2,012	1,248	606	3,598	1,213	29.10.90	A	E-O	---	51	114
7	2	2		TISSUS	TRACTEUR	CONTENEUR	DIVERS	BDL	ESTP B.B.	1,219	39	48	3,429	1,132	19.10.90	A	E-O	---	4	7
7	2	2		COLORANT	PIECES	PALETTE	PALETTES	SNCI	ENGTP	323	30	2	2,499	952	04.10.90	E	EUROPE/OUEST	---	---	132
7	2	2		PAPIER	MAT. ELECT	PALETTE	CAISSE	SNTA	ENEL	1,525	75	44	3,598	1,213	08.4.90	E	ITALIE	TP+MG	43	41
7	2	2		DIVERS	CAISSE	COLIS	CAISSE	EC. BLIDA	ENTTPP	1,392	93	81	3,628	1,336	16.4.90	A	FRANCE	TP+MG	23	43
8	2	2		VEUICULES	CAISSES	VEHICULES	CAISSE	SONATRACH	ENTR	584	240	27	3,624	1,336	14.4.90	A	FRANCE	TP	43	29
8	2	2		DIVERS	CONTENEUR	CAISSE	CONTENEURS	SORECAL	ENPC	1,295	124	122	3,213	1,213	02.4.90	A	FRANCE	TP	29	20
9	2	2		DIVERS	---	DIVERS	---	DIVERS	---	1,212	1,212	---	1,598	1,250	29.3.90	A	FRANCE	TP+MG	28	17
9	2	2		DIVERS	---	DIVERS	---	DIVERS	---	934	934	---	1,598	863	19.4.90	A	FRANCE	TP+MG	20	16
11	2	2		DIVERS	---	DIVERS	---	DIVERS	---	499	439	---	9,499	952	10.4.90	E	FRANCE	TP+MG	20	25
20	2	2		DETERGENT	---	CARTON	---	DIPROCHIM	---	1,278	1,278	---	927	492	07.4.90	E	TURQUIE	TP	13	55
20	2	2		CARTON	CARTON	PAETTES	PAETTES	BADR	ENIEM	2,510	182	75	3,598	1,213	19.10.90	A	E-O	---	42	2
20	2	2		DIVERS	---	DIVERS	---	DIVERS	---	628	628		3,429	1,132	23.10.90	A	E-O	---	47	5
20	1	2		VEHICULES	---	---	---	---	---	593	593	---	19,533	13,022	30.10.90	E	ASIE	---	---	130
22	4	2		PIECE	ROBINET	COLIS	COLIS	DVP	SONATRCH	619	14	10	3,628	1,336	21.10.90	A	E-O	---	52	3
22	4	2		FER	FER	VRAC	VRAC	ENB	ANABIB	1,745	613	44	3,598	1,213	10.10.90	A	E-O	---	3	1
22	4	2		DIVERS	---	DIVERS	---	DIVERS	---	906	906	---	1,065	439	07.10.90	A	E-O	---	50	109

Table A.2.1 Record of Unloading of Cargoes at the Port of Algiers in April and October, 1990 (continued)

Quay	Post	S.T (1)	Mono (2)	Commod.(1) (3)	Commod.(2) (4)	Package(1)	Package(2)	Import.(1) (5)	Import.(2)	E.T.W. (6)	Cargo(1)	Cargo(2)	TJB	TJN	Arrival D.	Up (7)	Origin	Storage	Days	No. (8)
22	4	2		PIECES	EQUIPEMEN	CAISSE	CAISSE	HYDROL.	SONATRACH	509	444	10	999	476	02.10.90	E	EUROPE/OUEST	---	57	135
23	3	2		BINEUSE	CARTON	CAISSE	PAETTES	ONAPSA	SNTA	1,620	92	106	2,502	1,119	02.10.90	A	E-O	---	56	4
23	3	2		EQUIPEMENT	HITIVIT.	COLIS	CARTON	M.HYDROL.	ENAPHARM	317	83	7	3,287	1,042	12.4.90	E	ITALIE	TP	3	95
23	4	2		P. DETACHE	TISSUS	CONTENEURS	BALLES	R.C.A.	STE. MATIM	1,909	42	26	1,590	582	22.4.90	E	FRANCE	TP	36	14
24		2		RESINE	FREN	CAISSE	PALETTES	SONELGAZ	SNVI	1,112	3	307	1,589	974	25.10.90	E	EUROPE/OUEST	---	59	131
24		2		DIVERS	MEDICAMEN	CARTON	CARTON	ENAL	ENAPHARM	319	6	2	328	1,042	21.10.90	E	EUROPE/OUEST	---	52	136
24		2		DIVERS	---	DIVERS	---	DIVERS	---	795	795	---	3,598	1,213	09.10.90	A	E-E	---	59	107
25		2		LAIT	PHARMA.	PALETTE	CARTEN	ORLAC	ENAPHARM	340	30	310	1,593	585	04.4.90	E	FRANCE	TP+MG	30	93
25		2		CHIRURGIE	---	CARTON	CAISSE	ENEMEDI	PERDJIQUA	1,077	961	116	8,368	6,969	01.4.90	E	JAPON	TP	50	90
25		2		CAISSE	CAISSE	CAISSE	CAISSE	SET. ERIAD	ERIAD.ALG.	894	147	127	2,681	1,232	21.4.90	E	ITALIE	TP	41	98
25		2		DIVERS	---	DIVERS	---	DIVERS	---	493	493	---	3,598	1,213	28.4.90	A	FRANCE	TP+MG	51	88
25		2		DIVERS	---	DIVERS	---	DIVERS	---	2,450	2,450	---	1,594	785	06.10.90	A	EUROPE/OUEST	---	---	134
25		2		BOITICART	PALETTE	PALETTE	PALETTE	ENADITEX	ECOTEX	1,212	14	23	1,598	863	07.4.90	E	ESPAGNE	TP	29	96
25	1	2		DIVERS	---	DIVERS	---	DIVERS	---	1,514	1,514	---	1,589	974	17.4.90	A	FRANCE	TP	42	97
27	2	2		COTENEUR	CAMIONS	CONTENEURS	CAMION	NAFTAL	ECA	225	120	105	1,596	778	29.4.90	A	ITALIE	TP+MG	27	15
27	2	2		DIVERS	---	VEHIC. PAL	---	DIVERS	---	572	1,393	---	3,628	1,336	18.4.90	A	FRANCE	TP	43	11
27	2	2		COTENEUR	COTENEUR	CONTENEURS	CONTENEURS	NAFTAL	CPA	1,206	199	114	1,594	785	14.4.90	E	ESPAGNE	TP	31	8
27	2	2		DIVERS	---	DIVERS	---	DIVERS	---	690	690	---	1,590	582	31.10.90	E	E-O	---	43	31
27		2		DIVERS	---	DIVERS	---	DIVERS	---	650	650	---	1,589	974	14.10.90	E	EUROPE/OUEST	---	05	133
27	2	2		DIVERS	---	DIVERS	---	DIVERS	---	1,265	1,265	---	999	476	02.4.90	E	ANGLETERRE	TP	35	5
27	2	2		PAPIERS	---	PALETTE	---	ENEPAL	---	2,052	2,052	---	1,596	778	22.4.90	A	FRANCE	TP	39	13
27	2	2		DIVERS	---	DIVERS	---	DIVERS	---	669	669	---	1,590	582	02.10.90	E	E-O	---	43	32
29	2	2		DIVERS	---	DIVERS	---	DIVERS	---	805	805	---	1,596	778	16.10.90	A	E-O	---	46	113
29	2	2		PAPIER	---	BOBINE	---	PTT	---	402	402	---	1,596	778	31.10.90	A	E-O	---	42	110
29	2	2		PR. CHIM.	---	PUTS	PALETTES	ENIPEC	---	835	835	---	1,065	439	20.10.90	A	E-O	---	52	108
29	2	2		DIVERS	DIVERS	CONTENEURS	PALETTE	ENPEC	ENARP	943	155	2	999	468	18.4.90	E	ANGLETERRE	TP+MG	32	10
32	1	2		DIVERS	---	DIVERS	---	DIVERS	---	1,265	1,265	---	999	476	01.4.90	E	ANGLETERRE	TP	56	84
32	1	2		DIVERS	---	DIVERS	---	---	---	1,250	1,250	---	999	477	22.10.90	E	E-O	---	56	35
33	2	2		TISSUS	PRESSE	ROULEAUX	CAISSE	ENIPEC	ENIAL	3,400	15	1	2,502	1,119	21.10.90	A	E-E	---	51	106
						Ro-R Vessels: Various cargoes:			Subtotal	54,501										
									Share (%)	9.0										
27	2	2	14	SEMENCE	---	SACS	---	BADR	---	787	24	---	1,590	582	10,10.90	E	E-O	---	42	30
27	2	2	15	FLACON	---	PALETTES	---	PARFUMERI	---	729	1	---	1,590	582	22.10.90	E	E-O	---	51	33
20	2	2	32	SODIUM	---	VRAC	---	OAIC	---	161	161	---	3,287	1,042	30.4.90	E	ITALIE	TP	47	56
11	2	2	33	VEHICULES	---	VEHICULES	---	SNVI	---	428	428	---	42,447	12,734	04.4.90	E	JAPON	TP	3	22
22	4	2	34	PIMENT	---	PALETTE	---	ENAPAL	---	618	618	---	958	570	05.4.90	A	ESPAGNE	TP+MG	39	49
23	3	2	34	PIMENT	---	PALETTE	---	ENAPAL	---	1,198	1,198	---	1,065	439	31.4.90	A	ESPAGNE	TP	25	92
18	2	2	35	CUIVRE	---	VRAC	---	BEA	---	1,408	1,408	---	1,598	863	30.10.90	A	E-O	---	43	111
27	2	2	36	DETERGENT	---	PALETTE	---	DIPROCHIM	---	580	585	---	999	452	08.4.90	E	ESPAGNE	TP	22	6
						Ro-R Vessels: Monocommodity:			Subtotal	5,910										
									Share (%)	1.0										
33	3	3	37	BLE	---	VRAC	---	OAIC	---	25,271	25,271	---	14,330	9,832	04.4.90	E	FRANCE	TP	SP	61
33	3	3	37	BLE	---	VRAC	---	OAIC	---	25,725	25,725	---	14,650	9,046	28.3.90	E	U.S.A	TP	SP	59
35		3	37	BLE	---	VRAC	---	OAIC	---	25,473	25,437	---	18,824	11,971	20.10.90	A	AMERIQUE/NORD	---	S P	60
35	2	3	37	BLE	---	VRAC	---	OAIC	---	4,000	4,000	---	14,651	9,046	31.3.90	E	FRANCE	TP	SP	60
35	3	3	37	BLE	---	VRAC	---	OAIC	---	21,000	21,000	---	18,733	12,380	09.10.90	E	EUROPE/OUEST	---	S P	89
35	1	3	37	BLE	---	VRAC	---	OAIC	---	25,147	25,147	---	15,940	11,618	03.4.90	E	U.S.A	TP	SP	62
35	1	3	37	BLE	---	VRAC	---	OAIC	---	10,800	10,800	---	15,908	10,904	08.10.90	A	AMERIQUE/NORD	---	S P	92
35	1	3	37	BLE	---	VRAC	---	OAIC	---	23,760	23,760	---	14,836	9,660	24.10.90	E	AMERIQUE/NORD	---	S P	73
35	1	3	38	MAIS	---	VRAC	---	OAIC	---	24,733	24,733	---	16,432	11,353	06.10.90	E	AMERIQUE/NORD	---	S P	90
							Cereal carriers:		Subtotal	185,909										
									Share (%)	30.8										
37	2	4	28	BUTANE	---	VRAC LIQUI	---	ERCC	---	1,100	1,100	---	2,756	1,373	03.10.90	E	LITTORAL ALG	---	20	26
32	2	4	28	BUTANE	---	VRAC	---	NAFTAL	---	3,737	3,737	---	5,274	3,992	09.10.90	E	LITTORAL ALG	---	---	131

Table A.2.1 Record of Unloading of Cargoes at the Port of Algiers in April and October, 1990 (continued)

