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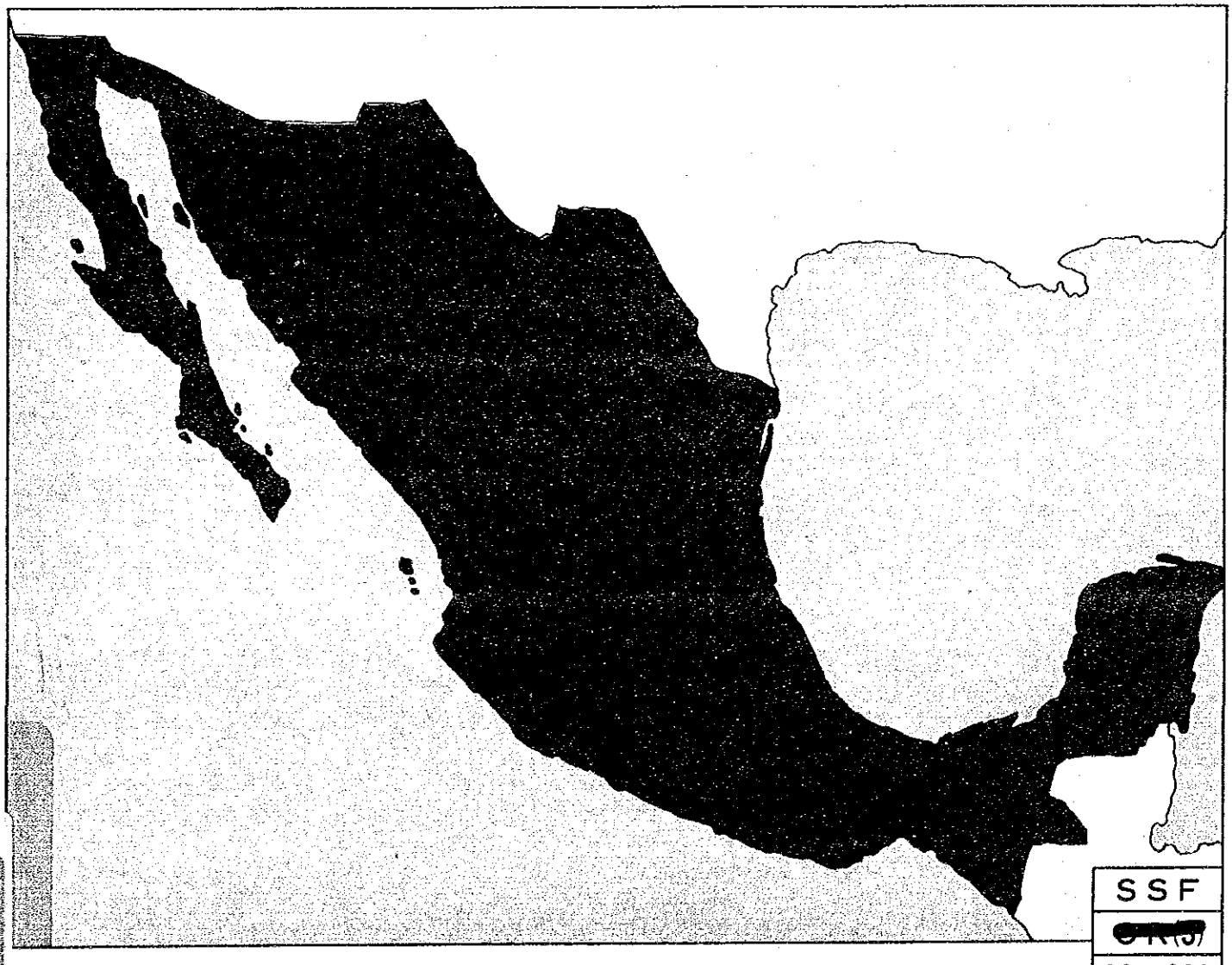
FINAL REPORT

THE STUDY ON THE IMPROVEMENT PLAN OF THE PACIFIC COAST PORTS IN THE UNITED MEXICAN STATES

VOL.3 APPENDIXES

JULY 1990



JAPAN INTERNATIONAL COOPERATION AGENCY

FINAL REPORT

THE STUDY ON THE IMPROVEMENT PLAN OF THE PACIFIC COAST PORTS IN THE UNITED MEXICAN STATES

VOL.3 APPENDIXES

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PART I

Appendix 7.1

IMPROVEMENT PLAN OF THE PORT OF SALINA CRUZ

1. Port Usage

1.1 Measures to Promote New Usage

The most important movement in the Port, after oil, is that of general containerized cargo. This traffic has suffered a significant reduction in recent years, due to several important users abandoning the Port, for different reasons.

Among the main causes, there are some which are external to the ESP, the solution to which cannot come from within. Nevertheless, a solution should be applied, since as long as those causes exist, the run the risk of driving away both current and potential users.

A) The productivity of cargo handling should be improved to reduce the length of berthing (see 2,5 and 5.1).

B) A proper roadway for the exit of cargo from the Port should be built, in order to avoid passage through the urbanized area. This slows down cargo handling at the Port since large traffic jams arise during unloading. This factor could become a serious problem if the number of vessel calls increases. If it is not possible, the present exit (Avenida Tampico) should be repaired and improved.

C) The creation of a haulage union (Central de Carga) has raised the cost of road transport, which in turn reduces the competitiveness of the Port in comparison with others in which such transport may be freely contracted. The measures adopted recently for transport deregulation could be the solution to this problem.

D) The poor present state of the highway across the isthmus, the logical exit for cargo from the Port, discourages users and transporters, and in addition slows down the transfer of cargoes.

1.2 Measures to Promote the Utilization of Unused Port Areas

The only area of the Port which is not being used is that reserved for expansion of the container terminal at the East end. This area could be conditioned to provide yard, which would also permit direct loading and unloading from berthed vessels.

Another measure would be the rehabilitation of a railway parallel to the container berth to permit direct unloading onto trains. Ferrocarriles Nacionales believes that the handling curve is very sharp and that the track is not wide enough.

Finally, the container terminal control tower should be rehabilitated, to permit better overseeing of cargo handling operations in this area. The other areas are being under utilized due to the low volume of cargo handled.

1.3 Coordination among Interested Bodies

This system exists, which has increased the efficiency of several aspects of Port operations. The timetable for servicing the port users is still to be resolved, which creates friction and delays the payment of Port dues and the emission of permits. SPITSA is examining the possibility of adjusting our timetables to that of the different bodies involved in Port operations in order to correct this anomaly.

2. Port Administration and Finance

2.1 Improving Services through the ESP

2.1.1 Services offered at present:

Fuel for fishing boats. Another outlet should be installed, since the two we have at present are not sufficient.

2.1.2 New Services:

Fuel for larger vessels. At present, this service is provided by PEMEX by means of barges, and on occasions by private companies. The ESP could take over the provision of this service, for which it would require the completion of the fuel terminal, a project which has been left unfinished for a long time.

Water. This service could be offered by water wagons or by repairing the present water system on the bonded berth.

Tugging. We will encourage the use of the tugboat belonging to the ESP as an auxiliary in such operations, since because of its 1,600 H.P. it cannot be used as the main tugboat. For this reason it is not used so much. The service is currently provided by PEMEX.

2.2 Improving Personnel Functions and Numbers in Each Section of the ESP

The present personnel number is calculated to be sufficient for current requirements.

We are studying the possibility of modifying the working timetable of some positions within the ESP in order to increase efficiency (see 1.3). The way to inculcate the worker with the importance of his job and the responsibility it implies will be sought.

2.3 Realize the Cost Accounting of Individual Tariffs

In the case of containers, a tariff by weight is calculated, with limits in both weight and length, with the excess being charged extra.

The tariff for direct cargo handling operation should be adjusted, since at present it only creates greater income for the union. We are currently drawing up a general tariff, suited to the reality of the Port and profitable for the ESP.

2.4 Separating the Finances of Each Port

Although SPITSA keeps overall figures, such separation does in fact exist.

2.5 Solving the Problems Related to the Cargo Handlers' Unions

At the Port there is the Sindicato de Estibadores y Jornaleros de Salina Cruz, affiliated to the CROM, of which the ESP must request the assignation of workers for loading and unloading operation. These workers operate the equipment belonging to SPITSA under ESP supervision. Since it is the union that designates working responsibilities, the assignations are not always ideal.

At the end of operations, a cost analysis is calculated which is paid to the union leader who distributes the amount proportionately among all those who worked on the job, without taking into account their specializations or productivity during the operation.

This way working is discuraging for the personnel, since it does not stimulate training nor improved productivity by eliminating the "better training or work, better pay" incentive.

This leads to minimal efficiency, delays in handling operation and greater maintenance costs for the machinery which is operated by personnel who do not always have the appropriate training.

Although relations with the union are good, the union is obliged to continue working in this way which, as has been seen, is neither optimal not desirable. For the same reason, under present conditions it is difficult to make further requests or seek for improved productivity. To make possible, the following minimal measures should be applied:

a) Creation of a system of qualifications for handling operation personnel (Unionized or not) in order to allocate functions in accordance with ability, not allowing workers to carry out tasks for which they have not been trained.

b) Training will be carried out in accordance with the minimal needs of the ESP, leaving trained personnel under the obligation of not getting involved in other activities during a predetermined time period.

c) The ESP will have the right to select the personnel proposed by the union for operations, reserving the right to remove from the working area any element who, in the Company's judgment, endangers the installation and/or equipment.

d) Make the union responsible for damage suffered by the installations and/or equipment arising from the negligence of its operators, as well as those suffered by the ESP due to indolence or apathy manifested by those elements in the fulfillment of their duties.

e) Modify the way of paying the workers or, if this is not possible, institute a system of personal incentive to reward greater productivity.

f) Under normal operating/equipment conditions, it could be possible to demand minimum level of productivity and apply sanctions if such levels are not attained.

2.6 Improving Necessary Statistics

At present, those concerning loading and unloading operations are handled efficiently, and a statistics system for operating productivity has been instituted. Both of those are attended to in the computing section of the ESP.

3. Arrival and Departure of Vessels and Customs Formalities

3.1 Simplifying Formalities

The simplification of formalities has already been carried out by SPITSA with the creation of a single cashier's window, where all services

and port fees are requested and paid for. If services are rendered without the complete documentation being presented by the user, the cargo is freed after presentation of the missing documents.

With regard to the other bodies involved, there are no problems in this area.

The ESP computer system will also process information relating to container movement, in order to eliminate the stay report which at present creates problems when fees are paid.

3.2 Creating a System for Coordination

There is already close coordination between the ESP, the Harbour Master and Maritime Customs. The only problem is the coordination of timetables (see 1.3).

4. Land Transportation

4.1 Interested Bodies Coordinating System

Such a system is not necessary, since it is the user's responsibility to contract such services directly.

4.2 Improving Storage Systems and Installations in the Ports

The measures to be taken in this regard are as follows:

4.2.1 Preparation of a yard for trailers (see 1.2).

4.2.2 Slot location and numbering in the container yard (this has already been done).

4.2.3 Purchase of internal communications equipment (12 units minimum) in order to use the control tower located in the container yard, to supervise efficiently loading, unloading and storage operations (see 1.2).

4.2.4 Widening of the doors of the bonded warehouses, to increase the efficiency of loading, unloading and storage operations.

4.2.5 Repair doors and locks on bonded storehouses, to improve cargo safety

4.2.6 Improve the control of access to the bonded area (the Federal Highway and port Police could be the solution).

4.2.7 Gradual replacement of asbestos roofs with galvanized steel sheeting on bonded warehouses, since the strong winds that prevail in this region regularly break the present roofs and create leaks, causing considerable damage to the cargoes.

4.2.8 Gradual replacement of the lighting poles on the container yard, since due to both strong winds and poor structural design several have fallen, with the resulting risk that this represents.

4.2.9 Repair floors in the bonded warehouses since several are in poor conditions.

4.2.10 Carry out a technical study to examine the redesign of one of the bonded warehouses as a store for bulk agricultural cargoes, should this be necessary.

5. Cargo Handling Operation

5.1 Measures to Increase Cargo Handling Productivity

a) Apply measure listed in paragraph 2.5.

b) Adquisition of necessary equipment according to cargo type (se6.5).

5.2 Providing Necessary Equipment and Machinery

The equipment and machinery belonging to the ESP is provided opportunely, for which reason this factor does not affect productivity.

Quantity and type are analyzed in paragraph 6.5 and can influence handling productivity.

5.3 Improving the ESP Handling Operation Plan

In the case of container cargoes, the stowage plan is received almost at the same time as the ship arrives with the handling operation plan suggested by the shipping line; therefore there is no time to draw up a ESP plan.

This situation could be improved by requesting that the agencies

inform us of the cargoes to arrive at the Port as soon as they have this information, in order to be able to draw up the plan gradually.

At the present time, given the incoming-outgoing ratio (20% and 80%), the immediate assignment of space for the cargo is not a serious problem.

5.4 Improving the Workers' Gang System

Under the present conditions, it is difficult to try to improve this system (see 2.5).

5.5 Creating an Efficient Worker Training Method

This is necessary, but first the current working and payment systems must be modified (see 2.5).

6. Cargo Handling Machinery and Equipment and Maintenance System

6.1 Efficient Maintenance Policy and Methodology

At present, corrective maintenance mainly consists of transferring spare parts from one piece of equipment to another, which leads to a gradual reduction in the amount of machinery and equipment available.

Preventive maintenance is being followed within the existing economic limitations. For 1990, we are considering the allocation of funds to repair equipment that requires attention.

6.2 Improving the Maintenance Workshop

The capacity of this workshop has been limited due to the lack of equipment essential for its functioning. We plan to adjust here many of the spare parts required by the equipment, with the resulting savings in time and money. The following need to be purchased:

a) Lathe
b) Bench drill
c) Grinder
d) Tackle block or block and fall

It would also be appropriate to repair the existing alignment equipment, which would be useful for the ESP pool of vehicles.

Appropriate work benches should be installed in the various workshops.

6.3 Having More Adequate Spare Parts

A system for inventory control will be implemented to optimize stocks of spare parts and pieces in accordance with the preventive maintenance plan and the study of spare part requirements.

6.4 Discarding Unused Equipment

The problem is the large amount of formalities that have to be followed to strike off equipment, for which reason it is abandoned instead. The solution would be to simplify the procedure and reduce the time spent with formalities, or permit the sale of the equipment in question, which would in addition create funds for the ESP.

6.5 Having the Appropriate Amount of Machinery and Equipment

The Port suffers from shortages of equipment required to handle certain cargo types.

For bulk handling, we need a $3.5m^3$ front-loader or two small bulldozers, although this equipment can be rented, given the present volume of bulk traffic.

Some 2.5 tonne slings required. At present we work with grabs rented from the ESP Manzanillo.

Of the five pneumatics we have four need repairs, and, returning to what was said in paragraph 4.2.3, communications equipment should be purchased (12 units minimum) (See table 1).

7. Installations

7.1 Renovation of Outdated Installations

- Renovation of the control tower in the container terminal is necessary (see 1.2).
- Renovation of staff dining room
- Renovation of lighting poles on container yard (see 4.2.8).
- Renovation and relocation of weighting equipment, currently inoperative because of its position.

7.2 Construction of Necessary installations

- Construction of shed to store machinery and equipment, to protect it from damages suffered in the open air (approximately 500m^2).
- Completion of construction of fuel terminal (see 2.1.2).
- Construction of a yard for trailers and trucks, with truck scale.

7.3 Improving and Repairing Existing Installations

- The bonded wharf should be leveled to permit the operation of fork-lift trucks.
- Adequate guards should be installed, and the damaged fenders of track should be repaired.
- Strengthen bonded warehouse walls to allow bulk storage (see 4.2.10).
- Change bonded warehouse roofing (see 4.2.7).
- Dredge the stretch corresponding to bonded warehouse No.2 to permit a draft of 10m.

8. Miscellaneous

8.1 Measures to Protect the Environment in the Port Area

There is a sewage discharge alongside the fish wharf which, in conjunction with the waste from the wharf itself, creates unhealthy areas within the basin.

Such discharge should be channeled to another area outside the Port, or at least be treated before entry into the basin.

Machinery and Equipment Park of ESP del ISMO
Division of Salina Cruz:

Table 1

Name of Equipment	Available	In Repairs	Scrapped	Total	Observations
GRABS OF 1 ton	7	-	-	7	Rented to the ESP of Manzanillo
TRACTOR-TRUCK Ottawa 300 H.P.	6	2	-	8	2 sended to Coatzacoalcos to lend for their use
CHASSIS	16	4	-	20	
TRANS-TAINER CRANE for Yard Maraton, 40t.	2	1	-	3	Sended to recover the tires of a crane
GANTRY CRANE for berth, Tacraf 40t.	1	-	-	1	
HYDRAULIC CRANE P&H 20t.	1	1	-	2	
MECANIC CRANE P&H 276t.	1	-	-	1	
FORKLIFT Allis, 2.5t. and 5t.	8	11	8	27	
SPREADER, 20'	2	-	-	2	One is borrowed
SPREADER, 40'	2	-	-	2	One is borrowed
PNEUMATIC UNLOADING, 50t./hour	1	4	-	5	
HOPPER, $3m^3$	2	2	-	4	
WAGON MOBILE	1	-	-	1	

Appendix 7.2

IMPROVEMENT PLAN OF THE PORT OF LAZARO CARDENAS (IMMEDIATE ACTIONS PLAN)

1. Port Usage

1.1 Measures to Promote New Usages

1.1.1 Establish coordination system together with Fondeport, Maritime Agencies and port users to promote the services rendered by the port.

1.1.2 The edition by Puertos Mexicanos, of maps of Lazaro Cardenas and other Main Mexican ports, containing information about their facilities, operation and services aspects as well as social-economical information of the region.

1.2 Measures to Promote the Usage of Unused Port Areas

Three main used areas were detected in this port and some actions are suggested.

1.2.1 Behind the TUM warehouses. There is an important area that could be equipped as yards enlarging the open storage capacity and for containers.

1.2.2 Container Freight Station. The yard is paved and a warehouse has no coverture. Its termination will provide very important areas to this port for a necessary activity.

1.2.3 Behind the mineral wharf. Although it is mentioned in the report of JICA study group as an unused area, this is used to store minerals and to homogenize the materials when the transporting bands of the discharging equipment stop.

