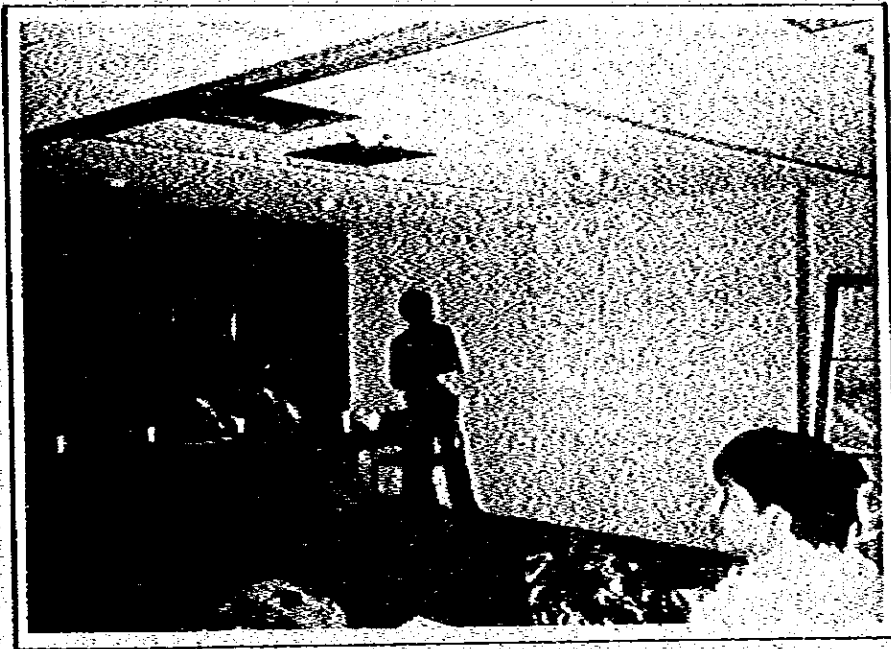


CHAPTER XIII
MATTERS TO BE INVESTIGATED
HEREAFTER



Presentation of the Report

CHAPTER XIII. MATTERS TO BE INVESTIGATED HEREAFTER

1. General

This study has proceeded under several assumptions for making the Long and Short Term Development Plans of the industrial port of Tuxpan and for confirming the feasibility of the Short Term Development Plan. However, as stated in CHAPTER I, it will become necessary in the near future to review this report after the new establishment of a national development plan by the Mexican government. Also, during the study on this project, we found several matters to be investigated hereafter in order to improve the planning of the Project.

The matters to be investigated hereafter are classified into the following six categories:

- 1) Socio-economic conditions
- 2) Location of industries
- 3) Natural conditions
- 4) Environmental conditions
- 5) Port and harbor planning
- 6) Urban and regional planning

It goes without saying that some matters are closely related each other, so it will be very necessary to coordinate and integrate them in order to clear up their inter-relationships. In addition to those to be made by CNCP itself, there are others that are made or are to be made by other organizations.

2. Matters to be Investigated Hereafter

(1) Socio-Economic Conditions

(a) Forecast of port cargo demand

It is necessary to make forecasts of port cargo demands for the nation, for the Mexican Gulf, and for Tuxpan Port (including its neighboring ports). Due consideration should be taken of the cargo volume to and from the Mexican metropolitan area, since the cargo volume is closely related to the transportation plan between the area and each port. Accordingly here should be good coordination among the demand forecast of port cargo, the port development plan, and the cargo transportation plan.

(b) Fishery resources survey and demand forecast of fishery cargo volume

In order to forecast more accurately the fishery cargo volume handled at Tuxpan Port, it is necessary to make a survey of the fishery resources along the coast of the Gulf of Mexico and to know whether the development plan of Tuxpan port has strategic importance among the nations fishery port development plans.

(2) Location of Industries

(a) Feasibility study of located industries

It is necessary to make a further detailed feasibility study of each industry to be located in the Tuxpan port area. In the process of the feasibility study, due consideration should be taken regarding the availability of industrial water, transportation, land acquisition, and the

existence of historical remains, etc.

(3) Natural Conditions

(a) Wave observation

It is necessary to make a regular wave observation to confirm the scale of design wave height.

(b) Soil survey

(i) For the soil survey, physical and dynamic tests should be carried out thoroughly. It is important to understand the ease or difficulty of dredging and the consolidation characteristics of relatively hard cohesive soil.

(ii) It is also necessary to make more detailed surveys of soil conditions both in water and on land at the project site.

(c) Investigation of littoral drift

It is necessary to understand the characteristics of the littoral drift at the project sea area in order to avoid channel siltation.

(d) River survey

It is necessary to make a flood survey of the Tuxpan River and to check its influence on the siltation of Tuxpan Port.

(e) Land survey

It is necessary to make a wide range land survey and topographical survey at the site in order to make better layouts and designs of the port facility, new city planning and related infrastructures.

(f) Land use survey

This survey is important for the rational layout planning of municipal facilities and also for environmental protection.

(g) Land register survey

This survey is necessary for land acquisition.

(4) Environmental Conditions

(a) Background survey

To understand the existing environment situation, it is necessary to investigate the background including water quality, bottom materials, vegetation, ecological conditions, atmospheric quality, etc.

(b) Implementation of environmental assessment

It is necessary to make an environmental assessment both the construction stage and after the completion stage of the Project. However, it is very important to minimize the assessment items.

(c) Prevention of disasters

It is important to establish effective precautions to prevent disasters such as outflow of oil, fire at the petro-chemical complex, etc.

(5) Port and Harbor Planning

In addition to the previously mentioned surveys of natural conditions, the following surveys

and investigation are necessary:

- (a) Investigation of securing the port construction materials, especially stones.
- (b) Calculation of the soil volume to be dredged and to be filled. Balancing of these volumes is desirable. If dredged volume for port construction is less than reclaiming volume, it is necessary to study on the most economical sand acquisition.
- (c) Execution of a hydraulic model experiment and a numerical calculation. In order to examine whether the layout of the breakers, the cross-section design of the breakwaters and quai-walls are good or not, and whether the shoreline change will occur or not, physical or numerical simulation are requested.
- (d) The suitable design values such as wave height and soil condition must be decided in relation with designing adequate cross sections of the port facilities.

(6) Urban and Regional Planning

(a) Urban development plan

It is necessary to make a feasibility study of the new city itself from the viewpoint of harmony between the industrial port development plan and the urban development plan.

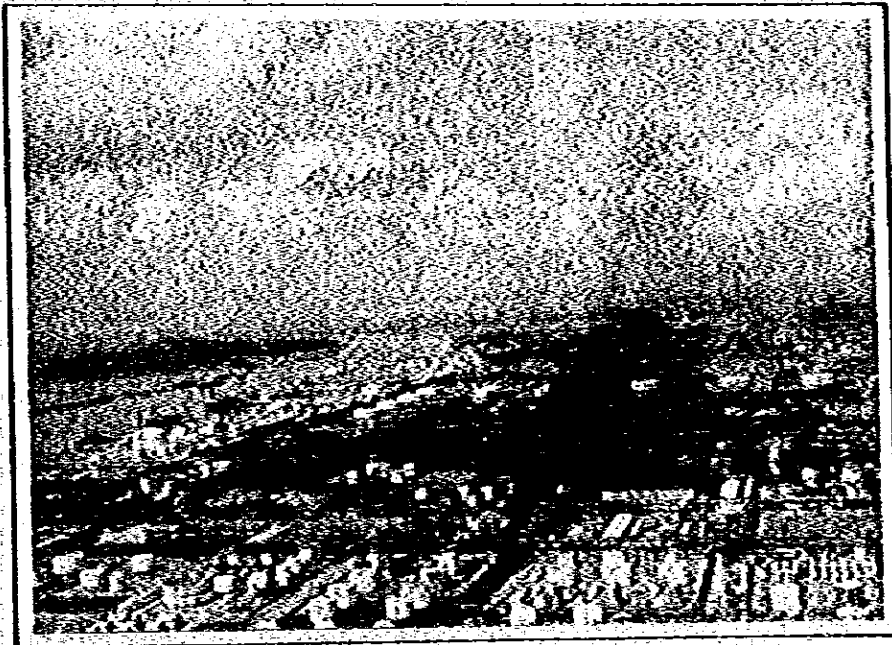
(b) Coordination with other regional development plans

It is desirable to make the optimum allocation of resources between this project and other development projects such as "Proyecto Chicontepec-Tuxpan" and to coordinate the development schedule and priorities among the projects.

(c) Coordination with related infrastructure.

It is necessary to coordinate this project with the other improvement projects of infrastructure closely related to this project such as railway, road, water supply, industrial water, etc.

APPENDIX



Oil Refinery Plant (Tampico)

I. Advice for the Progress of the Undergoing Industrial Port Development

I. REPORT AND RECOMMENDATION TO CPI

Dr. Fernando Rosenzweig H.
Director of CPI

August 24th., 1982

Yoshio Takeuchi

Team Leader

JICA Study Team

In connection with the study for the Development Project of the Industrial Port of Tuxpan, I visited the following ports and areas, inspected the progress of their construction work, and discussed their development plans with the CPI staff, PEMEX personnel, and other concerned officers and persons during my stay in Mexico from August 6 to 24, 1982; Tuxpan Port, Altamira Port, Tampico Port, Lazaro Cardenas Port, Salina Cruz Port, Pajaritos Port, Ostion Port, Dos Bocas Port and the coast of Quintana Roo State.

I am pleased to submit herewith my report and recommendations based on the results of my inspection of each port and the views exchanged with concerned officials.

Before starting my report, I heartily appreciate the kindness and cooperation extended to me during my visits to each port and to such organizations as CIP, PEMEX and so on.

(I) General

The construction works of each port and area have made remarkably progress. Especially in Lazaro Cardenas Port, the enterprises located in the industrial area have been very active in their construction. Also, in the Altamira Port area, the related enterprises have been located behind the port area and their construction work has been in progress. In Ostion and Salina Cruz Ports, progress has been made in port construction work and in Dos Bocas Port, PEMEX has rapidly pursued the construction of the port and harbor and petroleum-related facilities.

It should be highly thought of that, in addition to the construction of the ports and harbors, the infrastructural works surrounding each port area have made steady progress. In the Altamira and Lazaro Cardenas Port areas, the construction of infrastructures such as roads, railways, industrial water supply facilities, has progressed on schedule. In the Ostion Port area, the new airport has already opened. The scale of such infrastructural works is so big that it will create, in combination with the industrial location near and behind the port, a great deal of economic and industrial potentiality.

These areas are expected to be very economically competitive among the areas in the world.

1. Infrastructures connecting Port Area with its Hinterland

As previously mentioned, the infrastructural works, excepting port facilities, have made

remarkable progress inside the coastal development areas. However, it seems that the infrastructures between the coastal areas and the hinterlands may become a problem. For example, (not having had time to inspect thoroughly) in the Altamira as well as Lazaro Cardenas area, the improvement of railways and roads connecting the ports with the hinterlands will have to be carried out.

Especially, the Mexican government should establish without delay, the plan of the infrastructures connecting Dos Bocas Port and its hinterland.

It is also necessary that the government should study the specifications, scale, etc. of the roads and railways and make their detailed plan for the Alpha-Omega Project to connect the Ostion and Salina Cruz Port areas.

As for Tuxpan Industrial Port, on which the Study Team sent by JICA has been carrying out a study, transportation facilities to connect the Tuxpan area with its hinterland, including Mexico City, are very important.

2. Port Safety

(1) Port safety is a very important matter of concern for port planning. In order to secure the port facilities and the enterprises located at the port area, the following studies on natural phenomena are necessary.

- Ocean waves and coastal erosion (Ex. The coast of Lazaro Cardenas).
- Flooding of river (Ex. The Balsas River of Lazaro Cardenas).
- Earthquake-resistancy (Ex. Lazaro Cardenas).

On the other hand, from the view point of ship-maneuvering it is also necessary to study the layout of breakwaters and channels as well as the width and water depth of the channels, mooring basins and so on.

(2) Pajaritos Port is one of the busiest and most congested ports in Mexico. Generally speaking, due to the necessity of loading crude oil and petro-chemical products, the proposals and opinions about the dangerousness of the port raised by port planner side (or ship's maneuvering side) few to be neglected. In this respect, should not be permitted to increase their capacities beyond the limits of port and it should be emphasized that the opinions and proposals from ship captains are to be respected.

(3) Port Management

My opinion is the same as mentioned before regarding port management. I would like wait for the study results which have been performed by Ing. Guillermo Macdonel of CPL.

(II) Details of the Ports

1. Tuxpan Port Area

The target of constructing a new port at Tuxpan is as follows:

- (1) Expansion of commercial port facilities on the coast of Mexican Gulf.
- (2) Development as one of the industrial core areas along the Mexican Gulf coast with the merit of being the nearest location to Mexico City, the largest market.

It should also be considered in connection with the over-all development plan of the

Chicontepeec area just behind Tuxpan Port. It may be said that the Chicontepeec-Tuxpan Port relationship is very similar to that of the Kashima industrial promotion area – Kashima Port and the new industrial city at central Hokkaido-Tomakomai Port.

From such point of view, I would like to pursue our study in cooperation with the CPI staff.

The location of the new Tuxpan port should be decided by taking into consideration ground conditions (hardness), the condition of the Tuxpan River, and so on, while the port location generally depends on the scale, capacity, target, etc. of the port.

2. Altamira Port Area

The construction work for roads, railways and facilities for industrial water supply has been steadily progressing.

The construction of such infrastructures as well as the development of Altamira Port will create a firm base with a great deal of economic potential.

The cross-sections and layout of the breakwaters should be decided considering the following factors: calmness inside the port, ship maneuverability and the littoral drift of the coast. In this respect, it is recommended to present this matter to Mr. Gohda who will be sent here as an expert by the Japanese government at the end of this month.

By the way, according to the experts of a Japanese company who are engaged in dredging work at the site, they observed two or three meter sedimentation by littoral drift in one month after dredging at a time when the length of the breakwaters are about 500 meters.

This phenomenon should also be taken into consideration for the future planning of the breakwaters.

3. Lazaro Cardenas Port Area.

(1) The construction work for roads, bridges, and the industrial water supply are in progress.

The port dredging work and the construction of industrial plants located in this area are both very active. These facts will lead to the future development of the area.

It is necessary to secure sufficient channel width at the port entrance (PEMEX has already procured enough space for it), so full attention should be paid to this when constructing the fishery port.

(2) While it has been planned to construct PEMEX's oil refinery plant on the right hand bank of the Balsas River, it should be well coordinated with the countermeasure facilities against the flooding of the river.

(3) On the northern coast of the port, countermeasures should also be taken to account for the strong wind and the waves caused by hurricanes.

(4) The construction of railways to the commercial port should be completed as early as possible.

4. Salina Cruz Port Area

The construction work of the breakwaters for the large scale PEMEX port has been progressing and the breakwater construction for the industrial area has started.

(1) Due to the North winds coming across the Isthmus of Tehuantepec, very strong winds blow in the lagoon area situated on the eastern side of the existing port. However, they

are weakened in the existing port area because of the sheltering hills around it.

The ocean waves, on the occasion of our inspection, were high at the PEMEX's east breakwater, but they decreased in magnitude at the western breakwater which is only 2 km away from the east one.