Quay	Post	S.T (1)	Mono (2)	Commod. (1) (3)	Commod. (2) (4)	Package(1)	Package(2)	Import. (1) (5)	Import. (2)	E.T.W. (6)	Cargo(1)	Cargo(2)	TJB	TJN	Arrival D.	Dp ?	Origin	Storage	Days	No. (8)
37	2	4	28	BUTANE	---	VRAC	---	NAFTAL	---	3,500	3,500	---	6,521	1,956	24.10.90	E	LITTORAL ALG	---	---	139
37	2	4	28	BUTANE	---	VRAC	---	NAFTAL	---	3,548	3,548	---	6,521	1,956	17.10.90	E	LITTORAL ALG	---	---	140
37	1	4	29	GASOIL	---	VRAC LIQUI	---	NAFTAL	---	5,029	5,029	---	3,325	197	20.10.90	A	LITTORAL ALG	---	---	22
37	3	4	30	ESSENCE	---	VRAC LIQUI	---	NAFTAL	---	4,200	4,200	---	3,335	1,971	30.10.90	A	LITTORAL ALG	---	---	21
27	1	4	31	PETROLE	---	VRAC LIQUI	---	NAFTAL	---	1,502	1,502	---	3,372	1,972	15.10.90	A	E-O	---	---	20
							Petroleum	tankers:	Subtotal	22,616										
									Share (%)	3.7										
32		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	3,000	3,000	---	1,962	1,432	08.10.90	A	EUROPE/OUEST	---	S P	59
32		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	2,000	2,000	---	1,963	1,432	03.10.90	A	EUROPE/OUEST	---	S P	57
32		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	1,500	1,500	---	1,962	1,432	20.10.90	A	LITTORAL ALG	---	S P	58
36		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	2,000	2,000	---	4,509	2,140	23.10.90	E	EUROPE/OUEST	---	S P	78
36		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	2,750	2,750	---	1,272	923	17.10.90	E	EUROPE/OUEST	---	S P	77
36		4	39	HUILE GOL	---	VRAC LIQUI	---	ENCG	---	5,168	5,168	---	4,222	2,204	24.10.90	E	AMERIQUE/NORD	---	S P	88
							Vegetable oil	tankers:	Subtotal	16,418										
									Share (%)	2.7										
7	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	412	412	---	3,410	1,405	11.3.90	E	FRANCE	TP	28	39
11	2	5		BRIQUES	CARREAUX	PALETTES	PALETTES	EMB	EMB	557	557	8	10,766	6,116	20.10.90	E	E-O	---	10	28
11	2	5		VEHICULES	---	VEHICULES	---	PASSAGERS	---	341	341	---	7,095	3,703	15.4.90	A	FRANCE	MG	27	30
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	348	348	---	7,095	3,703	18.4.90	A	FRANCE	MG	15	32
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	425	425	---	---	---	17.10.90	A	E-O	---	52	15
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	250	250	---	7,095	3,702	11.10.90	A	E-O	---	2	13
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	579	579	---	10,766	6,116	13.10.90	E	E-O	---	10	27
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	210	210	---	7,095	3,702	07.10.90	A	E-O	---	40	12
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	275	275	---	7,165	3,670	31.10.90	A	E-O	---	2	11
11	2	5		DIVERS	---	VEHICULES	PASSAGERS	---	---	736	736	---	10,232	4,877	22.4.90	A	FRANCE	MG	13	35
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	597	597	---	10,766	6,116	10.4.90	E	FRANCE	MG	37	26
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	214	214	---	9,914	3,452	22.4.90	A	FRANCE	MG	16	36
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	366	366	---	10,232	4,877	29.10.90	A	E-O	---	15	18
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	327	327	---	14,918	8,144	02.10.90	E	E-O	---	6	23
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	301	240	---	9,914	1,115	11.4.90	A	FRANCE	MG	10	27
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	548	548	---	14,918	8,144	30.10.90	E	E-O	---	10	24
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	306	306	---	14,918	8,144	16.10.90	E	E-O	---	10	25
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	229	229	---	7,095	8,703	21.10.90	A	E-O	---	13	10
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	409	412	---	7,095	3,703	29.4.90	A	FRANCE	MG	27	38
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	249	249	---	7,095	3,702	25.10.90	A	E-O	---	37	14
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	654	654	---	1,232	4,877	01.4.90	A	FRANCE	TP+MG	23	19
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	370	370	---	9,914	5,452	19.10.90	A	E-O	---	42	9
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	422	422	---	10,766	6,116	03.4.90	E	FRANCE	MG	37	21
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	420	420	---	10,232	4,877	09.10.90	A	E-O	---	---	19
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	299	299	---	7,094	3,703	08.4.90	A	FRANCE	MG	32	24
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	357	357	---	10,232	4,877	04.10.90	A	E-O	---	18	17
11		5		DIVERS	---	VEHICULES	---	PASSAGERS	---	325	325	---	12,124	6,859	01.4.90	A	FRANCE	TP+MG	12	18
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	597	597	---	10,788	6,116	27.10.90	E	E-O	---	10	26
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	464	465	---	8,914	5,452	04.4.90	A	FRANCE	MG	26	23
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	538	538	---	10,766	6,116	24.4.90	E	FRANCE	MG	15	37
11	2	5		DIVERS	---	DIVERS	---	PASSAGERS	---	150	150	---	10,232	4,877	23.10.90	A	E-O	---	54	16
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	425	425	---	10,232	4,877	19.4.90	A	FRANCE	MG	23	33
11	2	5		DIVERS	---	VEHICULES	---	PASSAGERS	---	576	567	---	10,766	6,116	17.4.90	E	FRANCE	MG	31	31
							Car ferries:		Subtotal	13,276										
									Share (%)	2.2										
									Grand Total	603,520										
									Share (%)	100.0										

A.3 Port Tariff

Port tariff in Algerian ports is unified and it has following structure.

(1) Tariff for usage of services and installations
 1) General rule
 2) Taxes of transit and depot
 3) Charge for ships
 4) Charge for usage of installations

(2) Tariff for cargo handling
 1) General rule
 2) Charge by tonnage for cargo handling on board/ground
 3) Special charge
 4) Charge for extra cost

The most recent tariff which was revised in 1989 is now under procedure of revision and the new tariff is expected to be effective on June, 1992. The new tariff for maritime charge will be drawn up in foreign currencies to prevent decrease of revenue by the devaluation of the DA. Also, cargo handling charges will be increased at 20 %.

The major charges in the actual tariff (1989 version) are as follows:

A.3.1 Tariff for usage of services and installations

(1) General rule

Working hour of Algerian ports is
from Saturday to Thursday
Morning Shift 07h - 13h
Afternoon Shift 13h - 19h

(2) The tax of transit and depot

1) Tax of transit

All merchandises which transit through Algerian ports are subjected to payment of the transit tax during 3 days of "delay permitted" period. The

payment of the transit tax covers the period of 3 days.
The rate of the transit tax is fixed each year in the Law of Finance.

cargo which are directly delivered to consignee	0.68 DA/ton
cargo which are stored in yard	1.36 DA/ton/day
cargo which are stored in shed	1.89 DA/ton/day
cargo which are stored in warehouse	3.09 DA/ton/day

2) Tax of depot

The tax of depot is charged on the merchandises staying in the port area beyond the legal period of transit whic is 3 days.
The rate of the depot tax is fixed each year in the Law of Finance.

Table A.3.1 (DA/m^2/day)

storage place/days	4-15	16-25	26-35	36-45	over45
yard	0.94	1.41	1.89	2.35	2.82
shed	1.26	1.89	2.52	3.15	3.78
warehouse	1.45	2.17	2.90	3.62	4.35

3) Exception - Storage of containers

For export 20' container 12 DA/day
40' container 18 DA/day

For import

Table A.3.2 (DA/day)

type / days	1-15	16-25	26-35	36-45	over45
20' container	24	30	36	42	48
40' container	35	43.75	52.50	61.50	70

4) Gardiennage

days	1-15	16-25	26-35	36-45	over45
charge(DA/day)	1	1.30	1.60	1.90	2.10

(3) Charge for ships

For the application of the tariff concerning the ship's charge, the volume

of a ship is defined and calculated by using the following formula.

V=LxLxte

In above formula V(volume) is expressed in m^3 and L, L and te represent respectively the length of over all ship, its maximum width and water draft in summer time expressed in meter and decimeter.

1) Pilotage

The date and time of arrival or departure of ships should be noticed sufficiently in advance. If the pilot remains on board over 3 hours, the ship should pay penalty of 290 DA/hours.

The operations of pilotage, in the compulsory zone, needs dues as follows. However the minimum amount is 200 DA per operation.

Entry to the port	0.06 DA/m^3
Departure from the port	0.06 DA/m^3
Anchorage movement in the port	0.03 DA/m^3

2) Tugs

The operations of tug for ships, carried out by the port enterprise, on entry or departure, need tug dues calculated on the base of the following tariff with minimum amount of 940 DA per operation/tug.

Table A.3.3 (DA)

volume of ship	first hour	second hour	third hour
less than 3,000 m^3	940	840	675
3,001 - 6,000	1,010	950	750
9,001 - 12,000	1,250	1,100	990
21,001 - 24,000	1,860	1,690	1,510
30,001 - 33,000	2,290	2,045	1,850
42,001 - 45,000	2,665	2,385	2,150
51,000 - 54,000	2,920	2,650	2,375
57,000 - 60,000	3,045	2,750	2,500

3) Renting of launches

Charge for renting of a launch

310 DA/H

4) Other services

a) Guard service for a ship

Ships which is transporting dangerous cargo	20 DA/hours/agent
Other ships	11 DA/hours/agent

b) Diver service

625 DA/hours/agent

(4) Charge for usage of installations

1) Electricity charges

The consumption of electric energy require surcharge of the following percentages, according to the use of the equipments or instruments.

50%	in case of not using equipments or instruments of the port
100%	in case of using equipments or instruments of the port

2) Cleaning

disposal of garbage	80 DA/m^3
sweeping	8 DA/m^2

A.3.2 Tariff for cargo handling

(1) General rule

1) Timetable of handling operation

from Saturday to Thursday

- morning shift : 0700-1300
- afternoon shift : 1300-1900

2) Timetable of handling operation for supplement

Night:

- shift 1 : 1900-0100

- shift 2 : 0100-0700

Friday and public holiday:
- morning shift : 0700-1300
- afternoon shift : 1300-1900

(2) Charge by tonnage for cargo handling on board/ground

The cargo handling tariff is drawn up for each ton or unit in accordance with the difference of merchandises, conditions and loading or unloading as follows:

Table A.3.4

Condition of Merchandise	charge per ton/unit	
	board	ground
0 Merchandise in sacks	27-39	21-12
1 Merchandise in cases and cartons	25-42	40-12
2 Merchandise in wooden box	29-37	17-12
3 Merchandise in barrels	29-37	28-21
5 living creatures	11-18	8-6
6 Merchandise in tanks	37-42	25-16
7 Merchandise in reels and rolls	37-42	16-11
8 Merchandise in burdens	37-42	16-11
9 Containers		
9.1 containers empty one unit	33	15
9.2 containers loading in a ton		
9.2.1 containers less than 20 feet in ton	54	3
9.2.2 containers beyond 20 feet in ton	65	2
10 Merchandise with light package in ton	91-300	18- 8
11 Merchandise with heavy package in ton	39-104	13- 5
12.1 Logs, timbers	37-39	18-11
12.5 Metal block/plate	42	18
13 Movings/Rollings		
13.1 Heavy Vehicle with registration		
equal to or less than 3000 kg/unit	78	14
plus 3000 kg/unit to ton	72	5
13.2 Heavy vehicle without registration	72-78	17- 6
13.3 Light vehicle with registration	77	6
13.4 Light vehicle with none registration	77	5
13.5 Wagons	39-111	17- 6
13.6 Engines	39-111	33-143
13.7 Motorcycles, Bicycles	33	3
13.9 Towing Ro/Ro		
equal to or less than 3000kg/unit	78	9
over 3000kg to ton	72	3
13.10 Towing vertical handling	39-111	13- 6

(3) Special Tariffs

1) Liquid

wine and alcohol	
- tank lorries to/from ship	0.70 DA/HL
- by direct pipe	0.30 DA/HL
Honey	26 DA/T
Asphalt	
- tank lorries to/from ship	22 DA/HL
- by direct pipe	1.5 DA/HL
Oil	
- tank lorries to/from ship	11 DA/T
- through direct pipe	5 DA/HL

2) Bulk

Heavy bulk and cement	3-14 DA/T
Sugar	26 DA/T
Small Package	
- 1kg to 10kg	1 DA/U
- 10kg to 20kg	2 DA/U

(4) Charge for extra cost

1 : Charge for a man per supplementary shift

2 : Charge for a man per supplementary hour

3 : Charge for a gang per supplementary hours

Friday : 3,575 DA

8/holiday : 4,550 DA

4 : Charges for waiting per gang on board or ground per hour and per type of cargo

bulk	166	container	300
Ro/Ro	496	frozen meat	542

5 : Charge list of equipments and materials for cargo handling in DA/HOURS

Table A.3.5

types	Workday		Friday/Holiday	
	7h-19h	19h-7h	7h-19h	19h-7h
Electric cranes				
3t	300	375	450	525
6t	400	500	600	700
10t	700	875	1050	1225
Automobile cranes				
less than 20t	500	625	750	875
21- 40t	750	940	1125	1320
41-100t	1000	1250	1500	1750
over 100t	2000	2500	3000	3500
Forklifts				
less than 3t	150	190	225	265
4- 7t	250	315	375	440
8-10t	350	440	525	615
11-16t	450	560	675	790
17-20t	600	750	900	1050
over 20t	750	940	1125	1320
Tractors	600	750	900	1050
Grain pumps	60	75	90	120
Sling				
10-20t	130 DA/Unit/Shift			
20-40t	180 DA/Unit/Shift			
over 40t	240 DA/Unit/Shift			

6 : Rate of charge for various extra-costs in DA covering, sweeping, handling of poisonous/dangerous products

7 : List of merchandises exceptionally dirty and dusty requirs special allowance per hours and per shift - lime, cement, plaster, food (in sacks)