1.3 Create a Coordination System with Related Organizations

Promote meeting with the companies and users of the port:

1.3.1 With those sharing the railroad transport services and land transport, to establish the priority of the need of F.C. wagons and trucks to users like Conasupo and Fertimex.

1.3.2 With those rendering their services at the port to make them better and efficient: Worker's Union, Maritime Agents and Customs.

1.3.3 With the main users of the port facilities such as Sicartsa, Productora Mexicana de Tuberia, etc.

2. Finance and Administration of the Port

2.1 Improve the Services Rendered by the ESP

2.2.1 Supply of potable water, which at present is supplied from pools in Cuacamayas and is carried in special trucks, for this reason it is recommended a potabilizer plant in this port to render this service at the wharf.

2.1.2 Supply of fuel. As in many other ports, the necessary works must be accomplished to render this service at the wharf. The necessary pipe line could be obtained from that arrived to Fertimex from Pemex, under the channel.

2.1.3 Garbage collection. It is proposed the installation of a garbage incinerator for the garbage thrown by the vessels.

2.2 Improve the Personnel Functions and Number in Each Section of the ESP

2.2.1 The present re-structure of the Port Administration that caused the creation of the decentralized Organism of the SCT, Puertos Mexicanos, makes necessary an analysis of the functions, objectives and capacity of each organization.

2.2.2 In this same study must be analyzed the present location of the ESP offices, because due to their dispersion coordination problems are created among their sections.

2.2.3 As an immediate action it is necessary to provide with better communication media to the various locations; to improve the radio service and to provide more communication mobile units.

2.2.4 Some actions have been done so that the labor union increases the payroll, as at present they depend in excess on eventual workers.

2.2.5 The financial resources for administration is made within special care and efficiency, either those from the E.S.P. or by those coming from external credit.

2.2.6 Encourge the personnel to make them to stay with the E.S.P., as they have better work options in other organisms one they are better trained.

2.3 Implement the Cost Accounting of the Individual Tariffs

2.3.1 Analyze the operating costs to implement the tariffs covering these costs with an adequate profit margin.

2.4 Separate Financings of Fase Port When an ESP Renders Service to More than Two Ports (not applicable in Lazaro cardenas)

2.5 Solve Problems Relating to the Labor Unions.

There is no problems the relation with the Labor Union; the Necessary actions should be taken to increase the productivity of the loading/ unloading operation.

2.5.1 The personnel trained and qualified must be guaranteed their permanence for some determinated period.

2.5.2 Establish some agreements with the union to establish responsibilities in the equipment handling.

2.5.3 Implement an encouraging system to improve their productivity.

2.5.4 Increase the number of union workers for operation.

2.6 To Improve the Necessary Statistics

2.6.1 To organize a statistics department in the ESP, in order not to depend on the statistics of the DIrection General de Puertos y Marina Mercante.

2.6.2 To Computerize the control systems of the cargo handling, productivity and handling of containers.

3. Procedures of Ship Entry and Exit and Customs Formalities

3.1 Procedure Simplification

As in other Mexican ports, it would be appropriate to locate the various offices of the organizations related with the port operation in one building of operating offices; for the payment of dues, customs, quarantine offices, etc.

3.2 Creation of Coordination System

We have a Port Development Committee and here we can study the mechanism to simplify the procedures.

4. Land Transportation

4.1.1 The same Port Development Committee must establish the coordination with the organizations related with the land transportation.

4.1.2 It is an urgent need to study the system of public roads in the port.

4.1.3 To Promote the access to the port avoiding the urban zone.

4.1.4 To create the parking areas for trailers.

4.1.5 To control strictly the access to bonded port areas, to limit the transit in the port and to establish parking areas for personnel of the authorities and supervisors of the ESP.

4.1.6 To study preventive measures to avoid the lack of wagons.

4.1.7 In coordination with F.F.C.C. to analyze the capacity of the railway yards and the functioning of the railway transport.

4.1.8 To analyze the flow capacity of the roads in relation with the main origins and destiny of the cargo by land transport.

4.2 Improve the Storage Systems and Installations

4.2.1 To repair and put in function the grain terminal will greatly avoid the lack of F.C. train wagons.

4.2.2 The completion of the vanning warehouse and its yard will relieve the congestion of the containers yard and it will be possible to improve its organization and operation.

4.2.3 To give maintenance services to warehouses and yards.

5. Carto Handling Operations

5.1 Measures to Improve the Productivity of Cargo Operations

5.1.1 The productivity for the containers handling was measured in the operation of the vessel TOLUCA of TMM, from which 498 units were discharged and 243 were charged in a period of 12 hours, using the gantry crane and the four gears of the vessel.

In this operation it was observed a yield of 17 units/gang for the gantry crane and 9 units/gang by ship's gear.

In relation with the performance reports of yield which JICA report classified as NA (not available), this is because the ununitized general cargo and the steel plate are not significant movements in the port.

5.1.2 To control in a computerized way the containers handling (see point 2.6.2).

5.1.3 To elaborate a manual for the container terminal operation.

5.1.4 To coordinate with handling worker's union some actions in order to start the operation of the vessels since the moment of their arrival to the wharf.

5.1.5 To elaborate daily reports of handling operator, registering the activity time and tonnage or number of containers of each gang.

5.2 To Provide the Necessary Equipment and Machinery

5.2.1 The investments plan for 1990 includes the acquisition of one additional gantry crane, which will solve the problem of the arm's reach of the existing one.

5.3 To Improve the Cargo Handling Plan of the ESP

5.3.1 The handling plan is proposed by the shipping line at present, as they know the handling needs, the responsibles of the vessel stability.

5.3.2 To improve the dislodging plan on land with and adequate strategy of land transport and storage.

5.4 To Improve the Gang System of the Workers

To promote gang formation, in which experienced personnel will be combined with the beginners, in order that all gangs have a similar yield average.

5.5 To Create and Efficient Training Method for Workers

5.5.1 To reinforce the training for Union's member workers in order to mix experienced operators in the vessel operation for not affecting the yield.

6. Machinery and Equipment for Handling and Maintenance System

6.1 Policy of Efficient Maintenance and Methodology

6.1.1 To establish a nationwide basic policy of preventive maintenance.

6.1.2 To implement maintenance plans so that the equipments can be repaired while their operation is not necessary.

6.1.3 To analyze statistics records of the usage of the equipment.

6.2 To Improve the Maintenance Shop

6.2.1 To finish the installation of the workshop and start its operation.

6.3 To Have the Appropriate Spare Parts

6.3.1 Based on the record of the warehouse receipts and delivery, to determine the optimum stock by each part to avoid delays in supplying them and consequently delays in the machinery repairs.

6.4 To Scrap the Equipments which are not in USE

6.4.1 Based on the statistics records, machinery and equipment will be excluded when their maintenance costs are excessive.

6.5 To have the Necessary Machinery and Equipment

6.5.1 To program the machinery and equipment acquisitions, taking into consideration the cargo movements at present in the port as well as the new cargo to be handled.

7. Installations

7.1 Rehabilitation of Antiquated Installation

(not applicable in Lazaro Cardenas)

7.2 To Build and Supply the Necessary Installation

In a meeting with authorities and users, the following needs were stated to prepare the investments plan for 1989.

7.2.1 The construction of general offices for the ESP.

7.2.2 To finish the Port Services workshop and its complementary installation.

7.2.3 Pavement, railways leveling, pluvial drains and lighting in yards of general cargo.

7.2.4 Pavement in the position 2 and 3 of the mineral wharf.

7.2.5 Construction of a fireman station and a fire prevention system.

7.2.6 Re-location of the truck scale.

7.2.7 Pavement of access roads to the container wharf and devanning warehouse.

7.2.8 To protect the coast from Playa Jardin to Espigon de Burras.

7.2.9 Access road to the port.

7.3 To Repair and Re-Arrange the Existing Installations

7.3.1 Transit warehouses I and II; lighting, painting of doors and structures.

7.3.2 General cargo wharf; General cleaning of drains, replacement of covers and maintenance of the hydraulic system.

7.3.3 Painting and lining of the container storage.

7.3.4 Maintenance of the light poles in the Port bonded area.

7.3.5 Painting the berth pavement.

7.3.6 Placement of bubblers.

7.3.7 Maintenance of the ESP installations and of the Residencia General de Obras Maritimas.

8. Others

8.1 Dredging

8.1.1 Maintenance dredging of the channel and the basin.

8.1.2 Dredging of the position 3 of the mineral and Metal wharf to utilize the bitts 25.

8.2 Measure to Preserve the Environment in the Port area

8.2.1 Construction of a scrapping grave.

8.2.2 Construction of a garbage incinerator.

8.2.3 Cleaning of all port area.

8.2.4 Cleaning of drains.

Cd, Lazaro Cardenas Mich. August 25,1989

Appendix 7.3

IMPROVEMENT PLAN OF THE PORT OF MANZANILLO

1. Land Use

The port of Manzanillo consists of two main areas: the bonded wharf, located opposite the main square, and the inner Port of San Pedrito.

The bonded wharf, due to the availability of railway transportation, solely handles agricultural and mineral bulk products; at the inner port of San Pedrito, band "A" moves general cargoes and cement, "B" moves general cargo and containers, and "C" handles direct cargoes exclusively.

1.1 Measures to Promote New Usage

With the aim of interesting new users in taking advantage of the benefits that maritime transport offers over land transport and of ensuring that the Port installations can guarantee safe conditions for product handling, the actions described below are already being carried out, in order to generate new forms of use for the existing infrastructure:

The Bonded Wharf

To improve vessel berthing within the programme of investment for the next year, an allocation of 1,500 million pesos is being considered, to carry out the work required to reduce disturbances, principally on the East band of this wharf. The movement of bulk cargoes carried out on this wharf will be feasible with the availability of new areas in the future; therefore, it will be possible to use it to service tourist cruisers. When railway operations are no longer necessary on the main roads of the town, the problems faced by traffic going into and coming out of the city centre will be greatly improved.

Inner Port of San Pedrito

To improve the productivity of band "B" and of the Port in general, an allocation of 360 million pesos has been made in the next annual investment plan, for the acquistion of a trackmobile vehicle which will permit the movement of empty and full freight cars, which at present are kept alongside the ship, making it impossible to operate two vessels at the same time.

In the long term, and to reduce the duration of berthing and to facilitate the movement of cargo, the construction of two warehouses is being planned: one for exports and one for imports, in addition to a shed without wall for raw materials.

On the other hand, in the short term, the lanes and sections of the area currently used for container movement within the yards will be signposted and numbered.

For band "C", currently used only to unload direct cargoes since it has no railway facilities, an investment of 15,375 million pesos is being considered, for the construction of 250 meters for the first container berthing position, embankment and filling to prepare the land for the terminal.

1.2 Measures to Utilize Unused Port Areas

In the land adjacent to band "C", the establishment of industries that require a water front for imports of raw materials and/or the exporting of finished products is being promoted, such as in the case of Cementos Mexicanos.

On the other hand, to promote the use of the Port internationally, we are going to print publicity leaflets and take the steps necessary to begin the publication of the facilities offered by the Port of Manzanillo in Lloyd's Register.

1.3 System of Coordination Among Interested Bodies

The coordination of the activities relating to the Port will be carried out by the Port Development Committee, consisting of representatives of the various bodies involved.

With the aim of heightening coordination between these bodies, efforts will be made to ensure the Committee meets with the appropriate frequency.

2. Port Administration and Finances

2.1 Improvement of Services

The services offered are the following:

- Tugging
- Refueling

- Berthing
- Docking
- Loading and unloading operation
- Storage
- Supplying water to ships
- Fumigation (PRONAGRA)
- Refuse collection and incineration
- Weighing
- Provisions
- Repairs
- Cleaning

Next year, when the fuel station in the Inner Port is completed, that service will also be offered.

The cargo loading and unloading services will be greatly improved with the equipment acquisitions planned for next year.

2.2 Improving Personnel Functions and Number in Each Section

The ESP has a staff of 144 full-time workers, 36 in administrative posts and 108 in operational jobs. For its better functioning, the ESP is studying a possible restructuring along the lines of the diagram shown in Figure A, which when possible will be subjected to the consideration of the Board of Directors and the Ministry of Planning and Budget.

It should be pointed out that although the implementation of this project could be realized with current personnel, in order to optimize it, the way to contract more qualified personnel will be sought, in accordance with the programme currently being developed to that end.

2.3 Cost Accounting of Individual Tariffs

The tariffs charged for Port services are set by the Direccion General de Tarifas of the Ministry of Communications and Transport. On the basis of the financial situation of the ESP we are beginning to study the organization of a system of costs per service, which in time will be presented to Board of Directors and then later to the above mentioned governmental body, in order to propose modifications that are judged appropriate. With this analysis, it is hoped to identify the correct equilibrium points and utility margins for reinvesting profit in those

activities inherent to the provision of Port services.

2.4 Port Finances

Port financing is specifically limited to Manzanillo.

2.5 Cargo Handling Union

Ship loading and unloading operations are carried out by a core of 182 workers, members of the CROM affiliated Unión de Estibadores y Jornaleros del Paćifico, and an annual average of 240 casual labourers, members of the same union, with which the ESP has a Collective Contract, reviewable every two years. Payment is in accordance with a draft payroll provided by the union which specifies the name of the worker and the ship, as well as overtime worked.

The workers' gang system is made up according to the type of cargo, working from 8:00 to 13:00, from 15:00 to 18:00 and from 20:00 to 6:00, until the vessel is unloaded. In order to modify this system, the union demands assurances of a specified volume of work to increase personnel and establish shifts.

The ESP will hold talks with the union with the aim of alternating the winchman and the gangway-man every two or three hours to improve productivity and worker safety, since at present it is not possible to make a commitment to determine a volume of cargo to be moved, since it depends on the users.

2.6 Statistics

The collection of data relating to Port activities has been carried out by the Direccion General de Puertos y Marina Mercante. With regard to the statistics of the ship on the worksheets, we have: cargo type, registered gross weight, registered next weight, length, beam, draft, arrival and departure. Fishing boats and yachts are not registered.

The following data are also obtained: dockside allocation, productivity, length of stay in port, total time berthed, waiting time, absolute operating time, cargo handling man-hours, cargo handling delays, land-based workers, planned operation time.

As for the storage facilities, we have utilization rate, volume of export and import cargoes stored, as well as the base capacity of the warehouse.

To improve the collection and processing of these data, the appropriate budgetary allocation to permit the contracting of specific personnel for such functions will be necessary.

3. Arrival and Dispatching Procedures and Customs Formalities

For the dispatching of cargoes, the following prerequisites must be complied with:

Export:

1. Reception of documents and cargo (customs agent).

2. Drawing up and presentation of entry request at the bonded area (passing through the navigation section, where it is assigned a number, on to the bonded area where it is sealed by the warehouseman and signed by the departmental head.)

3. The export request is then drawn up
   a) Customs classification
   b) Valuation
   c) Formalities (navigation section, export section, administrator for allocation of customs officer, clearance by customs officer, cashier)
   d) Payment of dues and handling
   e) Dispatch

Imports:

A) THe merchandise arrives (shipping agent presents manifests, cargo plans, etc.).
B) The merchandise is stored in appropriate warehouses.
C) The customs agent receives the corresponding documentation as follows:
   I) Sales invoice (original and at least two copies, signed by hand, either written in Spanish or with translation).
   II) Bill of Landing (ordinal and two copies, the document to be validated by the shipping agency).
   III) Packing list.
   IV) Other documents (sanitary certificates, certificates of origin, etc.).

D) The customs agent prepares import request:

I) Classification

II) Valuation

III) Fills out request form.

E) Procedure:

I) Navigation section assigns the request a number.

II) Import section.

III) Administration (administrator designates customs officer).

IV) Cashier (payment of fees and customs duties).

V) Cashier (payment of fees and customs duties).

VI) Transportation is requested.

VII) Loading begins.

VIII) Transport begins.

As can be seen, this very involved procedure creates several problems which affect productivity and vessel berthing times. The main problems which have been identified in this area are as follows:

1. Poor knowledge on the part of importers and exporters who generally do not have trained personnel. For example, on many occasions they are unaware of what an invoice must contain:

In Spanish

A) Name and address of vendor.

B) Manufactures and numbers to identify merchandise.

C) Unitary and global price of the merchandise and, if there are deductible costs, also include insurance costs and FOB freight.

- C&F (cost and freight)
- CIF (cost, insurance, freight)

The absence of any of these items can delay dispatch, which occurs with great frequency.

2. Differences in timetables: the maritime customs office is open from 08:00 to 15:00 hours, as are other official bodies (Harbour Master's Office, Animal and Vegetable Sanitary Inspectors, S.A.R.H., etc.). However, Servicios Portuarios de Manzanillo, S.A. de C.V. works broken hours from 08:00 to 13:00 and from 15:00

to 18:00; the cashier's office is open continuously from 08:00 to 20:00. For example, if a fumigation is needed, it is necessary to locate the inspectors, and if they are located, pay them overtime. These problems delay dispatching.

3. Lack of adequate planning by exporters, who do not calculate that an operation will take a minimum of 10 or 12 days from the time the merchandise leaves the plant to final dispatch.

3.1 Procedural Simplifications

To speed up these procedures we will study, together with the competent authorities, actions designed to promote reform of customs law, bringing it into line with modern technological advances. It is known that the new import-export request forms have a harmonized system with regard to duty tariffs, which will pass simultaneously from Customs to the bank for the corresponding payment. It is believed that there will be a visit to enable Customs to verify the contents of the merchandise.

By the same token, it will be proposed to Custom that they harmonize import-export criteria through all the nation's customs offices. Users are left confused since procedures vary from place to place.

On the other hand, we are studying the possibility of all payments being made at the same location, since at the present it is necessary to pass through several bodies to obtain the documents needed to effect a payment, for example: to pay a wharfage due, one must go to the Superintendency of Port Operations to elaborate the wharfage notification, then proceed to the cashier's office of Servicios Portuarios de Manzanillo, S.A. de C.V. to make the payment (payment for storage -- first, the notification is drawn up in the bonded area and then on to the cashier's office (ESP) to calculate the dues).

3.2 Creation of a Coordinating System

After examination of the options mentioned above and with the participation of the competent authorities and the users, the creation of a coordinated system is being planned, to permit these procedures to be complied with in a short space of time.

4. Land Transportation

Land transportation at the Port of manzanillo consists of the station, the local railway station under Guadalajara General Management, Pacific Region, and the Central de Servicio de Cargo del Estado de Colima, S.A. de C.V.