It was observed that the 60,000 DWT tankers could safely arrive at the buoy berth during the attack of the big waves which were breaking against the east breakwater and washing its surface.

In this area it seems that marine phenomena greatly even over small distances, so it may be interesting to study and to analyze them. I am sure that Mr. Gohda's comments on this matter may be helpful for planning the port and harbor.

- (2) Regarding the mixture of heavy and light crude oil for export to Japan, there are two methods of oil transportation from producing areas to the port; pipelines and ships.

Especially in the case of ship transportation, it is necessary to hear the technical comments from the experts concerning the ship-to-ship oil delivery method in order to gain the desirable oil mixture ratio.

- (3) A container terminal was constructed at the existing port, but it has not been used very often.

As I described before, regarding the Alpha-Omega Project, it is very important to study the transportation methods (railway and road) which connect the container terminal of Ostion Port with that of the Salina Cruz industrial port.

5. Ostion Port Area

The new airport has already opened. The construction work for the breakwaters and the dredging work by the service port are in progress.

- (1) If Ostion Port is used to export crude oil as a substitution for Pajaritos Port, due consideration should be given to the width of the port entrance and channel as well as their water depths. It is recommendable to study an increase in water depth from the presenting planned -20.5m to -22m and -24m, especially at the harbor entrance.
- (2) It is desirable to study the use of the east breakwater in the future.
- (3) The following are big problems in Ostion Port: the width (effective width of 240m), length and layout of the inner-channel of the port.

It is highly recommended to have sufficient water surface, considering the case that the total industrial area of about 9,000 hectares is utilized to its maximum extent.

The long rectangular shape of the inner port is susceptible to disturbances caused by secondary oscillations. In this point, it is desirable to reconsider the shape by model test, computer calculation, etc. Also Mr. Gohda's comments on this matter will be useful.

- (4) According to the plan of future industries, many of which are still tentative, it seems that most of all enterprises belong to the category of heavy industry. It is desirable to secure enough space to accommodate the electronics industry which will have promising growth potential.

It is recommended to change the position of the power plant from the existing planned area to an area near the sea.

6. Pajaritos Port Area

Pajaritos Port is the most important port in Mexico for exporting crude oil and petroleum products. It seems that it will grow increasingly important from the viewpoint of economic activities and operation in Mexico.

The performance of Pajaritos Port in 1981 is as follows:

- Total export volume of crude oil: 913,000 B/D (average)
- Total loading volume of crude oil: About 60 million T/Y

Number of incoming vessels:

- 878 ships for loading crude oil
- 222 ships for loading petroleum products
- 220 ships for loading gas and others

(Total number of ships is about 1,300)

According to the number of ships, it is understood that there are about 2,600 ships going out and coming in through the 150m wide channel.

The harbor entrance of Pajaritos Port faces the channel of the commercial port of Coatzacoalcos, so there will be a great number of ships passing through the harbor entrance of Coatzacoalcos Port.

In general the channel and mooring basin of Pajaritos Port are very narrow, so great care must be taken to maneuver ships safely.

As to the project to expand the port facilities, the improvement of Pier No. 5 and the construction of Pier No. 9 are in progress, when there are completed construction of Pier No. 8. will be begin. Also the construction of a very large scale petro-chemical plant is now under way in an area near the existing Pajaritos Port. Considering this new plant as well, it seems that the demands on Pajaritos Port will be growing larger and larger.

On the other hand, from the viewpoint of ship maneuverability, it seems that the port traffic has reached the limits of safety and any expansion in volume beyond the present should be avoided.

Considering the vessels a great deal of attention should be paid to port safety. The opinions of IMCO should always be referred to, while the observation and comments of experts along with the study of shipmaneuvering models can all lead to port safety. Once an accident happens, it will cause a great deal of damage leading to the paralysis of all the functions of the port. Therefore study for increasing the safety of the port should always be continued.

It is strongly recommended to plan to remove some part of the petrochemical plant now under way in the Pajaritos area and build it in the Ostion Port area.

Accordingly, it is very important to speed up the construction work in the Ostion Port area.

7. Dos Bocas Port Area

The construction of inland oil-related facilities has made remarkable progress and the construction work of the service port and breakwaters has been steadily progressing. Generally the progress of the construction inside the port has been smooth.

As construction of an industrial port and of commercial port facilities such as TUM is expected, it is necessary to make an effective plan for construction of transportation

infrastructures to connect the port to its hinterland.

8. The Proposed Port Site nearby Cobah

A field survey was made along the coastal line near Cobah extending from Cancun to Playa del Carmen which is about 70 km to the south.

There is the Morelos fishery port on the coast line and several containers are handled there.

The Playa del Carmen area is sheltered by Cozumel Island and the water depth in front of the area is relatively deep, so it is understandable that the area was selected to construct a port as the development base for Yucatan Peninsula. Further study of the area is recommended.

(III) Questions Raised by Mexican Officers

1. Structural example of the head of the rubble mound breakwater (at Ostion).
2. The structure of large scale dolphins on base rock – the suitability of the caisson and steel structure (at Salina Cruz).

The reply to the above questions will be sent after the technical study in Japan.

2. REPORT AND RECOMMENDATION TO CPI

Dr. Fernando Rosenzweig H.
Director of CPI

November 16th, 1982

Yoshio Takeuchi

Team Leader

JICA Study Team

As a part of the studies for the development of the Industrial Port of Tuxpan, I had the occasion to inspect, between Nov. 3 and Nov. 17 1982, such industrial ports as Ostión, Salina Cruz, as well as such commercial ports on the Pacific Coast as Manzanillo and Mazatlán. I also had the chance to discuss with the concerned officials the progress of the work and future plans.

I am pleased to submit herewith a report and recommendations based on the results of this inspection and the discussions.

I heartily appreciate such organizations as CPI, PEMEX and so on which extended kindness and cooperation to me during my field trip.

(I) General

a) In Ostión and Salina Cruz Ports, the plans have been consolidated and construction work is making impressive progress. Especially in Ostión Port, Minatitlán-Coatzacoalcos Airport, has already been put into operation and the construction of the roads and railways has made remarkable progress. Aerial inspection by helicopter lets me see the future grand scale of these infrastructures.

As for the port facilities, dredging work for the work-ship basin at the entrance of the port and for the main channel has progressed steadily.

In order to obtain rubble for the breakwaters, a new 20 kilometer long road has been constructed through several towns. At the site, stone production has already begun and clusters of rubble can be found. But the transportation of this rubble to the port has been halted because of trouble between the two groups of people, one for and one against the port expansion project.

Up till now the construction work of Ostión Port has progressed very smoothly, and the new transportation facilities are also progressing.

The world-wide economic stagnation caused by the "oil shock" may have a big influence on Mexico. This economic crisis will make it difficult to carry out the construction work in a steady fashion. Especially in Dos Bocas Port, the construction work of the main port facilities has already been suspended after the completion of the

auxiliary port.

However, Ostión Port construction has great significance owing to the following reasons.

1. From now on, Mexico will have to make greater effort to export crude oil.
2. Also, Mexico will have to expand the export of petrochemical products.
3. These factors, mentioned in 1 and 2 above, are likely to create pressures on Pajaritos Port the expansion of the port facilities, ensuring safe ship maneuverability and the expansion of the petrochemical industries around the port.
4. It seems apparent that use of the existing almost saturated Pajaritos Port without development may cause an accident. If an accident occurs, it will cause considerable damage to the Mexican economy.
5. Since Ostión Port can function as a substitute for Pajaritos Port, therefore the Mexican government should make efforts to open the port of Ostión as early as possible.

Considering the present economic situation in Mexico, opinions advocating the reduction of the scale of the industrial port projects, i.e., reduction of breakwater length and channel width are liable to be voiced. However, considering the future of Mexico, such negative policies should not be taken.

- b) In Salina Cruz Port, breakwater construction work for the PEMEX oil loading facility has made considerable progress.

The drag suction pump dredger of the Shanghai Port Authority in China is in operation. I expect an early opening of Salina Cruz Port because of its importance (in future it will become more important) as an oil loading port for Japan and the Far East.

The container terminals which were provided for the Alpha-Omega project are not utilized now. As I emphasized before the two ports on both sides of the Isthmus of Tehuantepec -- Coatzacoalcos-Ostión and Salina Cruz -- must be developed, and after progress of the port construction, as well as the surrounding regional development, the two ports will have to be connected by modern railway and road.

- c) It may be successful to construct TUM in five major industrial ports including Dos Bocas.

Generally speaking, in-sufficient commercial port facilities in Mexico would cause a bottle neck for economic growth. At this time, it is quite rational to plan commercial port facilities in each industrial port.

This time, I inspected Manzanillo and Mazatlán Port and had the impression that both of the ports further expand their commercial port functions. Port development assists not only the industrial development of the hinterland (a port is not only a traffic conjunction between sea and land) but also the introduction of new industries to the city in which the port is situated. Especially a hilly, small scale city area like Manzanillo, port planning is closely connected with city planning. It is note-worthy that Manzanillo port development not only contributes to the development in the hinterland but also provides enough open space for public facilities such as housing, urban transport, road, water sewage and parks in Manzanillo city.

- d) I received a deep impression of the creativeness of the Mexican people. This time, I had the opportunity to inspect such ports as Ostión, Salina Cruz, Manzanillo, La Paz,

Mazatlán, and to stay at such hotels, as Las Hadas, El Tapatio (Guadalajara), and Camino Real (Mazatlán). I have visited Mexico several times in the past few years and have had the chance to see various parts of the country.

Whenever I come to Mexico, I am always greatly impressed by the creation of incredibly large scale projects based on novel ideas. On this trip, I found the town of Mazatlán spreading upon the hard rock of the hills along the coast. From the point of view of modern city planning, the town of Mazatlán is not such good planning as its location in a narrow space with no room for expansion. Nevertheless I was deeply impressed by the ideas and practice that led to building the town in such a place several hundred years ago. The idea behind the construction of the hotel "Las Hadas" seemed to resemble that of the town of Mazatlán. I think that the construction of roads, railways and airports around the Altamira and Ostión industrial ports, the construction of a ferry boat facility the 17 kilometers away from La Paz Port, along with the connecting road, the construction of resort facilities at Cancún and so on are all the same mind of idea as was the construction of Mexico city built on the lake. This might lead to a peculiarity similar to Siqueiros' expression in the modern art.

The Mexican nation seems to have some superiority in the field of creation, development and preservation of permanent facilities (nowadays it is called infrastructure). In this sense, I expect that the Mexican government will start the construction work of the new industrial port of Tuxpan as well as commercial port facility in Manzanillo in addition to the five key industrial ports already planned.

(II) Each Port

(A) Manzanillo Port

Manzanillo Port is divided into the two areas; the existing port and the new port. The existing port area is composed of PEMEX petroleum terminal, navy base and wharfs for general cargoes. The port is connected with the urban district by a road and a railway. The town of Manzanillo adjacent to the existing port spreads out on the hill along the port. The town has no space for modern port construction. Moreover, the railway running through the town seems to be an obstacle for urban activities by intersecting urban traffic flows.

The new port which is under construction in a lagoon situated to the north of the existing port has an entrance 150 meters width. A wharf for general cargoes (450 meters long with a 12 meter water depth), equipped with port facilities and a container yard, is already completed. Another wharf perpendicular to the general cargo wharf, with a length of 600 meters, is now under construction (dredging work is in progress).

The sea bottom of the basin is composed of contaminated mud lying over sand.

The contaminated mud is dumped into the Pacific Ocean by a 5 km pipeline running across the lake and over the hill. On the other hand, the sand in the lower layer is being used for the reclamation behind the planned quaywall. In the interior of the lagoon, a fishery terminal is under construction.

On the sea-side of the inner channel lies a navy base and a jetty that has already been constructed. As for the future plan of the port, the following works are scheduled.

- (i) The wharf for the general cargo (600 m) which is now under construction will be extended by 300 meters to the north for the purpose of handling containers, cement and other commodities.
- (ii) Basins with 14, 12 and 7 meter water-depths will be constructed.
- (iii) An area of about 40 hectares behind the port will be procured through the removal of the road.
- (iv) In accordance with the progress of the new port construction, a railway will be built in the new port, while the railway in the existing port will be removed. The existing port will be converted for passenger use exclusively.

Although, this plan seems to be right as a whole, from the point of view of assisting the development of Guadalajara, Colima and Aguascalientes, I have an objection to the scale and distribution of the individual wharves, another characteristic of Manzanillo's new port is the availability of the comparatively vast land at the rear of the port. The land will be used not only for some of the port facilities but also for expansion area for the redevelopment of the existing city.

An appropriate development of the new port and the removal of the railways from the existing port area seem to be effective from following points of view.

- (i) The new port will function as the entrance for the states of Colima, Jalisco, Aguascalientes, and for Guadalajara city.
- (ii) The introduction of industries to Manzanillo city.
- (iii) The urban development of Manzanillo city based on city planning.

The port development of Manzanillo has take into consideration the development of Lázaro Cárdenas port.

The distance between these two ports is not very great. However, the hinterland of these ports is quite different, i.e., the hinterland of Lázaro Cárdenas port is assumed to include a part of metropolitan area, and industrial materials and products will be handled in this port. The hinterland of the Manzanillo port is assumed to be the states of Colima, Jalisco and Aguascalientes.

The hinterland and the commodities handled in the port of Manzanillo should be studied in more detail from the viewpoints of economy, geography and the transportation system.

(B) Mazatlán Port

It happened that I visited Mazatlán Port on a Saturday so that, unfortunately, I could not listen to explanations from the port authorities. So, I will report my "impression" based on field inspection of Mazatlán Port.

I had conceived that Mazatlán Port has the functions of a fishery port and a pleasure port. But, when I inspected there, I found some good commercial wharves (water depth -9m, length 600 m and water depth -10m, length 350m). Especially I was impressed by a modern ferry wharf which seems to have been constructed recently at the bay mouth.

The Mazatlán Port is a complex port which has such functions as commercial, fishery,

pleasure and industrial port (sea foods processing, power plant). But, I could not find any freighters, probably because it was holiday, so I was unable to get a good idea of the functioning of the commercial port. There is a yard whose width may be 350 meters and a warehouse behind the 10 meter water-depth wharf. I thought that the yard may be used as a container yard, but did not see any container ships. There is a very narrow yard behind the 9 meter water-depth wharf. I felt that the wharf and the yard are old fashioned. The ferry wharf and pleasure port at the bay mouth are very modern, and are located in places with excellent scenery. It seemed to me that land construction can be done by reclamation work behind the fishing pier and in the inner port of the bay. Land reclamation in the inner bay will create space for urban development. I thought that the coast opposite the existing port has a big potential for development in the future. Land reclamation by dredging and soil improvement of the reclaimed land will make it possible to develop a port facility, urban facilities and especially leisure facilities such as hotels a bathing beach and so on.

The future of Mazatlán Port development is as follows.

- (i) Development as a base of foreign and domestic trade for the northern states, such as Sinaloa, Durango, etc.
- (ii) Reinforcement of the fishery port function.
- (iii) Creation of urban space such as housing, industrial areas and so on.
- (iv) Improvement of the recreational function, the resort areas in La Paz, like Mazatlán, Manzanillo, Zihuatanejo and Acapulco.

In the port's development plan the, following points should be taken into consideration.