8 : Classification of dangerous merchandises

class 1 explosives

2 gas

3 inflammable liquid

9 : Difficult handling

- Workday 5,330 DA/gang/shift
- Friday 7,410
- Public holiday 9,035

A.4 Hinterland of the Study Ports

Table A.4.1 The origin and destination of cargoes by railway transports

ALGER PORT

WILAYA/DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA		WILAYA/DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
AIN DEFLA	BLE	351			MASCARA	LEGUMES SECS	120		
AIN DEFLA	FILS METALIQUES	227			MASCARA	RITZ	150		
AIN DEFLA	HUILES COMESTIBLES	1.666			MASCARA	SAVONS	614	997	0.215%
AIN DEFLA	LAIT ENTIER LAIT FRAIS	22			MILA	HUILES COMESTIBLES	425		
AIN DEFLA	SAVONS	238			MILA	SAVONS	101	526	0.126%
AIN DEFLA	SUCRES BRUTS	45			MOSTAGHANEM	HUILES COMESTIBLES	39		
AIN DEFLA	SUCRES CONDITIONNES(VENTE)	835	2.786	0.234%	MOSTAGHANEM	LEGUMES SECS	80		
AIN TEMOUCHENT	SAVONS	53	53	0.013%	MOSTAGHANEM	RITZ	80		
ALGER	BLE	619			MOSTAGHANEM	SAVONS	147	347	0.083%
ALGER	LAIT ENTIER LAIT FRAIS	16			ORAN	CONTENEURS CHARGES	98		
ALGER	MACHINES APPAREILS	118			ORAN	LEGUMES SECS	137		
ALGER	SAVONS	183	955	0.205%	ORAN	PRENDES ALIMENTS DETAIL	81		
ANNABA	HUILES COMESTIBLES	168			ORAN	SAVONS	809	1.867	2.261%
ANNABA	LEGUMES SECS	623			OUARGLA	ARTICLES EN PLASTIQUES	20		
ANNABA	RITZ	590			OUARGLA	BLE	25		
ANNABA	SAVONS	25	1.526	0.315%	OUARGLA	CIMENT PORTLAND	1.580		
BATNA	HUILES COMESTIBLES	1.297			OUARGLA	HUILES COMESTIBLES	509		
BATNA	LEGUMES SECS	50			OUARGLA	PRODUITS CHIMIQUES NDA	390		
BATNA	SAVONS	426	1.773	0.484%	OUARGLA	SAVONS	53		
BB. ARRERIDJ	BLE	10.146			OUARGLA	TUBES ET TUYAUX METAL.	250	2.887	0.693%
BB. ARRERIDJ	BOIS BRUTS OU EBAUCHES	594			OUM BOUAGHI	CHARPENTES CONST EN ACIER	1.485		
BB. ARRERIDJ	HUILES COMESTIBLES	236			OUM BOUAGHI	HUILES COMESTIBLES	200		
BB. ARRERIDJ	SAVONS	5.749	16.787	3.788%	OUM EL BOUAGHI	SAVONS	90	1.753	2.421%
BECHAR	SAVONS	91	91	0.022%	RELIZANE	BLE	61		
BISKRA	HUILES COMESTIBLES	429			RELIZANE	HUILES COMESTIBLES	274		
BISKRA	PRODUITS CHIMIQUES NDA	115			RELIZANE	SAVONS	374	729	0.172%
BISKRA	RITZ	530			SETIF	EMBALLAGES USAGES	4		
BISKRA	SAVONS	185	1.160	0.273%	SETIF	HUILES COMESTIBLES	1.831		
BLIDA	ACIERS LAMINES OU PROFILES	1.518			SETIF	PAILS	3.111		
BLIDA	BLE	49.398			SETIF	SAVONS	1.639	6.585	1.580%
BLIDA	CONTENEURS CHARGES	78			SIDI BEL ABBES	LEGUMES SECS	90		
BLIDA	FARINES ALIMENTAIRES	640			SIDI BEL ABBES	RITZ	150		
BLIDA	MACHINES APPAREILS	488			SIDI BEL ABBES	SAVONS	463	703	0.169%
BLIDA	MAIS	312			SKIKDA	HUILES COMESTIBLES	876		
BLIDA	RAILS	7.798			SKIKDA	LEGUMES SECS	52		
BLIDA	SAVONS	464			SKIKDA	SAVONS	48	966	0.232%
BLIDA	SUCRES BRUTS	48	60.448	14.506%	SOUK AHRAS	RITZ	100		
BOUIRA	BLE	203.695			SOUK AHRAS	SAVONS	37	137	0.033%
BOUIRA	FARINES ALIMENTAIRES	107			TEBESSA	HUILES COMESTIBLES	148		
BOUIRA	MAIS	515			TEBESSA	TOLES EN FEUILLES	3.183	3.331	0.799%
BOUIRA	SUCRES CONDITIONNES(VENTE)	500	205.816	49.398%	TIARET	HUILES COMESTIBLES	51	51	0.012%
BOUMERDES	BLE	1.261			TIZI OUZOU	ACIERS LAMINES OU PROFILES	348		
BOUMERDES	HUILES COMESTIBLES	133			TIZI OUZOU	BLE	68.217		
BOUMERDES	LAIT ENTIER LAIT FRAIS	21			TIZI OUZOU	BOIS BRUTS OU EBAUCHES	1.242		
BOUMERDES	SAVONS	161			TIZI OUZOU	BOIS DE CHAUFFAGE	186		
BOUMERDES	SUCRES CONDITIONNES(VENTE)	40	1.615	0.388%	TIZI OUZOU	BOIS DE SCIAGE	65		
CONATANTINE	CONTENEURS CHARGES	48			TIZI OUZOU	BOIS PIECES/ BOIS FACONNEES	176		
CONSTANTINE	BLE	183			TIZI OUZOU	CONTENEURS CHARGES	1.515		
CONSTANTINE	HUILES COMESTIBLES	3.241			TIZI OUZOU	EMBALLAGES USAGES	332		
CONSTANTINE	RITZ	180			TIZI OUZOU	HUILES COMESTIBLES	83		
CONSTANTINE	SAVONS	1.201			TIZI OUZOU	MAIS	593		
CONSTANTINE	TABACS EN FEUILLES	107	4.952	1.188%	TIZI OUZOU	PRODUITS CHIMIQUES NDA	427		
DJELFA	HUILES COMESTIBLES	25	25	0.006%	TIZI OUZOU	SUCRES CONDITIONNES(VENTE)	80		
ECH CHELIFF	HUILES COMESTIBLES	23.492			TIZI OUZU	RITZ	400	73.564	17.677%
ECH CHELIFF	SAVONS	351	23.843	5.722%	TLEMCEN	CARBURANTS LIQUIDES	151		
EL OUED	HUILES COMESTIBLES	1.381			TLEMCEN	LEGUMES SECS	261		
EL OUED	SAVONS	94			TLEMCEN	RITZ	150		
EL OUED	SUCRES CONDITIONNES(VENTE)	100	1.495	0.359%	TLEMCEN	SAVONS	1.245		
GUELMA	SAVONS	75	75	0.018%	TLEMCEN	HUILES COMESTIBLES	93	1.898	0.454%
MASCARA	HUILES COMESTIBLES	33			TOTAL		416.713	416.713	100.000%

ORAN PORT

WILLAYA(DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA		WILLAYA(DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
AIN DEFLA	BLE	905			MOSTAGHANEM	CARBURANTS LIQUIDES	154	164	0.024%
AIN DEFLA	CARBURANTS LIQUIDES	639			ORAN	BLE	27		
AIN DEFLA	GRAINES DE COTON	88			ORAN	FILS METALIQUES	43		
AIN DEFLA	HUILE DE PETROLE BRUTE	26			ORAN	RAILS	4.279	4.349	0.624%
AIN DEFLA	LUBRIFIANTS HIULE P.GARAGE	312			OUM BOUAGHI	AVOIN	73	73	0.010%
AIN DEFLA	MAIS	1.896	3.260	0.555%	RELIZANE	BLE	23.815		
ALGER	BITUME	296			RELIZANE	CARBURANTS LIQUIDES	46.636		
ALGER	CARBURANTS LIQUIDES	754			RELIZANE	ESCOURGEON ORGE	1.363		
ALGER	LUBRIFIANTS HIULE P.GARAGE	4.550			RELIZANE	MAIS	6.832	78.645	11.294%
ALGER	MAIS	938			SAIDA	BLE	3.890		
ALGER	BOIS PIECES/ BOIS FACONNEES	10	6.548	0.360%	SAIDA	CARBURANTS LIQUIDES	26.890		
ANNABA	LUBRIFIANTS HIULE P.GARAGE	832	832	0.119%	SAIDA	ESCOURGEON ORGE	2.179		
BATNA	CARBURANTS LIQUIDES	102			SAIDA	MAIS	6.012		
BATNA	LUBRIFIANTS HIULE P.GARAGE	726	828	0.119%	SAIDA	SUCRES CONDITIONNES(VENTE)	200	44.171	6.343%
BB ARRERIDJ	BITUME	346			SETIF	CARBURANTS LIQUIDES	52		
BB ARRERIDJ	CARBURANTS LIQUIDES	104			SETIF	LUBRIFIANTS HIULE P.GARAGE	676		
BB. ARRERIDJ	BLE	1.010			SETIF	VERNIS	18	746	0.107%
BB. ARRERIDJ	LUBRIFIANTS HIULE P.GARAGE	364	1.824	0.262%	SIDI BEL ABBES	ACIERS LAMINES OU PROFILES	311		
BECHAR	BLE	131			SIDI BEL ABBES	BLE	78.793		
BECHAR	CARBURANTS LIQUIDES	163.836			SIDI BEL ABBES	CARBURANTS LIQUIDES	44.945		
BECHAR	FILS METALIQUES	85			SIDI BEL ABBES	ESCOURGEON ORGE	12.035		
BECHAR	MAIS	23			SIDI BEL ABBES	FER BLANC	356		
BECHAR	SUCRES CONDITIONNES(VENTE)	215			SIDI BEL ABBES	MAIS	34.224		
BECHAR	ACIERS LAMINES OU PROFILES	147	164.417	23.611%	SIDI BEL ABBES	SUCRERIES /ENDRES AUTRES	1.170		
BEJAIA	CARBURANTS LIQUIDES	104			SIDI BEL ABBES	TOLES EN FEUILLES	100	172.133	24.715%
BEJAIA	LUBRIFIANTS HIULE P.GARAGE	1.456	1.560	0.224%	SKIKDA	LUBRIFIANTS HIULE P.GARAGE	78	78	0.011%
BLIDA	BITUME	306			SOUK AHRAS	BLE	42	42	0.006%
BLIDA	BLE	1.032			TBESSA	CARBURANTS LIQUIDES	26		
BLIDA	MAIS	2.537	3.874	0.556%	TEBESSA	LUBRIFIANTS HIULE P.GARAGE	260		
BOUIRA	BITUME	13			TEBESSA	TEXTILES	26	312	0.045%
BOUIRA	MAIS	103	117	0.017%	TIARET	CARBURANTS LIQUIDES	46.190	46.190	6.633%
CHLEF	RAILS	52	52	0.007%	TIZI OUZOU	BITUME	38		
CONSTANTINE	BLE	202			TIZI OUZOU	CONTENEURS CHARGES	35	89	0.012%
CONSTANTINE	CARBURANTS LIQUIDES	824			TLEMCEN	CARBURANTS LIQUIDES	81.532		
CONSTANTINE	LUBRIFIANTS HIULE P.GARAGE	1.278	1.814	0.260%	TLEMCEN	ACIERS LAMINES OU PROFILES	267		
ECH CHELIEF	MAIS	13.648			TLEMCEN	BLE	11.850		
ECH CHELIF	BLE	6.915			TLEMCEN	ESCOURGEON ORGE	1.369		
ECH CHELIF	CENDRES NON DENOMMEES	864			TLEMCEN	FARINES ALIMENTAIRES	393		
ECH CHELIFF	CARBURANTS LIQUIDES	717			TLEMCEN	FER BLANC	196		
ECH CHELIFF	MAIS	2.496	24.579	3.530%	TLEMCEN	FIBRANES FILS FIBRES SYNT.	18		
GUELMA	BLE	182			TLEMCEN	FILS METALIQUES	96		
GUELMA	CONFISERIE SUCRERIES NDA	405	587	0.084%	TLEMCEN	SUCRES CONDITIONNES(VENTE)	3.740		
MASCARA	CARBURANTS LIQUIDES	15.156			TLEMCEN	MAIS	11.805	111.317	15.986%
MASCARA	MARCHANDISES DIVERSES	286							
MASCARA	RAILS	160							
MASCARA	SUCRES CONDITIONNES(VENTE)	11.682	27.183	3.904%	TOTAL		696.347	696.347	100.000%

ANNABA PORT

WILLAYA(DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
AIN DEFLA	SUCRES BRUTS	528	528	0.031%
ANNABA	BLE	11,884		
ANNABA	CABLES EN ALUMINIUM	1,472		
ANNABA	CARBURANTS LIQUIDES	54,688		
ANNABA	COKE DE HOUILLES	916,924		
ANNABA	DECHETS(METAUX FERRAILLES)	280		
ANNABA	DEMI PRODUITS SIDERURGIQUES	3,727		
ANNABA	ESCOURGEON ORGE	4,328		
ANNABA	FARINES ALIMENTAIRES	1,467		
ANNABA	FILS METALIQUES	285		
ANNABA	LAITIER DE HAUT FOURNEAU	1,620		
ANNABA	MAIS	30,886		
ANNABA	MARCHANDISES DIVERSES	26,090		
ANNABA	MINERAI DE FER	98,580		
ANNABA	PRODUITS CHIMIQUES NDA	37,735		
ANNABA	RITZ	100		
ANNABA	TUBES ET TUYAUX METAL.	63		
ANNABA	WAGONS DE PATICULIERS VIDE	360	1,249,697	72.972%
BATNA	BLE	1,048		
BATNA	ESCOURGEON ORGE	446		
BATNA	MAIS	350	1,844	0.108%
BB. ARRERIDJ	MAIS	1,050	1,050	0.061%
BISKRA	BLE	770	770	0.045%
BOUIRA	BENZOL TOLUOL XYLOL	352	352	0.021%
BOUMERDES	BLE	960		
BOUMERDES	MAIS	171	1,131	0.066%
CHLEF	PIQUETS/ POTEAUX TRAVERSES	1,439	1,439	0.084%
CONSTANTINE	BLE	178,898		
CONSTANTINE	ENGRAIS PHOSPHATES	90		
CONSTANTINE	ESCOURGEON ORGE	3,991		
CONSTANTINE	FARINES ALIMENTAIRES	498		
CONSTANTINE	MAIS	31,113	285,790	12.016%

