


# *FINAL REPORT*

# THE STUDY ON THE DEVELOPMENT PROJECT ON THE PORT OF BATANGAS IN THE REPUBLIC OF THE PHILIPPINES

DECEMBER 1985



JAPAN INTERNATIONAL COOPERATION AGENCY

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## PREFACE

In response to a request from the Government of the Republic of the Philippines, the Government of Japan decided to conduct a feasibility study on the Project for Development of the Port of Batangas, and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a survey team headed by Mr. Jiro Kano, Adviser, the Overseas Coastal area Development Institute of Japan (OCDI), from September through December 1984 and two additional times thereafter.

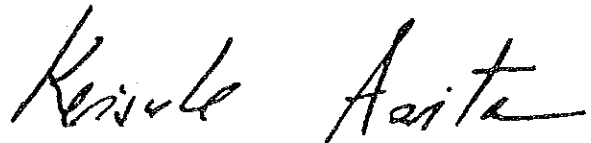
The team exchanged views with the officials concerned of the Government of the Philippines on the project, and conducted field surveys in the regions involved.

After the team returned to Japan, further studies were made and the present feasibility report has been prepared.

I hope that this report will serve for the promotion of the development project and contribute to the friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Government of the Republic of the Philippines for the close cooperation extended to the team.

December 1985



Keisuke ARITA

President

Japan International Cooperation Agency





LETTER OF TRANSMITTAL

December 1985

Mr. Keisuke Arita  
President  
Japan International Cooperation Agency

Dear Sir:

It is my great pleasure to submit herewith the Report for the Study on the Development Project of the Port of Batangas in the Republic of the Philippines.

This report is the result of studies carried out by the Overseas Coastal Area development Institute of Japan at the request of the Japan International Cooperation Agency. Regarding this project, our study team conducted three series of field surveys, one of which took place from September 18 to December 15, 1984, to collect a variety of data including data concerning natural conditions.

Based on the findings of these surveys as well as on the data and information collected and analysed in Japan, we have evaluated the current situation of the Batangas area and formulated a development plan which has been carefully examined from the economic and financial viewpoints.

We believe that the Development Project of the Port of Batangas as proposed in this report will provide an effective means of developing the Batangas Region as well as Mindoro Island, and is feasible both economically and financially. We, therefore, earnestly hope that measures will be taken to implement this project as soon as possible.

On behalf of the study team, let me express my heartfelt thanks to the Philippine Port Authority and to the other related agencies of the Philippine Government for the generous cooperation, assistance and warm hospitality which were extended to the study team during their stay in the Philippines.

Our thanks are also due to the Japan International Cooperation Agency, the Ministry of Transport, the Ministry of Foreign Affairs and the Japanese Embassy in Manila for their valuable advice and support during the field surveys and the preparation of this report.

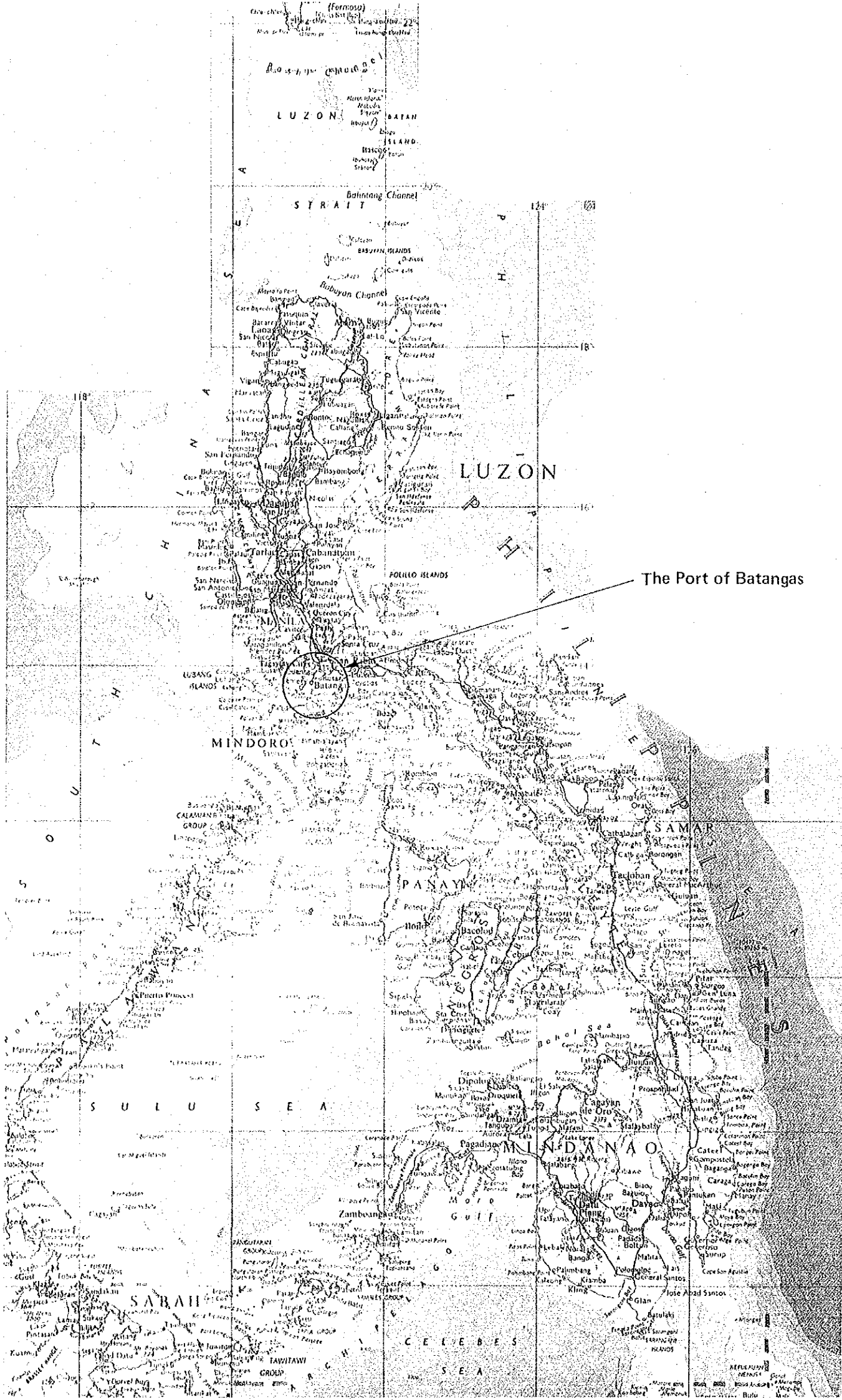
Yours faithfully,



Jiro Kano  
Head

Japanese Study Team for the Development  
Project of the Port of Batangas  
(Adviser, the Overseas Coastal Area  
Development Institute of Japan)