- (i) It is an excellent plan to create urban area with land reclamation in the innermost part of the bay, to improve the ferry wharf, and the leisure port function, such as the yacht harbour at the bay mouth. But, it is required to improve the commercial wharves, and the fishery pier at the center of the port.
- (ii) On the coast opposite the existing port, several projects, not only port facilities but also leisure constructions will be feasible.
- (iii) More attention should be paid to control the water pollution in the port, and to improve the congestion around the existing fishery port.

(C) La Paz Port

La Paz Port located in front of the urbanized area seems to be mostly used as a fishery port. A ferry terminal is located in Pichilingue about 17 kilometers away from the town, and the road connecting the terminal and the town is constructed. There are high possibilities for future development of as a tourist facilities or fishery facilities along this road.

The layout of port facilities in the La Paz Port attracted me, and moreover the plan of constructing a port apart from the existing town and of connecting it by the road to the town is appendix. The development along the road between the port and town, was very interesting to me, and I guess this is an excellent idea.

II. Collected Data and Information

(Socio-Economic)

TITLE	COLLECTED IN or PUBLISHED BY
1 Directory	Cámara Japonesa de Comercio de Industria de México
2 Economic Report	
3 Monthly Report '82	
4 Promotion of Capital Industries	
5 Report about Construction of Factory in Mexico	
6 Agriculture in Mexico	
7 Industrial Production in 1980 (Jan-Mar.)	
8 Report of the Factory in Cuernavaca	
9 Report of Melco de México	
10 Localización General del Camino de Acceso a la C. T. Tuxpan 1/50000	
11 List of Contracts	Comisión Federal de Electricidad
12 Coordinación General del Programa de Puertos Industriales	MHI de México CPI
13 Puertos Industriales Proyecto: Lázaro Cárdenas	CPI
14 Reglamento de Seguridad e Higiene	PEMEX (Poza Rica)
15 Ingeniería Petrolera	PEMEX (Poza Rica)
16 Industrial port Program	CPI
17 Puerto Industrial, Vol. 1 y 2	CPI
18 Complejo Petroquímico Poza Rica, Ver.	PEMEX (Poza Rica)
19 El Petroleo	PEMEX (Cobos)
20 Plan Municipal de Desarrollo Urbano Municipio de Tuxpan	CPI
21 Plan De Desarrollo Urbano De Poza Rica, Ver	CPI
22 Plan De Desarrollo Urbano De Alamo Temapache, Ver	CPI
23 Plan De Desarrollo Urbano De Chicontepec, Ver	CPI
24 Plan De Desarrollo Urbano De Cerro Azul, Ver	CPI
25 Plan De Desarrollo Urbano De Tihuatlan, Ver	CPI
26 Plan De Desarrollo Urbano De Papantla, Ver	CPI
27 Plan De Desarrollo Urbano De Tepetzintla, Ver	CPI
28 Plan De Desarrollo Urbano De Teayo, Ver.	CPI
29 Plan Parcial Del Nuevo Distrito De Crecimiento De Altamira, Tamps	CPI
30 Electric Power Supply Planning Data	CFE
31 Directorio De Servicios Turisticos Tuxpan, Ver	Trismo, Tuxpan
32 Puerto Industrial De Altamira	CPI
33 Agenda Estadística 1982	CPI
34 Programa De Inversiones 1983 - 85	SAHOP
35 Proyecto Chicontepec - Tuxpan	CPI
36 Plan Nacional de Desarrollo Urbano 1978	SAHOP (Jalapa)
37 Plan Estatal para el Desarrollo Urbano y Rural (Veracruz), Vol. 1	CPI
38 Plan Estatal para el Desarrollo Urbano y Rural (Veracruz), Vol. 2	CPI
39 Plan Estatal para el Desarrollo Urbano y Rural (Veracruz), Vol. 3	CPI
39 Plan Estatal para el Desarrollo Urbano y Rural (Veracruz), Vol. 3	CPI

40 Plan Estatal Para El Desarrollo Urbano y Rural Veracruz II Nivel Estratégico Vol. 1/2	CPI
41 Plan Estatal Para El Desarrollo Urbano y Rural Veracruz II Nivel Estratégico Vol. 2/2	CPI
42 Compendio Estadístico 1980	Gobierno Edo. de Veracruz
43 Datos Básicos sobre la Población de México (1980-2000)	CPI
44 Problemática de la Red de Carreteras Federales en Veracruz	SAHOP (Jalapa)
45 Chicontepec	PEMEX
46 VII Censo de Servicios 1976, a Nivel Entidad Federativa, Municipio y Grupo de Actividad	SPP
47 Programa de Construcción y Modernización de la Infraestructura Ferroviaria '79-'82	CPI
48 Agenda Estadística 1981	CPI
49 Datos Viales 1980	SAHOP (Jalapa)
50 Manual De Estadísticas Básicas Socio Demográficas III Sector Salud y Seguridad Social	SPP
51 Manual de Estadísticas Básicas del Sector Turismo, Tomo I	
52 Ley Federal de Protección al Ambiente	CPI
53 Ley No. 188: De Asentamientos Humanos Para El Estado De Veracruz - Llave	CPI
54 Estadísticas del Sistema Educativo '79-'81	CPI
55 Información Básica (Electricity)	
56 Ley General de Asentamiento Humanos	CPI
57 Road Conditions	SAHOP (Jalapa)
58 Estado Superficial De La Red De Carreteras A Cargo De La S.O.P.	CPI
59 Volúmenes De Tránsito 1981 En La Red Federal De Carreteras En El Estado De Veracruz	SAHOP
60 Map, Tuxpan 1:50,000	CPI
61 Estadística Ferroviaria Nacional ('76, '77, '78, '80)	
62 Carta Topográfica 1: 250,000 Tamiana	
63 Carta Topográfica 1: 250,000 Pachuca	
64 Carta Topográfica 1: 250,000 Ciudad Valles	
65 Carta Topográfica 1: 250,000 Poza Rica	
66 Carta Topográfica 1: 50,000 Naranjos	
67 Carta Topográfica 1: 50,000 Chapopote	
68 Carta Topográfica 1: 50,000 Arrecife Tánhujo	
69 Monthly Export-Import	SCT (Acapulco)
70 Handling cargo in Acapulco (1980-1981)	SCT (Acapulco)
71 Handling cargoes by items in Acapulco (March 1982)	SCT (Acapulco)
72 Relación de Cruceros Yates Y Embarcaciones de Recreo que Arribaron al Puerto de Acapulco	SCT (Acapulco)
73 Relación de Barcos de Pasajeros, Tipo Crucero que Arribaron al Puerto durante el año 1982	SCT (Acapulco)
74 Indicadores de la Actividad Turística	Turismo (Acapulco)
75 Perfil de la Actividad Turística en el Estado de Querrero	Turismo (Acapulco)
76 Hotels and Motels Directory 1982	Turismo (Acapulco)
77 Bienvenidos, to our Visiting Yachtsmen and Friends	Acapulco Yates Club
78 Requisitos para el Ingreso de Socios Activos al Club (I) de Yates Acapulco A.C.	Acapulco Yates Club

78 Problemática de la Operación Portuaria en los Puertos (2) Industriales de Lázaro Cárdenas y Altamira	CPI
79 Programa de Puertos Industriales	CPI
80 VII Censo Comercial 1976, a Nivel Entidad Federativa, Municipio y Grupo de Actividad	SPP
81 X Censo Industrial 1976, Principales Características por Entidad Federativa, Municipio y Grupo de Actividad	SPP
82 V Censos Agrícola-Ganadero y Ejidal 1970. Veracruz	SPP
83 El Desarrollo de la Actividad Pesquera en el Estado de Veracruz	Pesca (Veracruz)
84 Agenda Estadística '82	Gobierno del Estado de Veracruz
85 La Industria Siderúrgica en México	SPP
86 Informe Anual 1980 (Banco de México)	CPI
87 Agenda Estadística Agropecuaria 1981	SARH (Jalapa)
88 Plan de Desarrollo Agropecuario y Forestal 1980-1982 (1) Tomo III	SARH (Jalapa)
88 Estadísticas Pesqueras de 1976 (2)	CPI
89 Anuario Estadístico Pesquero 1977	CPI
90 Anuario Estadístico Pesquero 1978	CPI
91 Anuario Estadístico Pesquero 1979	CPI
92-1 Anuario Estadístico Pesquero 1980 (Vol. 1)	CPI
92-2 Anuario Estadístico Pesquero 1980 (Vol. 2)	CPI
93 Cómo es México	CPI
94 X Censo General de Población y Vivienda Resultados (1) Preliminares	CPI
94 X Censo General de Población y Vivienda, '80 (2) Resultados Preliminares a Nivel Nacional y por Entidad Federativa	CPI
95 La Minería en México (1981)	CPI
96 Estudio Integral de la Laguna de Tamiahua, para Apertura y Estabilización de Bocas y Canales de Penetración, Estado de Veracruz	CPI
97 Plan Nacional de Desarrollo Pesquero '77-'82	CPI
98 Carta de la Zona Económica Exclusiva	CPI
99 La Información Central en la Zonificación Agropecuaria y Forestal, con fines de un Mejor Aprovechamiento de Los Recursos Naturales	CPI
100 Anuario Estadístico del Comercio Exterior de los Estados Unidos Mexicanos 1978	CPI
101 El Sector Alimentario en México	CPI
102 Trabajo y Salarios Industriales 1980	CPI
103 Anuario Estadístico de los Estados Unidos Mexicanos	CPI
104 Encuesta Mexicana de Fecundidad-Informe Metodológico	CPI
105 Encuesta Mexicana de Fecundidad-Primer Informe Nacional (Vol. 1)	CPI
106 Encuesta Mexicana de Fecundidad-Primer Informe Nacional (Vol. 2)	CPI
107 Estudio Geográfico de la Región de Veracruz	Secretaría de Marina
108 Costas Atlánticas de México, América Central y Colombia	Secretaría de Marina
109 Listado de profundidad	CPI
110 Documents of Mexico National Railway by Administrative Regions (23 books)	CPI

- 111 Port Statistics
- 112 Matriz Nacional de las Ventajas Comparativas en la Industria
Manufacturera a nivel Estatal Vol. 1
- 113 " " " " Vol. 2
- 114 " " " " Vol. 3
- 115 Puerto Industrial de Altamira, Tamps Analisis de la Situacion
Actual de las Obras y Perspectivas al 31 de diciembre de 1982
- 116 Puerto Industrial de Lazaro Cardenas, Mich.
Analisis de la Situacion Actual de las Obras y Perspectivas al 31 de
Diciembre de 1982
- 117 Sistema de Cuentas Nacionales de Mexico
(Producto Interno Bruto por Estado Federativa) 1980
- 118 Sistema de Cuentas Nacionales de Mexico
(Estimacion Preliminar, 1981)
- 119 Sistema de Cuentas Nacionales de Mexico, 1978-1980 Resumen General
Tomo I
- 120 Sistema de Cuentas Nacionales de Mexico, 1978-1980
Oferta y Utilization de Bienes y Servicios Tomos III
- 121 Sistema de Cuentas Nacionales de Mexico, '78-'80
Cuentas de Produccion, Tomo II, Vol. 1
- 122 " " " " Vol. 2
- 123 Requerimiento de Insumo de la Industria Mexicana de los Fertilizantes
durante el period 1980-1990
- 124 Actualizacion del plan de desarrollo de la Industria Mexicana de
los Fertilizantes Vol. 5
- 125 Composition of Chicontepec (SSP) Committee
- 126 Sistema Estadistico Operacional
Indicadores de Rendimiento 1981
- 127 Peninsula de Yucatan Desarrollo Regional Vol I
- 128 " " " " Vol II
- 129 " " " " Vol IV-IV
- 130 " " " " Vol IV-VI
- 131 Memoria del Proyecto Chicontepec, Volumen I
- 132 " " " " Volumen II
- 133 " " " " Volumen III
- 134 " " " " Volumen IV
- 135 " " " " Volumen V
- 136 " " " " Volumen VI
- 137 " " " " Volumen VII
- 138 " " " " Volumen VIII
- 139 Sondeo Sociodemografico en el Area de Probable Ubicacion del Puerto
Industrial de Tuxpan, Veracruz
- 140 Planos topograficos esc. 1:50,000
- F14-D65, F14-D66, F14-D75, F14-D85
- 141 Plano de Uso del Suelo esc. 1:250,000
- F14-9
- 142 Informacion entregada por la Presidencia Municipal de Tuxpan, Ver.
- 143 Registro de Yates de recreo en 1982 en Acapulco, Guerrero
- 144 Plan Municipal de Desarrollo Urbano de Coatzacoatlán, Ver.
- 145 Mexico Demografico, Brevariio 1980-'81
- 146 Demandas de Agua en la Cuenca del Rio Tuxpan para Usos Urbanos,
Agricolas e Industriales. SARH
- 147 Plano de Recinto Portuario
- 148 Orenes Superficiales Tuxpan, Ver.

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149 Equipamiento Urbanos (Tuxpan)	CPI
150 H. Ayuntamiento Municipio de Tuxpan	CPI
151 Tuxpan (map) 1:5,000	CPI
152 Plano General de la Barra Norte (PEMEX Expansion Plan)	CPI
153 Información estadística estado de Veracruz	Secretaría de Turismo
154 Programa de desarrollo del AUTOTRANSPORTE FEDERAL	SCT
155 Gerencia de proyectos Hidroeléctricos	C.F.E.
156 Composición de la Flota Vehicular	S.C.T.
157 Manual de Estadísticas Básicas del Sector Comunicaciones y Transportes	SPP
158 Encuesta Industrial Mensual 1980	SPP
159 Tarifa General de Derechos por Maniobras y Servicios Portuarios No.1 del Puerto de Administración Estatal de Tuxpan, Ver. Vigente - 1982	SCT
160 Commodities procurable in Mexico	JETRO
161 Proyecto Chicontepec	PEMEX
162 La Industria Siderúrgica en México	1981, SPP
163 Estadística Industrial Anual 1979 (SPP)	SPP
164 Manual de Estadísticas Básicas (Sector Industrial)	SPP
165 X Censo Industrial 1976, Datos de 1975	SPP
166 La Matriz de Insumo-Producto como Instrumento de Análisis y Programación Económica	SPP
167 Las Matrices de Insumo-Producto de México de 1950-1960 y 1970. Su Utilización para el Análisis de los Cambios Estructurales de la Economía.	SPP
168 Matriz de insumo-producto de México, año 1970 Tomo 1: Resumen General Tomo 2: Industria Manufacturera Tomo 3: Actividades Primarias y Servicio Tomo 4: Gobierno General	SPP
169 Estadísticas Pesqueras (Información seleccionada del Manual de Estadísticas Básicas: Sector Pesca)	SPP
170 Tuxpan, Manzanillo, Puerto Escondido	
171 Oficio de la Secretaría de Salubridad y Asistencia; informando de la situación relativa a la prevención de la contaminación por las industrias en los Puertos Industriales	
172 Estudio elaborado por la Secretaría de Salubridad y Asistencia, en febrero 1982: Determinación del Escenario Ambiental del Puerto Industrial de Altamira, Tamps	
173 Documento sobre el Puerto de Tuxpan, elaborado por la Dirección de Planeación Presupuestal y Financiera de la Coordinación de Puertos Industriales:	CGPP
174 ICATEC La Información Hidráulica Siguiente, Proporcionada por la Empresa ICATEC, S.A.	SARH
175 La Información Siguiente Proporcionada por la Dirección General de Vías Férreas de S.C.T.	SCT
176 Información proporcionada por Petróleos Mexicanos	
177 Escenarios Económicos de México	SPP
178 Información Facilitada por la Dirección General de Operación Portuaria	SCT
179 Directorio de Empresas del Autotransporte de Carga	SCT