WILLAYA(DEST.)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
DJELFA	SUCRES BRUTS	3,239	3,239	0.189%
GUELMA	BLE	735		
GUELMA	MAIS	1,554		
GUELMA	SUCRES BRUTS	81,610		
GUELMA	SUCRES CONDITIONNES(VENTE)	747	84,655	4.943%
MILA	ENGRAIS PHOSPHATES	100		
MILA	MAIS	821	921	0.053%
ORAN	PIQUETS/ POTEAUX TRAVERSES	610		
ORAN	BENZOL TOLUOL XYLOL	229	1,439	0.084%
OUARGLA	BLE	2,089		
OUARGLA	ESCOURGEON ORGE	165	2,254	0.132%
OUM BOUAGHI	BLE	1,488		
OUM BOUAGHI	MAIS	10,863	12,351	0.721%
RELIZANE	PIQUETS/ POTEAUX TRAVERSES	1,072	1,072	0.063%
SETIF	ENGRAIS PHOSPHATES	100		
SETIF	MAIS	1,676		
SETIF	PIQUETS/ POTEAUX TRAVERSES	5,893		
SETIF	TRAVERSES POUR FERREES	144	7,813	0.456%
SKIKDA	ESCOURGEON ORGE	487		
SKIKDA	MAIS	10,817	11,304	0.660%
SOUK AHRAS	CARBURANTS LIQUIDES	48,730		
SOUK AHRAS	MAIS	194		
SOUK AHRAS	SUCRES CONDITIONNES(VENTE)	51	48,973	2.860%
TEBESSA	CARBURANTS LIQUIDES	369		
TEBESSA	ACIERS LAMINES OU PROFILES	1,388		
TEBESSA	CARBURANTS LIQUIDES	69,580		
TEBESSA	COUSCOUS GRUAUX SEMOULES	100		
TEBESSA	FILS METALIQUES	1,054		
TEBESSA	MAIS	3,409		
TEBESSA	RAILS	16		
TEBESSA	SUCRES CONDITIONNES(VENTE)	40	75,385	4.436%
TOTAL		1,712,568	1,712,568	100.000%

WILLAYA(ORIGIN) (AGHA PORT)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
AIN DEFLA	EMBALLAGES USAGES	46	46	0.109%
ALGER	BLE	619	619	1.483%
BB. ARRERIDJ	EMBALLAGES USAGES	126	126	0.302%
BLIDA	EMBALLAGES USAGES	38,739	38,739	92.830%
CONSTANTINE	CYCLES AVEC OU SANS MOTEUR	10		
CONSTANTINE	EMBALLAGES USAGES	12	22	0.053%
ORAN	CARBURANTS LIQUIDES	156		
ORAN	EMBALLAGES USAGES	30		
ORAN	MAIS	572	758	1.817%
OUARGLA	EMBALLAGES USAGES	19		
OUARGLA	WAGONS DE PARTICULIERS VIDES	19	38	0.091%
TEBESSA	EMBALLAGES USAGES	10	10	0.024%
TIZI OUZOU	APPAREILS FRIGORIFIQUES	89		
TIZI OUZOU	CONTENEURS CHARGES	856		
TIZI OUZOU	EMBALLAGES USAGES	214	1,159	2.777%
TLEMCEN	ARGILES	53		
TLEMCEN	BENTONITE	42		
TLEMCEN	SAVONS	50		
TLEMCEN	TERRES POUR REMBLAIS TERRES	38		
TLEMCEN	TERRES REFRACTAIRES ARGILE	36	219	0.524%
TOTAL		41,735	41,735	100.000%

WILLAYA(ORIGIN) (ANNABA PORT)	NATURE DE LA MARCHANDISE	TONNAGE	TON. BY WILAYA	
ANNABA	CARBURANTS LIQUIDES	284,853		
ANNABA	COKE DE HOUILLES	2,348		
ANNABA	DEMI PRODUITS SIDERURGIQUES	34,657		
ANNABA	FILS METALIQUES	197		
ANNABA	FONTE BRUTE	280,144		
ANNABA	MARCHANDISES DIVERSES	11,892		
ANNABA	TOLES EN ACIER ENDULEES	33		
ANNABA	TUBES ET TUYAUX METAL.	3,884	617,207	99.012%
BOUIRA	BENZL TOLUOL XYLOL	53	53	0.009%
CONSTANTINE	BLE	2,710		
CONSTANTINE	SEL MARIN OU SEL GEMME	2,097	4,807	0.771%
ORAN	LUBRIFIANTS HUILE GARAGE	832	832	0.133%
SKIKDA	TRAVERSES POUR VOIES FERREES	468	468	0.075%
TOTAL		623,366	623,366	100.000%
(ORAN PORT)				
BLIDA	MARCHANDISES DIVERSES	49	49	11.864%
ORAN	RAILS	364	364	88.136%
TOTAL		413	413	100.000%

Source: SNTF

Table A.4.2 Origin of cargoes at the study ports

(Analysis on the manifests in April and October in 1990)

Port of Algiers

U: TON

Wilaya	Machine	Electronic products	Vehicles	Spare parts	Tool	Textile	Paper	Chemical Products	Metal products	Non-iron products	Timber	Material for con.	Milk	Other Foodstuff	Others	Total
Chlef	32,521		1,350	25,938				244				4,400				64,853
Laghouat			9,160	380		41,773					8,430					59,743
Bejaia	20,069	26,292	3,460	421,405		78,116	3,330	135				6,510			·	561,317
Blida	524,589	3,454	147,431	251,585	530,526	1,129,254	24,693	271,956	1,083,140			1,064,949			18,410	5,050,189
Bouira	168,849	13,935		6,975	12,962	50,998	4,805	1,063,902	56,039			428,798			2,500	1,809,764
Tizi-ouzou	105,080	128,114	55,603	231,736	21,313	26,940	14,297	1,656	404,006	3,588		60,025		225	16,849	1,059,446
Alger	8,196,314	1,109,045	8,977,835	11,756,466	487,230	1,863,130	3,186,398	6,398,712	7,112,520	2,226,448	3,483,897	8,070,073	345,855	4,845,598	10,877,185	66,536,518
Djelfa	37,843		1,170	660				10,390								50,063
Medea	507,525	23,268	18,520	202,958		7,309		4,536		81,622		5,000		877	85,760	937,373
M'sila	20,110		95,636	40,733				1,664		710					3,000	151,853
B.Bou-Arreridj	5,600		106,682	49	9,720	3,045		8,920				16,000				150,016
Boumerdes	95,114	4,956	247,980	380,482	2,435	92,178	374,726	96,269	24658	43,505		528,210			64,167	1,934,678
Tissemsilt				4,580		15,043										19,623
Tipaza	76,240	12,429	37,359	180,875	1,046	33,706	24,555	10,873	1800	1,103	15,890	14,977			398,096	809,049
Ain-Defla	2,200	2,965	2,570	5,460				617,830		78,672		16,865			4,000	730,562
Ghardia	2,226	27,780	60,000	3,844	145	8,450		2,615				370				103,440
Others	1,113,387	6,302	450,139	232,187	27,355	9,429,871	10,375	1,700,116	199,276	175,633	534,800	2,546,716	0	8,459	61,369	16,505,977
Total	5,908,077	1,356,558	5,224,695	13,732,397	1,092,734	12,577,823	3,643,380	12,187,826	8,861,439	2,611,261	4,043,017	20,758,803	345,855	4,855,159	11,331,346	96,562,490

Port of Oran

U: TON

Wilaya	Machine	Electronic products	Vehicles	Spare parts	Tool	Textile	Paper	Chemical Products	Metal products	Non-iron products	Timber	Material for con.	Milk	Other Foodstuff	Others	Total
Adrar															279	279
Bechar	6,115		7,300	576												13,991
Tlemcen	27,490	12,659	3,725	295,940	57,667	277,716	1,497	437,624	35,809	620		7,628	6,050		192,374	1,357,797
Tiaret	195			28,025				20,865	98,844						30,290	178,220
Saida	3,500	143	7,470	7,856		16,541		673				359,920			2,350	398,493
Sidi-bel-abbes	31,835	99,891	10,050	610,410	30,644	10,127		51,192	1,259,837	1,260		574,972	511	60,117	132,154	2,885,110
Mostaganem	6,580		46,050	21,732	2,000			125,045	17,250	4,102			412,590	176,165	10,207	822,845
Mascara	536,476	890	2,300	335,568	4,792	301,282		105,700	121,523	466		392,944			383,240	2,184,943
Oran	1,578,476	174,895	109,948	3,306,066	113,134	1,269,812	257,764	5,961,667	2,484,545	386,556	3,899	1,041,893	552,379	2,516,800	1,901,495	21,671,995
El-Byadh				330											20,400	20,730
Naama			4,850									34,110				38,960
Temouchent	408,387	4,440	5,500	35,332				464,436	1,441	40,440		355,923			583	1,342,392
Relizane	630		10,330	21,036	2,235			14,864	174,841						22,362	246,298
Others	86,906	41,157	1,480	744,186	111,552	345,971	595	1,021,396	0	0	4,566	1,310	0	1,116,870	53,857	3,532,105
Total	2,685,534	333,875	209,962	5,408,141	322,004	2,221,247	260,651	8,244,467	4,234,131	413,486	8,628	2,772,800	971,570	3,680,972	2,745,609	34,699,188

Port of Annaba

U: TON

Wilaya	Machine	Electronic products	Vehicles	Spare parts	Tool	Textile	Paper	Chemical Products	Metal products	Non-iron products	Timber	Material for con.	Milk	Other Foodstuff	Others	Total
Oum-el-bouaghi	254,245					31,552										285,797
Batna	6,700			10,422				85,160								102,782
Biskra				4,376		181,932		293								186,601
Tebessa	841,135			3,957		556,371	340,278	130,342	91,265						8	[illegible]
Setif															47,585	47,585
Skikda	63,504														490	63,994
Annaba	[illegible]	15,540	[illegible]	[illegible]	[illegible]	402,750	[illegible]	[illegible]	[illegible]	72,255	[illegible]	2,391,732	4,747,010	[illegible]	[illegible]	[illegible]
Guelma	840			4,117		1,965								[illegible]	[illegible]	[illegible]
Constantine	525,622		15,200	64,418										133,791	[illegible]	[illegible]
Ouargla	33,729	3,255		10,892					171,524			55,088			785	[illegible]
El-Tarf	15,239															[illegible]
Khenchela	600			924		75,821										[illegible]
Souk-Ahras	1,535			1,619	557	33,413		696,169	106							[illegible]
Mila	35,371			256												[illegible]
Others	257,150	5	22,566	122,275	0	0	4,148	415,950	0	0	687	376,627	0	0	[illegible]	[illegible]
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	353,610	26,598,501	[illegible]	72,255	[illegible]	2,780,548	4,747,010	[illegible]	[illegible]	[illegible]

Source: Manifests in April and October

A.5 General Idea of Cargo Handling Systems

A.5.1 Cereals in Bulk

(1) Handling flow in port

In general, there are three cases of traffic of cereals in bulk through the port;

Case 1 : After unloading from the vessel, the cargo is first stored in a silo in the port and then transported to the hinterland

Case 2 : The cargo is directly loaded onto trucks and/or rail cars from the vessel and transported to the hinterland

Case 3 : The cargo unloaded from the ocean vessel is transferred to a second carrying vessel

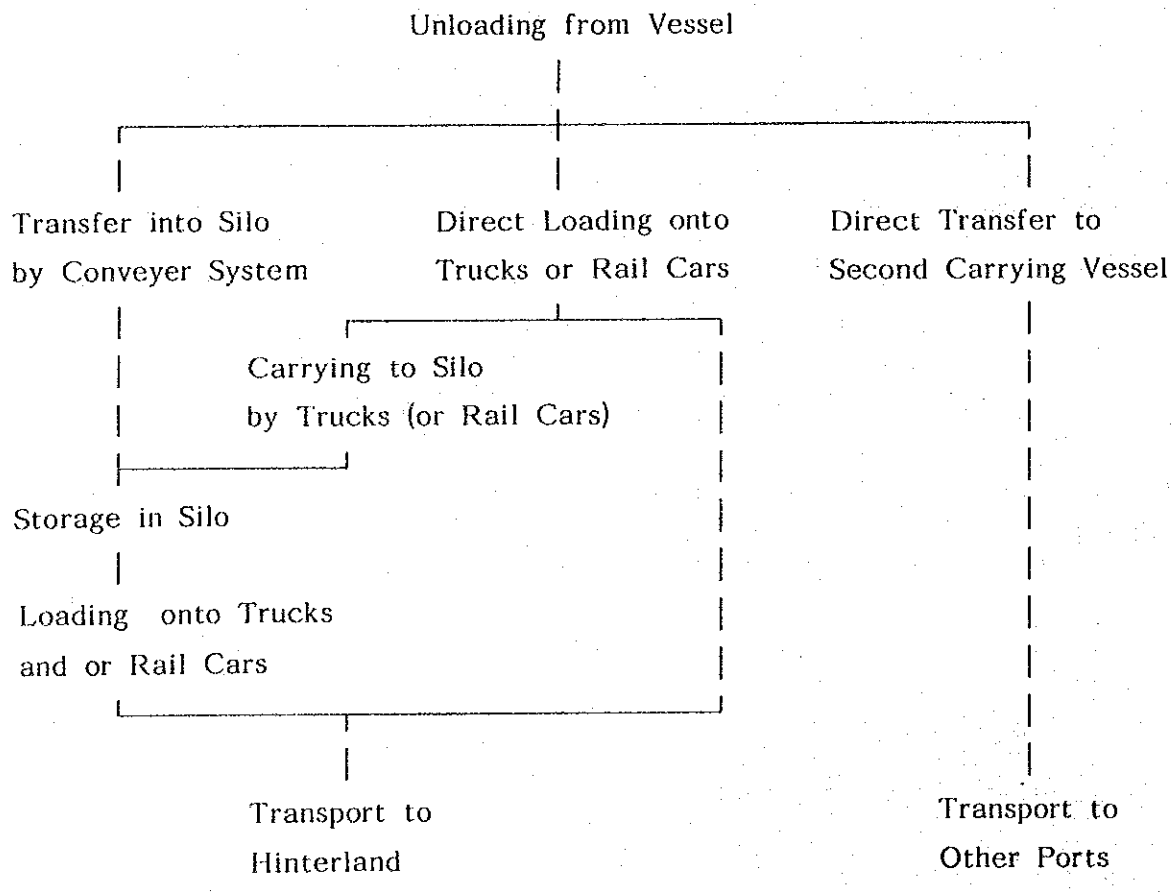


Fig. A.5.1 Handling Flow within Port

(2) Handling Systems

At present, handling is roughly divided into the following three systems according to the handling equipment and machines used for unloading the bulk cereals.