The Port of Batangas

LUZON

LUZON

MINDORO

PANAY

SAMAR

MINDANAO

SULU SEA

CELEBES SEA

SARAWAK

TAWITAWI

NEPAL

Batung Channel  
STRAIT

Bubuyan Channel

Batangas

POLOLO ISLANDS

MANILA

LUBANG ISLANDS

Iloilo

Acapulco

Davao

Zamboanga

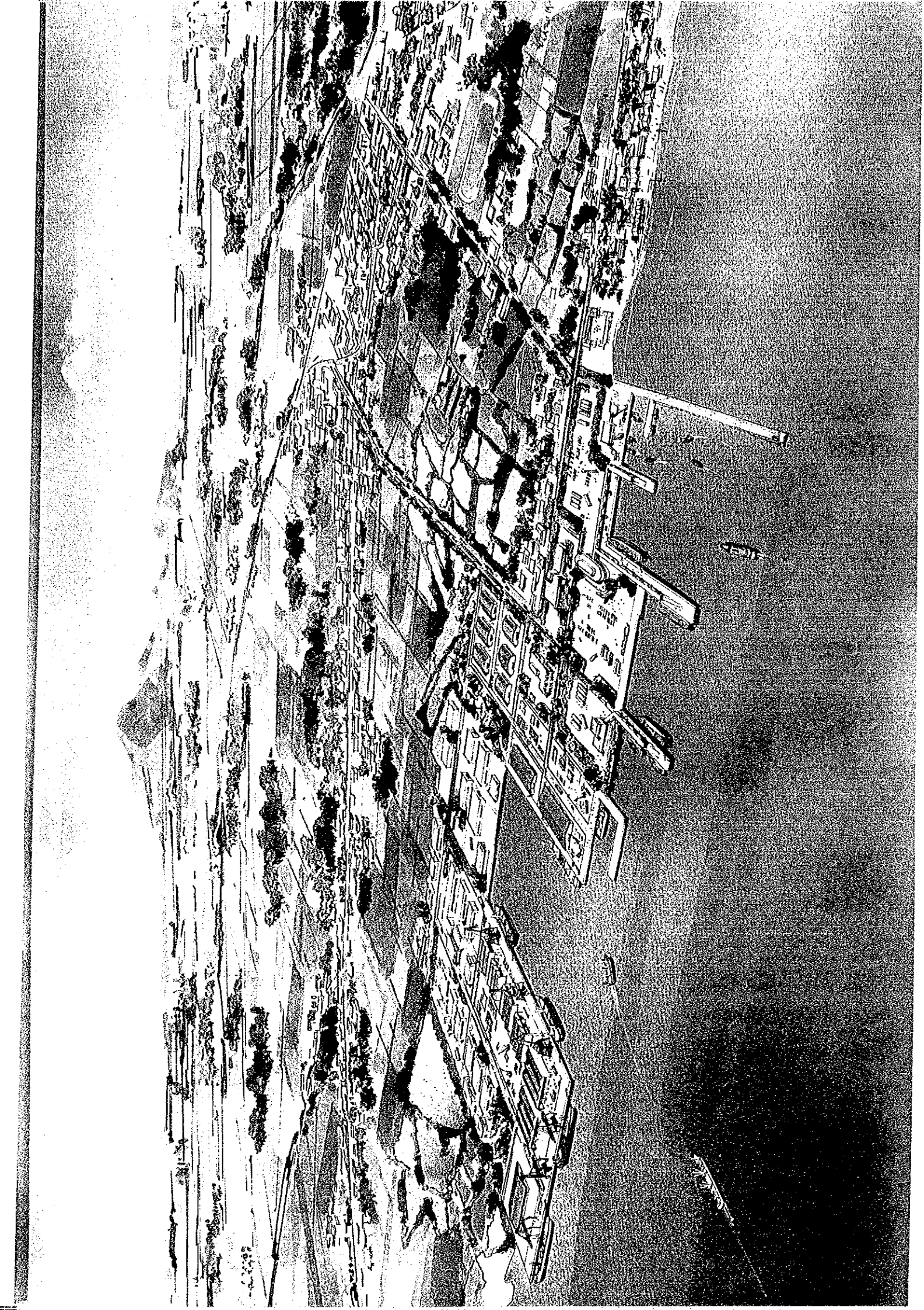
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## ABBREVIATIONS

|        |   |
|--------|---|
| ADB    | Asian Development Bank                    |
| AG&P   | Atlantic Gulf and Pacific Corp. Manila    |
| BAECON | Bureau of Agricultural Economics          |
| BAEX   | Bureau of Agricultural Extension          |
| BBTI   | Batangas Bay Terminal Incorporation       |
| BCGS   | Bureau of Coast Geodetic Survey           |
| BEU    | Bureau of Energy Utilization              |
| BFAR   | Bureau of Fishery Aquatic Resources       |
| BFD    | Bureau of Forest Development              |
| BM     | Bench Mark                                |
| BMG    | Bureau of Mining Group                    |
| BOC    | Bureau of Customs                         |
| BOI    | Board of Investments                      |
| BOM    | Bureau of Mining                          |
| CB     | Central Bank                              |
| DWT    | Dead Weight Tonnage                       |
| EPZA   | Export Processing Zone Authority          |
| FPA    | Fertilizer and Pesticide Authority        |
| GDP    | Gross Domestic Product                    |
| GNDP   | Gross National Domestic Product           |
| GNP    | Gross National Product                    |
| GRDP   | Gross Regional Domestic Product           |
| Gs     | Specific gravity of soil particles        |
| GT     | Gross ton(s)                              |
| JETRO  | Japan Trade Center                        |
| JICA   | Japan International Cooperation Agency    |
| JIS    | Japan Industrial Standards                |
| MARINA | Maritime Industry Authority               |
| MHS    | Ministry of Human Settlement              |
| MIRDP  | Mindoro Integrated Rural Development Plan |
| MLLWL  | Mean Lowest Low Water Level               |
| MOA    | Ministry of Agriculture                   |
| MOE    | Ministry of Energy                        |