(Natural)

1	Registro de Hincas de Pilotes (Tuxpan)	SCT
2	Localización de Bancos de Material de Préstamo (Tuxpan)	SCT
3	Sondeo General del Río Tuxpan (81 No. 1-5, '82 No. 1-5)	SCT
4	Atlas de Huracanes	CPI
5	Gastos Instantáneos en Metros Cúbicos del Río Tuxpan	SARH (Jalapa)
6	Tablas de Predicción de Marea 1980	CPI
7	Tablas de Predicción de Marea 1981	CPI
8	Puerto Industrial de Tuxpan, Veracruz, Ciclónico	CPI
9	Costo Aproximado por m ² de Muelles en Tuxpan, Ver.	SCT (Tuxpan)
10	Proyecto de Desarrollo del Puerto Industrial de Tuxpan, Ver	SCT
11	Temperatura y Salinidad de los Puertos de México en el Golfo de México y Mar Caribe	Secretaría de Marina
12	Análisis de Costos Directos en México (No. 1)	Camara Nacional de la
13	" " " (No. 2)	Industrial de la Construcción
14	" " " (No. 3)	"
15	" " " (No. 4)	"
16	" " " (No. 5)	"
17	Los Costos en la Construcción	"
18	Muelle Fiscal Tuxpan, Veracruz Estudio del Subsuelo	SCT
19	Mecánica de Suelos	SCT
20	Informe del Estudio Fotozoológico y de Bancos de Materiales del Área en Estudio Seleccionada Para Ubicar el Puerto Industrial Tuxpan, Ver.	SCT
21	Estudios de Mecánica de Suelos en Muelle Fiscal (de Altura) de Tuxpan, Ver.	SCT
22	Escurrimientos Medios Anuales para el Periodo 57-67	SARH
23	Estudio del Proyecto Pantepec-Vinazco, Ver A Nivel de Gran Vision, Sinopsis	SARH
24	Plano que Contiene la Cuenca del Río Tuxpan	SARH
25	Plano que Contiene el Proyecto de la Zona de Riego "El Alamo"	SARH
26	Tabla de Areas	SARH
27	Planos de los Estudios Fisicos para Proyectar el Acceso a las Instalaciones Portuarias en Tuxpan, Ver	SCT (cifsa)
28	Reparación de las Escolleras Norte y sur Tuxpan, Veracruz	SCT
29	Estudio fisicos para proyectar el acceso a las instalaciones portuarias en Tuxpan, Ver	SCT
30	Outline of Port and Harbour Facilities in Mexico	CPI
31	Outline of Tuxpan Port Facilities	CPI
32	Engineering Information concerning Tuxpan Port	CPI
33	Annual Dredging Volume in the Tuxpan River	CPI
34	Meteorological data in Tuxpan (1977-1982)	SARH
35	Meteorological data in Mexico DF (1961-'80)	Servicio Meteorológico Mexicano
36	Meteorological map of Hurricane Inez	"
37	Meteorological map of Hurricane Beulah	"
38	Estudio Preliminar de Mecánica de Suelos para la C.T. Tuxpan, Ver	C.F.E.
39	Plan in relation to Thermal Power Plant	C.F.E.
40	Geographical Map (1/10,000)	SCT
41	Sounding Map (1/5,000)	SCT
42	Sounding Map in Wide Area (1/10,000)	SCT
43	Detailed Sounding Map (1/5000)	SCT
44	Measurement of Coastal Current	SCT
45	Boring Log at the Right Bank of the Tuxpan River	SCT

III. Comments to the Report provided by Mexican Side and Reply to the Comments Prepared by Japanese Side

(General)

In this part, Comments to the Interim Report (II) and Draft Final Report of the present study made by the Mexican side, and Reply to the Comments prepared by the Japanese side are introduced for reference. Comments sent by the Mexican side and Reply to the Comments are summarized as follows.

Report	Comments from Mexican side			Date of reply
	Comment	Date	Organization	
INTERIM (II)	I	19 April 1983	SDUE	11 July 1983
		22 April 1983	SARH	
	II	17 May 1983	SDUE	22 July 1983
		13 June 1983	CNCP	
	III	31 May 1983	FONDEPORT	31 Aug. 1983
	DRAFT FINAL	IV	30 Sept. 1983	CNCP
21 Sept. 1983			SARH	
V		26 Sept. 1983	FONDEPORT	

- Note 1) INTERIM REPORT (II) for the study on the Development Project of the Industrial Port of Tuxpan in the United Mexican States March, 1983, JICA.
- 2) DRAFT FINAL REPORT for the study on the Development Project of the Industrial Port of Tuxpan in the United Mexican States August, 1983, JICA.

1-1 FIRST Comments

(1) Comments from SDUE

ACUERDOS

1. Breve exposición de comentarios y observaciones.

En vista del corto tiempo disponible (1 hora) se acuerda que SEDUE - exponga brevemente sus comentarios y observaciones al estudio. El - Dr. Hugo García Pérez y el Arq. Guillermo Luna hacen las siguientes observaciones al estudio.

- (1) Se había utilizado en Tuxpan una especie de "Ciudad Tipo" al - - - igual que en otros proyectos de OCDI.
- (2) Para la integración de alternativas del plan se usaron factores - de poca importancia como "comfortability" y no se consideraron as - pectos importantes como costos, disponibilidad de tierra, preser - vación de tierras agrícolas.
- (3) No se pensó en integrar la ciudad actual de Tuxpan al proyecto.
- (4) La nueva ciudad parece muy cercana al puerto por lo que habría - - contaminación en las zonas residenciales y una general vulnerabi - lidad del conjunto a riesgos físicos y humanos.
- (5) No se hace un uso exhaustivo de las aguas naturales como el río y el mar. La nueva ciudad podría estar junto a la ciudad actual - - cerca del río.
- (6) Como consecuencia del tratamiento en el plan, la infraestructura de la ciudad nueva resultaría muy costosa.
- (7) Las proyecciones de población no están suficientemente justifica - das (p. 197)

- (8) No se informa el origen de los estándares y normas adoptados. -- (p. 201)
- (9) La densidad de población de 65 habitantes por hectárea es muy baja, se propone elevarla a 125 h/ha. (p.205)
- (10) Asimismo, los porcentajes aplicados a los diferentes usos en la tabla VII-1- (8) son incongruentes.
- (11) No se tomaron en consideración los ingresos económicos de los habitantes.
- (12) Las vías de tránsito más congestionadas como las G, K, E (p. 221) cruzan la nueva ciudad.
- (13) No se propone un libramiento para el tráfico de norte a sur y viceversa de la región sin tener que cruzar el conjunto puerto-ciudad.
- (14) En general se observa un tratamiento unilateral del proyecto, sin considerar la región y aún el país en los aspectos económicos, social y físico.

2. Respuestas del grupo OCDEI a los comentarios de SEDUE:

- La vieja o actual Teqan debería quedar intacta y no sobrepoblarse con 400 000 habitantes más.
- En el proyecto de un puerto industrial no toman en cuenta el valor de la tierra para agricultura !!!
- Su proyecto representa una imagen del conjunto, susceptible a mo-

dificaciones.

El Dr. Takeuchi tomó la palabra para concluir y dijo que en sus pláticas con altos funcionarios como el Lic. Moctezuma y el Dr. Rosenzweig se habían considerado dos modos de pensar para el proyecto:

- Uno que desarrollaría tradicionalmente, tanto el puerto como la ciudad existente, y
- Una decisión drástica de hacer todo nuevo; y que esta segunda opción es la que se había acordado.

3. Ampliación y elaboración de comentarios y observaciones por escrito.

OCDI propone que se elaboren y amplien los comentarios y observaciones hechos por SEDUE al estudio del puerto de Tuxpan y que se envíen por escrito a OCDI, a través de la CNCP hasta fines del mes de abril como máximo. SEDUE acepta la proposición y agradece a OCDI el esfuerzo realizado en los estudios del puerto de Tuxpan.

(2) Comments from SARH

FÓRMA C. C. 2
DEPENDENCIA SUBSECRETARIA DE INFRA-
ESTRUCTURA HIDRAULICA -ASESORIA
NUMERO DEL OFICIO 105.2.C.-25/83 TECNICA.
EXPEDIENTE

ASUNTO: Relativo al estudio sobre el proyecto del desarrollo del Puerto Industrial de Tuxpan, Ver.

0356

México, D. F., 22 de abril de 1983.

C. ING. JAIME LUNA TRAILL.
Vocal Ejecutivo de la Comisión
Nacional Coordinadora de Puertos.
Insurgentes Sur N°. 617 3er. Piso.
C.P.03100. México, D.F.

ATN: Ing. Guillermo MacDonel.

De acuerdo con la petición que hiciera la misión Japonesa a esa Comisión, para que se le brindara nuestra opinión sobre el Reporte Interino II, a continuación me permito someter a su consideración las siguientes opiniones:

I.- El C. Ing. Ramón Grijalva Ruiz, Director General de Control de Ríos e Ingeniería de Seguridad Hidráulica, dirige al suscrito la Nota Informativa fechada el 22 de marzo anterior, y cuyo contenido se transcribe a continuación:

"En reunión celebrada el día 17 de marzo del presente año, en las oficinas de la Comisión Nacional Coordinadora de Puertos, técnicos japoneses entregaron el reporte titulado "INTERIM REPORT (II) FOR THE STUDY ON THE DEVELOPMENT PROJECT ON THE INDUSTRIAL PORT OF TUXPAN IN THE UNITED MEXICAN STATES MARCH, 1983 JAPAN INTERNATIONAL CO-OPERATION AGENCY" (Reporte interino II para el estudio sobre el proyecto del desarrollo del Puerto Industrial de Tuxpan en los Estados Unidos Mexicanos, marzo 1983, Agencia de Cooperación Internacional del Japón), y del cual una vez leído por técnicos de esta Dependencia me permito hacer los siguientes comentarios:

Por la importancia creciente al desarrollo económico progresivo que en esta zona tiene, es necesario el conocimiento fluvial que minimice los daños por inundaciones, por lo cual resulta -

ASUNTO:

HOJA N°. 2.

prioritario el que se recomienden estudios fluviales en la parte baja de la cuenca del Río Tuxpan que permitan proponer áreas de desarrollo urbano, industrial y de producción agropecuaria que suministren inclusive al futuro Puerto Industrial de Tuxpan.

El estudio anterior permitirá en su oportunidad proponer no sólo las obras de control de ríos, sino los procedimientos constructivos y operaciones de emergencia que en su caso se establezcan en futuras obras hidráulicas.

También me permito proponer que se instalen estaciones medidoras de gasto sólido en apoyo a proyectos futuros de interacción fluvio-marinísimas, tanto en la descarga del río Tuxpan como a las obras del mismo Puerto Industrial en su dársena y canal costero de navegación".

II.- Por otra parte, el suscrito en las reuniones que ha habido en esa Comisión con la participación de la misión Japonesa, ha externado las siguientes opiniones:

1.- Al considerar valioso el documento presentado por "JICA" con relación al estudio para el desarrollo del proyecto del puerto Industrial de Tuxpan, solicité que en el reporte final, se tocara con mayor amplitud todo lo relativo a los estudios de apoyo necesarios y faltantes, para el logro de formular un proyecto debidamente integrado en lo tocante al conocimiento del uso del agua para diferentes propósitos al corto, mediano y largo plazo, en función al desarrollo de la zona, por la creación del puerto industrial e inclusive tomando en cuenta las demandas de otros requerimientos ajenos a la cuenca del Tuxpan, pero que la pudieran afectar.

2.- También hice notar que en el informe a que se alude, no se mencionan recomendaciones sobre las medidas u obras necesarias para proteger las instalaciones del puerto y ciudad de Tuxpan contra las posibles avenidas de esta corriente, por lo que de considerarlo conveniente, se vería con agrado que abordaran el tema de control del río.

3.- Por último expresé mi opinión acerca de la ubicación para la nueva ciudad de Tuxpan que se generaría con el desarrollo portua-

ASUNTO:

HOJA N°. 3.

rio, ya que tomando en cuenta que los vientos dominantes provienen del mar, el nuevo asentamiento podría verse seriamente afectado - por el humo y ceniza de las industrias y además el desarrollo futuro de la zona industrial se podría ver limitado o constreñido por el mar hacia el oriente, por la ciudad al poniente y al norte por el río Tuxpan, por lo que cabría la posibilidad de que la nueva ciudad se ubicara al norte del puerto por la banda izquierda del río Tuxpan, - cosa que ofrecieron estudiar mas a fondo"

Con lo anterior se pretende dar cumplimiento a lo solicitado, esperando que nuestros puntos de vista sirvan para aclarar debidamente las inquietudes y se tomen en cuenta en lo posible, en la información final que al respecto generará la misión Japonesa.

ATENTAMENTE
EL REPRESENTANTE DE SARH ANTE LA CNCP.

ING. RICARDO BECERRIL LOPEZ.

C.c.p. C. Dr. Fernando J. González Villarreal, Subsecretario de Infraestructura Hidráulica.

C.c.p. C. Ing. Manuel Anaya y Sorribas, Secretario Técnico del C. Subsecretario de Infraestructura Hidráulica.

C.c.p. C. Ing. Ramón Grijalva Ruiz, Director General de Control de Ríos e Ingeniería de Seguridad Hidráulica.

RBL./rr.

1-2 Reply to the FIRST Comments

(1) Reply to the Comments from SDUE

I. Reply to SEDUE's Comments (See Attachment-1)

Before starting our reply concerning the comments from SEDUE, we will explain our opinion on urban planning in the Report.

(a) Since the Report concerns the feasibility study (hereinafter indicated by "F/S") on an industrial port development, it is not common to provide such a detailed "Urban Planning" described in the Report.

However, we understand that your country intends to decentralize the population from metropolitan area to coastal areas through industrial development. We believe that it is necessary to create attractive cities for smooth immigration, this is why we spared so much space "Urban Planning" in the Report.

(b) Your points and requests with respect to the Tuxpan Port City are well understandable, once we consider your country's financial situation and existing urban facility of Tuxpan city. From the standpoint of project implementation, it may be one of the options to develop the new city in the area adjacent to the existing Tuxpan urban area.

Therefore, we will make a short study on this subject in the coming report.

(c) However, we would like to stress the following points.

That is, our basic viewpoint in the new city planning lies in creating a fascinating city with a population of 400,000 as a regional core in the northern part of Veracruz State (please refer to the Report, p. 189). In this sense, the new city presented in the Report is regarded as a sort of ideal targets.

- (d) Such principle frameworks of the new city, i.e. location, population density and transportation network are proposed as a desirable future outlook based on the past performances for various city planning in Japan.
- (e) Therefore it is strongly recommended to make a F/S on the new city taking into consideration socio-economic conditions of your country and regional characteristics of Tuxpan, when you will start the work.

We will now take up the items one by one with respect to your comments.