Grab Bucket unloading system
Pneumatic Unloading System
Mechanical Unloading System

These systems are subdivided into the following systems, according to the type of incidental facilities and method of delivery from the port.

a) Grab bucket system

- Ship's cranes/gear, quay cranes and mobile cranes

In this system, the unloading of the cargo from the vessel is done by means of ship's cranes/gear, quay cranes and or mobile cranes with grab buckets, and the cargo is directly loaded onto trucks and or rail cars through movable hoppers. The cargo on the trucks and rail cars is either delivered from the port to the hinter land directly or carried to silos in the port areas by these trucks and/or rail cars. This system does not require a specialized berth or a specialized unloading machine, however it is unfit for unloading large sized vessels, such as panamax bulk carriers, because the handling efficiency of this system is lower than the other undermentioned systems.

- Quay cranes exclusively

This system consists of a grab bucket and cranes, hopper and belt conveyer connected between hopper and storage facility at a the specialized berth. The cargo is generally transferred to the silo by conveyer systems. Sometimes the cargo is directly loaded onto trucks and or rail cars through an evacuation nozzle fitted to the conveyer system. This system can handle various kinds of bulk cargo at the berth, and the attainable handling rate is determined by the number of handling cycles per hour, the average grab payload and the shape and size of the vessel's hatches and cargo holds. Therefore the suitable size of vessel for this system is related to the size of the cranes.

b) Pneumatic unloading system

This system is suitable for handling bulk cargo of comparatively low specific gravity and viscosity such as cereals, cement and other powdery cargo.

- Rail-mounted traveling pneumatic unloader

This unloading system consists of a rail-mounted gantry with a totally enclosed superstructure housing the major items of equipment. Generally, two or three units are housed in one gantry, and the usual unloading rate limit is about 200 tons per hour per unit. There are two types of unloading arms, "flexible tubes and "metallic telescopic cylinder". The flexible tube type allows very efficient gathering of the bottom cargo and cleaning up of the hold at the final stage of unloading.

The cargo suctioned from the vessel's holds is mainly transferred into silo by conveyer systems connected between the unloader and the storage silo, and sometimes the cargo is directly loaded onto trucks and or rail wagons for transport to the hinterland through an evacuation nozzle fitted to the conveyer systems.

At present, this system is used widely in the handling of cereals in bulk at many ports. Nevertheless, one disadvantage of this system is that the power consumption is high compared with other handling systems.

- Tire-mounted pneumatic unloader

This system does not require a specialized berth because the unloader can be positioned on the quay, and the cargo suctioned from the vessel's holds is directly loaded onto trucks and/or rail wagons feeding from a hopper fitted to the unloader. The cargo on the trucks and rail wagons is either delivered from the port to the hinterland directly or is carried to silo in the port area by these trucks and/or rail wagons. The attainable handling rate per unit is determined by the turnover of the trucks and rail wagons per hour rather than the unloading capacity of the machine. Therefore this system is unfit for the unloading of a large amount of cargo from a large sized vessel, such as a panamax bulk carrier.

c) Mechanical unloading system

At present, two kinds of unloaders, "Chain Conveyer Unloader" and "Screw Type Unloader", are used for the unloading of cereals in bulk. The cargo unloaded from the vessel is disposed of in the same way for the rail-mounted traveling pneumatic unloader. Free digging rates of 600 tons or more per hour have been achieved and the throughput is restricted to the rate at which cargo can freely flow into the intake aperture. At the final stage of unloading in the vessel's hold, the throughput becomes lower and it requires many laborers and other handling equipment such as bulldozers and wheel-loaders for the gathering of the bottom cargo in the vessel's holds compared with other handling systems.

(3) Evacuation of cargo from silo

Delivery to the hinterland from the port is carried out by two land transport modes, "trucks" and "rail wagons", and loading into trucks and rail wagons is carried out through separate evacuation lines associated with the respective marshaling areas.

A.5.2 Factors Determined Unloading/Loading Rate of Liquid Cargo

Bulk liquid cargoes transported by tankers are generally handled through piping systems running between shore tanks and loading and unloading facilities in the port. The unloading/loading rates are influenced by the following factors.

In case of unloading

(a) Capacity of cargo pumps and cargo pipe lines of carrying vessel.
(b) Receiving capacity of shore pipe lines and length of shore lines between vessel's side and shore tanks.
(c) Vertical difference between unloading places and shore tanks
(d) Capacity and receiving rates of shore tanks
(f) In case of liquefied gas, regulating method of internal pressure of vessel's and shore tanks.

In case of loading

(a) Capacity of vessel's tanks and receiving capacity of vessel's pipe lines
(b) Delivery capacity of shore lines and length of shore lines between shore tanks and vessel
(c) Capacity of shore pumps for loading
(d) Vertical difference between loading places and shore tanks
(e) Quantity of cargo stocked in shore tanks
(f) In case of liquefied gas, regulating method of internal pressure of vessel's and shore tanks.

The maximum handling rates per size of pipe are shown in Table A.5.1.

Table A.5.1 Max.Handling Volume (mt/hr) per size of Pipe

Specific Gravity	Velocity (m/sec.)	Size of Pipe (inch) Handling Volume (mt/hr)			
		6'	8'	10'	12'
0.6	3	118	210	328	473
	4	158	280	438	630
	5	197	350	547	788
	6	236	420	656	945
	7	276	490	766	1103
0.7	3	138	245	383	551
	4	184	327	511	735
	5	230	408	638	919
	6	276	490	766	1103
	7	322	572	893	1286
0.8	3	158	280	438	630
	4	210	373	583	840
	5	263	467	729	1050
	6	315	560	875	1260
	7	368	653	1021	1470
0.9	3	177	315	492	709
	4	236	420	656	945
	5	295	525	820	1181
	6	354	630	985	1418
	7	414	735	1149	1654

< Formula >
Handling volume (mt/hr)
= (D/2)^2 x 3.14 x 3600 (sec) x S.G. X Velocity (m/sec)
(D : Diameter of pipe in centimeter)

A.5.3 Container Handling System

(1) Flow of container boxes and cargo

After being unloaded from container vessels by gantry cranes, container boxes are temporarily laid or stacked on a marshaling yard to wait for necessary procedures for import, including customs clearance. LCL cargoes, which means various consignments co-stowed in a container, are unstuffed from container boxes at CFS and stored there for consignees and then brought out as loose cargoes by land transport. Import procedures for LCL cargoes are finished in the CFS. FCL cargoes are usually delivered to consignees as they are stowed in the containers, however some FCL cargoes are often unstuffed and loaded onto trucks within the container terminal for consignee's convenience. On the other hand, exported container cargo are brought into a container terminal by trucks or tractor-trailer units. Exported LCL and CFS cargoes are brought into the CFS, and after finishing export procedures, they are stuffed into container boxes and are brought out to a marshaling yard to wait to be shipped. FCL cargoes excluding CFS cargoes are stuffed into container boxes outside the terminal, for example, at a shipper's premise, and then are brought in and stacked in a marshaling yard of the terminal. Exported containers are then finally loaded into container vessels.

The container flow at a container terminal is shown in Fig.A.5.2

(2) Container handling systems

1) Chassis system

In this system, at the time of unloading from the vessel, a container is directly landed onto a chassis by container gantry crane and carried and stored on the chassis inside the container terminal, and transport from the terminal to consignees is also done by means of the same chassis.

The advantages of this system are:

- Containers can be handled more easily and quickly.
  No cranes for loading and unloading in stacking area are required.
  It is a very flexible, safe and simple system.

The possibility of damage to the containers is lessened.
- No skilled personnel are needed.
- The system is advantageous for ports with many Ro-Ro vessels calling.
- Handling in the terminal occurs only once.

The disadvantages of this system are:

- It is necessary to prepare as many chassis as the number of stored containers. This requires a major investment.
- Sufficient clearance around each chassis and many traffic lanes are needed. Consequently a large stacking area is required.

2) Transfer crane system

In this system, containers in the storage area are stacked and unstacked by a rail-mounted or rubber-tired transfer crane. They can straddle containers in some six to nine rows stacked in five tiers. In addition, this system does not require large open spaces between the rows of stacked containers. The transfer between apron and storage area is done by tractor-trailers.

The advantages of this system are :

- Multiple number of containers can be stacked in a block
- Maintenance cost is low
- Initial investment is not so large, and investment is step by step.
- It is easy to control cargo handling
- Automatization is possible, though not easy
- Rather thin pavement can be used in the stacking yard
- This system is suitable for terminals with multiple users

The disadvantages of this system are :

- It requires a heavy pavement along crane traveling route
- It requires highly skilled maintenance personnel
- It must be supported by chassis or straddle carriers

3) Straddle Carrier System

At present, this system is the predominant one. Straddle carriers can stack containers three or four high in one line, move them between apron and stacking areas, and load or unload them to or from road transport.

The advantage of this system are :

- It is a very flexible and simple system.
- Quick dispatch of containers is possible.
- Containers can be stacked in tires, so the container yard area can be used efficiently.
- The required number of operating personnel is low.

The disadvantages of this system are :

- It requires a high maintenance cost.
- Skilled personnel are needed for maintenance.
- Use of stacking area is moderate, because it requires many traffic lanes.
- Thick pavement is required in the marshaling yard due to the heavy pay-load of the straddle carrier.

4) Forklift system

This system is generally adopted in a small-scale container terminal and or in an empty container pool by forklifts or side-lifters and top-lifters. The containers are stacked in two rows in a line and the full containers are usually stacked in two tiers.

The advantages of this system are :

- Most ports have experience in both the operation and maintenance of forklifts.
- It is flexible for handling empty containers.

The disadvantages of this system are :

- It requires a high maintenance cost.

- Thick pavement is required in the container yard, due to heavy pay-load of forklifts.
- Skilled personnel are needed for maintenance.
- Low utilization of stacking area because it requires a wide space between lines of the stacking containers for moving of the forklifts.
- Damaged ratio of containers is very high.

(3) Evaluation of cargo handling system

The characteristics of each system mentioned above are summarized in Table A.5.2.

(4) Operation and documentation at container terminals

1) Terminal operations

The container terminal represents a converging point between sea and land transportation. It thus includes a wide range of tasks and operations, and they are as follows:

a) Shipping agency

Working on behalf of a shipping company, it handles formalities associated with a ship's entry into or departure from port.

b) Planning

Preparation of loading plans for vessels, and plans for storage and placing of cargo in container yard.

c) Paper work

Delivery and preparation of necessary documents for importing and exporting of container cargoes.

d) Gate work

Since the gate is the point where the responsibility of cargo is shifted

from the shipper to shipping company, the main work here involves the reception and gathering of interchange of equipment receipts (E/R)

E) Yard work

Loading/unloading container into vessels, taking in/out containers in marshaling yard, and delivering containers to inland transporters.

f) Maintenance

Maintenance and repairs of numerous large machine units and containers

g) Inventory work for container boxes

Submission of reports to shipping companies on the supply-demand balance for container boxes, in consideration of the following:

the number of containers kept in the yard,
the number of containers rented,
the expected date for return of the containers.

In addition to the above, activities involve CFS and van pools.

2) Documentation

Documents, including papers and data used in container transport, form a massive volume of information because of the large, unspecified number of shippers involved and of the usage of containers. Figure A.5.3 shows the overall flow of this information. The necessary documents for container transport are shown in Table A.5.3 for reference.