In the case of the railway, the user must request the equipment required to unload the ships from the Station Master at least six days in advance who, in turn, makes the request of the Guadalajara General Management. BY means of the programing meetings, these activities are coordinated with the users.

4.1 Coordination System Among Interested Bodies

The shortage of railway freight cars for the transportation of agricultural and mineral bulk is a serious problem for the Port. The ESP arranged with the Guadalajara General Management for an inspector to be based at the Port, to attend regularly the vessel planning meetings during which the shipping and customs agents request the wagons they require and the inspector coordinated their availability at the Port. This to some degree facilitates rail transportation, although the shortage of rolling stock still causes long delays.

To facilitate freight car movement in the Port, we have now acquired a trackmobile to haul both empty and full wagons to free the operating areas.

Empresa de Servicios Portuarios de Manzanillo, S.A. de. C.V. will begin negotiations with Ferrocarriles Nacionales de México and Port users to gain an idea of the products and volumes there of to be handled during the year, so Ferrocarriles Nacionales de Mexico can calculate equipment requirements with anticipation, and take the steps necessary for provision of the same.

With regard to road haulage, the user makes his request directly to the Central de Servicio de Cargo del Estado de Colima, S.A. de C.V. three days beforehand. This body represents approximately 65 companies, each with an average of 50 units.

For transportation of general cargo, they must be advised three days beforehand, and fifteen days beforehand for bulk cargoes. It appears that *current tariffs have reduced the growth of this sector, since the companies* are limited to determined routes which do not always serve their interests.

When two ships requiring this type of transport are in port together,

a minimum of 240 trucks is required, which are usually not supplied with the necessary punctuality; the cycle is broken and productivity suffers. This happens because the haulage union does not have the units available and has to obtain them at the precise moment. As the Port cannot guarantee a constant flow of traffic, it does not serve the hauler's interests to have a number "x" of non-productive units. This practice has greatly affected bulk transportation, which, in conjunction with the lack of reception capacity at the final destination, causes the trucks to have to wait for their loads to be received, which interrupts the cycle and affects ship waiting times and, consequently, productivity.

As in the case of rail transportation, a coordinated system will be established, with Port users and the haulage companies to plan the arrival of the ships, the reception capacity of the products, and the availability of units to avoid backlogs.

4.2 Storage System and Installations

There are two transit and one stationary warehouses in the inner port of San Pedrito, one of which is sublet for cement handling. Therefore the Port has only a small covered storage area; the storehouse on the bonded wharf is, because of its location, used exclusively for contaminating cargoes such as barium oxide and fish meal.

In some cases, out-going merchandise that must pass into storage (diatomaceous soils or sodium sulphate) and has nowhere to be stored causes longer docking periods for the ships, since they have to wait until the entire bulk of the merchandise arrives. The shortage of storage areas has led to import and export cargoes being stored in the available warehouses.

As for containers, they have to wait in the warehouses until space for vanning and devanning merchandise is available.

The increase in registered cargo over the last years makes an increase in the capacity of storage in the Port indispensable, to increase the efficiency of ship loading and unloading, as well as rapid dispatching.

With regard to agricultural bulk cargoes, with the volume handled, silos are not required. However, if the volume increases, silo construction will be necessary to reduce time spent in port.

In recent years, many products requiring sheltered storage are being handled, which are stored in open areas, such as cotton, machinery, sheet steel and automobile parts.

With regard to the yards, they suffer form the same problem observed with the sheltered storage areas: the open areas are insufficient for the volume of goods stored. The area has been reduced because a part had to be eliminated to permit container storage; this situation will be resolved with the construction of the specialized installations in the container terminals which will liberate a considerable area.

Therefore, to improve the Port's storage capacity, construction in stages will be implemented: a transit warehouse, two stationary warehouses, and a shed.

It is appropriate to point out that in the warehouses, the periods of free time for exports and imports are 90 and 10 days, respectively. These very long periods create many problems since, when a customs requirement is not fulfilled they are abandoned in the warehouses, and occupy 30% of the Port's storage capacity. These abandoned cargoes can remain for long periods; there is still one that entered the Port in 1980.

From the above it can be deduced that it is necessary to reduce these times to prevent users from using the Port for storage. To this end it is necessary to harmonize actions with the Ministry of Finance and Public Credit to study the possibility of reducing these periods in order to optimize the use of storage space.

5. Cargo Handling

Improvements in equipment and the workforce will permit increases in efficiency with regard to yields obtained in previous years, as seen below:

Cargo Type	Tonnes/Hour Per Ship in Operation			
	1989	1990	1992	1994
General cargo	65	145	175	200
Mineral bulk	625	650	750	750
Agricultural bulk	265	265	300	300
Fluids	160	225	275	350
General unitized cargo	160	350	400	425
Containers (TEUs/H)	20	30	35	35

5.1 Measures to Improve Productivity in Cargo Handling

The handling of agricultural bulk causes some grain spillage into the dock, which are due to poorly locking grabs, due to the use and age of the equipment. To avoid greater leaks, tarpaulins are placed alongside the ships, and slings are used to collect up the material swept in the apron.

Since the current equipment is 1.5 tonne, to increase productivity, new hoppers and grabs with greater capacity will be purchased which will also reduce material losses.

In the case of mineral bulk, although no serious problems have been detected with cement, a lowering of yield has been observed due to transportation from the plant to the Port not being carried out quickly enough, which in turn means the ship has to wait to be loaded. To move this type of cargo, two front loaders will be purchased for cargo decompactation and the ESP is providing the personnel with the equipment necessary to avoid disease.

It is appropriate to point out that to improve ship operations, the ESP will suggest that the users should contract vessels in accordance with Port infrastructure, since frequently ship equipment is inadequate for the handling of the cargo, which leads to handling delays since modifications must be carried out which requires time.

5.2 Equipment and Machinery

To improve handling, the following equipment and machinery is included in the investment plan for next year, by means of which it will be possible to increase productivity:

For container handling:

- Two gantry cranes
- Eight tractor-trucks
- Eight 40-tonne platforms
- One 80,000 lb fork-lift truck
- Two 30,000 lb fork-lift trucks
- Four 4,500 lb fork-lift trucks (short stack)
- Four spreaders (2 twenty-footers and 2 forty-footers).

For general cargo and containers:

- Fifteen 15,000 lb fork-lift trucks

- Six 8,000 lb fork-lift trucks
- Nine industrial tractors
- Fifteen 20 tonne platforms.

For bulk cargoes:
- Twelve monolinear grabs, 2.5 yd^3
- Two caterpillar trucks
- Two pneumatic articulated front-loaders

5.3 Handling Plan

The cargo handling plan is developed on the basis of the type of merchandise to be handled: a list of the cargo to be handled is received, which is used to identify the packing material, density, weight, etc., then to determine the correct equipment for the handling of the cargo on the ship, in the warehouse and in the yard, with the correct personnel.

5.4 Gang System

With regard to the workers' gang system, the union demands that they are guaranteed a determined volume of work to increase personnel and have shifts available.

Since the ESP cannot guarantee the volume of work, the same personnel work from 08:00 to 13:00 hours, from 15:00 to 18:00 and from 20:00 to 06:00 until the ship is unloaded.

Empresa de Servicios Portuarios de Manzanillo, S.A. de C.V. will negotiate with the union so that the winch operator changes place with the signalman every two or three hours to increase productivity and working safety; since the volume of work cannot be guaranteed, the union will not contract more personnel and it is not possible to establish a shift system.

It should also be pointed out that the gangs are generaly made up in accordance with the type of cargo: if the cargo is in sacks, there will be eight men in the ship's hold and two on the winches; if it is general cargo there will be six men in the hold and two winchmen, although it also depends on the physical effort required.

5.5 Worker Training

The ESP currently carrying out a training programme for the Port of Manzanillo which includes three basic actions:

A) Internal training, aimed at Company management, middle management and administrative personnel.

B) Emergent training, aimed at temporary permanent handling personnel.

C) Theoretical and practical update training for union member handlers and instructor.

The productivity incentive through training programme will begin in September and will essentially be aimed at technical and administrative update training for union member handlers, who, for participation in each course, will receive the incentives described in the reference programme. The other types of training offered at the Port do not offer economic incentives.

The ESP will control and follow-up the training activities in a manner appropriate to the three types of programme described above, informing Puertos Mexicanos each month of the development of each one, without failing to observe its obligation to inform the Board of Directors.

The theoretical administrative update programme for union member handlers which includes the productivity incentive through training programme envisages the realization of 12 courses during the period.

Five general courses
Four intermediate courses
Three specialized courses

Puertos Mexicanos supports the ESP by providing, amongst other things:

A) Teaching of courses for any of the reference programmes.

B) Instructor training.

C) Course manuals, didactic material and legal advice with regard to the administration of training, as well as didactic and pedagogical support.

D) Research, diagnosis, detection of needs and design of programmes or other activities of interest.

6. Cargo Handling Machinery and Equipment and Maintenance system

Empresa de Servicios Portuarios de Manzanillo, S.A. de C.V. has the equipment outlined below for loading and unloading, both on board ship and on land, for all types of cargo.

83 fork-lift trucks, with capacities as follow:

Seven 6,000-pounders made by Allis Chalmers
Eight 8,000-pounders made by Clark
Two 6,000-pounders made by Clark
Nineteen 8,000-pounders made by Yale
Thirty 15,500-pounders made by Clark
Three 30,000-pounders made by Clark
Six 10,000-pounders made by Allis Chalmers
Six 6,000-pounders, triple stack, made by Yale
Two 70,000-pounders with automatic 40 ft and 20 ft spreaders

For loading and unloading bulk cargoes on board ship and on land:

Sixteen pneumatic front-loaders
Five Michigan front loaders, 1.5m^3 capacity
One John Dere agricultural front-loader, 1.0m^3 capacity
The Waldon front-loaders, 0.75 m^3 capacity.

For unloading mineral or vegetable bulk cargoes onto trucks, wagons or gondolas:

Forty-one monolinear grabs
Eight 1.5m^3 capacity grabs
Eighteen 1.0m^3 capacity grabs
Fifteen 0.75m^3 capacity grabs
Three 70-tonne pneumatics or grain decanters made by Neuero
One conveyor belt, capacity 120 t/h for concentrates or bulk cargo.

To support these operations, we have:

Ten 6 metre scaffolds (truck)
Five 3 metre scaffolds (for gondolas)
Six hoppers, 6m^3 capacity (wagon-grain hopper car-truck)
Fifteen chutes or toboggans, 1.5m^3 capacity (to wagon)
Ten are hoppers, 6m^3 capacity, to truck or grain hopper car.

Yard cranes for support maneuvers in loading and unloading trucks, gondolas or heavy items, both on land and on ship.

Three Bull Mosse derricks, 10 tonne capacity (20,000 lbs)
One Drotte hydraulic cranes, 15 tonne capacity (30,000 lbs)
Three Grove hydraulic cranes, 20 tonne capacity (40,000 lbs)
Ones P&H lattice crane, 70 tonne capacity (115,500 lbs)

To transfer merchandise from apron to open area or warehouse, or vice-versa:

Eighteen dragging tractors, 5 tonne capacity (10,000 lbs)
Ten tractor-trucks, 20 tonne capacity (40,000 lbs) for 20 ft and 40 ft containers
One Shut Wagon Trackmobile to move wagons and gondolas, in yards or at wharf
Eigh Perna Rey fifth wheels or flatbeds, 10 tonne capacity (20,000 lbs)
Two flatbeds for general cargo, 10 tonne capacity (20,000 lbs)
Eight flatbeds for general cargo, 6 tonne capacity (15,000 lbs)
Two flatbeds for general cargo, 3 tonne capacity (6,000 lbs)
Eight flatbeds for 40 ft (12m) containers
Six flatbeds for 20 ft (6m) containers

Land based support equipment for loading and unloading:

Twenty-five hydraulic slides, 1.0 tonne capacity
Thirty flatbeds, 1.0 tonne capacity
Twenty flatbeds, 1.5 tonne capacity

For docking, undoking and turning manoeuvres in Manzanillo Bay, we have:

One 4,350 H.P. tugboat, "Rey de Coliman"

In the scrap store, waiting to be struck off from the Company's stock of assets, we have: thirty-seven fork-lifts, nine payloaders, five

tractors, three pneumatics, five cranes, two light vehicles and a fumigation pump.

6.1 Maintenance Policy Methodology

Preventive maintenance is regularly carried out on the machinery each month. The maintenance plan is followed in accordance with hours worked; if for any reason a piece of equipment requires repair before the programmed preventive maintenance date, we take advantage of the opportunity and carry out full maintenance at that time. As of the present,this system has given us good results, since between 90 and 94% of the total machinery and equipment reserve is kept in good working conditions. We are currently working on a maintenance and replacement programme for the equipment, and on a preventive maintenance manual in order to increase the efficiency of these operations.

It is important to point out that the tool stock held in the workshop is sufficient for the maintenance given to the Port machinery; we are able to carry out full repairs and rebuild motors. With this, we hope to reduce machinery reconstruction costs to a half of what they would be in an outside repair shop.

6.2 Improvements in The Maintenance Workshop

The floor area of the workshop if very small, 1,500m^2, which is effectively reduced even more since a part is used for type storage. Therefore, activities carried out here often clash with each other, which adversely affects the smooth running of the workshop.

The ESP proposes a course of action designed to obtain the budgetary allocation necessary to enlarge the maintenance workshop, in accordance with the amount of machinery, personnel and tools used (capacity).

6.3 Spare Parts

The spare part stock currently held in the maintenance workshop is sufficient for a four-month rotation period. Since it is necessary to reduce costs, we believe that the purchase of a greater volume of spare parts would require a large investment which, in view of the country's current economic situation, is not possible at the present time, since it would imply an inactive capital reserve of several thousand millions pesos. Nevertheles, a study is being carried out to determine the quantity and

type of spare parts which should be kept in the maintenance workshop.

6.4 Scrap Equipment

Equipment which is not in working conditions is kept in a scrap stores, awaiting the beginning of the process of its being struck off from the Company's assets.

6.5 Amounts of Machinery and Equipment

The volume of cargo currently handled by the Port requires a greater amount of machinery and equipment. We are considering the purchase next year of machinery and equipment for grain and container handling, as itemized in Index 5.2.

7. Installations

7.1 Rehabilitation

Within the Port bonded area, repairs to the bonded wharf are necessary; in the Inner Port, the storage yards must be repaired, the railway lines on band "A" require leveling, and the drinking-water system on the fish wharf also needs repair.

The renovation of the bonded wharf is planned for next year with an initial investment of 500 million pesos.

7.2 Construction

To improve Port operations, we are currently receiving tenders for the construction of:

- the North access to the Port,
- finishing electric substations I and II for lighting,
- finishing the fuel supply installation.

Also, in August and September, we will begin to dredge the entrance channel, channel and basin near the fish dock in the San Pedrito inner port.

For next year, we are planning an investment of 18,195 million pesos, for the following purposes:

- Construction the first container berth
- Works to reduce congestion in the old bonded wharf

- Renovation work in the bonded wharf
- Continue dredging of the channels and basins
- Preservation of port installations

On the other hand, the need for work on the Port's infrastructure has been noticed. These will be carried out when appropriate, for example:

- Construction of railway access, transit warehouse and shed on band "B"

7.3 Improvements for Existing Installations

The renovation work under consideration includes the following actions.

- Repair work on the asphalt in the storage yards (potholes, drainage, leveling) and lighting
- Repair work in the warehouses: lighting, doors and roofs
- Repair work on fenders, cleats, and water and fuel access points

8. Others

8.1 Environmental Protection Measures Within The Port Area

The main source of sea pollution is the dumping of sewage from urban areas into the sea and Cuyutlán Lagoon. A sewage collector is currently being built, which will help clean the urban environment. On the other hand, it is the responsibility of the Ministry of the Navy to ensure that polluting deposits are not dumped into the sea, or indeed channels or basins.

In order for the interested bodies to coordinate the actions which correspond to them, the committee known as "PRONAM" (Protection of the Marine Environment) was created. The bodies referred to above include:

Ministry of the Navy
Ministry of the National Defence
Ministry of the Urban Development and Ecology (SEDUE)
Ministry of the Tourism
Ministry of the Communications and Transports (SCT)
Ministry of the Agriculture and Water Resources (SARH)
Ministry of the Health
Ministry of the Public Education (SEP)
and the Manzanillo Port Company (ESP de Manzanillo)

The General Coordinator of this committee is the Ministry of the Navy. Samples are taken from the sea each week and meetings are held each month, during which strong polluting sources are detected and solutions offered to the problem, the proposed solutions being referred to the competent body.

Empresa de Servicios Porturarios de Manzanillo has, over recent years, given its support to the municipal government with the cleaning of drains and the construction of land-fills to avoid the contamination of flood-zones.