|           |   |
|-----------|---|
| MTI       | Ministry of Trade and Industry  |
| MOTC      | Ministry of Transportation and Communications                               |
| MPWH      | Ministry of Public Works and Highways                                       |
| MT        | Metric Ton(s)   |
| NEDA      | National Economic and Development Authority                                 |
| NCA       | National Coal Authority   |
| NCR       | National Capital Region   |
| NCSO      | National Census and Statistics Office                                       |
| NEPC      | National Environmental Protection Council                                   |
| NFA       | National Food Authority   |
| NIEP      | Nationwide Industrial Estate Program  |
| NSC       | National Steel Corporation  |
| NTPP      | National Transportation Planning Project                                    |
| OCDI      | Overseas Coastal Area Development Institute of Japan                        |
| OECE      | Overseas Economic Cooperation Fund  |
| PAGASA    | Philippine Atmospheric Geographical and Astronomical Service Administration |
| PASTORA   | Planning Assistance Service to Rural Areas                                  |
| PCA       | Philippine Coconut Authority  |
| PCIA      | Philippine Cement Industry Authority  |
| PFDA      | Philippine Fishery Development Authority                                    |
| PFM       | Pacific Flour Mills   |
| PHILSUCOM | Philippine Sugar Commission   |
| PMU       | Port Management Unit  |
| PNCC      | Philippine National Construction Company                                    |
| PNOC      | Philippine National Oil Company   |
| P         | Peso(s)   |
| PPA       | Philippine Ports Authority  |
| qu        | Unconfined compressive strength   |
| SPT       | Standard Penetration Test   |
| UDS       | Undisturbed Sample  |
| UNICHEM   | United Coconut Chemicals, Inc.  |
| W         | Water Content   |

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## **CONCLUSION AND RECOMMENDATIONS**



## CONCLUSIONS

### Necessity of Port Development

Batangas Port, which is located deep inside Batangas Bay, in the southwestern part of Luzon island, is blessed with good natural conditions for port development including calm, deep waters.

In addition to being a center for the transportation of the goods produced in the hinterland, primarily in Batangas Province, the Port also plays a central role in the economic and social development of the foreland of the port, primarily Mindoro Island.

As Batangas is located approximately 100 kilometers south of Manila, the economic growth of the Batangas area is expected to become quite lively along with the continued growth of Metro Manila.

The development plan of Batangas Port is drawn up based on its three main roles:

- 1) To promote the development of Mindoro Island.
- 2) To exploit the high development potential of the direct hinterland of the port.
- 3) To support the social and economic activities of the growing Metro Manila Area.

Attaining these goals, Batangas Port will directly support the development of the South Tagalog Region, and contribute significantly to the development of the Metro Manila Area.

### Coastal Zone Use Concept

To date, the use of the land and water areas around Batangas Bay has not been conducted according to a systematic plan, and consequently the remaining land available for future development is quite limited.

In this study, "Industrial Development based on Local and Regional Requirements" is proposed as the Coastal Zone Use Concept for Batangas Bay. The main objectives of the proposed concept are to encourage local and regional industries around the Bay, public utilization of land and water areas and harmony with the natural environment. To achieve these objectives, the study proposes the development of the Batangas Base Port in connection with the encouragement of small to medium scale processing industries run by local and regional entrepreneurs.

Key factors of the proposed concept are as follows:

- 1) The newly-constructed base port should be located in the same area as the existing base port.
- 2) The new location of private ports and expansion of existing private ports should be assessed under a certain guideline.
- 3) The water area in the Bay should be used for shipping routes, anchorages and fishing areas as in the past.

- 4) The development of the road network along the Bay and the Expressway to Metro Manila should be given top priority along with the base port development.

### Master Plan

For the Master Plan, the total cargo forecast for the based port in the year 2000 is 3,063,000 tons. This figure includes 1,097,000 tons of cargo which will be carried between Batangas and Mindoro Island by the Ro-Ro service which currently operates between Batangas and Calapan and by the new Ro-Ro service which will ply between Batangas and Occidental Mindoro.

Cargo at the base port will include nitrogenous fertilizer for the southern part of Luzon island which will be imported from abroad, and iron and steel products which will be carried from Iligan and used as raw materials by secondary fabricating firms.

To cope with the forecast cargo demand in the year 2000, the Master Plan includes 17 berths: 11 new berths, 2 existing berths which will be improved, and 4 existing berths which will be used as at present.

Three of the berths are for foreign trade: one for general cargo (depth: 10 m; design ship size: 15,000 DWT) which will be used primarily for cement and minerals; one for imported steel products and other heavy cargo (depth: 12 m; design ship size 30,000 DWT); and one for imported fertilizers (depth: 10 m; design ship size: 15,000 DWT).

The other fourteen berths will be utilized for domestic trade. Four of these are Ro-Ro berths (depth: 5 m; design ship size: 700 GT). In addition to the berthing facilities, the Ro-Ro wharf includes an ample parking lot and a passenger terminal and pedestrian bridge for the safety of the passengers. The wharf also includes a park to improve the amenity of the area.

Six of the berths will be used by conventional domestic vessels. Three of these are for general cargo (one -7.5 m and two -4.5 m). The other three will be used for the transport of iron and steel products (-7.5 m).

The remaining four berths, which will not be improved, will be utilized for ferry services as at present.

The Master Plan also includes the construction of a jetty, extending from the shoreline at the southern end of the port to the 10 m water depth line, which will prevent siltation. A basin for the small boats which will provide port services is located near the shore on the northern side of this jetty.

As for cargo handling facilities, transit sheds are planned, and space is provided for warehouses and an open storage yard at the back of the foreign trade wharf.

Space is also secured behind the iron and steel wharf for the future location of a complex of secondary fabricating firms which will use iron and steel products as raw materials.

### Short-term Development Plan

The Short-term Plan includes 11 berths: one for foreign trade and 10 for domestic trade. The foreign trade berth will be able to accommodate the large-scale vessels which are expected to carry imported minerals and other general cargoes. A transit shed will be constructed behind the



foreign cargo berth, and an open storage yard will be located behind the transit shed.