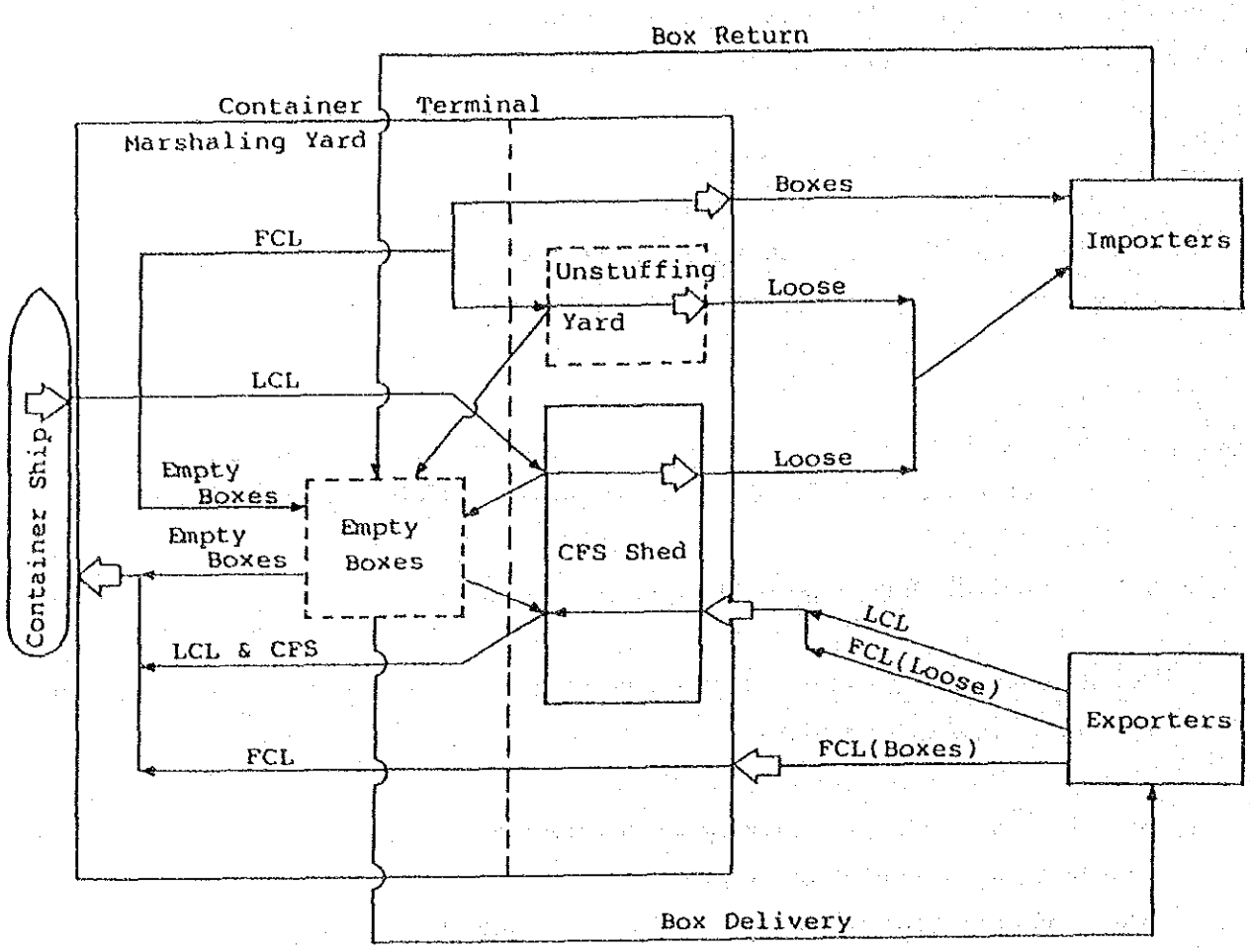


Fig. A.5.2 Container Flow at a Container Terminal

Table A.5.2 Comparison of Handling Equipment in Container Terminal

Type of Equipments	Chassis	Straddle Carrier	Transfer Crane	Forklift (Top Lifter/ Side Lifter)
Yard Area Size	Large	Medium	Small	Large
Flexibility in C.Yard	None	Yes	None	Yes
Max Stacking Hieght Full Container	1 Tier	3 Tiers	4 Tiers	3 Tiers
Empty Container	1 Tier	4 Tiers	5 Tiers	4 Tiers
Yard Efficiency Rate	High	Medium	Low	Medium
Gantry Crane Efficiency Rate	Low	High	Low	High
Working Hour for taking in/out Conts	Short	Medium	Long	Medium
Damage Ratio of Container	Low	High	Medium	High
Required Skill of Driver	Low	High	Medium	High
Term for Training of Driver	None	Long	Medium	Short
Investment Scale	Large	Small	Medium	Small
Maintenance Cost	Small	Large	Medium	Large
Ranning Cost	Low	High	Medium	High
Required Skill for Repairing	Low	High	Medium	High
Scale of Repair Shop	Small	Large	-	Medium

Table A.5.3 Documents to be prepared at Container Terminal

Name of Document	Contents	Document Drafters	Main Application of documents
Booking List	Aggregation of shipper's information such as the details concerning cargo, the number and type of necessary container vans, and the condition of ship transport	Shippin company	Used for checking when terminal operator receives cargo and for drawing up yard plans and making arrangements for containers.
Equipment Receipt (E/R)	Papers fpr defining where the responsibility lies for the damage of equipment such as chassis and container vans.	Terminal operator	Used as basic materials for invetory control of containers.
Container Load Plan (CLP)	Documents with details on the cargo packed into containers.	Shipper or vanning company	Used to help terminal operator draw up storage plan.
Dock Receipt (D/R)	Documents detailing contents of cargo, transporting conditions and name of reciver.	Shipper	Used as basic materials for the bill of lading issued by a shipping company. Used to check when terminal operator receives cargo and to help in the formulation of stowage plans and yard plans.
Certification of Measurment and Weight	Show the correctness of a cargo's weight and quantity.	People involved with examinations and measurements	Used for making bills of lading issued by a shipping company
Bill of Lading (B/L)	Show that cargo has been properly loaded into the mother ship; in the case of containers, show that B/L has been received when cargo is loaded in CY, without stowage into mother ship.	Shipping company	Used as transport contract between shipping company and shipper.
Stowage Plan	Show order and place of loaded cargo in order to assure safeth for the mother ship and to smoothen cargo work.	Terminal operator	Used as basic materials for formulating work plan at port where cargo is unloaded
Container Load List	List of containers loaded into mother ship.	Terminal operator	Used for container inventory.
Container List	Submitted to customs office as evidence that the re-export of containers has been conducted according to the Special Container Law.	Terminal operator	

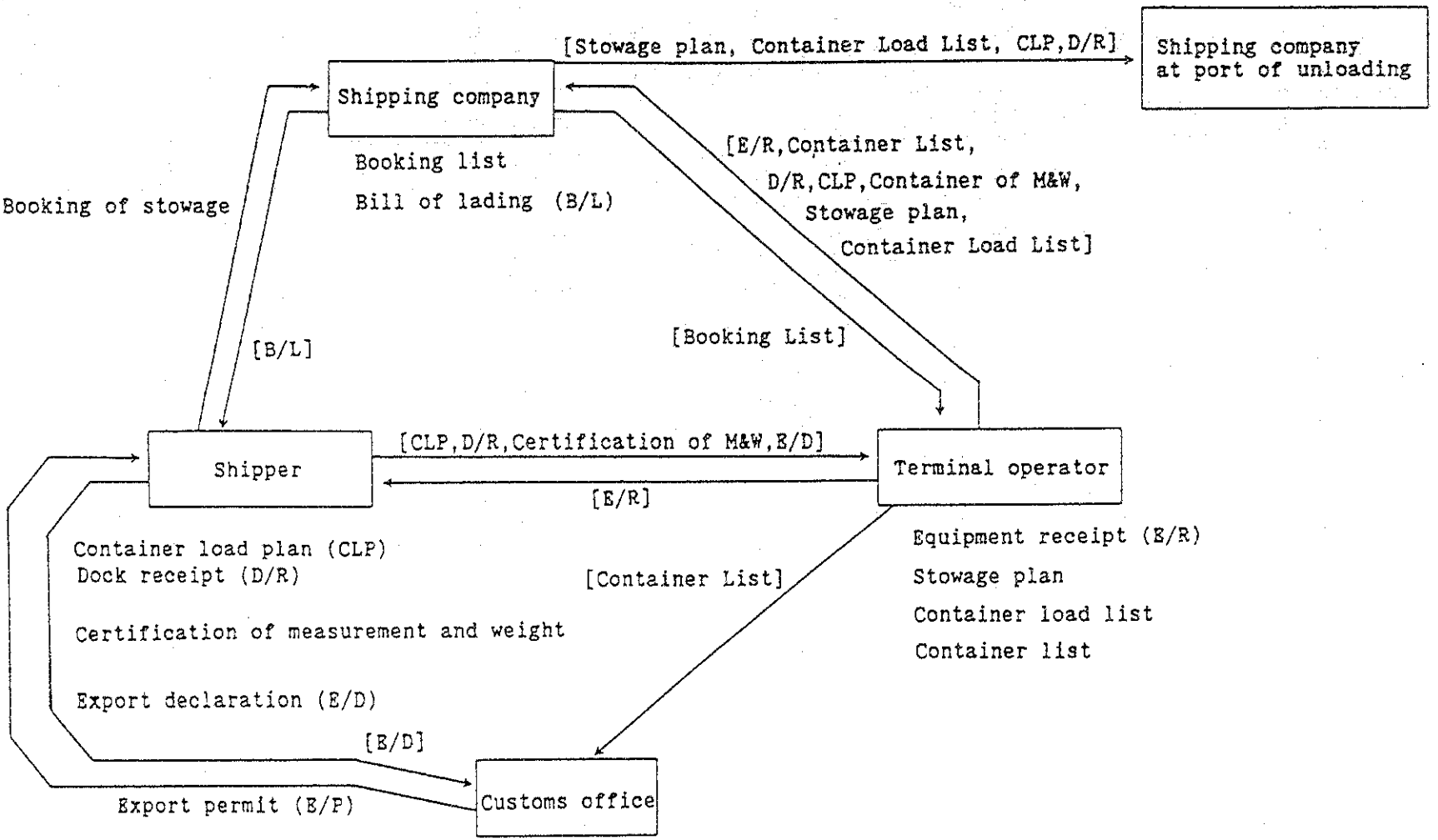


Fig. A.5.3 Document Flow for Container Export of General Cargo

A.6 Setting of Logistic Curves Representing Trend of Progress of Containerization

It is known from surveys at many ports with advanced containerization that the percentage of containerization approximately changes according to a logistic curve.

The equation for logistic curves representing the progress of containerization is;

$$P = Pm / (1 + C^{(t-to)})$$

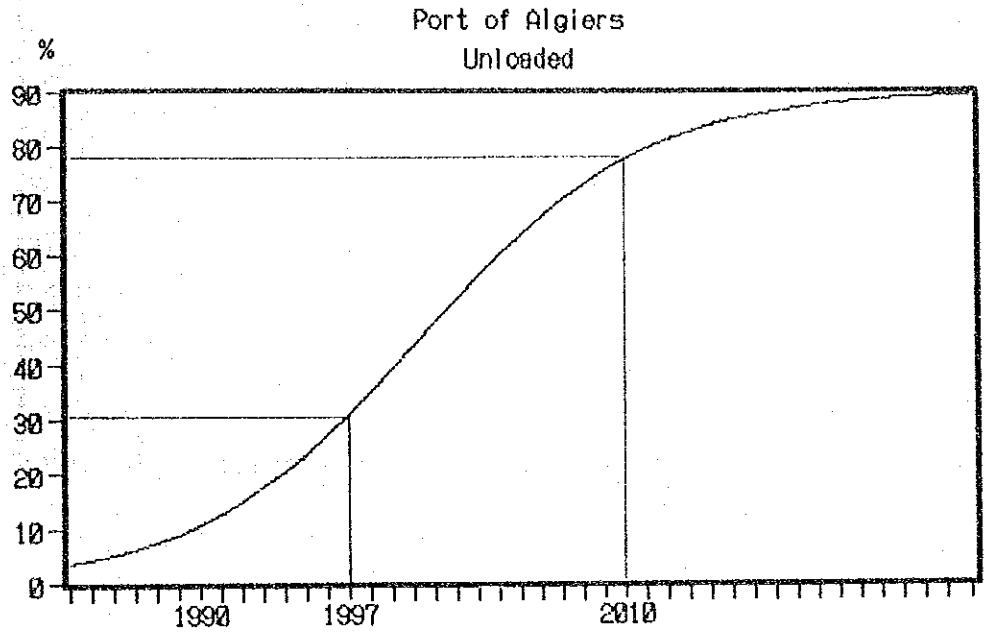
where P : Percentage of containerization in t year
Pm: Theoretical limit of percentage of containerization
C : Constant to determine shape of curve
t : Year
to : Time lag shown by unit of year(constant)

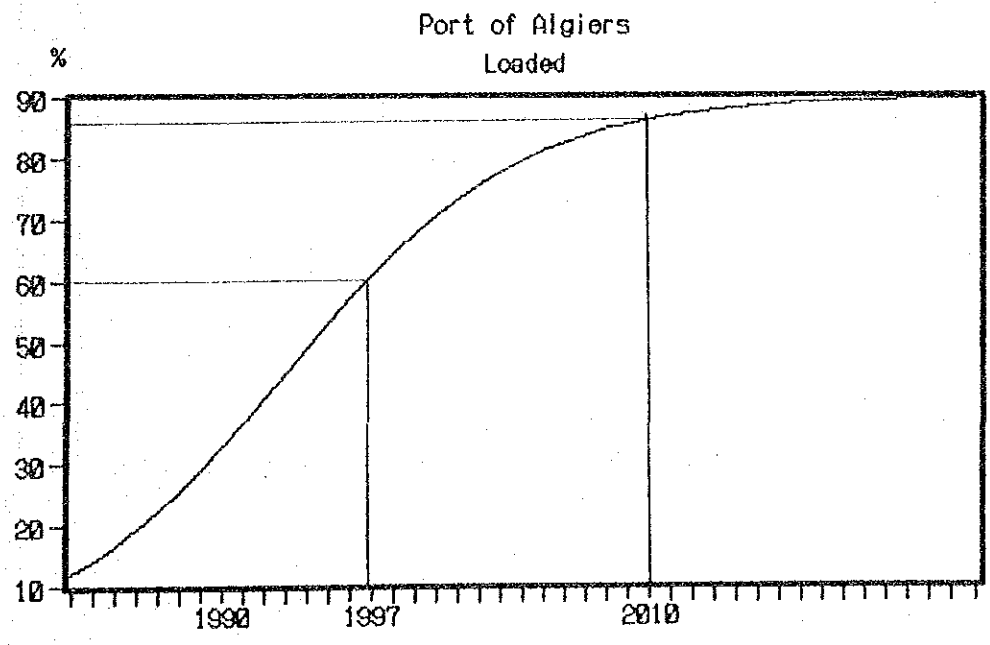
Determining constants using the least square method is not appropriate because the data at the study ports are for the early stage of containerization. So values of constants have been determined based on the values of suitable routes at the ports with advanced containerization. As a result, value of C is 0.8248 in loaded cargo and 0.830 in unloaded cargo.