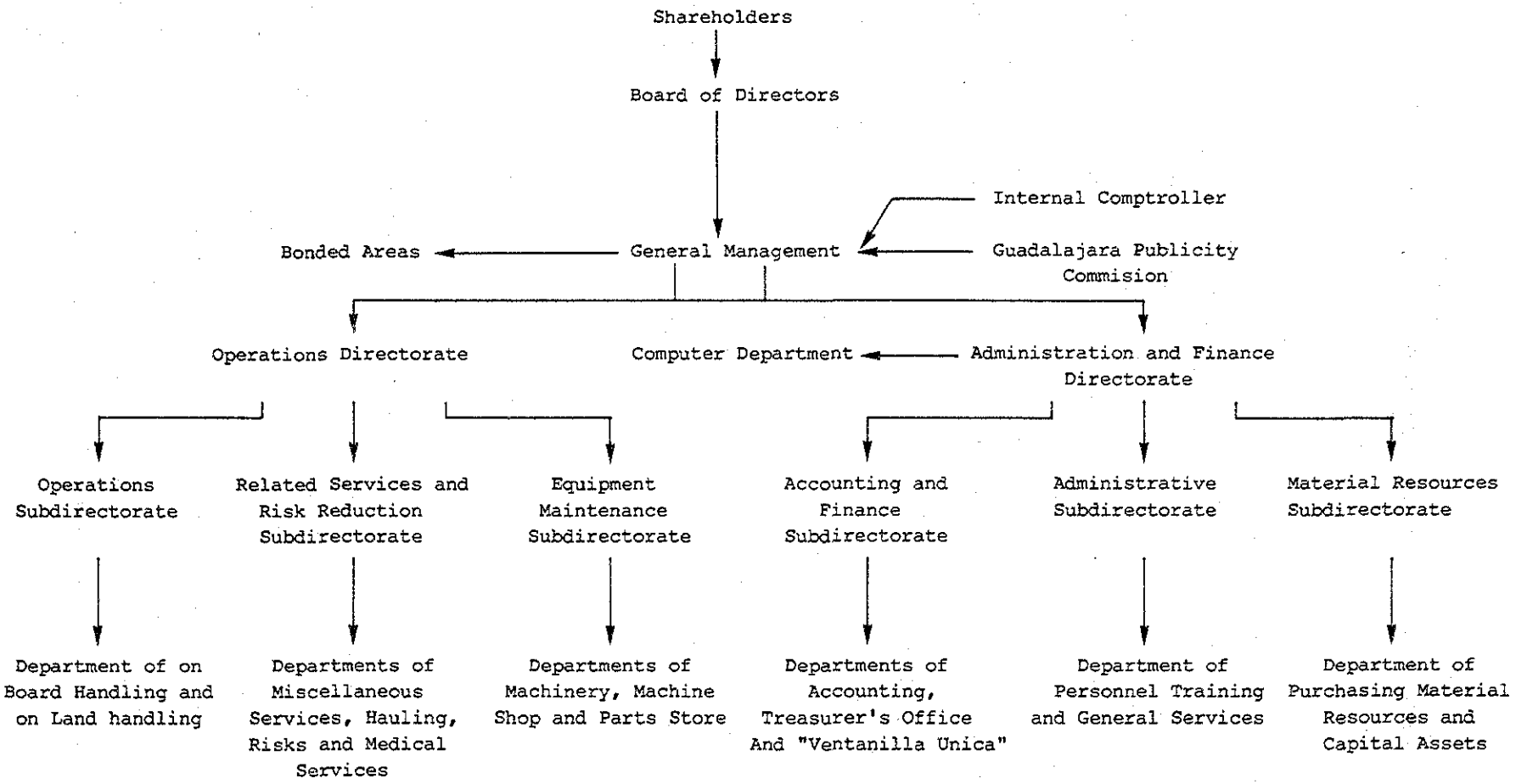
Within the Port area, the ESP uses safety nets alongside berthed ships to prevent cargoes falling into the sea, and the aprons are washed down after handling every bulk cargo to prevent spillage into the sea.

Support is given to the Mexican Navy in its anti-pollution campaigns, with signs, materials and projects in the clean-up campaigns.

Independent of all this, risk preventions are being applied, one of the chapters of which refers to the prevention of pollution of the sea, persons, merchandise and all polluting dangerous agents for humans.

These regulations include:

- Supplying the worker with appropriate protective equipment (to avoid risks, accidents and industrial diseases)
- Limiting the maximum time of worker exposure to polluting products.
- Giving adequate maintenance to the Port vehicles to avoid contamination by carbon monoxide.


Shareholders
Board of Directors
Internal Comptroller
Bonded Areas
General Management
Guadalajara Publicity Commision
Operations Directorate
Computer Department
Administration and Finance Directorate
Operations Subdirectorate
Related Services and Risk Reduction Subdirectorate
Equipment Maintenance Subdirectorate
Accounting and Finance Subdirectorate
Administrative Subdirectorate
Material Resources Subdirectorate
Department of on Board Handling and on Land handling
Departments of Miscellaneous Services, Hauling, Risks and Medical Services
Departments of Machinery, Machine Shop and Parts Store
Departments of Accounting, Treasurer's Office And "Ventanilla Unica"
Department of Personnel Training and General Services
Department of Purchasing Material Resources and Capital Assets

Appendix 7.4

IMPROVEMENT PROGRAMME OF THE PORT OF MAZATLAN

1. Port Usage

1.1 Measures to Promote New Usage

The arrival of cruisers at the Port of Mazatlan is intense during the months of October to April. Annually, 180 ships are received, the majority of which are berthed in the bonded area. At times up to four cruisers arrive simultaneously, which creates berthing problems since one of them must either remain anchored or affect the handling of the cargo vessels, since movements from one berth to another must be carried out. The comment of the Japanese delegation on this problem is that it would be necessary to examine the possibility of grouping all the cruisers in one place as preventive measure; this however, implies exclusive berths for cruisers, which is not possible since the Port only has 1,150 meters of dockside and a 140 meter tourist berth to serve all the cargo vessels and cruisers that arrive at Mazatlan.

The measures considered in this regard are as follows:

A) Completion of the berth which is being built at the former ferry terminal, which was planed to be finished in 1990 with an investment of 6,500 million pesos. In this way, there would be an extra length of dockside for berthing tourist vessels.

B) The construction of a floating dock is being planned to enable cruise passengers to disembark when at anchor. This installation would be located alongside the passenger terminal.

1.2 Measures to Promote the Utilization of Unused Port Areas

The Port of Mazatlan has a vest reserve of land located in front of the existing installations and inside the Urias marsh areas which in the long term, and in accordance with the development possibilities, could be converted into an industrial zone for the Port.

In the same way, it would be possible to relocate there the dock belonging to Petroleos Mexicanos which at present stands between the commercial berths and the tourist installations. This has been the subject of forceful demands for relocation made by the local inhabitants, who cite

the danger it represents for the urbanized area. One of the alternative solutions to this problem would be the total relocation of these installations, moving them to another site on Isla de la Piedra, far removed from the commercial and tourist areas. In this way, it would be possible to take advantage of approximately 500 meters of dockside, which could be used to berth tourist cruisers. The other alternative would be to unload the tankers by means of a monobuoy.

1.3 Coordination between Interested Bodies

For the correct use of the Port area as well as the reserve zones, coordination between the SCT and the SEDUE is the basic requirement, in addition to involving the municipal and state governments in these land-usage problems.

The key body for this coordination is the formation and function of the Development Committees.

2. Port Administration and Finance

2.1 Cost-Accounting of Individual Tariffs

Through the Administration Subdirectorate of the ESP, a system is being implemented which will allow us to analyze our costs and their makeup with regard to the tariffs currently being applied, in such a way as to be able to identify easily the operation in which we might obtain negative results and therefore be used as the base to suggest a new tariff. This is a complicated task, involving aspects of administration and operation which are difficult to analyze. Nevertheless, we are trying to obtain results which will allow us to evaluate our finances and consequently determine the administrative direction of the Company.

2.2 Personnel Functions and Numbers

ESP personnel stands at 93, which is sufficient for the day-to-day administrative and operational functions of the firm. This total has been reduced over recent years, until arriving at the total workforce needed to carry out the tasks adequately.

This workforce is subject to a programme of continuous training in order to achieve maximum levels of productivity.

2.3 Separation of Finances by Port

Servicios Portuarios de Mazatlán, S.A. de C.V., also operates a subsidiary in Topolobampo,moving lower cargo volumes.

It is believe that the separation of the administration of each Port has not been necessary, since that would imply greater running costs and higher acquisition costs for the minimal equipment required to operate.

Due to the new installations being built at Topolobampo, it is probable that the cargo volume will increase, and in this case the creation of an autonomous company at that Port might be considered.

2.4 Union Related Problems

The company has signed collective labour contracts with two unions, namely the Unión de Estibadores a Bordo de los Buques and the Liga de Trabajadores Marítimos y Terrestres, affiliated on land to the CROM. In addition, there is another C.T.M. organization which is the Sindicato de Alijadores Seccion 113, which carries out indirect cargo handling within the Port (into warehouses or yards). Obviously, as indicated by the comments of the Japanese delegation, it would be convenient to have a single union for handling, or at least for all cargo-handling organizations to sign a collective contract with the Company.

In this regard, it would be useful to study the possibilities of incorporating the C.T.M. organization within Servicious Portuarios de Mazatlán by means of a collective labour contract, or, given that they lack handling equipment, cancel their concession and have all handling within the bonded area carried out by the Company.

2.5 Statistics

The statistics elaborated by the ESP contain information relating to the ship and its cargo, as well as operational data such as productivity. These are presented at board meetings.

Taking into account the observations made by the Japanese delegation, a ship-by-ship information module has been designed which is processed by computer.

With regard to container statistics, the information is gathered by means of TEUs, and by the same token a design will be elaborated to permit computer handling of this information.

3. Arrival and Dispatching of Vessels and Customs Procedures

Formalities are simplified to the maximum in such a way as to eliminate delays to the user. There is close coordination between all bodies involved in vessel entries and exits, as well as cargo handling.

4. Land Transportation

4.1 Coordination between Interested Bodies

The users, the ESP and the rail company maintain close communication regarding the supply of equipment; however, the shortage of rolling equipment in chronic, which gravely affects the Port. The situation cannot be easily remedied, since behind it lie problems pertaining to the rail company, such as the low hauling power of their locomotives.

Nevertheless, the units necessary to unload the cargoes are normally requested of the railway company as early as possible.

With regard to road haulage units, they represent no problem at Mazatlan since the volume transported in this way is minimal and normally sufficient units are available. At the local level, we shall maintain close collaboration with the rail company, informing them at the earliest possible juncture of the units required to unload the vessels.

4.2 Storage Systems and Installations

In order to facilitate the unloading of the ships that arrive at this Port with fertilizers, warehouse No.5 has been modified for indirect use when containers are in short supply. On several occasions this has given good results; however, the warehouse is not used to the maximum since it lacks the conveyer belt originally planned to be used when unloading.

This warehouse is leased to the company Fertimex, which should carry out the appropriate modifications to permit maximum utilization of the installation.

In regard to grain unloading, it would be convenient to have silos in the zone adjacent to the dockside to facilitate the unloading of ships, bearing in mind that the supply of railway units is inadequate.

5. Cargo Handling

5.1 Measures to Improve Efficiency

Efficiency in ship operations has been improving constantly, with regard to both bulk cargoes and general cargoes. This is due to the working systems that have been implemented, in conjunction with equipment that is maintained at optimum levels.

The ESP has handling supervisors responsible for each ship, watching for any situation which would affect handling, and supplying the equipment and machinery necessary.

The ESP keeps records detailing all information relating to the ship's stay and time calculations for loading and unloading operations.

With regard to this area, the Japanese delegations indicated several points, explained below:

A) Solving the problem of the shortage of railway wagons to avoid low levels of productivity. This is a difficult problem to solve which has been discussed previously.

B) Renovation of the dockside surfacing is urgent, especially between the railway tracks and the water-front, since it becomes dangerous with the forklift trucks and heavy equipment that operate in loading and unloading operations. For the correction of these problems, funds for 900 million pesos are being assigned in the 1990 investment programme.

C) With regard to container location signposting: in real terms, the number of units that pass through the Port is low and therefore all personnel know the areas where containers are placed. However an increase in the size of the container storage area has been contemplated, ant the corresponding signposting to permit easy location will be carried out.

D) Due to the fact that the grabs are in constant use during bulk unloading, they are not lubricated until the end of the shift. However, they will be replaced as soon as inefficiency in their functioning is noted.

E) In accordance with Company needs in the loading and unloading of products, the correct equipment is used to the extent that in the case of grain hoppers, they are built in our own workshops in accordance with the loading or unloading characteristics of the merchandise in question. In addition, other implements or aids have been designed for special cargo handling requirements. Nevertheless, the recommendation of the Japanese

delegation will be taken into account, so that the correct equipment in accordance with the cargo in question is used.

F) Ship operations are under the direct control of an ESP supervisor. From the moment the ship arrives we have all the necessary information for the best possible service; a record is kept from the moment of berthing until departure, and the data are analyzed everyday by the Operations Chief to correct faults. Later, all these operational data are fed into the computer system to provide the necessary operational statistics.

5.2 Worker Training

The ESP practices constant worker training with pre-designed programmes, using both local instructors and instructors from Puertos Mexicanos, covering diverse aspect ranging from equipment operation to correct cargo handling procedures to reduce the possibility of damage.

The training programme has by no means been discouraged; on the contrary, the classes are attended by more and more workers and now there is a new productivity incentive plan through the training imparted by Puertos Mexicanos.

6. Handling Machinery and Equipment and Maintenance Systems

6.1 Improvements in the Maintenance Workshop

The machinery and equipment at the Port of mazatlan is sufficient to service port operations. In addition we have a highly varied stock of spare parts, and the level of maintenance is considered good; machinery and equipment are combined in accordance with operational needs.

At present, a study is being carried out eliminate equipment that is obsolete or which, because of its age, it is no longer profitable to keep.

To obtain benefits, the following steps will be taken:

A) Fine-tune the preventive maintenance programmes and optimize stocks of spare parts.

B) Establish and use operational records and results in maintenance planning.

C) Take into account financial aspects when establishing stocks of spare parts, to avoid over-large inventories.

7. Installations

7.1 Renovation, Construction and Improvement of Existing Installations

When the berths were built, the level of the railway tracks and the dockside surfacing was the same, but since it was necessary to increase capacity, the surfacing was left uneven which creates problems for the transit of the forklift trucks and other handling equipment which operate in the affected areas. For 1990, it is planned to correct this situation so they do not affect the functioning of the Port, in addition to some land subsidence which has been observed at berths 4 and 5.

With regard to the main navigation channel and the turning basin, we have considered widening the former from 100 to 150 meters, and increasing the diameter of the latter by 100 meters.

This would be especially beneficial to long vessels, which could manoeuvre with lower risk, bearing in mind that we receive ships with overall lengths of up to 240 meters (passenger craft) and grain ships with up to 30,000tonnes of cargo, the berthing manoeuvres of which are hampered by their great tonnage.

Plans have been made to establish the necessary installations to provide fuel to berthed ships; however, this requires close coordination with Pemex and large investments. In addition, there have been some differences of opinion between the Port authorities and the local population, who argue that it would be dangerous to install such a facility within the Port.

Appendix 7.5

IMPROVEMENT PLAN OF THE PORT OF GUAYMAS

1. Port Usage

a) Container Traffic

With regard to the traffic of containers with automobile parts for the Ford assembly plant in Hermosillo, we have been informed that, as of the model change in 1989, most parts will be supplied by factories in the interior of the United States instead of by MAZDA of Japan, with which the volume of container traffic will be considerably reduced. Furthermore, as a result of the Ford Motor Company's request for maritime freight tenders, won by the line APL of the United States, it will now be this line that will handle the traffic through Los Angeles, continuing down to Hermosillo by rail. However, there is a possibility that APL will subcontract the Ford traffic to TMM; in turn, on seeing the reduced volume of traffic involved, the line requested that a container terminal be established at Ensenada with machinery from Guaymas, leaving at this Port only the fork-lift truck for full containers and two tractor chassis.

Therefore, the ESP Improvement Plan will focus on the sale or rent of the very high value equipment to those ports which need to handle containers. By means of this, we will protect the investments made and support the development of the nation's ports at a lower cost than by fully equipping them. It is believed that the empty containers left by the Ford plant will be sent to Guaymas for export banning or to deliver batches of empty containers.

Among export goods which could be containerized are: bales of cotton and cellulose, and especially the copper blocks that the Compania Mexicana de Cobre exports.

b) Barge berth (position No.1)

The Compania Minera de Cananeahas expressed interest in using berth No.1 (flatboats) to establish a domestic trade route, carrying 5,000 tonnes of copper concentrate per month from Guaymas to Santa Rosalia, of self-propelled flatboats with a maximum draft of four metres, which would require a berth depth of five metres, the costs of sea-bed cleaning being

covered by the Compania Minera de Cananea.

Puertos Mexicanos will provide the necessary facilities for the above mentioned company to prepare and use the flatboat berth.

2. Reduction of Spillage of Bulk Agricultural and Mineral Cargoes on Dockside and Traffic Routes

Spillage of bulk agricultural products on the dockside and traffic routes can be reduced by means of the following actions:

a) Replacement of grabs with leaks at the sealing edges, with either repaired or new units.

b) Since the wind is a factor in the dispersal of dust, husks and grain, the sweepers belonging to the former Superintendency of Port Operations should be used, or the necessary units should be acquired.

c) With regard to mineral bulk, the improvement measures must include the purchase of a sweeper with vacuum-cleaning equipment, to be used immediately after berth operations are completed.

d) With regard to the dust and husks shed at a considerable height by the silos, and which, because of gravity and wind are spread throughout all areas of the Port, the company Almacenes Nacionales de Deposito, S.A. de C.V. will be requested to install filters at the exit points of its ventilators.

e) On the general level, Puertos Mexicanos will request that all users pay for and carry out cleaning operations on the dockside and traffic routes at the end of operations with each boat.

3. Equipment

The need for fork-lift trucks with sufficient capacity to move the grain hoppers having been noted, this Improvement Plan includes equipment planned for 1990, 1991 and 1992.

4. Operations Control

It has been observed that the ESP's main function in the operations field is logistic support for the completion of operations, but it does not attend to the control of the execution of stowage plans and effective coordination between Port users and the stevedores' union (Union de Estibadores).

Therefore, the organization needs to be structured, and functions and

working practices to be assigned to handling personnel.

5. **Weekly Maintenance System Review**

The weekly preventive maintenance programme derived from the lack of odometers in the machinery must be combined with planned maintenance in accordance with the hour-use of the machinery, at least for those units which are of greater importance for reasons of specialization or cost. Of course, the appropriate odometers should be installed in such machinery.

6. **Installations**

With the participation of technicians from the Residencia General de Obras Marítimas and from Empresa de Servicios Portuarios de Guaymas, the 1990 Investment Project was drawn up including actions for the completion of works in process, major renovation of existing installations, additional works for operating improvements, and the routine maintenance of the Port installations and dredging jobs.

The Investment Project is annexed to the present document.

With regard to the settling process of the landfill adjacent to position No. 2, for 1991 we plan to construct at least two link ramps between the stable filled area and the ends of the wharf on position No. 2.