The domestic trade berths comprise 3 Ro-Ro berths, 3 general cargo berths, and 4 ferry berths. The two new Ro-Ro berths will be able to accommodate 500 GT vessels in 1990, as the depth of the berths will be -4.5 m.

As for domestic general cargo, in principle large-scale ships will berth at the already existing marginal wharf. Small ships will use the two berths (depth: 4.5 m; design ship size: 700 DWT) which will be constructed adjacent to the new -10 m foreign cargo berth.

The ferries will operate at existing berths at Piers I and III.

### Construction Cost and Construction Period

The total construction cost for the Master Plan has been estimated as approximately ₱1,450 million at October 1984 prices, of which ₱259 million will be used in implementing the Short-term Development Plan. 58.3% of the construction cost for the Short-term Plan will come from foreign financed loans.

The total construction period for the Short-term Development Plan will be four years, including detailed design and bidding negotiations.

### Economic and Financial Analysis of the Short-term Development Plan

#### (a) Economic analysis

The project will bring about the following tangible benefits:

- (i) The incremental valued added arising from cargo transportation (Domestic and Ro-Ro facilities)
- (ii) The reduction of transportation costs between Batangas and Calapan (Ro-Ro facilities)
- (iii) The savings of berth waiting costs (foreign facilities)

Numerous intangible benefits are also expected. According to the economic appraisal which only takes the monetary benefits into account, the EIRR of the Short-term Development Plan is 35.05%.

#### (b) Financial analysis

PPA and Batangas Port will maintain their financial viability throughout the entire project life including the construction period. They will be able to pay all expenditures and have some surplus even after appropriating funds for the repayment of foreign loans including interest.

As for the profitability of the project itself, the FRR is estimated to be 0.48%.

Judging from the above, we conclude that the Short-term Development Plan with the target year of 1990 is feasible both economically and financially.

## RECOMMENDATIONS

### 1. Implementation of Development Plans

Batangas Port contributes to development of Mindoro Island. The future development of the Island will increase the cargo volume transported by Ro-Ro vessels plying between Batangas and Mindoro Island. Therefore a Ro-Ro berth should be constructed by the year 1990, independent of the conventional cargo vessel berths, in order to secure efficient Ro-Ro cargo handling and passenger safety. Since construction of the Ro-Ro wharves will take place in port areas partially occupied by squatters, it is desirable to relocate them to appropriate areas where they can obtain employment at as early a project stage as possible under the coordination of the agencies concerned.

The second role of Batangas Port is its contribution to the development of the hinterland. At present, export cargoes shipped from the hinterland are handled at anchorage using barges. This is because there is no deep water berth to accommodate large vessels. In order to facilitate regional economic development, a deep water berth including a sufficient transit shed and cargo handling yard should be constructed by the year 1990. The cargo forecast predicts an increase in the cargo volume which will be transported by large vessels after the year 1990. Thus a 7.5 m general cargo berth will be constructed by the year 1996 in accordance with the Master Plan.

However, before the Master Plan aiming at the year 2000 is put into practice, it should be carefully reviewed in the light of regional activities including the effects of the port development on the hinterland after the implementation of the Short-term Plan. As the economy is subject to constant flux, there may be substantial changes from the economic frame adopted in this study. So, the Master Plan should only be implemented after reviewing current economic indices and other major socio-economic changes which may take place.

### 2. Establishment of Policy in Relation with the Coastal Zone Use Concept

The region has great industrial potential. However, there are few remaining open spaces for private industries in the coastal area, so industry should be developed carefully along the Bay. Besides, there is hardly any organic industrial linkage among the existing industries. Regional industry should be developed strategically and organically, but there is currently no industrial development program for the region. Therefore, a comprehensive industrial development program should be established, based on a detailed study, to achieve effective land use and suitable industrial development.

Existing private ports have located disorderly around the Bay, and the location of private ports will greatly affect the land and water area use in the future. From now on, new location and expansion of private ports should be assessed according to a certain standard. Thus, a Guideline for the Location of Private Ports should be established in connection with the comprehensive industrial development program. A draft of the Guideline is presented in this study.

Furthermore, a development policy including a guideline for industrial location should

also be formulated for Balayan Bay before the location of large-scale industries takes place there, taking into consideration the history of the location of industries with private wharves along Batangas Bay.

### **3. Development of Related Infrastructures**

Effective port development requires proper construction not only of the port itself but also of access roads to its hinterland. Judging from the present traffic congestion in the center of Batangas City, an access road detouring the center of the city should be constructed by the year 1990 in order to bring about the proper implementation of the Short-term Plan. Additionally, the South Luzon Expressway should be extended by the year 2000 so that the port can properly serve as a second port for the development of the Metro Manila Area.

### **4. Review of the Structural Types of the Main Facilities**

Generally speaking, the purpose of preliminary structural designs is to determine the basic structural types of the main facilities for a rough estimate of the construction costs, which is used for economic and financial analysis.

Preliminary designs have been carried out, based on the soil investigation the Study Team conducted in Batangas in 1984. However, the scope of the soil investigation was limited.

Therefore, the structural types of the main facilities proposed herein should be reviewed based on detailed soil investigations when the Short-term Plan and Master Plan are put into practice.

### **5. Establishment of Appropriate Financial Countermeasures for Promoting the Ro-Ro Terminal**

Ro-Ro transportation is central to the development of the remote islands, so the construction of the Ro-Ro terminal must be promoted without delay.

Generally, Ro-Ro terminals are composed of various facilities (wharves, passenger terminals, parking lots and so on), and Ro-Ro services can only be operated efficiently by the complex of these facilities.

Investments for Ro-Ro terminals are more costly than for general cargo handling terminals. However, Ro-Ro facilities other than the wharf produce no direct profit in accordance with PPA's port tariff rates. This means that it is a substantial financial burden for PPA to promote the rehabilitation of the Ro-Ro terminal.

Accordingly, it is desirable to adopt appropriate financial countermeasures such as:

- 1) Determining a particular port tariff system for Ro-Ro vessels, passengers and cars
- 2) Developing non-profitable public facilities (passenger terminals, parking lots, etc.) using subsidies from the national government
- 3) Privatizing the Ro-Ro terminal.