1. As mentioned above, we proposed the new city with a population of 400,000 in its most ideal form.
2. Since this report does not concern F/S on the new city, it does not include a quantitative cost analysis. But in evaluation items of "Economic Efficiency", the Report presents a qualitative analysis (evaluation with respect to selection of alternative site of the new city).

- (a) Practically, the foundation and the topography of each alternative sites are chosen as indexes to evaluate cost levels for such infrastructures as land leveling, roads and sewage construction works. As you well know, costs for infrastructure construction such as land leveling, roads and sewage works in soft foundation or steep ground are higher than that in flat lands. And as to the topography, we chose the area with the slope less than 15 degrees where the designed speed of automobiles can be maintained at 60 km/h (37 mile/h). (Please refer to the Report, p. 192, 194, 195 and Fig. VII-1-(2).)
- (b) We consider the evaluation item of "Convenience" very important. It is because our assesment i.e. the convenience of commutating and regional transport will eventually be converted to energy consumption by cars and affect the overall costs in a long run from the standpoint of national economy.
- (c) "Comfortability" is also very important. The criteria adopted in the Report, air pollution and the drain condition of the ground will greatly affect the habitability of dwellers.
- (d) As to the preservation of "Arable Land", we assess the possibility of influencing the agricultures relatively small, since the selected site for the new city is used as pasture at present with less productivity than that of lands which yield fruits such as oranges. Besides, once it is decided to execute this kind of project, it requires more or less sacrifice of arable land.

(e) As to the possibility of "Land Acquisition", we do not assess in this respect, so it is requested to be carried out upon the execution of the project.

3. As to the possible influence upon the new city development on the existing Tuxpan urban area, we mentioned on the subject in p. 194 in the Report. However we would like to make some short study in the prospect of developing the new city adjacent to the existing Tuxpan urban area as one of the practical and phased arrangements.

But, we would like to have you fully aware of the following points.

Whereas Ciudad Tuxpan has the population of approximately 40,000, and if you build a new city of 400,000 adjacent to the existing urban area you can easily foresee severe effects on the existing city such as traffic problem, insufficient infrastructure and socio-economic disorder.

For instance, with respect to a traffic problem, even if new trunk roads which bypass the existing urban area was constructed, the traffic of the existing urban area can be suffered from severe congestion. In addition, such traffic congestion will always accompany possible environmental problems such as noise and bad smell.

Therefore we preferably selected the site of the new city in the south to the Tuxpan river in order to prevent a disorderly sprawling of the existing urban area and to preserve the good environment around the Tampamachoco Lagoon.

4. Reply to this comment will be provided later for the comments (1) from SARH.
5. As you pointed out, the Report does not mention on the waterfront land use. Since port-related facilities would be constructed in the lower stream from newly proposed bridge, we will study the possibility of arranging green space in the upper stream from it.
6. We understood that your comment meant it would be more costly to build infrastructures, if our proposal is adopted, as compared with your idea of developing the new city separately adjacent to the existing Tuxpan urban area. As we explained on p. 190 in the Report, we still maintain our original position that investment efficiency would be inadventagous, if scattered city development is adopted. This is because integral use of such infrastructures as roads, water supply, sewage disposal and electricity provision is more economical than scattered arrangement. Moreover, the infrastructures scale of the existing Tuxpan city are so small that their capacity cannot meet the future demand of the city with 400,000 residents.
7. In this subject, please refer to the explanations on p. 83 and 84 in the Report.
8. The standard value used for this Planning is decided from that used in Japan, United States and Great Britain.

(please refer to p. 259 in the Report and Table VII-1-(20), (21).) The city planning standard used for public facilities and commercial and administrative facilities is based on the Japanese City Planning Standard.

9. The population density of 65 persons/ha is calculated for the total city area including areas for distribution business center, university, light industrial district, golf course green space as well as residential district. The gross population density increase to 100 persons/ha for the so-called residential district consisting of residential lands, public service facilities, commerce and business facilities, roads and parks, which are set for 4,050 ha. (please refer to Table VII-1-(2).) The net population density for the housing area (1471 ha) is 275 persons/ha. And if the capacity rate is presumed to be at 80%, the prospective floor area per capita is about 29 square meters, and thus the unit floor area per house is 130 square meters, assuming that a family is consisted of 4.5 persons. Therefore, population density projection is believed to be practical and reasonable.
10. As explained in the preceding Reply (9), the land use shown in Table VII-1-(8) includes whole the land, i.e., distribution business center, university, general hospital, regional health center, broadcasting station, light industrial district, golf course and green space in

addition to commerce and business district, public service district, residential district, roads and parks. As result, when we calculated the land use rate covering all these facilities mentioned so far, we came up with the figures listed therein.

However, upon the execution of the work, it is possible for you to delay the execution for construction of such facilities as distribution business center, university, light industrial district, golf course, sports park and green space or it is also probable for you not to execute there facilities at all. If you are not going to execute them, then, of course, the land use rate will charge.

11. As already mentioned in the beginning, "Urban Planning" in the Report is based on the realization of an ideal regional core city. Therefore it is requested to consider the economical condition of the residents upon the execution of the Plan.
12. As is described on p. 220 to 229 in the Report, a comparison is made for road traffic volume at respective peak hours arising from the business traffic to and from the industrial complex and commuters traffic to and from the new city. The greater volume of the two is used to determine the required roads dimension. Whereas the commuters traffic shares a greater part of the traffic volume on the trunk road G.K.E., road dimension was decided by commuters

traffic volumes as shown in Fig. VII-1-(I2). Traffic from the industrial complex should be restricted not to pass through the new city and main intersections are planned as the elevated cross-over interchange.

13. According to a national plan, the National Route No. 130 is to be expanded to 4 lane-highway while the National Route No. 180 is to be improved. If this expansion and improvement plan is realised, we don't think it is necessary to build an additional main route connecting North to South. However, if industrial freight and other general commodities transport increase between Tuxpan and the southern region of Veracruz State in the future, there will be a need for a new road connecting these two areas.
14. As to the possibility of a new city development for the area adjacent to the existing Tuxpan urban area, we will study it as one of the options for a phased development. However, as it was mentioned, this plan concerns creation of a new ideal city as a regional core in the northern part of Veracruz State. Consequently upon the execution of the work we would like to advise you that you will make a F/S which covers all the necessary points on socio-economical and geographical conditions not only in this region but also in the country.

(2) Reply to the Comments from SARH

II. Reply to Comments from SARH (See Attachment-2)

- (1) Upon your request, we will make a brief study on the possibility of a new city development in the area adjacent to the existing Tuxpan urban area as one of the options for a phased development. However, we cannot overlook the following points which lead us to believe that the new city development in the northern area to the Tuxpan River will face greater difficulties. For the details, please refer to our explanations on p. 189 to 196.
 - (a) As Fig. VII-1-(2) shows, the said northern area does not provide such a space to arrange the new city.
 - (b) The new city is expected to become a regional core in the northern part of Veracruz State with a prospective population of 400,000. While dispersed developments will not ensure the merits which the concentrated development can promise.
 - (c) A concentrated development shows better investment efficiency.
 - (d) Since a development in the northern area means city development adjacent to the existing Tuxpan urban area, that is, to create a new city of 400,000 right next to the existing city of only 40,000, it is easily predictable that demerits will be far greater than merits.

As to a possible environmental problem you pointed out, we explained it on p. 244 to 251 in the Report.

Lastly, we compare the geographical relations between the industrial district and the new city in Tuxpan with other industrial port projects case in your country and Japan. In case of Kashima Port in Japan, the samples collected at observation points within 5 km from industrial district have safely cleared the required level of the SOx Concentration Standard. In Lazaro Cardenas a steel work SICARTSA is located at about 5 km from the new city while a petroleum refinery PEMEX in Altamira is located at about 10 km to the new city. In Ostion and Sarina Cruz the new cities are located about 5 km and about 3 km respectively from industrial districts. In case of Tuxpan Industrial Port, the new city is distant 3 to 7 km from the industrial district and the area between industrial and urban district can be used for the time being as a buffer zone, we can conclude that environmental problems would not happen.

- (2) We are fully aware of the importance and necessity of an overall river development plan in the future, and also aware of the necessity to make a river investigation. We already mentioned the importance of the former on p. 236 but no mention in the latter, so we will add some expression on the subject.

As to influences of the Tuxpan Industrial Port Development on the river flood, we are afraid of two kinds of influences, one is a decrease of the retarding basin volume and the other is an increase of the run-off coefficient. We intend to provide brief comments on these subjects under the section of "Environmental Planning" in the coming Draft Final Report.

2-1 SECOND Comments

(1) Comments from CNCP

DIRECCION GENERAL DE PUERTOS INDUSTRIALES "DIRECCION DE ESTUDIOS E INFRAESTRUCTURA"

COMENTARIOS AL REPORTE INTERMEDIO (II) DEL ESTUDIO SOBRE EL PROYECTO DE DESARROLLO DEL PUERTO INDUSTRIAL DE TUXPAN.

- 1.- Sería conveniente, antes de la presentación del Reporte Final, llevar a cabo una revisión de la información utilizada para el estudio dado que, como se aclaró en la introducción del mismo, los Pronósticos tanto de Crecimiento Económico como de Desarrollo Industrial basados en los Planes de Desarrollo Industrial y Global de Desarrollo han perdido vigencia dada la situación actual por la que atraviesa el país.

Asimismo, cabe recordar que como consecuencia, los programas de inversión federal y las demandas de instalaciones industriales también se han visto afectadas, aún en los puertos ya iniciados. Por lo que el desarrollo del Puerto Industrial de Tuxpan, tanto en tiempo como en su dimensionamiento podría variar substancialmente.

Dadas estas premisas y en vista de la presentación del reporte final esta Coordinación estará en condiciones de proporcionar a la OCDE los resultados de los Pronósticos de Tráfico actualizados para el mes de julio de este año. Anexamos el Plan Nacional de Desarrollo recientemente dado a conocer por el Gobierno Federal con objeto de que el proyecto de desarrollo del Puerto Industrial de Tuxpan incluya datos actualizados y tenga una perspectiva real respecto a la situación actual del país.

- 2.- Respecto al proyecto, en él se explica que se ha considerado que la margen izquierda del Río Tuxpan no sería adecuada para un desarrollo portuario dada la ocupación existente (PEMEX, aeropuerto y zona urbana). Sin embargo, cabría una explicación a detalle de los motivos por los que no se consideró como una de las alternativas de localización del puerto, una que aprovechara las obras de dragado y escolleras con que cuenta el puerto actual. Es decir, la utilización de la entrada del Puerto de Tuxpan para que, de este modo, además de utilizar infraestructura existente, haya una liga o se establezca una relación entre lo que ya está construido y el Puerto Industrial propiamente dicho.

DIRECCION GENERAL DE PUERTOS INDUSTRIALES
"DIRECCION DE ESTUDIOS E INFRAESTRUCTURA"

- 3.- Las áreas de protección ecológica aparentemente resultan insuficientes, si se revisa la localización de la zona urbana propuesta con respecto al sitio del Puerto Industrial y aún del puerto existente considerando que los vientos dominantes provienen del norte y noreste.
- 4.- El análisis de la zona urbana actual denota carencias de infraestructura y equipamiento, pero se debería considerar la posibilidad de subsanar esas carencias en una primera etapa y posteriormente pensar en una nueva ciudad.

Ade más, se habla de la necesidad de una nueva ciudad a partir de la población estimada para el año 2000, y se trata de una ciudad independiente de la actual en cuanto a funcionamiento se refiere, ya que no se contempla la relación que habrá entre una y otra ni tampoco se propone algún tipo de infraestructura y/o equipamiento que complementa la ciudad actual.

- 5.- El área estimada para desarrollo urbano es de 5200 has. y la de desarrollo industrial es de 1000 has. además de 2400 has. correspondientes a dársenas, vialidades y áreas verdes. ¿Es correcta esta asignación de superficies? En todo caso, sería muy conveniente una justificación detallada de la determinación de dichas áreas.

(2) Comments from SDUE

1.- Se observa en general que el informe contiene una amplia y minuciosa recopilación de datos sobre la zona de Tuxpan, así como una documentación y análisis amplio de insumos para el puerto industrial. Esa información, sin embargo, no es suficientemente utilizada en el desarrollo del estudio, sobre todo en las soluciones propuestas. El número de errores en la nomenclatura en español, así como el uso incorrecto del idioma inglés, dificulta mucho la comprensión del documento.

En seguida se presenta, en el mismo orden en que se desarrolla el informe, las observaciones, objeciones y comentarios de esta dependencia al estudio:

2.- P.15 Fig. III-1-5 No hay información en absoluto sobre tierras agrícolas de riego existentes ni propuestas, siendo que la agricultura es un importante renglón productivo de la región y que en la actualidad se trata de dar impulso al desarrollo agrícola en todo el país.

3.- p.75 Fig. III-4-(1) La zona de influencia (hinterland) de Tuxpan en este dibujo aparece muy grande incluyendo los estados de Tlaxcala y Puebla y no es congruente con el penúltimo párrafo de la p.67 en que se asevera que ese "hinterland" es pequeño y limitado.

4.- p.31 Fig. III-5-(3) En lugar de utilizar en alguna forma los cuerpos de agua existentes: la zona costera y el río de Tuxpan, como se ve claramente en esta figura, inmediatamente se propone utilizar las zonas pantanosas y la agrícola-ganadera para el puerto industrial y la nueva ciudad.

5.- p. 37 Tabla IV-I-(5) El incremento del índice de crecimiento del producto interno bruto per cápita del Estado de Veracruz y del "Área de Desarrollo" de 1970-80 a 1980-88 de casi 1000 por ciento, no está suficientemente explicado.

6.- p. 90 párrafo 4. La "armonía con actividades primarias" no se encuentra reflejada posteriormente en todo el estudio.

- 7.- p. 95 Fig. (V-2)-(2) La red carretera de la región no parece suficientemente estudiada, falta un eje costero y/o libramiento costero, más una carretera de importancia a México. En este esquema se propone solamente un mejoramiento de la existente.
- 8.- p. 108 al 127 El minucioso estudio topográfico y de suelos se hace sobre un área pre-definida en que finalmente se implantó el proyecto del puerto industrial, no hay introducción explicativa al respecto. Las "alternativas" de localización del puerto se presentan casi al final del informe.
- 9.- p. 151 párrafo 3 Se menciona aquí la utilización de recursos hídricos de la presa planeada por la Secretaría de Agricultura y Recursos Hídricos en el río Tuxpan, lo que produciría unas 50.000 has. de riego sin mencionar la localización de esas tierras, su impacto en la economía de la zona ni nada más al respecto.
- 10.- p. 149 Tabla VI-I-(7) No se informa cual es el origen de las normas empleadas para calcular el área necesaria por trabajador en las distintas industrias.
- 11.- p. 161 Fig VI-I-(6) Nuevamente, a priori se presenta un plano con la distribución de industrias a alojarse en el puerto, antes de tratar las alternativas de localización del mismo.
- 12.- p. 169 Párrafo incomprensible.

13.- p. 189

Debido al proyectado aumento de población (460 000 habitantes en el año 2000), se infiere sin ninguna otra consideración que se necesita construir "una nueva ciudad en un nuevo sitio", e inmediatamente se pasa a seleccionar el sitio de la nueva ciudad.