Reference: Actual Results through the First Half Year

I. ADHESION TO GENERAL GOVERNMENT POLICY

1. Break-down of the Budget Programme

The 1989 Budget Programme, as approved so far, was formed by the quantification of the Operational and Productivity Goals. To this end, the information available to users in the third quarter of 1989 was taken into account, together with statistics concerning cargo movements in previous years. The following goals were established:

With regard to Services:

Type of Cargo/Services	Annual	1st half	2nd half
(Thousand of Tonnes)	1989	1989	1989
General	100	52	48
Agricultural bulk	820	472	348
Mineral bulk	730	270	460
Fluids	150	60	90
T O T A L	1,800	854	946
Containers	8,800	5,400	3,400
Tugging	500	246	254

With regard to productivity:

Cargo Type	Tonnes/Hour/Ship (No. of Containers)
Break general	45.0
Unitized general	155.0
Semimechanized agricultural bulk	170.0
Mechanized mineral bulk	350.0
Semimechanized mineral bulk	150.0
Fluids	700.0
Containers	16.0

In terms of both content and information, the formation of the 1989 Budget Programme was based on guideline and standards defined by the Ministries of Planning and Budget and of Communications and Transport, and by the National Ports Coordination Commission (now known as Puertos Mexicanos).

Moreover, it should be pointed out that the Budget Programme as indicated corresponds to that authorized to date by the Ministry of Planning and Budget and the Chamber of Deputies.

2. Permanent Policies

A. Decentralization and Deconcentration

Being a company with majority state shareholding, in accordance with the actions undertaken in previous years and in observation of the Parastate Bodies Act, it is already both decentralized and deconcentrated.

During the period corresponding to this report, Planning, Coordination and Execution of activities at local and state level was strengthened, concentrating on actions designed to improve Port Operations, by means of a meeting held with the Centro Sonora SCT, and a Port Development Committee meeting.

B. Administrative Simplification

Within this programme, the ESP continues with improvements in three basic areas:

a. The "one window" service, with the aim of saving time spent on formalities relating to the different services offered.

b. The improvement of the infrestructure and road access, internal traffic and exit from the Port installations, with the aim of improving the flow of such transit. It is hoped that this item will be finished during the second half of the present year, since work on berths, yards and traffic routes in already in process, under the auspices of the Vocalia de Obras Maritimas of Puertos Mexicanos.

c. The review and simplification of administrative procedures relating to operations, especially those concerned with the planning of the handling service in support of the policies of Puertos Mexicanos.

C. Training

Together with Puertos Mexicanos, we participated in the design of a productivity incentive through training programme, which will be imparted intensively to the workforce, beginning in July.

Specialized courses for tractor-truck operators and courses regarding the maintenance of mechanical, hydraulic, electric and pneumatic systems for workshop personnel were taught. In total, training was given to twenty-three workers, ten of which were Company staff and thirteen were stevedores.

3. Incidental Policies

AUSTERITY IN PUBLIC SPENDING

The Company, being a provider of Public Handling Services, has its cost structure formed basically of variable costs, derived from its workers' wages and the inputs necessary for operation and maintenance of

its handling equipment, all of this in turn as a consequence of the provision of above-mentioned services. For this reason, its fulfillment of the running-cost reduction requirement is extremely limited.

The previous paragraph notwithstanding, the Company has complied with the guide lines for cost rationalization and investment programme standardization.

II. COMPANY OPERATION

1. Administrative Structure

As a result of the process of adjustment carried out in previous years, the Company was left duly structured in order to work during this year in accordance with the activities planned to be carried out, having eliminated problems of overmanning and personnel duplication.

Due to the need to attend adequately to the demand for its services, which was greater in the first half of 1989 than in the period immediately preceding, fourteen additional labourers were employed on a temporary basis, to work principally in operational areas.

During the first half of 1989, however, the company adhered to the agreement it had reached with its governing body, retaining only 80 full-time positions for handling services, and using 45 elements for bonded area activities and installation maintenance.

2. Results of the Implementation of Programmes and Budgets

During the course of the first half of 1989, the Company exceeded the goal it had set for itself in product and merchandise loading and unloading services by 10%, and bettered the corresponding 1988 figure by50.6%, as shown below:

Cargo Type/Services (Thousand tonnes)(no.1)	Planned 1st.Half 1989	Actual 1st.Half 1989	Actual 1nst Half 1988	% Actual 89 Planned	% 1989 1988
General Cargo	52	40	87	-27	-54
Agricultural bulk	472	564	226	+19	+150
Mineral bulk	270	254	311	-6	-18
Fluids	60	82	-	+37	-
T O T A L	854	940	624	+10	+51
Containers	5,400	3,973	5,709	-26	-30
Tugging	246	263	123	+7	+114

The cargo types that showed large reductions in the volume handled were: general cargo (23%) and bulk minerals (6%). The main causes for this were, in the case of general cargo, the suspension from April of coastal shipments of palletized barium oxide which Pemex sent to the Campeche oil field. With regard to mineral bulk, the cause was the on-going construction work enlarging Portland Cement's sea terminal, from which shipments were halted in April, to begin again in September.

With regard to tugging services, the established goal of 246 operations was bettered because of the volume of vessels received and the services given to a flatboat that on several occasions transported concrete for the widening work being done on the Pemex berth.

Container traffic dropped by 26% due to the traffic reductions of two of the terminal's users. Celulose de Chihuahua, which used to send containers of cellulose bales to the Far east, changed its export strategy to send non containerized bulk cellulose to Europe. The Ford Automobile Assembly Plant did not increase its volume as had been planned; on the contrary, we have been informed that due to the change of model they are redesigning their installations and, consequently, the majority of their parts will be supplied from the United States and not from Japan: a dramatic reduction in this traffic is expected for the second half of the present year, and this situation will require an adjustment of our annual goals.

The results of the Company's operations over the period are positive, showing earnings of 738.2 million pesos, due on the one hand to the increased volume handled, and on the other to the authorized increase in tariffs.

3. Operating Situation

A. Production and Productivity

Productivity Increases

With regard to productivity, the tonnes per hour per ship figures obtained during 1989, compared with projected figures, show improved yields with the exception of unitized general cargo, semimechanized mineral bulk (fertilizers) and, less significantly, containers, as shown below.

Cargo Type	Projected T/H/S	Actual T/H/S
Break general	40.0	54.0
Unitized general	155.0	123.0
Semimechanized mineral	150.0	137.0
Mechanized mineral bulk	350.0	372.0
Semimechanized agricultural bulk	170.0	211.0
Fluids	700.0	740.0
Containers (No.)	16.0	15.0

With regard to general unitized cargo, the type of vessel used for domestic transportation of barium oxide allows the simultaneous use of only two gears.

With regard to semimechanized mineral bulk, the variation is due to the fact that, with the ship and cargo operating methods of the user Fertimex, the activities of our Company are restricted due to the poor conditions of their vessels, the decompacting equipment they rent from a third party, and the facilities available for reception at the destination point.

We consider the container terminal operators deserve a special mention since operations are carried out with an average only two gears working simultaneously; in addition they work with general cargo at the same time as containers.

Principal Achievements and Problems in 1989

With regard to achievements, handling of all cargo types was carried out successfully, including such services as require a great volume of manpower and machinery, with up to five vessels in simultaneous operation (two of them container ships). Exporting of containerized copper blocks was initiated.

The main problems arose due to operational failures of the fertilizer boats' equipment which firstly forced the anchoring of other vessels on occasions, obliging us to unload them by land-based crane.

Also, vessels carrying forage cereals were held up during the month of January because of quality problems with the product and the need for extra fumigation. Additionally, operations were limited during the month of May due to the shortage of road transport units, since that time coincided with harvesting in the states of Sinaloa and Sonora, with destinations in Baja

California Norte.

Labour Aspects

With regard to personnel, the ESP complied with the wage guidelines and policies established by the Federal Government, both for unionized and administrative staff, including for the former the annual tabulation revision as laid down in the contract in the months of June and July, leading to a 10% increase.

B. Promotional Policies

As a result of the activities developed with the user Celulosa de Chihuahua y Agentes Consignatarios, we achieved the export of 4,310 tonnes of bulk cellulose bales to Italy.

With the support and publicity of the State Government, we participated in meetings with industrialists from Arizona, USA, within the framework of the Sonora-Arizona Commission, during the month of May.

We participated in working meetings and visits to the installations of Cementos Portland along with the foreign trade bank (Banco de Comercio Exterior) in relation to the expansion of their terminal at this Port, which in the short term will permit exports of 500,000 tonnes per year.

We assisted with the visit of the Japan International Cooperation Agency, who will participate in the drawing up of the improvement programme for the Pacific ports.

We assisted with the visit of the Japan International Cooperation Agency, who will participate in the drawing up of the improvement programme for the Pacific ports.

Together with representative from the Ford Assembly Plant, we held several working meetings to confirm the plant shut-down period from September to November due to a change in model, and the reduction of up to 90% in their container traffic with parts from Japan that passes through the Port, as well as the possibility of their using our container equipment in their own plant in Hermosillo.

4. Functioning of Governmental Bodies

in accordance with the Parastate Bodies Act, which describes the operation of governmental bodies, two meetings of the Board of Directors were planned for the half-year, an equal number of meeting having already

been held.

Follow-up to seventeen agreements was established, the resolution having been accepted in its entirety.

With regard to the sufficiency and timeliness of information required for the Board's decision taking, it was decided that it was satisfactory.

An Ordinary Shareholders' Meeting was planned and held, corresponding to the 1988 financial year, and one Extraordinary meeting to the same end. This allowed us to comply with the corresponding stipulations in the Merchant Societies Act.

5. Relations with Sector Coordination

During the period in question, the ESP signed the Management Agreement with the decentralized body Puertos Mexicanos, which indicated the obligations and goals of both parties for 1989, acting extraordinarily in the drawing up of the productivity incentive through training programme.

By the same token, through the work of the Development Committee within the Port, and with the participation of the SCT Centre, a significant advance was achieved in the processes of planning, programming and evaluation of actions, which allowed the design of a strategy and a programming and evaluation of actions, which allowed the design of a strategy and a programme to be followed to resolve the problems of the Port in general and of the Company in particular, rationalizing the decision-making process during the period.

III. CONCLUSIONS AND RECOMMENDATIONS

1. Observations and Relevant Prospects

Observations

The procedure used to define the annual goals of services to be operated continue to be affected by the changes carried out by the users during the financial year. This consequently affects our budgetary and operational goals.

Prospects

Short and Medium Term

Diversify the products handled by the Port through a greater promotion

of the installations available, which in turn will translate into increased volumes being handled, most especially in the light of the circumstances with regard to containers.

As has been expressed in the body of this reports, and given the reduction in container traffic, as of the second half of the year it will be necessary to analyze the possible sale or leasing of a substantial portion of our container terminal equipment.

With regard to the handling of copper concentrate from the companies Minera de Cananea and Mexicana de Cobre, we have been informed that as of this time, due to commitments to export to the USA, for a period greater than one year all exports to Asia and Europe are cancelled, seriously affecting our operational goals for the second half of this year.

Incorporate the use of the silos into the grain ship unloading service, with the aim of improving productivity, as well as providing fueling services and water supplies for merchant vessels, on the sections of the yard dock.

2. Recommendations

Continue working on mechanisms to permit the determination of production goals, the attainment of which does not depend on factors external to the Company.

With regard to finance, obtain the data necessary to establish more realistic Port tariffs, as well as determining the steps necessary to draw up a simplified general system of tariffs.

Continue promoting the services offered by the Company on the regional and international levels, including the support of the State Government.

Consolidate the functioning of the Port Development Committee, with the active participation of the authorities and the users.

On the level of the sector as a whole, strengthen coordination with the central authority in order to follow the guidelines and standard procedures as emitted.

Appendix 7.6

IMPROVEMENT PLAN OF THE PORT OF ENSENADA

1. Land Usage

The Port of Ensenada handles commercial, tourist and fishing traffic.

Within the Port are the Foreign Trade, North Wall and Interwall berths, as well as installations for the fishing industry.

a) Measures to Promote New Land Use

An intense publicity campaign for the Port has been carried out with the aim of encouraging greater use of the installations. The short-term operating prospects are:

- Fertilizers, 30,000 tonnes to be moved in 1989.
- Bulk agricultural cargo, depending on the central policies of CONASUPO.
- General cargo for the in-bond manufacturing plants that will come from Asia.
- Construction of clusters of piles for reception of tourist cruisers, to affect cargo berths as little as possible.
- Purchase of equipment necessary for container handling.

With the aim of promoting and improving the Port's services, the following work is planned for the short and medium term.

b) Measures to Utilize Unused Port Areas

- Renovation of warehouse No. 2 to be used as refrigerated storage, principally for tuna fish in addition to other perishable goods.
- Domestic traffic platform for the construction of electric consoles and the installation of refrigerated storage for tuna fish and other perishables.
- Renovation of the foreign trade yard for containers.
- Renovation of the shed for containers and general cargo.

c) Systems for the Coordination of Interested Bodies

The regular and extraordinary meetings with the authorities conces-

sionaires, permit-holders, union and Port users will be promoted and strengthened in order to define the needs of each area.

2. Port Administration and Finance

a) Improvement of Services through the ESP

With the study and analysis of tariffs being carried out by the ESP, we will obtain a greater motivation on the part of the personnel to work efficiently, leading in turn to greater operating productivity, in addition to the training programmes which are already being imparted.

b) *Improvement of Personnel Functions and Numbers in Each Section* of the ESP

A restructuring of the Company's organization is in process: new personnel for supervision and statistics have been contracted to have follow-up data to the operating programmes and additional information; with regard to the equipment repair workshops, the workers have been arranged in accordance with their experience and the training being received, to improve the functioning of each element.

c) Cost Accounting of Individual Tariffs

Both income and costs are classified by ship and type of service, which will allow us to evaluate directly the cost benefit; furthermore, the central offices, in conjunction with the ESP, are drawing up simplified tariffs. This is highly positive, since access will be easier and smoother.

d) Not Applicable to Ensenada

e) Solving the Problems Related to the Cargo Handlers' Unions

The problem of the Port of Ensenada's having two unions, each with a different sphere of work, does not create as many conflicts as might be thought at first, since the ESP maintains a constant dialogue with the C.T.M. (which has no contract with Empresa de Servicios Portuarios de Ensenada) and this communication has been of use for the ESP to contract for all unloading operations directly with the shipping agencies and the corresponding payment for the handling of these cargoes is made by the

Company to each of these organizations, except for operations involving tuna fish.

f) Improving Necessary Statistics

The collection of data related to Port activities is and has been carried out by the Dirección de Puertos y Marina Mercante.

With the finalization of the computer system, we will have the opportunity of having available programs to simplify data collection and timely statistical reporting.

3. Arrival and Dispatching of Vessels and Customs Formalities

For cargoes to be dispatched, the following requirements must be complied with:

Exports:

1. Reception of documents and cargo (customs agent).

2. Drawing up and presentation of entry request at the bonded area (passing through the navigation section, where it is assigned a number, on to the bonded area where it is sealed by the warehouseman and signed by the departmental head).

3. The export request is then drawn up
   a) Customs classification
   b) Valuation
   c) Formalities (navigation section, export section, administrator for allocation of customs officer, clearance by customs officer, cashier)
   d) Payment of duty and handling
   e) Dispatch

Imports:

A) The merchandise arrives (shipping agent presents manifiests, storage, plans, etc.)

B) The merchandise is stored in appropriate warehouses.

C) The customs agent receives the corresponding documentation, as follows:

I) Sales invoice (original and at least two copies, signed by hand, either written in Spanish or with translation).

II) Bill of Lading (original and two copies, the document to be validated by the shipping agency).

III) Packing list.

IV) Other documents (sanitary certificates, certificates of origin, etc.).

D) The customs agent prepares import request:

I) Classification

II) Valuation

III) Fills out request form.

E) Procedure:

I) Navigation section assigns the request a number.

II) Import section.

III) Administration (administrator designates customs officer).

IV) Customs office (officer allows dispatch or physical verification of the marchandise, and signs the request).

V) Cashier (to pay duty and customs fees).

VI) Transportation is requested.

VII) Loading begins.

VIII) Transport begins.

A) Procedural Simplification

To speed up these procedures we will study, together with the competent authorities, actions designed to promote reform of customs law, bringing it into line with modern technological advances. It is known that the new import-export request forms have a harmonized system with regard to duty tariffs, which will pass simultaneously from Customs to the bank for the corresponding payment. It is believed that there will be a visit to enable Customs to verify the contents of the merchandise.

B) Coordination System

Each authority has its own laws and regulations which it must obey; however, constant dialogue is maintained to improve the actions of each one within its own sphere of competence.

4. Land Transportation

a) Coordination System Among Interested Bodies

There is no problem with transportation, besides the fact that the new regulations do not require concessionaire or permitholder status to provide transportation services to the public, since individuals can offer such services after complying with simple prerequisites.

b) Improving Storage Systems and Installations in the Port Area

According to the statistics, there are no problems with storage areas, but in case of necessity, warehouse No. 2 is available to supplement storage areas, as well as yards prepared for cargo reception, including containers.

5. Cargo Handling Operations

a) Measures to Improve Cargo Handling Productivity.

With regard to cargo handling, goals have been set for 1989 as follows:

	T/H/S
General break cargo	20
General unitized cargo	141
Semimechanized agricultural bulk cargo	98
Containers	16/hour

During operations planning meetings agreements are reached to supply the machinery and equipment appropriate to the cargo type and the stowage plan, together with the qualified personnel.

b) Providing Equipment and Machinery Necessary for Cargo Handling

We have a replacement programme for minor equipment which will improve

handling productivity, as well as the purchase of new equipment.

c) Improving the ESP's Cargo Handling Plan

The cargo handling plan is developed from the basis of handling, with which packaging, density, weight, etc. are calculated. Then the equipment that corresponds to the handling of the cargo on board ship, in storage and on the yard is determined, together with the appropriate personnel.

d) Gang System

With regard to the workers' gang system, these gangs are generally made up in accordance with the cargo type: training will provide qualified elements to increase productivity and efficiency.

e) Worker Training

Worker training is based on a programme of economic incentives corresponding to attendance and skills developed within the framework of the courses which, in broad terms, cover the following areas: General courses, Intermediate courses and Specialized courses.