## SUMMARY



## SUMMARY

### 1. Present Situation of Batangas Port and Region IV.

(1) The port of Batangas is located in the northeastern section of Batangas Bay, along the southwestern part of Luzon island. It is a Base Port under the jurisdiction of PMU Batangas, and it is mainly used for Ro-Ro boat service to Mindoro Island. The cargo volume handled at the Base Port is approximately 396 thousand tons in 1983, 4.5% of the total cargo volume at PMU Batangas. Most of the cargo volume at PMU Batangas is handled at the private ports located around Batangas Bay.

(2) Region IV, exclusive of Metro Manila, is called southern Tagalog, which has a population of 6,119,000 as of 1980, accounting for 12.7% of the national total. Region IV is the most populous Region in the country.

The average annual growth rate of the population of Southern Tagalog from 1975 to 1980 is 3.2%, higher than the national average.

In 1983, the GRDP of Southern Tagalog amounts to 13,877 million pesos (at 1972 prices), 13.9% of the GNDP.

(3) Batangas Bay, where the Port is located, is blessed with fairly good natural conditions for port operations and future expansion. The Bay provides very calm water areas because it is surrounded by land except on its south and southwest sides, and Maricaban and Mindoro Islands fully protect the Bay from ocean waves coming from the south and southwest. For the future development of the port, there are spacious and deep water areas around present piers, and vast land areas just north of the existing facilities.

Other natural conditions, such as soil conditions and littoral drift, are generally favourable, although there are several spots where soft clay strata were observed during the recent soil surveys.

(4) At Batangas Port, there are four wharves owned by PPA. Pier I and II are used for accommodating Ro-Ro vessels and ferry boats plying between Batangas port and ports located on the north coast of Mindoro Island. Pier III is utilized mainly for handling minerals by barges. The marginal wharf connected to Pier II is used for accommodating large size vessels.

A notable feature of the cargo handling operations is that there is a great deal of idle time due to the interruptions of cargo handling caused by waiting for the arrival of trucks. The overall 1983 gross cargo handling rate is only 3.23 tons per hour; productivity is exceedingly low.

As far as the cargo handling capacity of the present facilities is concerned, the maximum possible transportation capacity of the Ro-Ro facilities is estimated at 315,000 tons per annum one way. The cargo handling capacity of the port for conventional vessels is about 190,000 tons, of which 110,000 tons is foreign trade cargo and 80,000 tons is domestic

trade cargo. As the projected cargo volume will exceed the present cargo handling capacity before 1990, the Short-term Development Plan is designed to provide Batangas Port with facilities sufficient to handle the projected volume, and to bolster the development of the regional economy.

## 2. Coastal Zone Use Concept

### (1) Advantages of the Bay of Batangas

The advantages of the Bay of Batangas are summarized as follows:

- Natural harbor with deep, spacious and calm waters;
- Proximity to the main domestic and international shipping routes;
- Location as the gateway of Luzon to Mindoro, Visayan and Palawan Islands;
- Proximity to the nation's capital, Manila;
- Proximity to the growth center supplying entrepreneurs, skilled labor, and technical assistance from academic institutions;
- Accumulation of large-scale/advanced industries; and
- Existence of a favorable agricultural hinterland

### (2) Trends of Regional Development

At present, there are regional development plans and programs concerning the coastal zone of the Bay of Batangas such as the Five Year Regional Development Plan in Region IV, Development Planning Strategy 1980 -- 2000 A.D. and the City/Municipality Framework Plan. Based on the various regional development plans and programs, the Coastal Zone should play an important role as the center of the regional development.

### (3) Coastal Zone use Concept

- 1) The main role of the Coastal Zone Use Concept is to prepare a basis for formulating a master plan of the base port. Thus, the purpose of the Concept is to determine how to develop the waterfront area. The key and leading factors of the coastal zone are the port itself and the port-oriented industries of Batangas Bay. Therefore, the following three alternatives are prepared mainly from the point of view of how to allocate the port area and locate port-oriented industry in the coastal zone.

Alternative A: Industrial Development as in the Past

Alternative B: Environmental Conservation

Alternative C: Industrial Development based on Local and Regional Requirements

Alternative C is selected among the alternatives as the Coastal Zone Use Concept. The land use plan is shown in Fig. 2.1.

- 2) Under the selected concept, many local entrepreneurs will establish, near the coast, small to medium scale processing industries based on the existing large-scale industries, port cargoes, and regional products such as agro-products in the hinterland, and they will increase the value added. This concept will share the benefits of the coastal zone development with the local inhabitants. Similarly, with respect to the port