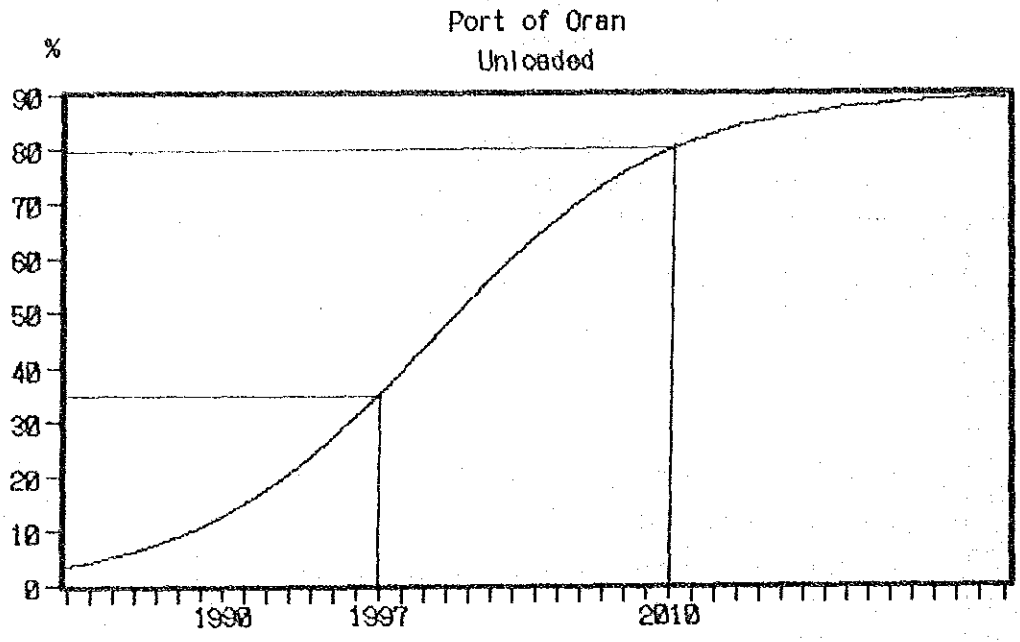
Now, a logistic curve can be drawn through the points showing the past results from 1986-1990, as shown in Figure A.6.

However, as for the loaded cargo at the ports of Annaba and Oran, since the present percentage of containerization is almost 0%, it is assumed that it will be 12.2%(the initial value of the logistic curve) in 1994 when the World Bank's project will be completed.

Figure A.6 Estimation of future percentage of containerization using logistic curve



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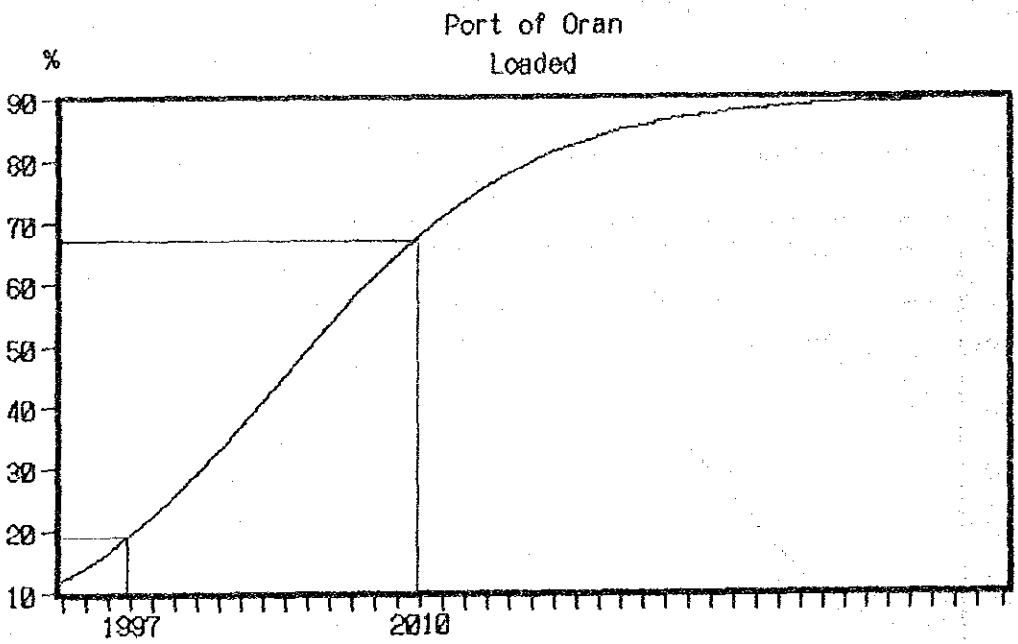
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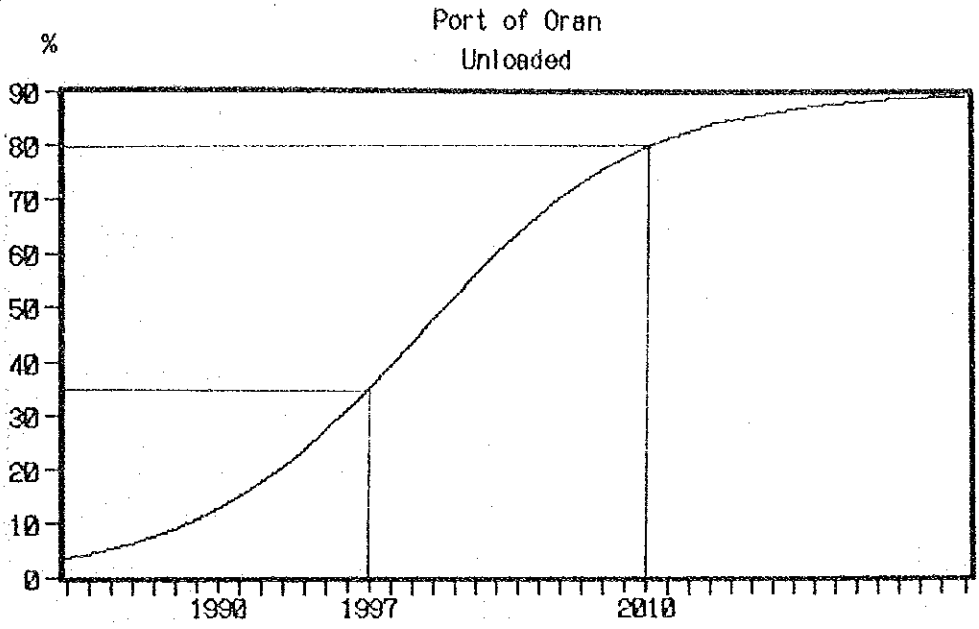
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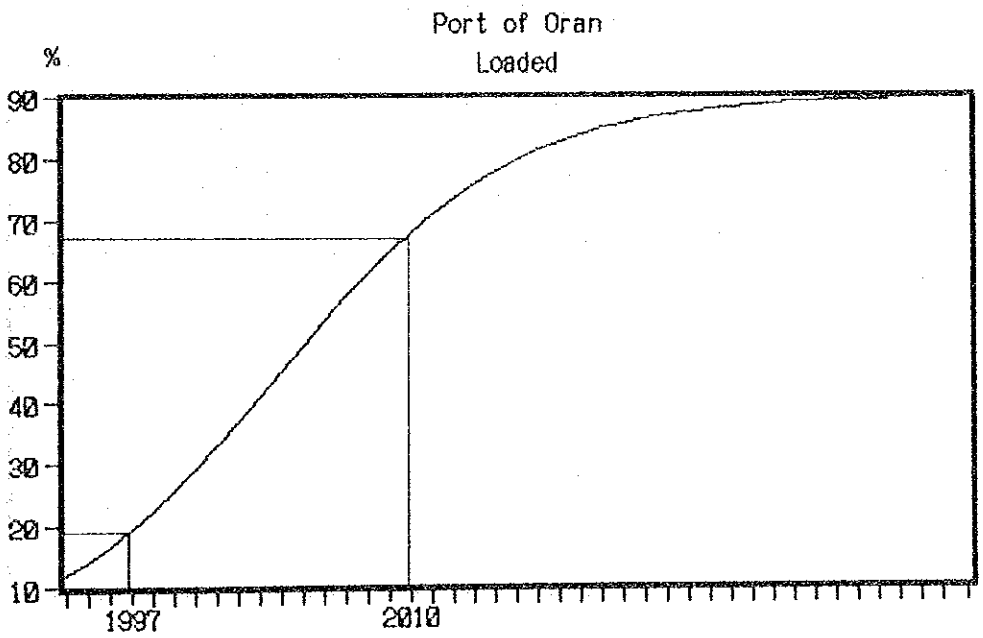
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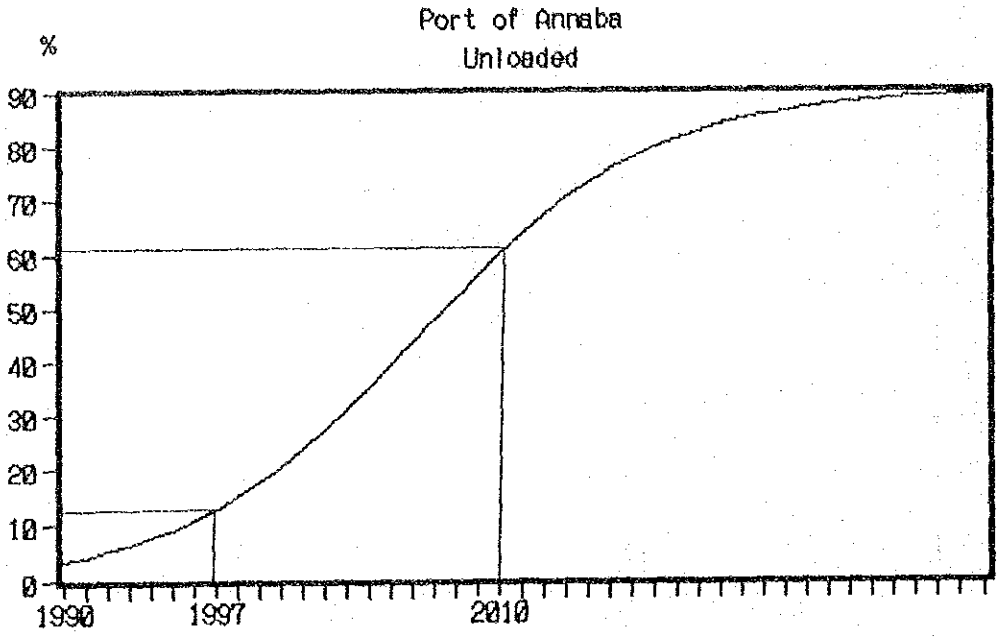
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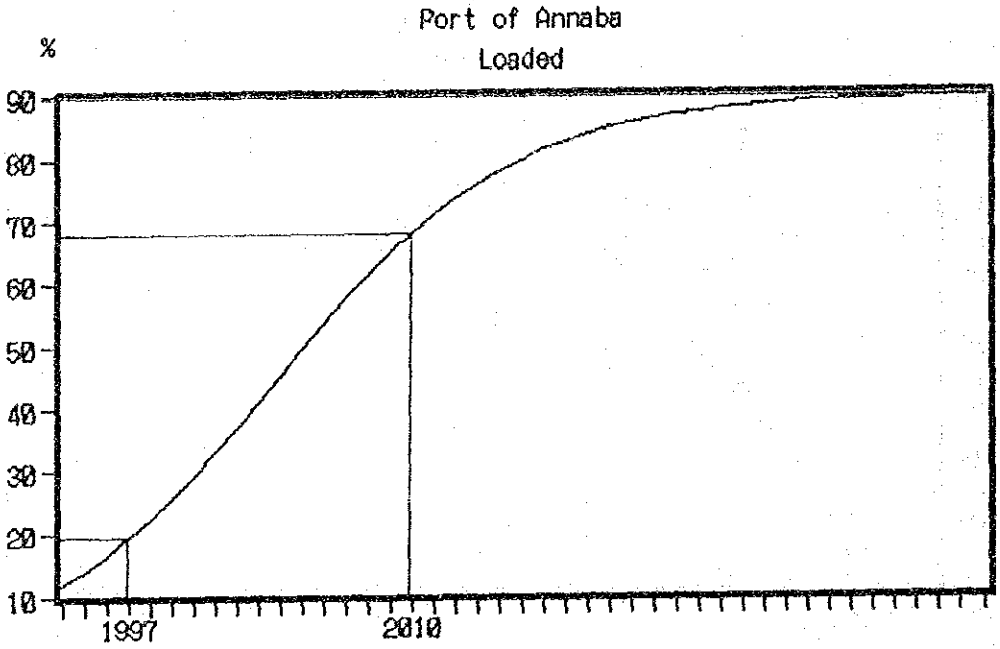
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A.7 Analysis of Calmness in Basins Protected by Breakwaters

A.7.1 The Port of Algiers

According to the conditions mentioned in Section 10.7 of the main body, the main breakwater of 660 m long and the sub-breakwater of 270 m long are planned in the Master Plan. Calmness in the basins protected by the above breakwaters was analyzed using a computer simulation method. The results of the simulation in the storm conditions with return period of 50 years, a significant wave height of 7.3 m with period of 11.8 sec. and the direction of northeast, are shown in Fig. A.7.1. As shown in the figure, the east part of the berths of approximately 300 m long in Terminal-2 is expected to be kept under the critical wave height of 1.0 m for mooring vessels. The remaining part of berths will also provide shelter for vessels, though the return period of the storm must be less than the former period of 50 years.