6. Cargo Handling Machinery and Equipment and Maintenance System

a) Efficient Maintenance Policy and Methodology

Machinery maintenance programmes are followed in accordance with factory manuals and instructions for efficient care of the equipment, and the ESP has written a general instruction book for this kind of maintenance, which is divided into three parts: machinery is serviced every 100, 500, and 1000 hours. An odometer has been installed in each unit to facilitate control.

b) Maintenance Workshop Improvements

There are plans for modules in the workshop, each module to be dedicated to different equipment and machinery repairs as follow: major repairs, mainor repairs, welding, paint and bodywork, checking station, waiting area for imported spare parts or special work, in addition to constant training for workshop personnel through regular meetings.

c) Having the Appropriate Spare Parts

The Operations Directorate and the Administrative and Finance directorate hold meetings to determine economic aspects of the ESP in order to prioritize the acquisition of spare parts in accordance with future needs.

d) Discarded Equipment

The ESP will make available to the other Ports an inventory of its obsolete units and parts, so that each one may analyzed and select the items which might be of use, and if possible, contact the various distributors and arrange an exchange of parts.

e) Quantities of Machinery and Equipment

In accordance with the programme of promotion being carried out by the ESP to obtain captive cargoes, an acquisition plan for the new machinery and equipment that will be needed has been drawn up.

7. Installations

a) Renovation

b) Construction

c) Improving existing installations.

With regard to the above points, the Vocalía de Obras Marítimas has plans containing full details.

8. Miscellaneous

a) Environmental Protection in the Port Area

In conjunction with the competent authorities, the Company has developed programmes to combat the pollution of the Port area, so that each body may, in accordance with its area of competence, work towards the solution of the problem.

PART II

Appendix 5.4.1 Origin and Destination Analysis of the Six Ports (1985 1986)

(1) Salina Cruz

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%	Destination State	85'	86'	sum	%	Major Cities
Japan	9.4	33.1	42.5	55.2	MOR	8.1	25.2	33.3	43.2	Cuernavaca 33.3 (43.2%)
U.S.A.	6.6	8.2	14.8	19.2	OAX	13.8	12.9	26.7	34.7	Salina Cruz 10.8 (14.1%)
Canada	5.0	4.9	9.9	12.8	VER	1.7	3.5	5.2	6.8	
Republic of Korea	0.8	2.1	2.9	3.8	D.F.	0.1	3.8	3.9	5.1	
China	1.5	0.6	2.1	2.7	PUE	0.1	2.6	2.7	3.5	
Taiwan	0.5	1.2	1.7	2.2	MEX	0.4	1.2	1.6	2.1	
Others	2.3	0.8	3.1	4.1	CAM	1.3	-	1.3	1.7	
					YUC	-	0.7	0.7	0.9	
					AGS	-	0.6	0.6	0.8	
					Others	0.6	0.4	1.0	1.3	
Total	26.1	50.9	77.0	100.0	Total	26.1	50.9	77.0	100.0	

II. Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%
Republic of Korea	70.2	7.4	144.2	40.1
Taiwan	51.6	51.8	103.4	28.8
U.S.A	21.2	30.3	51.5	14.3
Japan	24.2	22.6	46.8	13.0
Others	8.1	5.3	13.4	3.8
Total	175.3	184.0	359.3	100.0

Origin State	85'	86'	sum	%
VER	138.5	150.3	288.8	80.4
D.F	9.6	21.6	31.2	8.7
TAM	16.0	-	16.0	4.5
CHIS	4.5	5.1	9.6	2.7
OAX	3.9	3.3	7.2	2.0
Others	2.8	3.6	6.4	1.8
Total	175.3	183.9	359.2	100.0

Major Cities
Cosoleacague 205.8 (57.3%)
Coatzacoalcos 64.5 (18.0%)
Distrito Federal 31.2 (8.7%)

II. Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%
China	77.0	155.1	232.1	47.2
U.S.A	62.2	59.2	121.4	24.6
Thailand	15.4	12.1	27.5	5.6
Canada	5.5	19.1	24.6	5.0
Ecuador	-	20.0	20.0	4.1
USSR	-	16.4	16.4	3.3
Argelia	-	15.1	15.1	3.1
England	5.0	4.3	9.3	1.9
Phillipine	-	6.7	6.7	1.4
Others	4.8	14.2	19.0	3.8
Sub-total	175.3	184.0	359.3	100.0
N.A.	9.1	77.8	86.9	
Total	179.0	400.0	579.0	

Origin State	85'	86'	sum	%
MICH	132.5	355.1	487.6	84.2
D.F	35.5	36.4	71.9	12.4
COL	2.5	3.8	6.3	1.1
CHIH	6.1	-	6.1	1.1
Others	2.5	4.7	7.2	1.2
Total	179.1	400.0	579.1	100.0
<*Case except Michoacan>				
D.F	35.5	36.4	71.9	78.6
COL	2.5	3.8	6.3	6.9
CHIH	6.1	-	6.1	6.7
JAL	2.2	2.8	5.0	5.5
SIN	-	1.0	1.0	1.1
Others	0.3	0.9	1.2	1.2
Total	46.6	44.9	91.5	100.0

Major Cities

Lazoro Cardenes 487 (84.1)

Distrilo Federal 71.9 (12.4%)

* All the volume of Michoacan is for SICARTSA.

(2) Lazaro Cardenas

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%	Destination State	85'	86'	sum	%	Major Citiess
Canada	16.8	40.5	57.3	37.0	D.F.	34.7	62.3	97.0	59.6	Distrito Frederal 97.0 (59.0%)
Japan	30.1	12.1	42.2	27.6	MICH	19.2	22.4	41.6	25.5	Larzaro Cardenes 41.6 (25.5%)
U.S.A.	14.4	17.9	32.3	21.1	MOR	13.6	3.0	16.6	10.2	Cuernavaca 16.6 (10.2%)
England	-	7.4	7.4	4.8	GRO	1.5	3.0	4.5	2.8	
France	2.1	4.3	6.4	4.2	MEX	0.5	0.4	0.9	0.6	
Others	2.6	4.7	7.3	4.8	Others	0.8	1.5	2.3	1.4	
Sub-total	66.0	86.9	152.9	100.0						
N.A.	4.0	4.0	8.0							
Total	70.0	90.9	160.9		Total	70.3	92.6	162.9	100.0	

(3) Manzanillo

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%
Japan	92.3	78.6	170.9	47.5
China	49.3	21.6	70.9	19.7
U.S.A	24.4	18.0	42.4	11.8
Chile	38.2	4.2	42.4	11.8
Vietnam	9.9	-	9.9	2.8
Ecuador	0.5	4.5	5.0	1.4
Others	8.5	9.7	18.2	5.0
Total	223.1	136.6	359.7	100.0

Destination State	85'	86'	sum	%
D.F.	69.9	44.7	114.6	31.8
JAL	46.9	28.0	74.9	20.8
MX	39.9	8.2	48.1	13.4
AGS	23.8	22.4	46.2	12.8
DGO	0.9	12.4	13.3	3.7
SLP	8.5	0.2	8.7	2.4
PUE	1.3	5.9	7.2	2.0
VER	6.6	0.6	7.2	2.0
N.L.	2.5	4.1	6.6	1.8
QRO	1.4	3.9	5.3	1.5
COAH	4.7	0.5	5.2	1.4
GTO	1.6	2.0	3.6	1.0
HGO	2.7	0.2	2.9	0.8
MICH	2.2	0.7	2.9	0.8
COL	1.7	0.4	2.1	0.6
SIN	1.4	0.7	2.1	0.6
Others	7.2	1.3	8.5	2.4
Total	223.2	136.7	359.9	100.0

Distrito Federal 98 (27.2%)
Suadalajara 66.1 (18.4%)
Ecatepec 20.4 (5.6%)
Aguascaliendes 46.2 (12.8)

II. Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%	Origin State	85'	86'	sum	%	Major Cities
Japan	29.0	24.2	53.2	29.6	JAL	11.8	33.0	44.8	24.9	Guadalajara 29.5 (16.4%)
China	16.7	19.8	36.5	20.3	SLP	19.7	11.1	30.8	17.1	San Luis Potosi 30.8 (17.1%)
Colombia	10.8	18.6	29.4	16.4	D.F.	9.5	15.7	25.2	14.0	Distrito Yederal 25.2 (14.0%)
Costa Rica	7.0	7.7	14.7	8.2	COAH	11.4	12.6	24.0	13.3	Toresn 23.8 (13.2%)
Ecuador	2.3	6.7	9.0	5.0	N.L.	7.4	7.7	15.1	8.4	Monteny 15.1 (8.4%)
Chile	3.2	3.7	6.9	3.8	MX	3.8	8.9	12.7	7.1	
Canada	-	5.7	5.7	3.2	GTO	3.7	4.5	8.2	4.6	
Peru	2.2	2.9	5.1	2.8	MOR	3.9	0.1	4.0	2.2	
Republic of Korea	2.0	2.9	4.9	2.7	QRO	1.6	2.2	3.8	2.1	
U.S.A.	1.9	1.8	3.7	2.1	PUE	1.8	1.4	3.2	1.8	
Taiwan	0.7	1.7	2.4	1.3	Others	3.4	4.8	8.2	4.5	
Others	2.1	6.0	8.1	4.6						
Total	77.9	101.7	179.6	100.0	Total	78.0	102.0	180.0	100.0	

(4) Mazatolan

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%	Destination State	85'	86'	sum	%	Major Cities
Canada	16.3	7.4	23.7	24.4	SIN	63.4	20.0	83.4	83.5	Mazatlan 83.2 (83.3%)
Thailand	20.3	-	20.3	20.9	SON	-	7.3	7.3	7.3	
China	20.0	-	20.0	20.6	COAH	3.5	-	3.5	3.5	
Rumania	-	12.3	12.3	12.7	D.F	-	3.0	3.0	3.0	
Japan	8.2	1.5	9.7	10.0	Others	2.2	0.4	2.6	2.7	
France	-	8.1	8.1	8.4						
Other	0.1	2.8	2.9	3.0						
Total	64.9	32.1	97.0	100.0	Total	70.0	29.9	99.9	1,000	

II. Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%	Origin State	85'	86'	sum	%	Major Cities
Spain	10.2	10.5	20.7	33.7	NAY	15.2	15.5	30.7	53.7	Tepic 30.7 (53.0%)
Cuba	6.6	10.6	17.2	28.0	SON	4.2	7.8	12.0	20.1	Navojoa 7.9 (13.8%)
Italy	0.9	12.4	13.3	21.7	SIN	0.6	10.4	11.0	19.2	Mazatlan 10.4 (18.2%)
Japan	4.3	4.3	8.6	14.0	ZAC	1.1	1.9	3.0	5.2	
Others	1.6	-	1.6	2.6	Others	0.2	0.3	0.5	1.8	
Total	23.6	37.8	61.4	100.0	Total	21.3	35.9	57.2	100.0	

(5) Guaymas

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%	Destination State	85'	86'	sum	%	Major Cities
Japan	5.6	10.3	15.9	45.8	SON	18.8	9.9	28.7	82.5	
Canada	8.5	-	8.5	24.5	B.C.	5.5	0.1	5.6	16.1	
Honduras	5.5	-	5.5	15.9	Others	0.2	0.3	0.5	1.4	
Spain	4.3	-	4.3	12.4						
Others	0.5	-	0.5	1.4						
Total	24.4	10.3	34.7	100.0	Total	24.5	10.3	34.8	100.0	

II. Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%
Spain	1.6	9.3	10.9	32.3
Eqypt	-	5.0	5.0	14.8
Turkey	-	3.7	3.7	11.0
Israeli	3.2	-	3.2	9.5
Argelia	3.0	-	3.0	8.9
Republic of Korea	-	2.5	2.5	7.4
Poland	2.0	-	2.0	5.9
England	0.7	0.3	1.0	3.0
Japan	-	1.0	1.0	3.0
Greek	-	1.0	1.0	3.0
Other	-	0.4	0.4	1.2
Sub-Total	10.5	23.2	33.7	100.0
N.A	2.0	2.0	4.0	
Total	12.5	25.2	37.7	

Origin State	85'	86'	sum	%
SON	12.5	16.1	28.6	82.9
SIN	-	3.1	3.1	9.0
CHIH	-	2.8	2.8	8.0
Total	12.5	22.0	34.5	100.0

Major Cities
(SON)
Colorado La 9.9 (28.7%)
Hermosillo 5.5 (15.5%)
Nacozam de Garcia 4.6 (13.3%)

(6) Ensenada

I. Import

(Unit: 1,000 tons, %)

Origin Country	85'	86'	sum	%	Destination State	85'	86'	sum	%	Major Cities
Republic of Korea	-	6.9	6.9	27.6	B.C.	12.5	12.5	25.0	100.0	Ensenada 9.9 (39.6%)
Canada	6.2	-	6.2	24.8						Mexicali 15.1 (60.4%)
Japan	3.4	1.6	5.0	20.0						
Honduras	-	4.0	4.0	16.0						
Spain	1.7	-	1.7	6.8						
* Others	1.2	-	1.2	4.8						
Total	12.5	12.5	25.0	100.0						
* U.S.A	0.7	-	0.7	2.8						
Costa Rica	0.5	-	0.5	2.0						
	1.2	-	1.2	4.8						

II Export

(Unit: 1,000 tons, %)

Destination Country	85'	86'	sum	%	Origin State	85'	86'	sum	%	Major Cities
Italy	4.6	6.9	11.5	47.9	B.C.	8.0	16.0	24.0	100.0	Ensenada 22 (91.7%)
Thailand	-	4.9	4.9	20.4						Mexcali 2 (8.3%)
Puerto Rico	0.3	1.8	2.1	8.8						
Poland	2.0	-	2.0	8.3						
Japan	0.1	1.3	1.4	5.8						
Canada	1.0	-	1.0	4.2						
Others	-	1.1	1.1	4.6						
Total	8.0	16.0	24.0	100.0						

Appendix 5.4.2 Origin/Destination Analysis of Import Agricultural Bulk (1986)

(Unit: 1,000 tons, %)

Item / Port	Origin Country	Volume	%	Destination State	Volume	%
Ensenada	Argentina	31.0	100	B.C.	31.0	100
				(Ensenada)	(18.0)	(58.1)
				(Mexicali)	(13.0)	(41.9)
	Total	31.0	100		31.0	100
Guaymas	U.S.A.	73.7	30.2	SON	217.9	89.4
	Australia	67.9	27.9	(Cajeme)	(95.5)	39.2
	Canada	61.5	25.2	(Hermosillo)	(71.8)	29.5
	Argentina	40.6	16.7	(Novajoa)	(26.2)	10.7
				(Empalme)	(17.7)	7.3
				(Guaymas)	(6.7)	2.7
				COAH	19.0	7.8
				(Torreon)	(19.0)	(7.8)
				SIN	6.9	2.8
				(Ahome)	(3.9)	(1.6)
				(Culiacan)	(3.0)	(1.2)
	Total	243.8	100		243.8	100
Mayatlun	Canada	82.8	40.4 (51.4)	SIN.	170.8	83.2
	Argentina	32.9	16.0 (20.4)	(Mazatlan)	(138.4)	(67.4)
	China	20.7	10.1 (12.8)	(Culiacan)	(25.4)	(12.4)
	Australia	13.8	6.7 (8.6)	(Cajeme)	(7.0)	(3.4)
	U.S.A.	11.0	5.4 (6.8)	DGO(Somez Palacu)	15.5	7.6
	(Sub-total)	(161.2)	78.6 (100.0)	NAY(Acaponeta)	7.7	3.8
	N.A.	44.0	21.4	COAH(Saltillo, Toreen)	4.8	2.3
				JAL(Guadalajara)	3.9	1.9
				CHIH(Jimenez)	2.5	1.2
		205.2	100.0			

(Unit: 1,000 tons, %)

Item / Port	Origin Country	Volume	%	Destination State	Volume	%
Manzanillo						
	Argentina	96.7	38.3 (40.6)	JAL	152.1	60.3
	U.S.A.	53.8	21.3 (22.6)	(Guadalajara)	(88.4)	(35.0)
	Canada	44.0	17.4 (18.5)	(Juanacatlan)	(32.5)	(12.9)
	Australia	23.1	9.2 (8.2)	(Tepatitlan De Morela)	(11.8)	(4.7)
	China	20.8	8.2 (8.7)	(Ocatlan)	(7.9)	(3.1)
	Sub-Total	238.4	94.5 (100.0)	(Zapopan)	(5.1)	(2.0)
	N.A.	13.9	5.5	(others)	(6.4)	(2.5)
				MICH.	18.3	7.3
				(Yamora)	(10.3)	(4.1)
				(Others)	(8.0)	(3.2)
				DGO(Somey Palacia)	11.6	4.6
				D.F.	11.3	4.5
				N.L.(Montemorelos)	10.7	4.2
				MEX	8.5	3.4
				SLP	8.2	3.3
				COAH	7.7	3.1
				NAY	6.5	2.6
				COL	5.0	2.0
				GTO	3.7	1.5
				AGS	2.9	1.1
				Others	5.8	2.3
	Total	252.3	100	Total	252.3	100
Lazaro Cardenous						
	Argentina	31.9	100	MEX(Tlalnepantla)	11.4	35.7
				MICH	7.5	23.5
				JAL	6.3	19.7
				(Guadalajara)	(6.0)	18.8
				(others)	(0.3)	0.9
				GTO	3.0	9.4
				GRO	2.4	7.5
				D.F.	1.3	4.1
	Total	31.9	100	Total	31.9	100

Appendix 5.5.1 Historical Trend of General Cargo (including Perishables) at the Port of Salina Cruz

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Assembly	-	-	-	-	4,044	11,422	30,863	6,440
	. Machinery	4,818	5,401	1,935	20	1,685	369	59	-
	. Electric Apparntus	-	-	-	1,750	-	209	700	3,720
	. Parts of Auto	-	-	-	732	4,065	14,442	7,192	3,270
	. Fabrics	-	-	-	-	6,062	3,249	6,663	6,001
	. Synthetic Tabrics	-	-	-	650	1,076	735	218	702
	. Pulp	-	-	-	545	-	1,604	1,099	-
	. Industrial Products	-	-	22	196	993	-	3,360	1,670
	. Tie	2,383	2,895	11,853	-	-	-	-	-
	. Preparatory	-	-	-	37	388	745	9,452	1,635
	. Empty Containers	-	-	5,363	7,194	5,490	7,965	10,033	7,028
	. Vehicules	-	-	-	-	-	1,257	9,302	2,724
	. Others	25,615	4,746	3,267	2,382	2,346	8,871	7,846	24,704
	Total	32,816	13,042	22,440	13,506	26,149	50,868	86,787	57,894