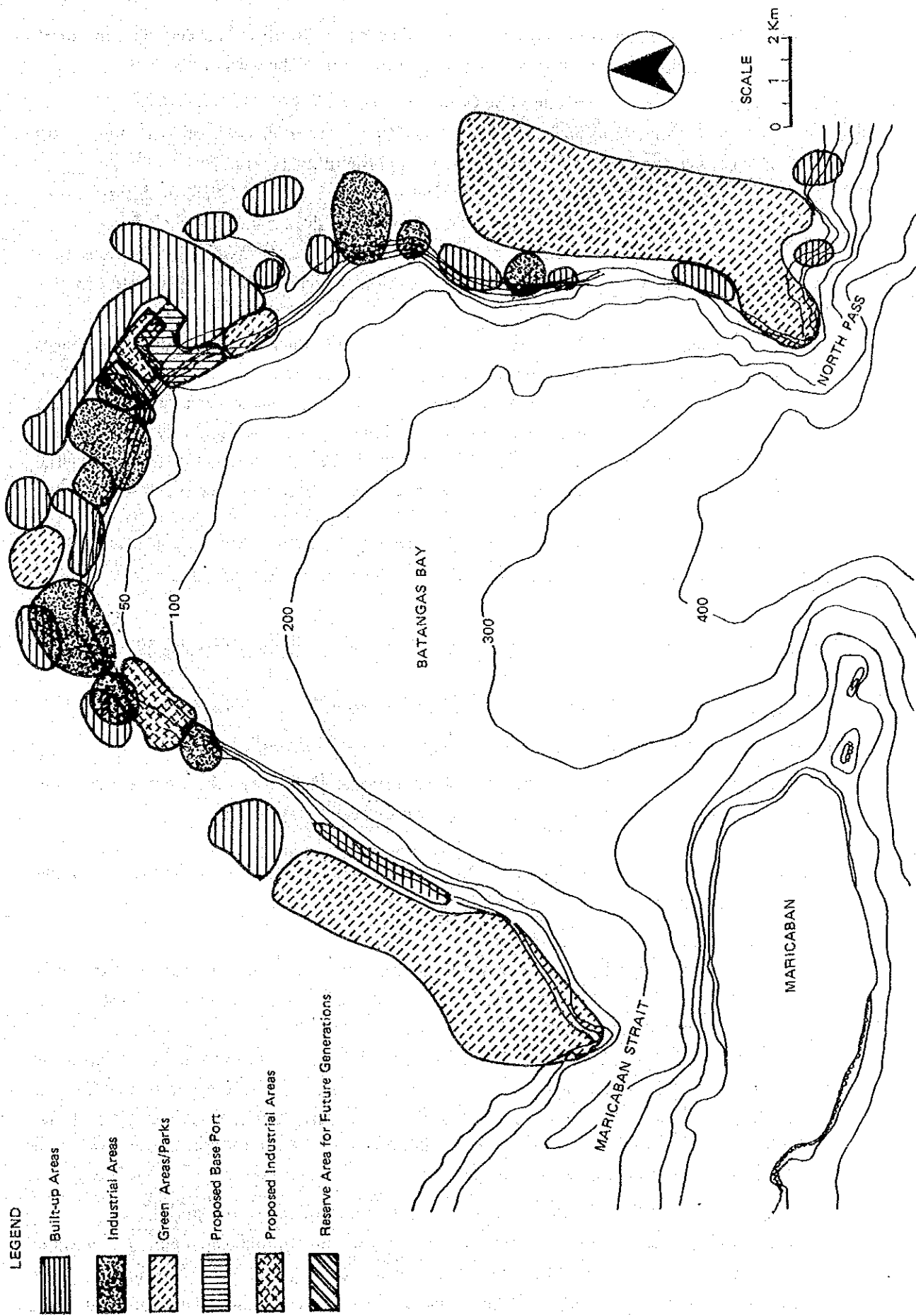


Fig. 2.1 Alternative Development Concept C

development, the development of the base port will take place in a manner consistent with the principle of maximizing the public utilization of the water area.

- 3) Key factors of the Coastal Zone Use Concept are as follows:
  - The most important portion of the coastal zone from all viewpoints is the swamp area between the base port and the NCA Coal Blending Terminal.
  - With respect to the location of the new base port, it should be concentrated into one area in the coastal zone where the existing base port is located.
  - New location and expansion of private ports should be assessed according to a certain standard. A Guideline for the Location of Private Ports is presented in this study.
  - The water area will be used for shipping routes, anchorages, refuge anchorages during monsoons, and fisheries in the Bay as in the past.
  - Road network development should be given top priority along with port development. Main roads such as the national, provincial, and city roads which surround the Bay should be extended and paved wholly. Furthermore, the expressway should be extended from Calamba to connect Batangas with Metro Manila as soon as possible.

### 3. Basic Concepts for Port Development

In formulating the port development project for the Port of Batangas, we first consider the advantages of the Port, as follows:

- 1) Batangas Port already plays an important role in regional socio-economic activities.
- 2) Batangas Port is strategically located close to the Metro Manila area
- 3) Batangas Port has advantageous natural conditions. Especially, the Port is a suitable location for constructing deep berths to accommodate large vessels.

Based on these advantages, we consider three basic concepts for the development of the port in conjunction with its major functions.

- 1) Role as the gateway to Mindoro Island  
Batangas is already closely linked with the ports located along the northern shore of Mindoro Island. The flow of cargo has been enhanced by the opening of Ro-Ro vessel service between Batangas and Calapan in 1981.  
The new Ro-Ro vessel service which will connect Batangas with Occidental Mindoro is expected to play a significant role in accelerating regional development on Mindoro Island. Considering the development projects that are taking place, as well as the potential for future development on Mindoro, the function of Batangas Port as a gateway to Mindoro will have to be expanded.
- 2) Role as a Central Port for the Economic Development of the Hinterland  
Batangas Port is expected to play a central role in stimulating regional economic development throughout the Southern Tagalog agriculture, will continue to grow in line with the basic policy of the ongoing Five Year Regional Development Plan,

Batangas Port will have to be developed to support this regional economic development.

3) Role in conjunction with Metro Manila

Greater Metro Manila will continue to expand through social, political and economic developments. The economic sphere of Batangas and Manila will in fact be unified as a result of increasing population in both areas and the future development of infrastructures including arterial roads and highways. In this regard, Batangas Port has a great potential to be developed as a second port to service the Metro Manila area. The development of a steel products distribution center as Batangas is expected to promote the proper development of Metro Manila as well as the economic development of the Batangas area.

4. Traffic Forecast

- (1) The demographic and economic profiles of Region IV in the target years, 1990 and 2000, are forecast on the basis of analysis of the Region's actual performance, the "Updated Regional Development Plan 1984 ~ 1987 (Region IV)" and other related plans. Table 4.1 gives the projected GRDP, population and per capita GRDP for the target years, together with the estimated figures for 1984.

Table 4.1 Forecast of GRDP, Population and Per Capita GRDP in Region IV

|           | GRDP at 1972 price<br>(million ₱) | Population ('000) | Per Capita GRDP<br>(₱) |
|-----------|-----------------------------------|-------------------|------------------------|
| 1984      | 13,077                            | 6,895             | 1,897                  |
| 1990      | 15,706 (3.1%)                     | 8,021 (2.5%)      | 1,958 (0.5%)           |
| 2000 (II) | 25,583 (5.0%)                     | 9,520 (1.7%)      | 2,687 (3.2%)           |

Note: The figures in parentheses in the columns of 1990 and 2000 show the compound annual growth rates during the period 1984 ~ 1990 and 1990 ~ 2000, respectively.

- (2) The future cargo volume and number of passengers at the base port are forecast for the target years 1990 and 2000. The volume of cargo which will be handled at the private ports is also forecast. The forecasts are presented in Table 4.2 by commodity. The estimated total cargo volume at the Base Port is 871,000 tons in 1990 and 3,063,000 in 2000.

An outstanding feature of the cargo estimates is that commodities which are not currently handled at the Base Port are expected to contribute substantially to the overall cargo volume in 2000. Steel products are expected to be handled in relatively large quantities. The volume of fertilizer and cargo for the new Ro-Ro shipping service between Batangas and Occidental Mindoro is expected to grow rapidly as a result of construction of new facilities in line with the Basic Port Development concept under the Master Plan.