Ya habiendo decidido que se necesita una nueva ciudad en un nuevo sitio, se formulan unos "aspectos de evaluación" para seleccionar el sitio adecuado.

Algunos de estos "aspectos" para la selección, aparecen de poca importancia como el de "confortabilidad" y no se incluyen otros más esenciales -- como costos, disponibilidad de tierra para desarrollo urbano, o la preservación de tierras agrícolas.

15.- p. 190

Después se toman en consideración 3 factores:

- Cercanía al nuevo puerto industrial
- Disponibilidad de terreno plano
- No contravenir la evaluación previa

En esta forma se hace la selección del sitio que produce 2 alternativas "buenas" y de ellas se elige la "9".

Todo este procedimiento de evaluación del sitio para la nueva ciudad se hace habiendo decidido de antemano el sitio para el puerto industrial. En nuestra opinión es aquí en donde el estudio presenta su parte más débil al no haber tomado en cuenta en lo absoluto la existente ciudad de Tuxpan, la utilización de su infraestructura urbana, sus posibilidades de crecimiento y desarrollo y su integración al puerto industrial.

p. 192

En general ni el sitio del nuevo puerto industrial ni el de la nueva ciudad (alternativa D) son inadecuados, pero existen las siguientes observaciones:

A pesar de que la nueva ciudad está casi contigua a la vieja, mediando solo el río Tuxpan entre una y otra, no se pensó en integrarlas de manera que la nueva ciudad fuera un crecimiento y ordenado desarrollo de la ciudad actual. Es de nuestra firme opinión que ésto debería ser así.

16. - p.211 Fig. VII-1-(4) Plano de Uso del Suelo del Puerto y Nueva Ciudad.

La actual ciudad de Tuxpan no está mencionada en la simbología, su área está marcada como "instalaciones médicas".

El uso de una enorme franja de más de 2 km. de ancho entre puerto y nueva ciudad no está definido. En caso de ser un área verde de protección, es demasiado ancha y deberá definirse y reducirse.

17. - p. 221 Fig. VII-1-(11) La vialidad del conjunto aparece muy conflictiva.

1)- La arteria central entre puerto y nueva ciudad resultaría congestionada con cruces y conexiones peligrosas.

2)- Debe proveerse un libramiento: quizás la ruta L para el tráfico de norte a sur, que no desee pasar por la ciudad y/o el puerto, ni por la vieja Tuxpan.

3)- La ruta F debe prolongarse hacia el sur para no pasar por la nueva ciudad, si del puerto se desea ir a Veracruz por ejemplo.

18. - p.229 Fig. VII-1-(14) Las rutas de autobuses son insuficientes, la trama deberá ser más densa sobre todo en el sentido oriente-poniente. Con la trama propuesta, hay casos en que el usuario tendría que caminar más de 2 km. de su casa o trabajo a la parada más cercana del autobús.

19. - p. 205 La densidad bruta propuesta de 65 h/ha para la nueva ciudad es muy baja y deberá incrementarse a por lo menos 120 h/ha.

20. - p.206 Tabla VII-1-(10) Hace comparación de densidades en ciudades de países muy desarrollados: Inglaterra, Estados Unidos y Japón. Esta comparación no aplica a países como México.

21. - p. 201, 262 así como 205 y 206 La dotación de espacios abiertos, parques, deportes, lotes de juego y jardines es muy alta (esto abate mucho la densidad que menciona en el párrafo anterior) siendo del 30%, sin considerar que la ciudad se encuentra en una región rodeada de vegetación y cercana al mar. Esta dotación de espacios verdes debe reducirse a un 10% como máximo.

22.- p. 313, 315 y 317 Figs. VII-2-19, 20 y 21. De las alternativas presentadas para la distribución del puerto, la B es la más adecuada, aunque como se menciona en párrafos anteriores, el sitio haya sido determinado a priori. Sin embargo hay una objeción a esta alternativa de distribución del puerto:

23.- Se ha dejado una extensa área sin usar, de más de 2 km. de ancho entre el río Tuxpan y las instalaciones portuarias, quedando además por ello, el muelle de contenedores y el de productos alimenticios muy alejados de las instalaciones principales, lo que ocasiona una duplicación de accesos carreteros. Es de nuestra opinión que conservando el esquema de esta alternativa, se utilice el área mencionada para instalaciones del puerto.

p. 346 y 355 Figs. VIII-2-1 y VIII-3-3. Es muy grande el área propuesta a desarrollar a corto plazo (1988) tanto de la nueva ciudad como del puerto industrial en el número de años de que se dispone (5) y de la crítica situación económica por la que atraviesa nuestro país. Las fases de desarrollo de una y otra deberán recalcularse y reducirse proporcionalmente.

Otros ejemplos de pequeños errores que es preciso mencionar:

24.- p. 15 Tabla 2.2 Error mecanográfico?

25.- p. 45 Primer párrafo: Incomprensible.

26.- p. 55 Penúltimo párrafo: Incomprensible.

27.- p. 65 Primer párrafo: Incomprensible.

2-2 Reply to the SECOND Comments

(1) Reply to the Comments from CNCP

1.- In the Draft Final Report, we will correct the forecast values of GNP as a trend case using actual economic growth rate from 1980 to 1982 and prospect shown in the National Development Plan from 1983 to 1988. However, the Plan will be drafted according to the Plan Global Desarrollo and Plan Nacional de Desarrollo Industrial because of the reasons below.

1) The new plans so far disclosed up till now are the Medium and Long-Term Economic Adjustment Plan (1983-1985) and National Development Plan (1983-1988) (disclosed May 30 1983)

which are restricted to short term prospects of economic growth and do not include values till 2000.

2) Under the National Development Plan, there may be formulated a series of new subordinate plans such as industrial development and urban development plan. In reviewing of the Report, values of such subordinate plans are necessary.

3) It is considered to be advantageous to postpone the review of the Report until the economic situation is settled to permit more exact prospect of the future.

4) So long as the present Project is concerned, it is not conceivable to start the work in one or two years after the study. Also, as may be described in the coming report, it is considered that the short-term plan target year 1988 will be shifted to about 1995. Therefore, review of the Plan had better to be made about 4 to 5 years later. We will, of course, consider the result of the "Forecast

of Traffic" to be submitted from you by July, but we will not revise the Plan upon the forecast. Because in addition to the foregoing items 3) to 4), there is not much time to revise the Plan.

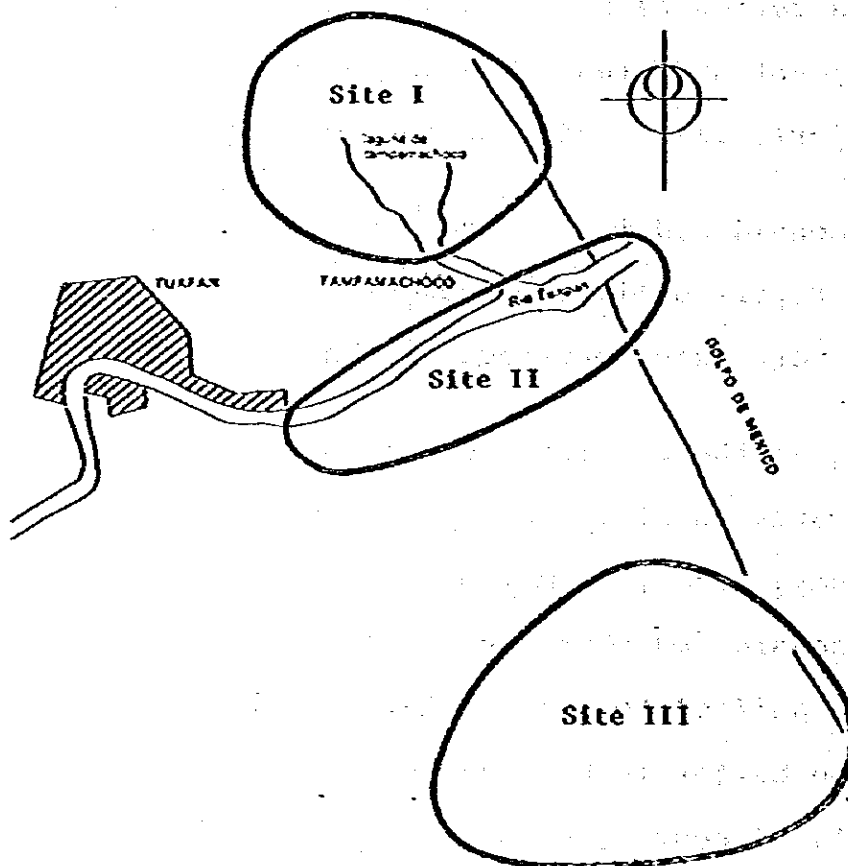
2.- (1) We understand that there are three alternative for Tuxpan Industrial Port location, viz.

Site I: To use the Tampamachoco lagoon in the north of the Tuxpan river

Site II: To use the Tuxpan estuary and excavate in the south (right bank) of the Tuxpan river

Site III: Point at about 11 km in the south of the Tuxpan river

as shown in the figure below.



(2) However, when the Preliminary Survey Team on the Project dispatched by Government of Japan visited Tuxpan in April 1982, SCT had already reduced only to Site III and had been conducting field surveys.

In response with the mission's question, SCT personnel concerned stated the reasons as below;

1) For the Site I, a survey of natural condition such as waves, tidal levels, wind, soil, topography and littoral drift was carried out in 1975-1976.

2) SCT had an intension to develop the north side of the Tuxpan river as a tourist site or residential area.

3) From the point of view of traffic with Mexico City, construction of a bridge over the Tuxpan river is indispensable, and this means a cost increase.

Under such circumstances, we proposed to exclude the Site I (north of the Tuxpan river) from the objectives giving due consideration to the opinions of the Preliminary Survey Team and the facts that

1) Tampamachoco lagoon is rich in fishery resource and also a scenery resource so that it is to be preserved,

2) It is of soft foundation (not suited for large plants),

Our proposal was agreed by the Mexican side as the approval with our Inception Report, July 1982.

(3) Such circumstance mentioned above will be added newly in the coming Draft Final Report.

(4) Next, for the use of the Tuxpan river left bank, we also consider that an adequate use is desirable. However, the region from the outlet of the Tampamachoco lagoon to the river mouth is already under the use of PEMEX so that the land use will be restricted so much. The upper stream from the outlet of the Tampamachoco lagoon has only a pier for SCT dredgers and a facility of Club de Pesca.

(5) However, we consider that this area waterfront be left conservative as much as possible so that it will give a new expansion space of the port after completion of the new industrial port. The reason is as follows;

1) The present channel (60 m bottom width and 8 m depth) is dredged about 700,000 m³ in a year so that when the channel is expanded in width and depth, siltation will incidentally increase.

2) Furthermore, as stated above, the Tampamachoco lagoon is used for fisheries and distinguished in the scenery so that the surrounding of the lagoon is to be conserved without development for the time being.

3.-(1) The effects of the industrial complex on the new city environment are described in detail in the Reply to the

Former Comments, II (from SARH) (1).

4.-(1) Please refer to the Reply to the Former Comments, I (from SEDUE), preface (a).

(2) The new city which will accommodate the estimated population in 2000 will be vast and has a number of facilities inside. Therefore, a period of 10 to 20 years will, of course, be required from planning stage to implementation and completion of the new city. It is, therefore, important for your country to initiate the survey from now on.

5.-(1) For the area of the urban development, please see the Reply to the Former Comments I, preface.

(2) For the area of the port and industrial development, the scale mentioned in the Report is considered to be necessary.

(2) Reply to the Comments from SDUE

We appreciate your careful examination on the Report and numerous valuable comments.

- 1.- We believe as you pointed out, so we will try to improve the Report as much as possible.
- 2.- Fundamentally, we are for your opinion. Regrettably, we were unable to obtain a detailed land use map in the vicinity of the project site. As you know, a vast land is required for industrial port development. It is a problem to which the priority is given of an industrial port development (new town formation) or the use of the land as it is (that is, agriculture, forestry or stockfarming).
Considering from our limited data and restricted field reconnaissance, the project site is comprised mainly of pasture land and is not a highly productive land.
- 3.- The English expression will be corrected to avoid misunderstanding.
- 4.- Reply has already been made in 1, 5. of the Reply to the Former Comments.

5.- It seems that the share of the Veracruz state in the original data has a problem. We will insert a "Note".

6.- Some consideration has been made in the green space of the environment planning in the Report. Specifically, the "natural green space" has been set with an intention of conserving the farm land. You pointed out in Comment-21 that the area of the parks and green space would be excessive. But, such is the result of the consideration that the excellent farm land should be maintained as a "green space to be conserved".

7.- As stated in I, 13 of the Reply to the Former Comments.

8.- A statement similar to that referred to in I, 2. stated before will be added in the Draft Final Report.

9.- Here, the possibility of water supply which is indispensable for the Project is examined. If there is any other project which requires fresh water considerably, it will be necessary to arrange water use between these projects. Location of the irrigation project and impact on the regional economy are, of course, important by themselves, but it will not be

necessary to refer them in the Report.

10.- The land area and labor force of the respective plants are calculated according to the scale of production. The bases of the calculation are the typical cases of plants in Japan, example of a model plant examined in Japan and cases of major plants in Mexico as referred to in page 150 of the Report. The cases taken for reference will be added in the coming report.

11.- Plan B is taken up to show the plant zoning of industries. Similar zoning are also possible for Plans B and C. In Chapter VII - 1, in the Draft Final Report, the principle of the plant layout will be added, and a model plan of layout will be shown. Upon such model plan, the plant zoning will be listed in the section of port planning in the Draft Final Report.

12.- The sentences will be improved.

13.- Please see the Reply to the Former Comments. I, premises, 2, 3 and 6.

14.- (1) These three items show the criteria for selection of alternative sites A through E and not the criteria for selection of the new city site. Please refer pages 189 through 196 of the Report.

(2) Our concept on the urban planning was stated in the Reply to the Former Comments.

15.- Please refer to the Reply to the Former Comments.

16.- (1) As you pointed out, this is a printing error. We will correct it in the Draft Final Report.

(2) It is the land for industrial plant expansion in the future. Actually, it will function, for the time being, as a buffer zone for environment conservation. As a buffer land, it will by no means be large.

17.- (1) As stated in page 220 and 221 of the Report, the intersections 1, 2 and 3 are of elevated cross-sections so that the problems you pointed out will be resolved.

(2) According to the road plan of your country, a bypass will be constructed so that the National Route 180 will not run through the existing urban area of Tuxpan. It seems to be a good idea, we will correct the figure.

(3) As already stated in I, 13 for the Former Comments.

18.- The bus line has been proposed as an example. Actually, a number of bus lines will be installed depending on the layout of plants in the industrial zone and the development phase of the residential zone so that the problem you pointed out will not occur.

19.- Please refer to I, 9 of the Reply to the Former Comments.

20.- As stated in the Reply to the Former Comments.

21.- Out of the area of 1,818 hectares for the park and green space, the park area is 671 hectares. The basis of calculation is shown in page 257 through 261 of the Report. The park area is 10.8 percent of the whole area of the new city and is not at all excessive. The green space (1,147 hectares) includes 485 hectares of space in addition to the green space for buffer, green space for shelter and green way. Such a big space is set for conservation of farm land and landscaping for the purpose to keep the green land as it is. Accordingly, the area of the park and green space is by no means excessive.