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Export	. Terephthal Acid	9,685	67,938	93,851	89,280	125,678	103,589	105,196	97,024
	. Dimetial Terephthalate	-	-	4,887	18,683	7,008	3,335	-	-
	. Cafe	-	1,090	481	8,291	6,772	11,389	19,614	15,282
	. Beer	-	-	-	-	4,596	20,809	81,175	6,151
	. Polyethlene	-	-	516	564	2,652	763	15,863	681
	. Palymer Polyester	-	1,157	3,985	4,688	-	-	114	4,112
	. Chamical Product	350	-	-	5,132	2,247	453	1,641	-
	. Resim Symthetic	-	-	-	3,028	5,134	8,067	1,962	-
	. Triphosphoric Acid Soda	-	-	234	-	-	2,104	3,233	-
	. Plastic Tube	-	-	-	7,738	4,711	-	-	-
	. Paper	-	-	1,914	1,765	-	-	17,342	-
	. Empty Container	-	-	687	871	729	853	2,231	3,007
	. Others	4,493	2,840	3,915	35,946	15,837	32,572	8,246	13,679
	Total	14,528	73,025	110,470	175,986	175,364	183,934	256,617	139,936

Source: SCT "Movimentos de Carga y Buques"

Appendix 5.5.2 Historical Trend of General Cargo (including Perishables) at the Port of Lazaro Cardenas

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Sugar	61,313	62,644	120,472	31,341	-	-	-	-
	. Electric Equipment	30,040	8,064	3,142	6,356	3,934	3,769	2,560	2,659
	. Industrial Machinary	-	6,951	6,186	5,569	4,004	6,965	151	4,203
	. General Machinary	-	-	-	-	-	4,919	14,543	6,277
	. Parts of Auto	-	6,213	-	-	1,764	4,663	10,654	70,329
	. Steel Plates	-	-	-	2,234	4,528	2,219	7,888	2,655
	. Alumimium	-	-	-	4,549	4,615	426	98	349
	. Construction Material	7,356	6,512	27,834	3,889	761	2,158	2,042	649
	. Wood	-	-	-	502	-	8,143	1,206	-
	. Pulp	-	-	-	-	17,876	38,365	37,607	33,341
	. Preparatory	1,000	1,373	4,535	1,952	524	1,786	3,024	4,933
	. Empty Containers	-	-	-	-	-	4,478	5,226	4,916
	. Others	21,880	11,583	12,326	41,379	32,270	13,019	26,072	13,132
	Total	121,589	103,340	174,313	97,771	70,276	90,910	111,071	159,810

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Export	. Beer	-	139	271	1,127	8,504	10,614	20,827	17,527
	. Juice	-	587	1,473	1,906	886	-	917	-
	. Honey	-	-	236	366	366	2,787	1,853	1,901
	. Tequila	-	1,214	1,627	1,874	2,180	2,641	2,439	3,143
	. Tabaco	562	446	559	1,484	1,713	703	518	678
	. Construction Material	-	131,206	157,150	595	595	1,189	997	5,231
	. Chemical Products	-	552	2,313	1,731	1,753	5,568	4,195	-
	. Synthetic Tabrics	-	-	-	2,030	1,492	1,179	1,377	915
	. Coal-tar	4,842	20,567	10,831	11,710	6,010	15,700	13,271	7,451
	. Rind	-	-	-	-	4,274	4,201	50	3,091
	. Wire	-	-	-	107,558	55,923	56,576	71,990	48,280
	. Railing	-	22,148	17,972	-	-	20,017	46,532	22,362
	. Steel Pipe	-	-	-	-	-	-	105,137	786
	. Ribs	-	-	151,339	154,354	66,030	250,044	202,872	215,765
	. Steel Plates	-	-	-	9,938	15,412	20,966	8,950	5,297
	. Others	1,535	2,395	17,204	9,257	19,931	23,488	25,176	69,157
	Total	6,939	179,254	360,975	309,930	185,069	415,673	507,101	409,035
	<Excluding SICARTSA>	< 6,939>	<157,106>	<191,664>	< 38,080>	< 47,704>	< 68,070>	< 71,620>	<116,545>

Source: SCT "Movimentos de Carga y Buques"

Appendix 5.5.3 Historical Trend of General Cargo (including Perishables) at the Port of Manzanillo

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Rice	58,407	9,463	-	117,962	58,783	-	-	-
	. Sugar	39,622	49,977	111,256	57,677	-	-	-	-
	. Steel Plates	92,821	45,098	28,563	52,119	48,765	52,224	38,047	49,403
	. Tin Plates	33,944	25,282	12,648	14,339	6,963	9,169	9,354	6,629
	. Scraps Metal	-	-	-	804	23,862	17,791	683	-
	. Machinery	21,539	19,189	3,456	990	929	391	1,421	10,061
	. Parts of Auto	21,066	4,759	3,154	4,951	8,632	9,361	6,276	1,251
	. Nitrate Ammonium	15,511	35,886	-	-	-	-	-	-
	. Fish Flower	3,216	26,755	8,438	19,197	5,573	4,242	271	7,611
	. Chemical Products	2,660	3,422	-	590	1,052	1,302	7,322	2,709
	. Varios	19,852	11,173	1,190	-	14,036	2,595	1,250	22,550
	. Oil	-	6,502	4,205	5,957	-	2,504	-	2,844
	. Latex	18,224	8,419	1,643	1,577	1,774	1,741	1,778	594
	. Others	77,920	29,465	4,083	19,416	52,841	17,089	20,039	17,699
	Rubber	18,234	8,419		1,577	-	-	-	-
	Resin Symthetic	4,753	-						
	Paraffine	3,340	5,679						
	Food	16,607	→	→	→	→	" 1,480	-	-
	Steel Tube	5,548	2,890	→	→	" 2,072	" 2,340	1,859	1,840

(Continued on the following page.)

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	Wire	12,264	5,426	-	-	-	1,480	-	5,205
	Steel Articles								
	Electric Apparentus	11,497	2,929	-	-	-	-	-	3,157
	Bearing	3,914	2,158	-	-	-	-	-	-
	Preparatory	21,066	4,759	3,154	1,530	-	-	4,290	-
	Tractors	6,812	1,765	-	-	-	-	-	-
	Generators	-	-	-	4,038	-	-	-	-
	Combre	-	-	-	-	16,457	4,212	673	-
	Beans	-	-	-	-	17,372	-	-	-
	Cotton	-	-	-	-	-	4,288	1,489	-
	Sesame	-	-	-	-	-	-	2,103	-
	Total	404,782	275,394	182,636	295,579	223,210	118,409	86,441	121,351

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Export	. Sesame	739	164	586	4,871	2,501	1,651	41	1,475
	. Copper	3,118	2,322	424	479	-	3,246	34	-
	. Lead	17,734	6,879	13,049	7,931	4,541	4,409	3,308	40,978
	. Zinc	2,014	2,778	17,230	19,631	21,892	17,150	9,991	9,976
	. Parts of Auto	3,162	3,001	3,531	4,514	7,323	3,184	302	-
	. Polymer Polyester	5,905	3,263	3,189	1,009	1,508	5,463	4,682	3,100
	. Chemical Products	6,087	1,984	2,726	1,593	2,131	2,843	7,322	37,549
	. Sulfric Good	-	1,468	6,450	1,923	3,640	2,185	2,853	2,949
	. Fertilizer	3,178	1,468	1,788	523	3,826	4,627	3,923	2,509
	. Synthetic Rubber	-	1,246	2,204	6,203	6,251	5,985	2,005	3,010
	. Glucose	-	-	3,030	3,808	2,052	2,771	4,612	6,887
	. Synthetic Fabrics	-	-	-	5,370	3,462	4,890	6,782	9,000
	. Celestica	-	-	-	2,632	4,750	2,077	2,434	-
	. General Goods	5,246	3,666	3,220	3,611	6,974	2,356	26	23,117
	. Others	27,983	11,518	19,186	11,939	7,119	39,001	78,243	120,530
	Frita de Viderio	4,213	2,377	-	-	-	-	-	-
	Terephthalic Acid	9,985	-	-	-	-	-	-	-
	Carbon Electrode	1,227	-	-	-	-	1,957	-	-
	Preparatory	3,162	3,100	3,531	-	-	-	-	-
	Eletrode	-	1,293	-	-	-	-	-	-
	Sulfrate Ammonium	-	-	9,036	-	-	-	-	-
	Cotton	-	-	-	-	1,484	-	-	-
	Steel Articles	-	-	-	-	-	7,390	-	-
	Rib	-	-	-	-	-	7,034	8,546	-
	Papar	-	-	-	-	-	5,064	4,096	-
	Sorbital	-	-	-	-	-	-	2,183	-
	Beer	-	-	-	-	-	-	2,034	-
	Structure Material	-	-	-	-	-	-	5,904	15,443
	Vinyl Chloride	-	-	-	-	-	-	4,922	10,845
	Wood	-	-	-	-	-	-	3,003	3,839
	Athetate Cellulose	-	-	-	-	-	-	2,592	-
	Sugar	-	-	-	-	-	-	-	53,467
	Total	75,166	39,757	76,613	76,037	77,970	101,838	126,558	261,080

Source: SCT "Movimentos de Carga y Buques"

Appendix 5.5.4 Historical Trend of General Cargo (including Perishables) at the Port of Mazatlan

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Sugar	67,679	31,402	37,896	50,303	-	-	-	
	. Rice	-	-	-	10,496	25,233	-	-	
	. Machinery	9,396	8,988	-	-	-	-	-	
	. Nitrate Ammonium	-	28,290	-	-	-	1,438	-	
	. Parts of Cardron	-	-	-	-	7,048	1,452	-	
	. Railing	-	-	-	-	16,300	17,735	-	
	. Other	14,912	18,524	4,291	1,097	22,389	13,000	-	
	Total	91,987	89,204	42,187	61,896	70,970	33,625	-	1,758
Export	. Beans	26,550	3,796	24,653	9,490	17,510	24,319	46,494	
	. Cotton	31,336	20,251	5,120	9,627	734	-	55	
	. Tabaco	3,897	3,453	1,373	3,625	3,225	1,613	-	
	. Tuna Fish	-	-	-	-	-	9,397	22,988	
	. Crab	1,494	2,216	1,760	762	481	912	421	
	. Horse Flesh	4,336	3,881	6,291	4,435	1,339	1,439	-	
	. Other	5,038	4,108	579	3,459	329	720	865	
	Total	73,443	37,705	39,776	31,398	23,618	38,400	70,823	113,395

Appendix 5.5.5 Historical Trend of General Cargo (including Perishables) at the Port of Guaymas

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Machinery	-	6,151	2,771	-	2,858	4,128	24,930	-
	. Parts of Machine	12,007	-	-	-	2,768	5,302	271	482
	. Parts of Auto	-	-	-	-	-	-	17,938	50,305
	. Structure Material	-	5,922	1,720	14,886	2,945	-	-	-
	. Others	17,964	11,443	39	596	15,914	890	6,423	42,208
	Total	29,971	23,506	4,530	15,482	24,485	10,320	49,562	92,995
Export	. Cotton	56,734	5,123	6,507	14,969	1,981	-	5,832	26,085
	. Sesame	14,448	1,095	136	13,631	3,605	10,738	-	-
	. Beans	29,218	12,615	17,258	5,068	4,436	8,278	59	7,338
	. Molibden	-	4,244	3,286	3,948	2,641	1,348	957	-
	. Cellulose	-	-	-	-	-	1,851	24,396	-
	. Empty Container	-	-	-	-	-	-	7,734	5,630
	. Other	5,185	429	195	1	152	2,010	21,948	46,762
	Total	105,585	23,506	27,382	37,617	12,815	24,225	60,926	85,815

Source: SCT "Movimentos de Cargo y Buques"

Appendix 5.5.6 Historical Trend of General Cargo (including Perishables) at the Port of Ensenada

Import /Export	Commodities	1981	1982	1983	1984	1985	1986	1987	1988
Import	. Tin	-	-	1,542	5,179	1,639	1,000	1,201	
	. Electrode Lamina	-	-	-	-	-	4,531	1,105	
	. Sugar	69,426	11,974	61,979	12,706	-	-	-	
	. Steel Pipe	3,434	-	-	5,572	6,906	788	-	
	. Machinery and Renovation	138	-	4	-	-	-	934	
	. Generator	-	2,305	1,873	607	-	26	-	
	. Others	1,695	690	5,500	4,000	6,513	1,063	1,129	
	Total	74,703	14,969	70,898	24,604	12,545	13,921	3,435	2,578
Export	. Tuna Fish	-	-	-	-	6,088	15,296	19,443	
	. Fish	1,865	3,041	1,325	-	62	310	1,729	
	. Cotton	48,520	29,788	4,352	418	1,663	-	-	
	. Stuffing	2,101	2,294	540	-	-	750	-	
	. Other	383	243	1,477	514	189	330	0	
	Total	52,868	35,366	7,694	932	8,002	16,686	21,172	24,912

Source: SCT "Movimentos de Cargo y Buques"

Appendix 8.1.1 The Manual of Standard Ship Supervisor Business

(1) The Manual of Standard Ship Supervisor Business

It is necessary to implement and understand completely about business of ship supervisor. In order to understand ship supervisor business, the followings are the line up of ship supervisor's cargo working business.

Ship Supervisor Business

(Before ship's arrival)

a. About four days before ship's arrival, the supervisor should have contact with shipping company or it's agent and obtain following data which is necessary to make ship's cargo working plan.

i. Estimated time of ship's arrival (ETA)
ii. Ship's discharging stowage plan
iii. Cargo manifest
iv. Special cargo list which shows cargo details and stowage locations of dangerous cargo and heavy, bulky cargo etc...

b. From stowage plan and other above data, considering numbers, kinds, quality and style of cargo commodity, the supervisor will estimate each hatch's working schedule time. Then he will summarize each hatch's working time and gets ship's total estimated working time.
Of course, he should well know about their port cargo working efficiency by their experience. After that procedure, he can count necessary total number of gangs which he needs to fulfill the ship's operation.

c. One day before the ship's arrival, the supervisor should have contact with shipping company or it's agent again and confirms arrival time and berth appointment of the ship.

d. Same time, he should arrange necessary number of stevedore gangs

for the next day's working schedule. If necessary that night working gangs should be arranged. Also necessary cargo working gears and forklifts in hatch operation should be arranged properly.

e. Besides above, shoreside and shed workers and cargo working machines, vehicles which related with the ship's operation should be arranged properly for concerned sections.

f. Line handling workers of the ship should be arranged.
(Sometimes, ship's agent will arrange line handling workers).

(Ship's arrival day)

g. When the ship arriving on berth, the supervisor will stand by on the berth apron and confirms above arrangement again.
Soon after ship's berthing, the supervisor will onboard the ship and will have meeting with captain or chief officer who is in charge for ship's cargo works.
He will explain the ship's cargo working plan to the ship side and if necessary amends that plan by the ship side request.
If that plan is approved by captain or chief officer, they will be cooperative to stevedore's operation.

h. After that the supervisor will explain and order final cargo working plan to stevedore worker's boss and the boss arrange stevedore workers on scheduled hatches according to the cargo working plan.
Also the supervisor should inform the lateset cargo working plan to shoreside workers. Then cargo operation will be started.

i. While the cargo operation is working on schedule, always the supervisor should be watching cargo flow and confirming the plan is going on schedule or not.

j. If he find any unschedule idle time or any disturbance on the cargo operation, immediately he should improve that obstruction and try to do best for keeping cargo operation smoothly, continuously.

k. The supervisor always keeping mind for next day's arrangement which already noted before as (d) and (e).

l. During discharging operation, the supervisor makes cargo loading stowage plan and shows it to ship's captain or chief officer and gets approval from them.
Then, he explains that loading cargo plan to the stevedore boss and as soon as discharging work finished, the loading operation plan should be started timely.

m. For making discharging/loading cargo operation plan, the supervisor should be noted following points.

a. Always try to minimize total cargo operation time. (quick despatch)
b. Always try to minimize total operation costs. (economic operation)
c. Considering stevedore labouers safety condition. (safety)
d. Always try to keep good communication between related cargo working sections concerning amendment of cargo working plan, etc...
(communication)

n. One day before finish of cargo works, the supervisor should inform estimated time of completion (ETC) to the ship side member and their agent. So that they are able to prepare for ship's departure procedure to the port administration office and ship's crew.
If necessary he should arrange unmooring workers.

o. On the last day of cargo operation, the supervisor should check and confirm situation of cargo working plan and if necessary he should inform changed ETC to the ship member and their agent timely.

(The ship departure time)
p. When all the cargo operation finish, the supervisor delivers the final stowage plan to chief officer and delivers necessary copies to agent.
Also the final cargo manifest should be delivered to the ship and their agent.

(After departure of the ship)

q. After departure of the ship, the supervisor files the concerned cargo documents such as ship's stowage plan, cargo manifest and cargo working daily report, and keeps them in file.
He should check again necessary cargo document and data which are necessary to make voucher for shipping company and send them to the section in charge.

r. Finally completed voucher should be checked by the supervisor to prevent mistakes, and delivered to the shipping company's agent.

s. Later the supervisor should check that wether the operation charges are paid properly or not by the shipping company or their agent.

Appendix 8.1.2

Container Terminal Operation

Export container flow (out line)

(1) Loaded containers which arrive at the gate house of the container terminal by shipper arranged trailer, will be checked for the following items such as seal, out side condition, height of cargoes, temperature of refrigerated container, etc. The weight of the container will be measured.

Details of the container shown on the "gate in slip" (container number, name of shipping company, ship's name, discharging port, size, weight, kind of cargo, situation of Customs procedure) will be put into the terminal computer.

After the necessary inspection has been finished, the gate clerk will hand the receipt (E.I.R.) for the container to the trailer driver. (EIR is to be counter signed by both gate clerk and driver).

(2) Yard stowage location (slot) of the container will be shown on the displays of both control center and gate house. The location is determined by the computer program for container yard stowage location planning.

The stowage slot will be given to the driver by the gate clerk and to a transfer crane driver by a yard operator with VHF wireless phone.

The trailer driver will drive to the instructed bay passage under the transfer crane, stop by the instructed bay slot, and wait for a transfer crane.

A transfer crane will be moved to that bay slot and the containers is transferred from trailer to the designated stowage slot.

(3) After arrival of a container ship, according to "loading sequence check list" which was prepared by the terminal planner, a transfer crane driver will transfer a container from a yard stowage slot onto a yard trailer.

The yard trailer bring the container to the side of the container

ship, under the container crane.

A container crane driver will load the container from the trailer to the designated stowage location on board container ship.

In order to plan the "loading sequence check list" accurately it is necessary to finish receiving containers by 16:00 on the day before the ship's arrival.