As for the private ports, the estimated cargo volume is 8,040,000 tons in 1990 and 10,445,000 tons in 2000.

Table 4.2 Summary of Future Traffic at Batangas Bay

|                        | Actual  |          |       | Estimated |          |       | Total |         |          |       |
|------------------------|---------|----------|-------|-----------|----------|-------|-------|---------|----------|-------|
|                        | 1983    |          |       | 1990      |          |       |       | 2000    |          |       |
|                        | Foreign | Domestic | Total | Foreign   | Domestic | Total |       | Foreign | Domestic | Total |
| Total Cargo Volume     | 5,162   | 2,809    | 7,971 | 5,314     | 3,597    | 8,911 | 5,913 | 6,595   | 13,508   |       |
| Total Base Port        | 38      | 357      | 395   | 158       | 713      | 871   | 578   | 2,485   | 3,063    |       |
| Palay/Rice             | -       | 34       | 34    | -         | 105      | 105   | -     | 159     | 159      |       |
| Copra                  | -       | 20       | 20    | -         | 37       | 37    | -     | 45      | 45       |       |
| Cement                 | 35      | 24       | 59    | 105       | 50       | 155   | 130   | 102     | 232      |       |
| Minerals               | 2       | 21       | 23    | 13        | 7        | 20    | 19    | 9       | 28       |       |
| Logs/Wood products     | -       | 20       | 20    | -         | 62       | 62    | -     | 87      | 87       |       |
| Fertilizer             | -       | 5        | 5     | -         | 22       | 22    | 160   | 83      | 243      |       |
| Steel                  | -       | -        | -     | -         | -        | -     | 200   | 1,200   | 1,400    |       |
| Others                 | 1       | 233      | 234   | 40        | 430      | 470   | 69    | 800     | 869      |       |
| Total Private Ports    | 5,124   | 2,452    | 7,576 | 5,156     | 2,884    | 8,040 | 6,335 | 4,110   | 10,445   |       |
| Crude Oil/Products     | 4,824   | 2,142    | 6,966 | 4,461     | 2,020    | 6,481 | 5,581 | 2,588   | 8,169    |       |
| Grain                  | 89      | 43       | 132   | 140       | 37       | 177   | 203   | 52      | 255      |       |
| Coconut Oil/Coco-chems | 4       | 2        | 6     | 37        | 99       | 136   | 37    | 99      | 136      |       |
| Coal                   | 33      | 116      | 149   | 336       | 549      | 885   | 280   | 1,166   | 1,446    |       |
| Chemicals              | 47      | -        | 47    | 51        | -        | 51    | 77    | -       | 77       |       |
| Coconut Products       | 110     | -        | 110   | 66        | -        | 66    | 83    | -       | 83       |       |
| Steel/Steel Products   | 0       | -        | 0     | 23        | 56       | 79    | 25    | 63      | 88       |       |
| Others                 | 17      | 149      | 166   | 42        | 123      | 165   | 49    | 142     | 191      |       |
|                        |         |          |       |           |          |       |       |         |          |       |
|                        |         | 1983     |       |           | 1990     |       |       | 2000    |          |       |
| Passengers             |         | 736      |       |           | 1,040    |       |       | 3,040   |          |       |

('000 MT)

('000 persons)

## 5. Master Plan

### (1) Port Development Strategies

- (a) To advance the function of Batangas Port as a gateway to Mindoro, Ro-Ro and ferry wharves should be developed.
- (b) In order to make full use of the highly advantageous natural conditions of the Bay, a new general cargo wharf that can accommodate larger vessels should be developed.
- (c) To make full use of the strategic location of Batangas, that is its proximity to the Metro Manila area, the ample room behind the present port area should be developed as a distribution terminal and related industrial complex.

### (2) The Scale of the Master Plan

The scale of the individual port facilities and of the port-related industrial area are determined as shown in Table 5.1 so as to meet the estimated cargo traffic demand in the year 2000, and so Batangas Port can play an important role in the economic development of both the Batangas and Metro Manila areas.

### (3) Layout Plan

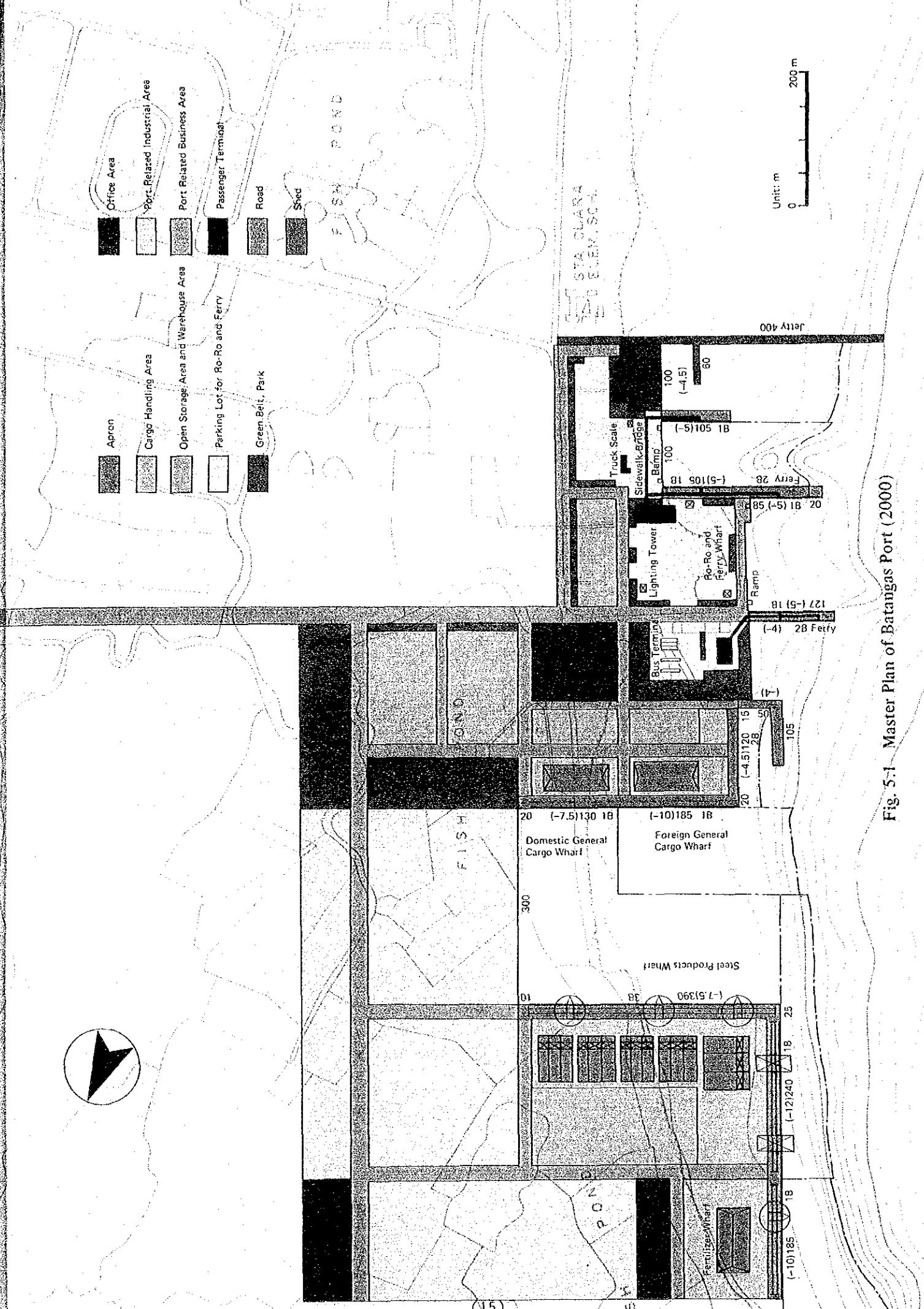
Based on the findings of the coastal zone use study, the port construction site must be located within the area centering on the present base port of Batangas. Three alternative sites and layout plans are proposed. As a result of a comprehensive comparison of these alternatives, Plan B is selected as the most desirable plan as shown in Fig. 5.1.