(2) In executing the Project, there will be many choices for realistic processing such as keeping the green land as it is or delaying the development of some regional and neighborhood parks. But, acquisition of the land is required from the first stage.

22.-(1) The circumstances of selecting the industrial port site will be added in the Draft Final Report.

(2) The unused land located between the Tuxpan river and the proposed new port is designed for future expansion space after construction of the new industrial port because of the following reason.

1) The most part of the area which is comprised of the mangrove forest and swamp has a function as a retarding basin of the Tuxpan river flood.

2) As the result of a soil survey (although the data are not complete), there is a thick soft layer in the ground and bearing layer exists deeper than 25 m from the surface. Then, depending on the facility, the soil improvement is required so that the increasing construction cost is unavoidable.

(3) Thus, it was considered that the overall use plan should be considered after the completion of the Project. But in order to meet the requirement in near future, we have

proposed to construct a container berth and general cargo berths for the time being by improvement of existing berth. For this purpose, breakwaters extension and deepening of the channel are required in addition to annual maintenance dredging.

23.- As stated above in I, 1. the short-term plan will be delayed more or less from the target year of 1988. However, in the port planning, it is necessary to secure the planned area for wharf and industrial plant from the first stage taking into account the master plan.

For the new city, please refer above I, 4.

24.- This being a miss-typewriting, we will correct it.

25.- Formerly existed, but now the rails are removed.

26.- We will rewrite the sentence.

27.- We will improve the paragraph.

3-1 THIRD Comments
(1) Comments from FONDEPORT

31 de mayo de 1983.

OPI- 198

7488

ING. GUILLERMO MACDONEL MARTINEZ,
Director General de Puertos Industriales
de la Comisión Nacional Coordinadora de Puertos.
Av. Insurgentes Sur # 617 2º piso,
México D.F.

Con relación a su solicitud de enviar a esa Dirección los comentarios que - FONDEPORT tuviera sobre el informe presentado por la compañía japonesa O.C. D.I., el pasado 14 de marzo del año en curso, relativos al Plan Maestro del puerto industrial de Tuxpan, Ver., por medio del presente hago mención a -- los mismos:

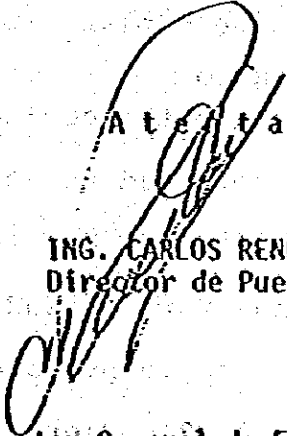
1. Dado que las condiciones actuales de la economía nacional, los programas de inversión pública y las demandas reales de instalación de industrias han cambiado drásticamente en los puertos industriales ya iniciados (Lázaro Cárdenas, Altamira, Ostión y Dos Bocas), se ve la necesidad de realizar una actualización de las proyecciones de la demanda en el puerto de Tuxpan.
2. Como resultado de los costos constantes de dragado debidos a las instalaciones industriales y de otro tipo ya existentes, se amerita el desarrollo de industrias en los márgenes del río, pudiendo esta implementación formar parte de la primera fase evolutiva del futuro puerto y funcionar como elemento de liga con las instalaciones actuales.
3. En el reporte no se ven visualizados claramente los criterios empleados para definición de:
 - a) Infraestructura vial y ferroviaria: Faltan elementos de juicio para determinar las distancias mínimas y/o máximas de estas redes con las dársenas; la aparición por etapas de estos servicios; los requerimientos de una estación local de FF.CC. dentro del puerto; el dimensionamiento de las secciones viales y los criterios de ubicación, dentro de las mismas, de los diferentes servicios de infraestructura, equipamiento, etc.

- b) **Zonificación:** En las diferentes alternativas se aprécian cambios sustanciales en los criterios de zonificación, no mencionándose la compatibilidad entre los giros industriales, la aparición por etapas de los diferentes tipos de zonas industriales, las relaciones de áreas entre las mismas; los criterios para la definición del tamaño y ubicación de la industria de apoyo así como su relación con la gran industria, etc.
- c) **Implementación de servicios por etapas constructivas:** No se menciona la introducción por fases secuenciadas de los diferentes servicios de infraestructura. Sólo se contempla una propuesta para desarrollo a corto plazo (Fig. 3 (3)), mas no se justifican dimensiones, ubicación de las diferentes áreas. Así por ejemplo, se ve en esta propuesta que para desarrollar la 1a. etapa, se tendría que dragar casi la totalidad de la longitud de las dársenas y se debería construir la mayor parte de los servicios de infraestructura hasta llegar a todas las zonas de la misma.
- d) **Dársenas:** No se explican claramente las razones técnicas para la orientación de las dársenas con respecto a los vientos dominantes en cada propuesta. Además, dado el alto costo que representan las escolleras, se requiere prever la flexibilidad de crecimiento de las dársenas, lo cual no se visualiza en el estudio.
4. La relación y liga de la alternativa elegida (así como de las propuestas), con el puerto actual de Tuxpan no se contempla. Así pues, derivado del análisis realizado en la zona urbana actual, que demuestra carencias de infraestructura y equipamiento, resulta más justificable en una 1a. etapa, la extensión de las nuevas áreas urbanas sean contiguas a la zona actual, en vez de utilizar lugares donde no existe ningún servicio. A largo plazo se justificará desarrollar nuevas áreas urbanas cercanas a la zona del puerto industrial propuesto.
5. El reporte no cuenta con información sobre tenencia de la tierra, por lo que los límites mostrados tanto para la zona urbana como industrial y ecológica, resultan teóricos, sin ningún realismo.
6. No se explican los criterios que se siguieron para determinar el ancho que se le dió a la zona perimetral de reserva ecológica (200 mts.); que al parecer es demasiado angosta comparándola con las que han resultado de diferentes estudios al respecto en otros puertos.

7. Es cuestionable cierto tipo de usos industriales dentro del puerto industrial propuesto (p.e. refinería), dado que el régimen de propiedad sería en renta. Así pues, contando PEMEX con reservas territoriales fuera del futuro desarrollo, no es muy factible que rentara una gran extensión dentro del puerto.

Sin otro particular por el momento y en espera que los comentarios mencionados sean de utilidad en las consideraciones que se hagan en el reporte final del Plan Maestro, quiero aprovechar el presente para enviarle un cordial saludo.

A t e s t a m e n t e


ING. CARLOS RENDON ALATORRE
Director de Puertos Industriales.

c.c.p.: LIC. OSCAR REYES RETANA, Director General de FONDEPORT.
ING. AUGUSTO SUAREZ ORTEGA, Subdirector de Planeación y Proyectos.

CRA/ASO/FDLFG/hgm

3-2 Reply to the THIRD Comments

(1) Reply to the Comments from FONDEPORT

General

- (1) Since some of your comments which you sent us are beyond our comprehension, we would like to reply after receiving a more detailed explanation.
- (2) As is written in the coming report [Draft Final report, hereinafter referred to as the DF report], the objectives of the present study are to formulate a master plan for the Industrial Port of Tuxpan with the target year around 2000, as well as to prepare a short term plan for the period up to 1988. Therefore, a stage plan for other years is out of consideration.
Such a stage plan is to be dealt with as Detailed Design following the present study.

Reply to the comments

- 1.-(1) We quite agree with your opinion.
- (2) As we have already replied to the 2nd comments I.1, the report will have to be reviewed in some years, when the Mexican economic situation has settled down.
- (3) In the DF report, we made a short study of how the recent Mexican economic difficulty will affect the project's implementation.

2.- (1) We cannot fully understand the meaning of the comments.

(2) It may be more economical to locate the industrial plants on the Tuxpan river banks if the industrial development scale remains small.

(3) However, once your country aims at developing this area on a fairly large scale, as is projected in the Report, it seems impossible from an aspect of space to locate all the industrial plants only along the Tuxpan river.

(4) Moreover, industrial development on the Tuxpan river banks will cause following problems.

(a) Environmental bad effects to the existing Tuxpan urban area.

(b) Increase of the channel siltation volume in the port (Tuxpan river).

3.

(a)-(1) Some part is not understandable.

(2) Stage construction plans for the roads and the railway are out of the scope of the present work as described above.

(3) Dimensions of the port road and road network are shown on pages 220 - 227, Fig. VII-2-(5) and Fig. VII-2-(12).

(b)-(1) We cannot completely grasp the meaning.

- (2) In the DF report, we added some description of the following items.
- (i) Requirements of the project site from view point of industrial locations.
 - (ii) Points to be taken into consideration in plant arrangement.
 - (iii) A plant layout model in the industrial complex.
 - (iv) Examples of plant scale in Japan and Mexico.
- (c)-(1) A stage plan is out of consideration as already explained.
- (2) The short-term plan should not be regarded as a plan to be realized by the target year 1988, but a stage plan towards the master plan [A little more detailed explanation is added in the DF report].
- (3) The excessive progress of the port construction work you pointed out is resulted from the following reasons.
- (i) Port facilities have to be developed in advance of other infrastructures.
 - (ii) Canal dredging will have to be executed in the early stages because of the need for the acquisition of land reclamation sand as well as port utilization.
- (d)-(1) It is an important aspect of port planning to consider the relation between the direction of the mooring facilities and that of predominant wind.

However, no special problem will occur in this case.

(2) It is indispensable to construct breakwaters for the safety of the port and for the improvement of its operation. As you pointed out, it is very expensive to construct them, so it is necessary to make a thorough study before deciding their layout.

(3) Regarding the wave height in the port under both the master and the short-term plans, their simulation results are described in the DF report.

Also, the layout of breakwaters and the determination of their cross section are referred in CHAPTER XIII to as matters to be investigated hereafter.

4.-(1) We have been careful to make the best use of the existing port of Tuxpan, by planning to improve the existing port facilities and construct a new container berth.

Other port facilities which are unlikely to be constructed in the existing port area will be arranged in the new port. (This point is referred to in the DF report)

(2) Although your comments on the site for the new city are very understandable, we have studied in the DF report the possibility of developing the new city at the area surrounding the existing city in accordance with the strong requests of SUDUE, SARH, etc.

5.-(1) We agree with what you pointed out.

- (2) We could not obtain any data on the ownership of land at the development site. It has been understood by CNCP that no consideration was taken of this land ownership.
- (3) The necessity of a land register survey was referred to in CHAPTER XIII of the DF report.
- 6.- (1) The 200-meter width of buffer zone green space was decided according to previous Japanese experience. (CF. the 200 - 500 meter width in Altamira)
- (2) No environmental problem can occur because the wide space for future expansion of industrial plants and port will be used for the time being as a buffer zone.
- 7.- Your comments are not really understandable to us, so we would like to reply after hearing your further explanation of them.
- In this respect, a possible solution is to exchange some land inside the development site for the land on the lefthand side of the Tuxpan river, which PEMEX acquired for its future expansion.

4-1 FORTH Comments

(1) Comments from CNCP

COMENTARIOS AL REPORTE FINAL DEL ESTUDIO DE DESARROLLO DEL PUERTO INDUSTRIAL DE TUXPAN POR PARTE DE LA COMISION NACIONAL COORDINADORA DE PUERTOS.

- (1) El incremento en los costos de las tarifas portuarias es una forma adecuada de hacer rentable el proyecto, además de que es urgente debido a lo bajo de las mismas. Sin embargo sería conveniente el contemplar en el análisis financiero, los ingresos de la renta de los terrenos portuarios en un radio de acción determinado por el uso de muelles, características del tipo de industria, etc.
- (2) Debido a los altos costos que implica un proyecto de la naturaleza del Puerto de Tuxpan, es contraproducente para la política económica del país, seguir creando y fomentando obras que impliquen un subsidio eterno. Por lo que será necesario buscar otras formas de financiamiento del puerto, que permitan hacer rentable el mismo.
- (3) En la tabla III-4-(14) y III-4-(5) del tráfico de importación y exportación de carga, se indica que el puerto de Tuxpan sirve al estado de Jalisco en un porcentaje importante sobre cualquier otro puerto; sin embargo en la figura VI-2-(2) se muestra a este estado fuera del área de influencia del puerto de Tuxpan, que razones se tienen al respecto.

El crear una zona de empleos, obliga la construcción de área habitacional e infraestructura urbana, aeropuerto nuevo, puerto pesquero nuevo. No sería más conveniente actualmente para el país, adecuar el área pesquera, así como apoyar convenientemente el crecimiento de la ciudad de Tuxpan y ampliar las instalaciones del aeropuerto actual
- (4) Sería conveniente se indicara al final del trabajo, el índice bibliográfico y el origen de las fuentes de información investigadas.
- (5) Con relación a la impresión del trabajo, en la figura Y-3-(1) se muestra un mapa topográfico, en el cual no se indica la curva de nivel correspondiente, sería conveniente que éstas se indicaran.

Además en el desarrollo del trabajo se tienen los siguientes errores de escritura o impresión.

capítulo	página	línea	está escrito	debe decir
Sumario	4	1 B	compenido	Compendio
	39		præλ ʒæoq ʒæsiŋɔɔ	Cruiser boat yard
1	5		Bogas	Bocas
	9	3 B	1983	1982
3	48	1 B	Compenido	Compendio
	72	9 B	Cincontépec	Chicontepec
4	107		Paza Rica	Poza Rica
7	295		SABOP	S.A.H.O.P.
	305,306		præλ ʒæoq ʒæsiŋɔɔ	Dinghy yard
	378, 379		La numeración de las páginas es incorrecta	
11	449		B/C=0.46	B/C=1.05

(2) Comments from SARH

OFICIO NUM. 105.2.c-56/83

México, D. F., a 21 de septiembre de 1983.

C. ING. GUILLERMO MACDONEL
DIRECTOR GENERAL DE PUERTOS
INDUSTRIALES DE LA C.N.C.P.
INSURGENTES SUR 617 - 3er. PISO
MEXICO, D. F.

ME REFIERO A SU ATENTO D.I.-059/83, DEL 19 DEL MES EN CURSO, MEDIANTE EL CUAL SE SIRVE SOLICITAR SE LE PROPORCIONEN LOS COMENTARIOS QUE TENGAMOS CON RESPECTO AL INFORME FINAL PREPARADO POR LA AGENCIA INTERNACIONAL DE COOPERACION DE JAPON (JICA) Y QUE NOS FUERA ENTREGADO EL 31 DE AGOSTO ANTERIOR.