(4) Most small lot cargo which does not reach one container capacity, is brought into the Container Freight Station (C.F.S.) by shipper arranged trucks.

The CFS clerk will issue a dock receipt after he has confirmed the items of that cargo such as the name of the ship it is to be loaded on, the name of shipping company, the discharging port, marks quantity, cargo condition, and Customs clearance.

Received cargo will be stacked on a CFS pallet according to marks, by CFS works under CFS foreman's instructure, and brought to the storage place by a forklift.

Empty containers will be shifted from a container yard to CFS by the order the shipping company/agent for which the cargo will be loaded, and then container stuffing work will be done.

Stuffed containers will be shifted from CFS to the designated yard slot according to "shifting schedule". On the way to the designated slot, the container is brought to the gate house and it's weight is measured.

Closing time of cargo receiving at CFS is 16:00 two days before the container ship's arrival.

Import container flow (out line)

(1) The terminal planner receives import cargo documents such as container ship stowage plan, manifest, dangerous cargo list, special cargo informa-tion, refrigerated container details, etc., from a shipping company/agent not later than 3-7 days before scheduled container ship's arrival.

(2) The terminal planner will study the above information carefully and make the "discharging work plan" which makes the berthing time of

a container ship the shortest, (making discharging work schedule list, and discharging sequence check list.)

(3) After the berthing of a container ship, as quickly as possible, the container crane diver will discharge the containers onboard onto yard trailers according to sequence order of "discharging sequence check list".

(4) The yard trailer driver will bring the container to the designated container yard storage slot, according to the "discharging sequence check list".

(5) A transfer crane driver waiting at the storages slot transfers the container from the yard trailer to the designated container yard storage slot.

(6) When the discharging from the container ship is completed, the shipp-ing company/agent sends an arrival notice to their consignee. The consignee shows the B/L to the shipping company office, and exchanges if for a D/O (delivery order). Then the consignee gives delivery schedule of their containers to the container terminal office (documentation section).

(7) The documentation section confirms the D/O and Custom import clearance. If necessary collection of storage charge (for containers exceeding free time) and other charges will be done.

The they send "gate out slip" to the yard control operation section. The yard clerk will check the gate out slip and the yard location plan and make up a "container gate out schedule list".

(8) The gate clerk of the yard control section receives "the gate out invoice" from the consignees truck driver who arrives at the gate house, and checks it against the "container gate out schedule list".

If the gate clerk finds the container number in the list, he gives a container yard storage slot to the trailer driver and lets the driver go. On the other hand, a yard operator gives a gate out instruction to a transfer crane driver by VHF wireless phone.

(9) The instructed transfer crane driver picks up a container at the designated storage slot and confirms the container number, then transfers it onto the consignee's trailer.

(10) The trailer driver stops at the outgoing lane of the gate house, and exterior condition and seal condition of the container will be checked. A gate clerk hands over EIR (out) to the driver and asks him to sign.

(11) According to "container unstuffing schedule" which is prepared by the CFS operation section, CFS containers are shifted from the container yard to CFS.

(12) Unstuffed cargoes are sorted separately by each B/L lot on the pallets. A forklift driver stores pallets at the designated storage place.

(13) The consignee prepares a delivery order (D/O), and Customs paper, and offers them to the CFS documentation section for taking out the cargo.

(14) The CFS documentation section checks the above papers and collection of necessary charges will be done.

(15) The CFS operation section delivers cargo to the consignee's truck.

Container terminal operation

Container terminal operations consists of the following operations:

1. Container ship's operation
2. Container yard operation
3. Gate operation
4. Container CFS operation
5. Cargo documentation business
6. Maintenance business

1. Container ship's operation

Ship's operation means container loading and unloading operation to/form container ship. Normally, in the case of lift on/off type container ship, these operations are performed by container gantry cranes which are equipped on a pier. Capability of a container gantry crane is 20-25 containers per hour/per unit.

(1) Ship's operation planning

In order to make the staying time of a container ship at the terminal as short as possible, the ship's operation plan which produces the best cargo work efficiency, should be ready before the ship's berthing.

Each section of a terminal should make everything ready according to that plan. The ship's planner's duty is preparation of the above plan, and supervision of container unloading/loading operation performance.

Success of terminal operation depends on this operation planning.

Appendix 8.1.3

Ship's Planner's Business

Working schedule	Referred documents
1. About one week before ship's arrival, the planner contacts with the shipping comany and confirms the schedule and arrival date.	1. Ship's schedule list.
2. Receiving cargo documents (dis/load), and the planner checks the following items, container quantity, which is separated into CY/CFS, container number, refrigerated container details, type (20'/40'), special containers, dangerous containers, special cargo (heavy cargo, large size cargo).	2. Ship's stowage plan. Discharging container list Manifest. Dangerous cargo list. Loading instructions.
3. For discharging, allocating container yard space according to quantity and type (20'/40') of imported containers, the planner puts CY available slots data into the computer memory.	
4. Considering the sequence of ship's discharging operation, the planner makes a ship's operation schedule (Schematic plan) for each container crane. The planner considers that the two container crane's handling loads should be as equal as possible.	4. Ship's schematic plan.
5. Referring to the ship's stowage plan, a computer operator puts the weights and container numbers into the computer according to the ships schematic plan sequence. Discharging sequence check list will be out put by the computer, based on a container yard locaion decision program.	5. Discharging sequence check list.

Working schedule	Referred documents
6. For loading, referred to loading instructions, the planner checks the necessary number of yard storage slots, and inputs available container storage slots instruction into the computer, which then sorts yard locations by ship's name (voy No.), destination, weight, size (20'/40').	
7. After completing export container receiving (at 16:00 on the day before the ship's arrival) a container yard location plan which shows the marshalling situation of containers in the yard, quantity, size and weight will be printed out from the computer.	7. Yard location plan.
8. The planner checks available empty stowage space for loading containers, referring to the ship's stowage plan. Considering export container condition, which was fixed after the close of the receiving time, such as destination, size (20'/40') weight, etc., the planner makes up the loading ship's stowage plan. At that time, the planner considers the following items such as discharging hours at destination, ship's stability, GM, trim, heel, draft of ship, and then decides the ship's loading stowage plan. This just like the method that ship's captain or chief officer uses to consider her stowage problems. Accordingly, the planner should hopefully be a license holder who has the same ability as sea captain or chief officer. The planner must be relied on by users (shipping company), because it is impossible that after the ship's berthing, a chief officer changes the ship's stowage completely.	8. Loading ship's stowage plan.

Working schedule	Referred documents
9. The planner makes the loading operation schematic plan for each container crane. He should consider that each container crane handling volume should be as even as possible.	9. Ship's loading.
10. A computer operator puts the ship's loading stowage plan, step (8), into computer, according to the sequence of the above schematic plan.	
11. The container number is picked up from the yard location plan according to the order of the ship's loading stowage plan. Then "Ship's loading sequence check list" is printed out.	11. Ship's loading sequence check list.
12. Loading and unloading operations are usually performed at the same time. It is necessary to combine both load and unload sequence check lists (see 5 and 11), according to the ship's schematic plan sequence.	
13. The necessary number of completed loading/ unloading sequence check lists are prepared. People to whom loading/unloading sequence check lists are distributed are as follows: ship's planner's copy 1 set control center's copy 1 set transfer crane operators 2 sets yard tractor operators 4 sets container crane operators 2 sets 10 sets	
14. Arrangement of ship's lashers, one day before the ship's operation start.	

(2) Discharging/loading operation

1) Container crane driver:

Containers are carried to a position under the crane by yard trailer according to the loading sequence check list order.

A crane driver checks the container number against the loading sequence check list, and if the container is the right one, he picks it up by the crane's spreader, then takes it to the designated ship's stowage location. Discharging is done in the reverse order. The container crane operator reports every container number to the control center by VHF wireless phone.

2) Ship's supervisor:

One supervisor for one container crane, is onboard and he compares the ship's discharging/loading stowage plan with the numbers of the actually stowed containers. If he finds any problems, immediately he should report them to the ship's planner through the control center by VHF wireless phone. The ship's supervisor supervises lashers onboard and carries out lashing and unlashing of containers on deck.

3) Yard trailer:

Four yard trailers are usually allocated to one container crane. Before actual operation starts, a driver receives dis/load sequence check list. Then, he drives a trailer into the designated container yard storage slot, according to the "sequence check list" order. There,a transfer crane driver puts a container onto the trailer. Then, the trailer driver drives the trailer under the container crane.

As four trailers belong to one team and work for one container crane, it is required not to get out of order, and not to wind up under another container crane. A driver checks the container number and order by the "sequence check list" and if the container is not the right one, he should report this to the control center by VHF wireless phone.

4) Transfer crane:

Usually, one transfer crane and one container crane pair off.

A driver takes in/out containers to/from container yard storage slots, according to the "sequence check list" and loads them onto/off of trailers. A transfer crane driver checks a container number by the

"sequence check list", and if he finds anything unusual, he should report it to the control center by VHF wireless phone.

5) Yard operator:

One man always stands by the Control center VHF wireless base, (one VHF base per crane) and watches ship and yard operations checking the "sequence check list".

When cargo equipment has troubles (out of order, etc.) he calls a maintenance team immediately, and arranges repairing order, and also informs the other concerned sections.

He should do the best he can to minimize the containers operation's interruption. He always keeps contact with ship's supervisor onboard, by VHF wireless phone and watches how the operation is going.

If necessary, consulting with a ship's planner, he changes and corrects the "sequence check list".

2. Container yard operation

As containers to be loaded/unloaded, pass through container yard once, and then are delivered/received to the consignee or from the shipper, the container yard is considered to be a part of a container ship.

The container yard which is a junction between sea and land transports, has the two functions of delivery place and storage place for container handling.

(1) Yard operation planning

This is container storage and marshalling planning at the container yard. The aim of this planning is to perform smooth operation of ship's loading, or delivery to consignees.

Within the limited space of the container yard, containers which are discharged/loaded under ship's planner's schematic plan, should be stored efficiently in container yard, and delivered to consignees according to prepared schedule of gate in/out.

The man who is in charge of this planning is the yard planner and he always, pays attention to yard container location and empty space, and tries to make the best yard plan.

Yard planner business

Working schedule	Referred documents
1. Yard planner decides storage slots for container which go in and out of the container yard. By the shipping company's dis/load instruction the yard planner arranges container storage space. (assistance to ship's planner)	1. Container gate in slip.
2. To make a yard location plan. (ship's name, destination, weight, container number).	2. Yard location plan.
3. To make a discharging sequence check list using the ship's stowage plan. (assistance to ship's planner)	3. Discharging sequence check list.
4. To make a shift/reload sequence check list using ship's schematic plan, and to make a rehandling list.	4. Rehandling list (original stowage, loading port, discharging port, container number, weight, ship's reloaded stowage).
5. To make a gate out schedule list, comparing the yard location plan with the gate out order slip.	5. Gate out schedule list.
6. To make a despatch order and distribute it to, the relevant persons.	6. Despatch order (ship's name, B/L No., consignee, forwarder, destination, cargo details.)
7. To make up statistic data such as yard handling tonnages.	7. Handling report.
8. Instruction and communication with gate clerk.	

3. Gate house operation

Operation at the gate house office, which is located at the entrance of the container terminal, is very important because the office is an exchange point between shipper/consignee and the terminal which works for shipping companies.

All the containers pass this place entrering or leaving the container terminal area.

This place is the last check point to discover mistakes. If a gate clerk can not find the mistakes, both consignee and shipping company will have lots of trouble and confusion.

The delivering of containers is one of the most important functions of terminal operation.

The gate house is the border line between shipper/consignee and shipping company. It determines the limits of responsibility of each side.

That is why an equipment interchange receipt (E.I.R.) is exchanged between a terminal gate clerk (working for the shipping company) and a truck operator of a trucking company or Customs broker (working for shipper/consignee).

Gate clerk's business

Working schedule	Referred documents
1. Receiving/delivery of loaded or empty containers. Confirming container number, seal number and condition. Checking exterior condition of loaded containers, checking both exterior and interior of empty containers.	
2. Receiving and filing of gate in slip, Input of necessary data into computer. Assignment of a container yard storage slot to the shipper's trailer driver.	2. Gate in slip (ship's name, container No, shipper, forwarder, size, discharging port, weight, customs clearance, CY storage location).

Working schedule	Referred documents
3. Receiving shipping documents (D/R, E/D, CLP) and checking their contents.	
4. Receiving D/O and confirming the driver's in/out instruction. Customs transport permission.	
5. Maintaining gate log (daily record).	5. Gate log (container number, full/empty size, discharging port, shipper).
6. Checking container number, seel number, and damages.	6. To fill remark space of E.I.R.
7. Weighing of loaded containers.	
8. Completing equipment interchange receipt (E.I.R.) and asking a trailer driver to sign.	8. E.I.R. (ship's name, container No., chassis number, place of delivery, date destination, shipper/ consignee).
9. Input of E.I.R. into computer	9. Inventory list.

4. Container CFS operation

Receiving, delivering, vanning and devanning works of L.C.L. cargo (less than container load), that which is not able to fill even one container, will be done at the CFS space.

According to Japanese data, about 15% of all containers passing CY and LCL cargo, but depending on road traffic conditions, this percentage of LCL cargo will increase, because of the difficulty of taking empty containers back from the consignee's place.

(1) Working action of export cargo

Working schedule	Referred documents
1. About one week before the ship's arrival, receiving cargo booking list from the shipping company/agent. Summing up cargo kind, form, size, measurement, weight.	1. Cargo booking list
2. To confirm receiving date of cargo from shipper or Customs forwarder.	2. Cargo receiving schedule list.
3. Receiving of scheduled cargo, with papers (S/O, D/R, E/D). To confirm cargo trucking invoice. Customs clearance. To sort by lot and store separately. To issue receipt signed by CFS clerk.	3. S/O, D/R, E/D. Cargo trucking invoice (Receiving place, ship's name, shipping company, discharging port).
4. Registering on CFS storage book and cargo numbering.	4. CFS storage book detailed list of received cargo.
5. Comparing D/R, E/D with actually received cargo and making an exceptions list.	5. Exception list.
6. Making a cargo location plan, to know cargo storage condition in the CFS.	6. Cargo location plan.
7. As soon as cargo receiving is completed, making a container stuffing plan. To decide the number and size of the containers to be filled. To decide the data of container stuffing. To arrange container stuffing work. (Cut off time usually 16:00 two days before the ship's arrival).	7. Stuffing plan.

Working schedule	Referred documents
8. According to the above stuffing plan container stuffing work is performed. (Reconfirmation of cargo using E/D, D/R, quantity, destination)	
9. Checking for leftover or overlooked cargo using the CFS cargo location plan.	
10. To seal container doors, soon after stuffing work is finished and to ask the control center to shift filled the container to the container yard.	
11. To make Container Load Plan (CLP)	11. Container load Plan.

(2) Working action of import cargo

Working schedule	Referred documents
1. Receiving CFS cargo manifest (M/F) from the shipping company. Checking kind of cargo, measurements, weight.	1.Cargo manifest.
2. Receiving B/L copy, CLP, from shipping company. Making a container unstuffing plan and a plan of delivery to the consignee.	
3. To make container unstuffing instructions.	3. Container unstuffing instruction.
4. To perform container unstuffing work according to the unstuffing plan. Checking loose cargo quantity and condition using B/L copy, CLP remarks.	

Working schedule	Referred documents
5. To make an unstuffing report, and an exception report.	5. Unstuffing report Exception report.
6. Arrangement for and attendance on Customs inspection.	
7. Receiving D/O, and confirmation.	
8. Delivery of cargo to consignees or their agents.	
9. To make a delivery report.	9. Delivery report.
10. Adding the following items on CFS cargo manifest such as delivery date, transferred place, Customs permission number, Customs broker name.	

5. Cargo documentation business

In order to achieve the smooth flow of all cargoes and containers in the container terminal, the best cargo operation plan should be prepared. To perform the above operation, the terminal office always has to keep close contact with the shipping company, the shipper/consignee, and the Custom forwarder. These information and data should be delivered to every section of the terminal and the results of operation also should be passed onto the shipping company, the shipper/consignee, and the Custom forwarder.

For that purpose, there is a section in the terminal office which is in charge of cargo documentation business.

(1) Documentation work for export

Working schedule	Referred documents
1. Receiving cargo the booking list from the shipping company.	
2. Contacting with shippers and the shipping company to ask about cargo receiving schedule and necessary documents.	
3. The final checking of shipping documents. (E/D, D/R, CLP) and issuing D/R.	
4. Making a list of special cargo (dangerous cargo, frozen cargo, etc.) and sending it to relevant organizations.	4. Special cargo list (container number, commodity, shipper, forwarder, feature of cargo, setting temperature).
5. Finding containers which have not been cleared by the Customs for export, and assigning their storage location.	
6. Checking customs papers, and dealing with Customs problems.	
7. General liaison with shippers and the shipping company and other related persons about export cargo.	

(2) Documentation for import

Working schedule	Referred documents
1. Checking ship's plan using manifest, CLP.	
2. Making imported container list and distributing it to relevant organizations.	2. Imported container list (loading port, CY/CFS, B/L No. size (20'/40', consignee, forwarder, commodity, quantity, weight, measurement).
3. Making a special container list.	3. Items of 2 plus dangerous cargo label, setting temperature of refrigerated container.
4. Necessary Customs procedures.	
5. All liaison works with the shipping company, the consignee and the organizations related to imports.	

6. Maintenance Business

As the container terminal is highly mechanized, problems with cargo equipment have great direct influence on the terminal operation.

Containers themselves as receptacles of cargo often get damaged during the process of transportation.

It is said that about 50% of discharged containers are damaged when they are returned from the consignee as empty containers.

(1) Maintenance of cargo handling equipments

Problems with container cranes or with transfer crane stops the flow of container operation and makes the docking time of container ships longer. It completely stops the functioning of the container terminal.

Accordingly, the following measures are necessary.

1. Mechanics should always be standing by, ready for trouble, while container operation is carried out.

2. To keep the equipment in good condition, maintenance inspection should be done regularly.

3. Maintaining a sufficient supply of all spare parts.

(2) Container maintenance

For the safety of cargo transportation, containers must always be well maintained, and have to be used in good condition. First, the condition of all containers stowed at the terminal area are checked and all damaged ones are repaired completely, then, they are delivered to the next user.