On the other hand, in ordinary sea conditions, wave height in front of berths will be kept under the critical height for cargo-handling of 0.5 m: 99% or more of the time owing to the protection by the planned breakwaters. In case of no construction of the new breakwaters, the percentage is reduced to 94%.

The comparison of calmness in the basins between alternative lengths of main breakwaters are shown in Table A.7.1, indicating that the planned length of 660 m is reasonable.

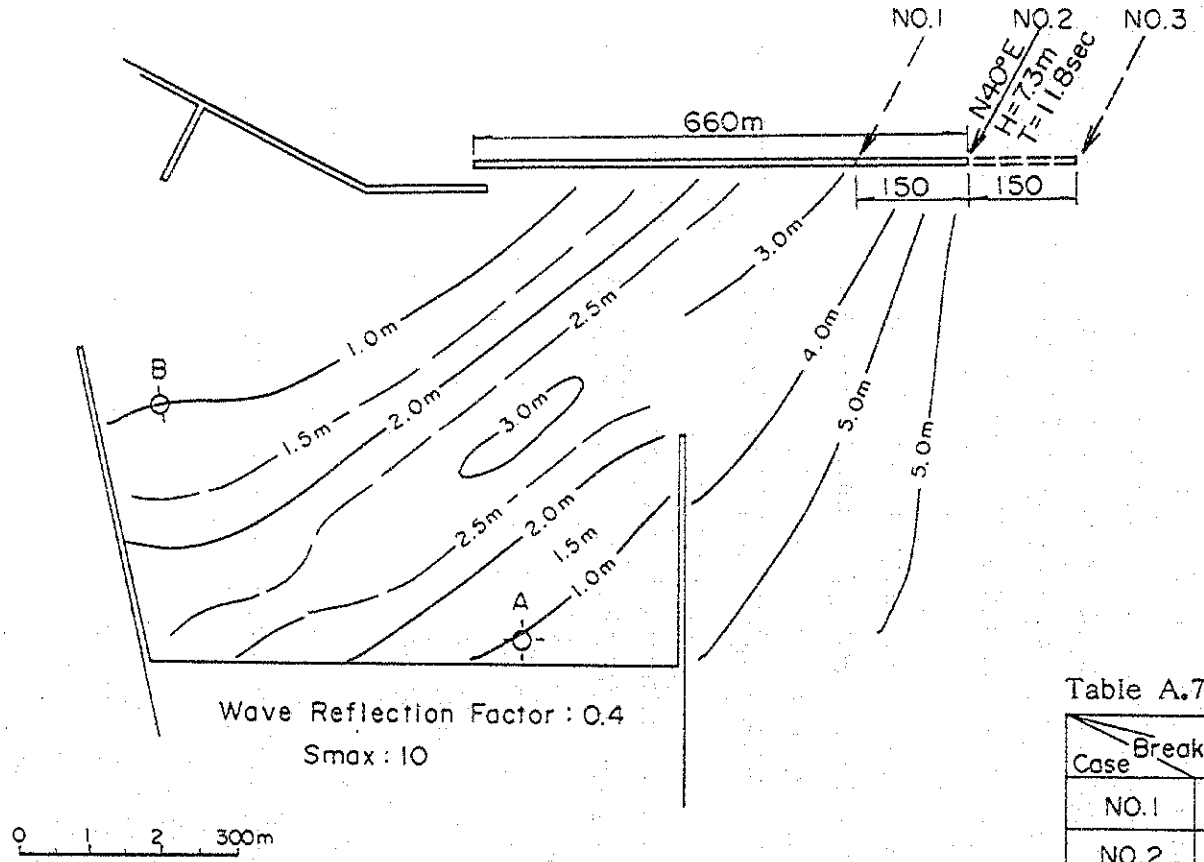

Table A.7.1 Wave Comparison

Case \ Point	Breakwater	A	B
NO.1	510	1.07	1.58
NO.2	660	1.00	1.00
NO.3	810	0.56	1.22

Fig. A.7.1 Degree of Basin Calmness in Algier Port

A.7.2 Port of Oran

The master plan for the Port of Oran envisages the construction of a main breakwater 900 m long, a secondary breakwater 385 m long and an inner jetty 80 m long.

Fig. A.7.2 presents the results of a simulation analysis of the degree of harbor basin calmness made assuming the construction of the protective facilities as envisaged in the Master Plan and further assuming a deepwater wave of a 50 year return period (H = 8.9 m, T = 12.3 sec, wave direction = N15^{O}E).

The figure shows that the wave height in the basin area in front of the proposed container berth is about 0.8 m, while the wave height in front of the grain berth ranges from 1.5 to 2.3 m.

These values represent adequate degrees of basin calmness to ensure the safety of port facilities and loading and unloading of vessels.

The degree of basin calmness thus obtained will enable container ships to anchor in the basin for refuge in case of some accidents on the container berth. If the harbor basin is not sheltered by a breakwater, the frequency of occurrence of waves from N-NE directions 0.5 m or more in height is 11.3%. The breakwater construction will provide a degree of calmness of over 99%; in other words, the sheltering effects of the breakwaters will be such that quayside cargo handling can be performed without difficulty.

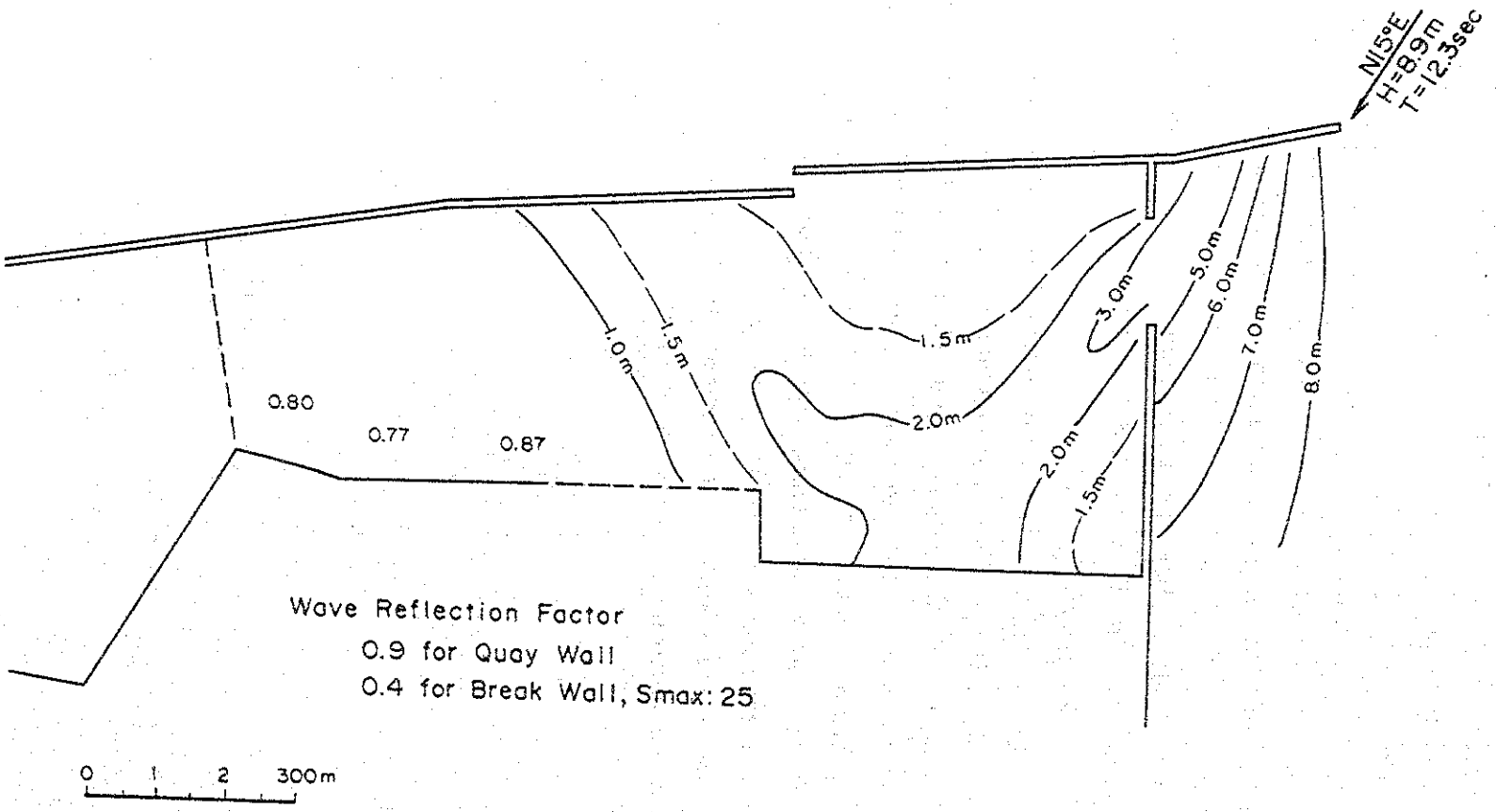

Fig. A.7.2 Degree of Basin Calmness in Oran Port

A.7.3 Port of Annaba

The master plan for Annaba Port envisages the construction of a breakwater 900 m in length and a secondary breakwater 200 m in length.

A simulation analysis of the degree of basin calmness was undertook assuming a deepwater wave with a 50-year return period (H = 7.4 m, T = 11.6 sec, D = N47^{O}E) and further assuming a constant length for the main breakwater and changed layout of the secondary breakwater.

The simulation results indicate that in case 2, the wave height at point A and point B is 1.4 m and 0.7 m, respectively. These values indicate adequate degrees of basin calmness. If the harbor basin is not shielded by a breakwater, waves 0.5 m or more in height from N-E directions will occur with a 17.5% frequency. The breakwater construction will provide a degree of basin calmness of over 99% for the area in front of the quaywall.

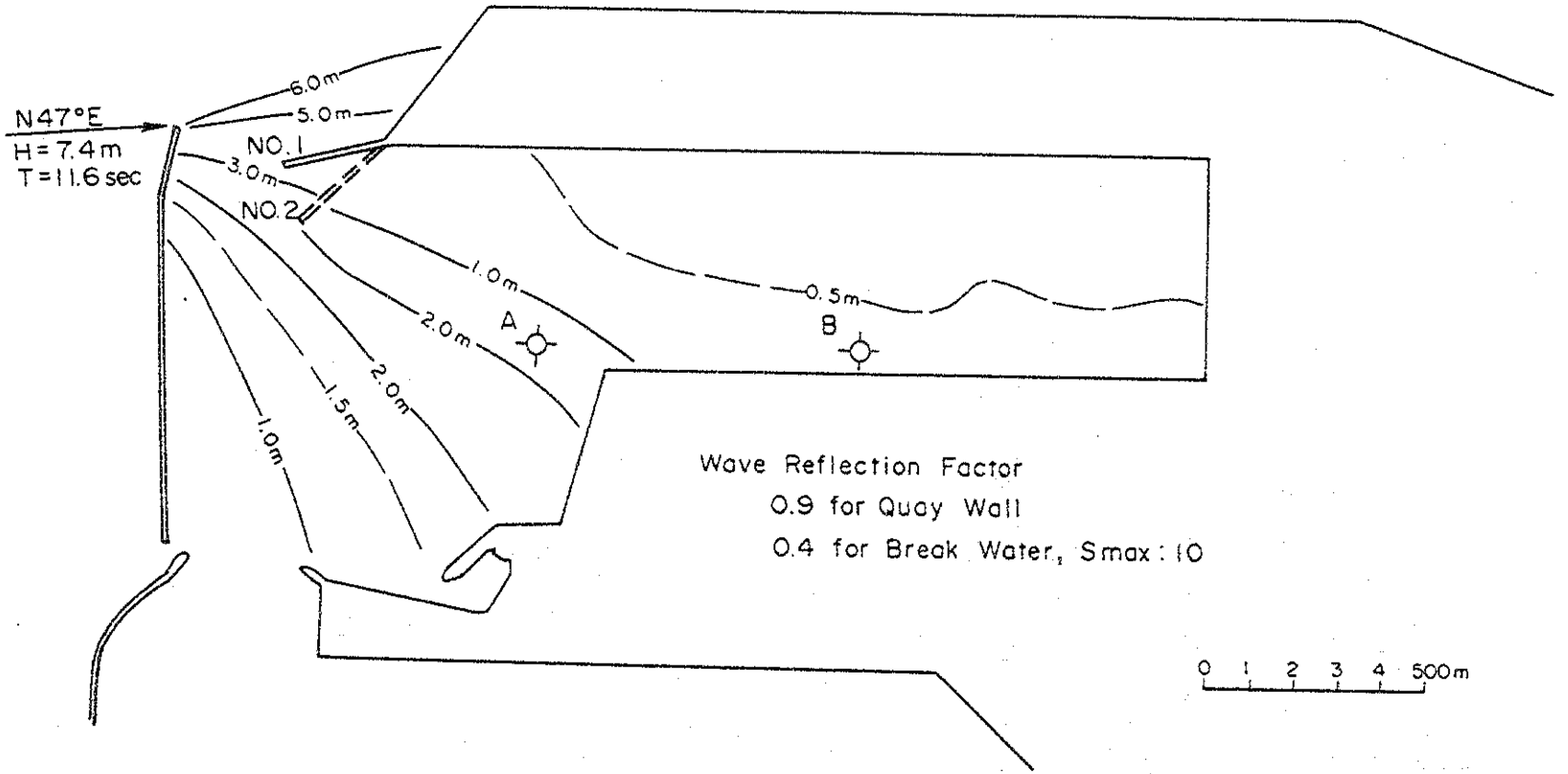

Fig. A.7.3 Degree of Basin Calmness in Annaba Port

Table A.7.2 Wave High

(In meters)

Case \ Point	A	B
NO.1	4.70	4.04
NO.2	1.38	0.67

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