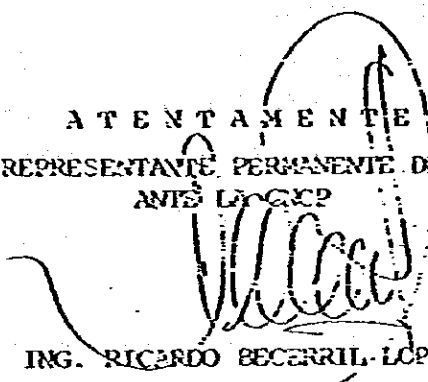
REVISANDO LO CONTENIDO EN LA PARTE 4 DEL CAPITULO V QUE SE REFIERE A LOS RIOS QUE INCIDEN EN EL DESARROLLO DEL PUERTO INDUSTRIAL DE TUXPAN, VER., SE PUEDEN HACER DE SU DISTINGUIDO CONOCIMIENTO LAS SIGUIENTES OBSERVACIONES:

- 1.- EN LA HOJA 149 DEL MENCIONADO INFORME, SE INDICA QUE ES POSIBLE ESTIMAR COMO VOLUMEN MAXIMO ANUAL DE AGUA APROVECHABLE DE LOS RIOS TUXPAN, CAZONES Y TECOLUTLA, EL DE 6 MIL MILLONES DE M3, CONSIDERANDO PARA ELLO LA CONSTRUCCION DE 37 PRESAS DE USOS MULTIPLES. EN VISTA DE LO ANTERIOR, SERIA MUY CONVENIENTE, DE SER POSIBLE, SE NOS BRINDARA MAYOR INFORMACION ACERCA DE LA PROCEDENCIA Y CALCULOS EFECTUADOS PARA DETERMINAR ESE VOLUMEN MAXIMO APROVECHABLE, LOS SITIOS DONDE SE HAN CONSIDERADO LAS PRESAS QUE SE MENCIONAN Y LOS VOLUMENES DE ALMACENAMIENTO DE CADA UNA DE ELLAS.
- 2.- EN LA HOJA 340 DEL SUSODICHO INFORME, EN EL INCISO 2 SE DA A CONOCER QUE LA CONSTRUCCION DE LA PLANTA TERMOELECTRICA EN "CHILE FRIO" PROVOCARIA EL AUMENTO DEL AREA TRANSVERSAL DEL RIO TUXPAN, POR LO QUE ESTE FACTOR TENDRIA UN EFECTO VENTAJOSO EN CONTRA DEL DESBORDAMIENTO DEL RIO. LO ANTERIOR NO HA QUEDADO DEBIDAMENTE CLARIFICADO, POR LO QUE SE RUEGA MAYOR INFORMACION AL RESPECTO, SOBRE TODO SI SE CONSIDERA QUE DICHA PLANTA QUEDARIA ALOJADA DENTRO DEL AREA INDUSTRIAL Y UTILIZARIA COMBUSTIBLE PROCEDENTE DE LA REFINERIA.
- 3.- CONFORME SE MANIFIESTA EN LA HOJA 149, DE QUE EXISTE Poca INFORMACION ACERCA DE LOS FUTUROS PROYECTOS PARA EL APROVECHAMIENTO DEL AGUA DE LOS RIOS TUXPAN, CAZONES Y TECOLUTLA, SERIA

MUY CONVENIENTE QUE ESA COMISION SOLICITARA A LA SARH TODA AQUELLA INFORMACION DE NUESTRA COMPETENCIA, QUE CONSIDERE NECESARIA PARA ELABORAR EL PROYECTO DEFINITIVO DEL PUERTO INDUSTRIAL DE TUXPAN.

ESPERANDO HABER COMPLACIDO SU PETICION, QUEDO COMO SIEMPRE A SUS AMABLES ORDENES.

ATENTAMENTE
EL REPRESENTANTE PERMANENTE DE SARH
ANTE LA CGCP


ING. RICARDO BECERRIL LOPEZ

- c.c.p. C. DR. FERNANDO J. GONZALEZ VILLARREAL, SUBSECRETARIO DE INFRAESTRUCTURA HIDRAULICA. - PRESENTE.
- c.c.p. C. ING. MANUEL ANAYA Y SORRIBAS, SECRETARIO TECNICO DEL C. SUBSECRETARIO DE INFRAESTRUCTURA HIDRAULICA. - PRESENTE.

RBL/mcq'

4-2 Reply to the FORTH Comments

(1) Reply to the Comments from CNCP

I. Reply to Comments from CNCP

(1) The acquisition cost of land and the income from sale or lease of the reclaimed industrial land are, in general, to be included in the financial analysis, but they are excluded in the present study for the following reasons.

1) The study was incomplete, regarding land ownership and land compensation cost, because of the lack of information.

2) It was difficult to assess the land value of the site.

Exclusion of the land acquisition cost from the financial analysis was approved by Mexican side, through CPI.

(2) The development of the industrial port requires considerable initial investments and an enormous total investment. Therefore, for implementing this project, the constant efforts of the responsible officials and, of more importance, the introduction of low interest capital are necessary.

When the development is completed and the located plants start their operations, added values created by these plants will be large and regional development will be encouraged. In this sense, the national government in Japan favors such industrial port developments by financial measures (such as permitting the issue of bonds and recovering investments through the sale of reclaimed lands, etc.) or government subsidies for infrastructure construction such as roads, industrial water provision, and so on.

For the development of Tuxpan, such special measures as introduction of low interest capital and industrial port development funds must be considered.

(3) Table III-4-(14), (15) show import and export cargo traffic between the ports on the Gulf of Mexico, i.e. Tampico, Tuxpan,

Veracruz, Coatzacoalcos and their hinterlands. Among these ports, Tuxpan has the largest share of cargo traffic to the state of Jalisco, as you pointed out, but the cargo volume amounted to only about 10 thousand tons a year. This fact means that most of the cargo to and from the state of Jalisco is handled by the ports on Pacific coast, Manzanillo and Lazaro Cardenas. This is the reason why we excluded the state of Jalisco from the hinterland of Tuxpan port.

Under the present economic situation of Mexico, it is difficult to start construction of the new infrastructures related to the project. Also in the early stage of the Tuxpan industrial port development, the existing infrastructure must be utilized properly.

But it is absolutely necessary to start new construction of the infrastructures at some stage of development conforming to the economic situation of the country. The effects of these construction investments are expected to be considerable.

- (4) We will list all of the data collected during the survey in the Appendix of the Final Report.
- (5) According to your suggestion, we will add figures of altitude in Fig. V-3-(1). We will correct the misprints in the Final Report.

II. Reply to Comments from SARH

- (1) See Attached Reference Data-1, copy of the related article.
- (2) Concerning the power plant constructed in Chile-Frio, please refer to Attached Reference Data-2. The removal of the existing south breakwater and entrance channel enlargement at the port of Tuxpan, were suggested by Eng. Roberto Bustamente, adviser of Obras Maritimas, S.C.T. in a discussion held on the 4th November 1982. He said that these works were to be

executed along with the new construction of a tanker berth dolphin for the purpose of oil tankers up to 40,000 DWT to enter and land fuel oil for the power plant (See Attached Reference Data-3).

It is quite clear, from the hydraulic formulas, that the enlargement of the entrance channel width have a positive effect on upstream flooding.

- (3) The study team made efforts to collect data on development projects along the Tuxpan, Cázones and Tecolutla rivers which need considerable amounts of fresh water. But the results are far from satisfactory.

5-1 FIFTH Comments

(1) Comments from FONDEPORT

26 de septiembre de 1983.

156/83

OG- 299

07092

ING. GUILLERMO MACDOHEL MARTINEZ,
Director General de Puertos Industriales
de la Comisión Nacional Coordinadora de Puertos.
Av. Insurgentes Sur # 617 2° piso,
México D.F.

Con relación a su comunicado D.I./061/83 No. 00526 de fecha 19 de septiembre del año en curso, en el cual se me envía un ejemplar del borrador del Informe Final del Proyecto de Desarrollo del Puerto Industrial de Tuxpan, realizado por la Agencia Internacional de Cooperación de Japón (JICA), por medio del presente agradezco su atención y hago a usted los comentarios solicitados en su oficio respecto a dicho informe.

1. No se visualiza claramente los criterios que se tomaron en cuenta para determinar un defasamiento en el programa de 6 ó 7 años.
2. No se aprecian los elementos que se consideraron para el dimensionamiento de la zona ecológica alrededor de la zona industrial.
3. El reporte no cuenta con información sobre tenencia de la tierra, por lo que los límites mostrados tanto para la zona urbana como industrial y ecológica resultan teóricos.
4. Es difícil deducir los criterios que se utilizaron para la zonificación en las diferentes alternativas estudiadas, así por ejemplo, los astilleros en la alternativa "A", cuentan con un calado de -19 mts. y una gran extensión de frente de agua a la entrada de la dársena principal, sin embargo, en la alternativa "B", se le ubica en una zona que cuenta con -12 mts., con una extensión de frente de agua sensiblemente más reducida y ubicada al fondo de la dársena con dirección sur.

En el caso de la industria mecánica, en la alternativa "A" se propone que cuente con frente de agua y en la "B" no cuenta con él. En el caso de la industria del papel y cartón se manejan diferentes ubicaciones que hacen que los calados en sus zonas de frente de agua sean distintos, observándose además que las extensiones de los frentes de agua varían en las tres propuestas, etc.

5. No se plantea en el estudio la posible utilización y aprovechamiento de las márgenes del río para ubicación de industrias pequeñas y medianas, las cuales podrían formar parte de la primera fase evolutiva del futuro puerto y funcionar como elemento de liga con las instalaciones actuales.
6. El plan de desarrollo a corto plazo, dada la zonificación escogida, significa la construcción de casi toda la extensión de los servicios de infraestructura para poder servir a las industrias que integran a la primera etapa de crecimiento del puerto.
7. El estudio no contempla flexibilidad respecto al crecimiento de las zonas con frente de agua (dársenas).
8. Se observa que los terrenos industriales ubicados al final de la dársena con dirección poniente, no cuentan prácticamente con fondo, ya que se ven delimitados por una vialidad interna, restringiéndose la posible comercialización de una extensión considerable de terrenos con frente de agua.
9. En las secciones tipo de vialidades, mostradas en la Fig. VII-2(12), no se precisa el uso de los derechos de vía que se acotan (como bermas de servicios, banquetas, derechos de vía para torres de C.F.E., corredores de energéticos, etc.), señalándose sólo el área destinada para FF.CC.

La energía eléctrica según la figura VII-2-(16), se introduce por las vialidades, sin embargo, dentro de las dimensiones que se observan en las secciones antes mencionadas, no se presupone ninguna que pudiera alojar las torres de alta tensión de la C.F.E., que según la experiencia de los puertos de Lázaro Cárdenas, Mich. y Altamira, Tamps., han sido de 30 mts. para alojar una torre y de 42 mts. para dos. En caso de que dichas líneas de alta tensión no estén planteadas para introducirse dentro de los boulevares, sería conveniente señalar en el estudio cuál y cómo sería su introducción al puerto, para dar servicio a las diferentes áreas.

- 10 No se aprecia claramente el funcionamiento del sistema de distribución de agua al puerto cuyo consumo sería, según los datos mostrados en la página 257, de 14.34 m³/seg (526 millones m³/año = 86% para uso industrial), ya que este gasto, si se canaliza en una sola

línea de conducción, como se presupone al observar la figura VII-2-(16), representaría un tubo de gran dimensión que requeriría un tanque regulador cuya ubicación no está propuesta así como tampoco se contempla, en las secciones de las vialidades (Fig. VII-2-(12), el derecho de vía que pudiera alojar a dicha línea.

Sin otro particular por el momento y en espera que los comentarios mencionados puedan ser de utilidad en las consideraciones que hagan en el Informe Final del Plan Maestro, quiero aprovechar el presente para enviarle un cordial saludo.

ATENTAMENTE,


LIC. OSCAR REYES RETANA
DIRECTOR GENERAL DE FONDEPORT.

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ING. CARLOS RENDÓN ALATORRE, Director de Puertos Industriales.
ING. FRANCISCO MORENO DERBEZ, Subdirector de Ingeniería y Diseño.

FMD/FLÓFG/hgm

5-2 Reply to the FIFTH Comments

(1) Reply to the Comments from FONDEPORT

- (1) As was stated in the Introduction, the present Study was formulated based upon national development plans such as PNDI and PGD, in which the Mexican national economy was planned to increase rapidly. The economic stagnation which occurred after 1982 clarified that the Mexican economy cannot attain the rapid economic progress planned in the old national development plans. Although the probable delay of the target year by 6 - 7 years was obtained under some assumptions mentioned in the Report, this value may vary in accordance with the actual economic achievements in your country from now on.
- (2) We can not completely understand your comments but our stance on the environmental zone around the industrial plants was already expressed in reply II-(1), (d) to the FIRST comments.
- (3) Please refer to reply (1) to the FOURTH comments.
- (4) In Plan A, the shipyard is arranged close to the entrance of the port so as to separate ships entering/exiting the shipyard from other ships, in order to avoid traffic congestion as much as possible. It was not planned this way in order to have a -19 m water depth in front of ship-building plant. The -19 m water depth is required to allow passage of petrochemical tankers and iron ore carriers, to the iron and steel plant and the petrochemical plant arranged along the inner channel area. In Plan B, the -12 m water depth in front of the ship-building plant will allow free entry/exit of ships related to the shipyard (ships not loaded with cargo).
Water surface sufficient for rigging ships can be secured adjacent to the turning basin.

Therefore, although they seem different, Plan A and Plan B, were prepared on the same principle.

For the paper and cardboard plant, a water depth of -12.0 m is considered appropriate to berth chip carriers of 45,000 DWT class. In plan A, the -19.0 m water depth in front of the paper and cardboard plant is in consideration of berthing iron ore carriers of 150,000 DWT class at the iron and steel plant located opposite.

At the food industry complex, requiring the entry/exit of large ships of up to 60,000 DWT class, the water depth of the berth should be more than -18 m. In Plan C because of the difficulty in arranging the plants, the food complex was located in an area with a -12.0 m water depth. In Plan A and Plan B, the plants were arranged in the area of -19.0 m water depth.

(5) We agree to locating medium and small size plants on the riverbanks where, in the future, they can have the role of connecting the existing port to the new industrial port.

In this case, only the right bank of the Tuxpan river is applicable, although some facilities like COBOS (PEMEX) already exist. Even in un-used area on the right bank, if a certain width (about 500 m) is reserved from waterline for future port functions, there remains little suitable space because much of this area is covered with marsh and has poor soil conditions. However, we agree in principle to locate small and medium size plants on the right bank by selecting suitable lands.

(6) The short-term development plan may be executed as the first stage plan of the project. With regard to infrastructures, they should be planned so as to avoid duplicate investment in the second stage of the project, and to have the capacity needed to serve all the operations of the located plants.

Since it is out of the scope of the present study, we did not make a study of how to construct such infrastructures step by step in this Report, but it should be studied in the future by the Mexican side.

- (7) It is possible to extend the channel in the case where more plants than expected are located in the industrial zone. The planned channel and anchorage basin are spacious enough to allow two way traffic of ships. From the experience in Japan, this plan has sufficient capacity for the projected volume of cargo.
- (8) It is possible to secure a new commercial port zone on the west side of the channel in the far future by extending the channel (In this case relocation of roads will be required). Also it is possible to increase the cargo handling capacity of the commercial port over that of this plan. (e.g. the planned container handling capacity of 1 million tons/berth/year may be increased to 1.5 million tons).
- (9) High-voltage power scheduled to be transmitted from Chile Prio power plant is, as shown in Fig. VII-2-(16), to be fed to industrial plants and the new city area after lowering the voltage at substations.
- With regard to the method of transmission, use of common ducts instead of utility towers is planned, so the problems, you have pointed out, will not occur. But, if utility towers are to be used, because of the high construction cost of common ducts, sufficient width must be secured along the trunk roads for their construction.
- Since this plan has allowed sufficient width for the roads, securing land for erecting utility towers will present little problem.
- (10) As you pointed out, the water pipe will have a large diameter and water storage tanks for regulation will be required. Since by the nature of this study, only the basic outline of the cities is given, a detailed utility plan will be necessary for implementing the project.

JICA