Table 5.1 Berth Allotment in 2000

| Trade Type                 | Cargo Volume ('000 tons) <A> | Vessel Size | Depth (m) | Handling Capacity (t/m) <B> | Required Berths |                              |
|----------------------------|------------------------------|-------------|-----------|-----------------------------|-----------------|------------------------------|
|                            |                              |             |           |                             | m <A/B>         | Number of Berths             |
| • Ro-Ro (for Calapan)      | 907                          | 700 GT      | -5.0      | -                           | -               | 3 berths*                    |
| • Ro-Ro (for West Mindoro) | 190                          | 500 GT      | -5.0      | -                           | -               | 1 berth**                    |
| • Ferry                    | (passenger)                  |             |           |                             |                 | 4 berths (existing)          |
| • Foreign Trade            |                              |             |           |                             |                 |                              |
| (1) (Cement)               | 130                          | 15,000 DWT  | -10       | 1,200                       | 109             | 1 berth (185 m)              |
| (1) (Mineral)              | 19                           |             |           | 1,000                       | 19              |                              |
| (1) (Other cargo)          | 39                           |             |           | 1,000                       | 39              |                              |
| (2) (Steel)                | 200                          | 30,000 DWT  | -12       | 3,000                       | 67              | 1 berth (240 m)              |
| (2) (Heavy general cargo)  | 30                           |             |           | 1,000                       | 30              |                              |
| (3) (Fertilizer)           | 160                          | 15,000 DWT  | -10       | 3,000                       | 53              | 1 berth (185 m)              |
| • Domestic Trade           |                              |             |           |                             |                 |                              |
| (1) (Fertilizer)           | 27                           | 5,000 DWT   | -7.5      | 1,000                       | 106             | 1 berth (130 m)              |
| (1) (Minerals)             | 9                            |             |           |                             |                 |                              |
| (1) (Logs)                 | 36                           |             |           |                             |                 |                              |
| (1) (Wood Products)        | 20                           |             |           |                             |                 |                              |
| (1) (Other cargo)          | 14                           |             |           |                             |                 |                              |
| (2) (Palay/Rice)           | 8                            | 500 DWT     | -4.5      | 900                         | 87              | 2 berths (120 m)             |
| (2) (Copra)                | 2                            |             |           |                             |                 |                              |
| (2) (Fertilizer)           | 14                           |             |           |                             |                 |                              |
| (2) (Wood Products)        | 24                           |             |           |                             |                 |                              |
| (2) (Cement)               | 10                           |             |           |                             |                 |                              |
| (2) (Other Cargo)          | 20                           |             |           |                             |                 |                              |
| (3) (Steel)                | 1,200                        | 5,000 DWT   | -7.5      | 3,000                       | 400             | 3 berths (390m)              |
| Total                      | 3,063                        |             |           |                             |                 | 13 (planned)<br>4 (existing) |

Note: \* Two new berths and one berth at Pier III which will be improved.

\*\* Existing berth at Pier I which will be improved.



- Apron
- Cargo Handling Area
- Open Storage Area and Warehouse Area
- Parking Lot for Ro-Ro and Ferry
- Green Belt, Park
- Office Area
- Port-Related Industrial Area
- Port-Related Business Area
- Passenger Terminal
- Road
- Shed

Unit: m  
0 200 m

Fig. 5-1 Master Plan of Batangas Port (2000)

## 6. Short-term Development Plan

Within the framework of the Master Plan, those facilities which are urgently required by the year 1990 are formulated as the Short-term Development Plan as shown in Table 5.2 and Fig. 5.2.

Table 5.2 Berth Allotment in 1990

| Trade   | Cargo Volume ('000 tons)                   | Depth (m) | Required Berths         |
|---|--|-----------|-------------------------|
| • Ro-Ro (for Calapan)   | 596  | -4.5      | 2 (new)<br>1 (existing) |
| • Foreign Trade<br>(Cement<br>Minerals<br>Other Cargoes)                          | 158<br>(105)<br>(13)<br>(40)               | -10       | 1 (new)                 |
| • Domestic Trade<br>(1) (Rice<br>Copra<br>Cement<br>Wood Products<br>Other Cargo) | 117<br>(10)<br>(2)<br>(19)<br>(17)<br>(19) | -4.5      | 2 (new)                 |
| (2) (Logs<br>Wood Products<br>Minerals)   | (36)<br>(7)<br>(7)                         | -7.5      | 1 (existing pier II)    |
| Total   | 871  |           | 5 (new)<br>2 (existing) |



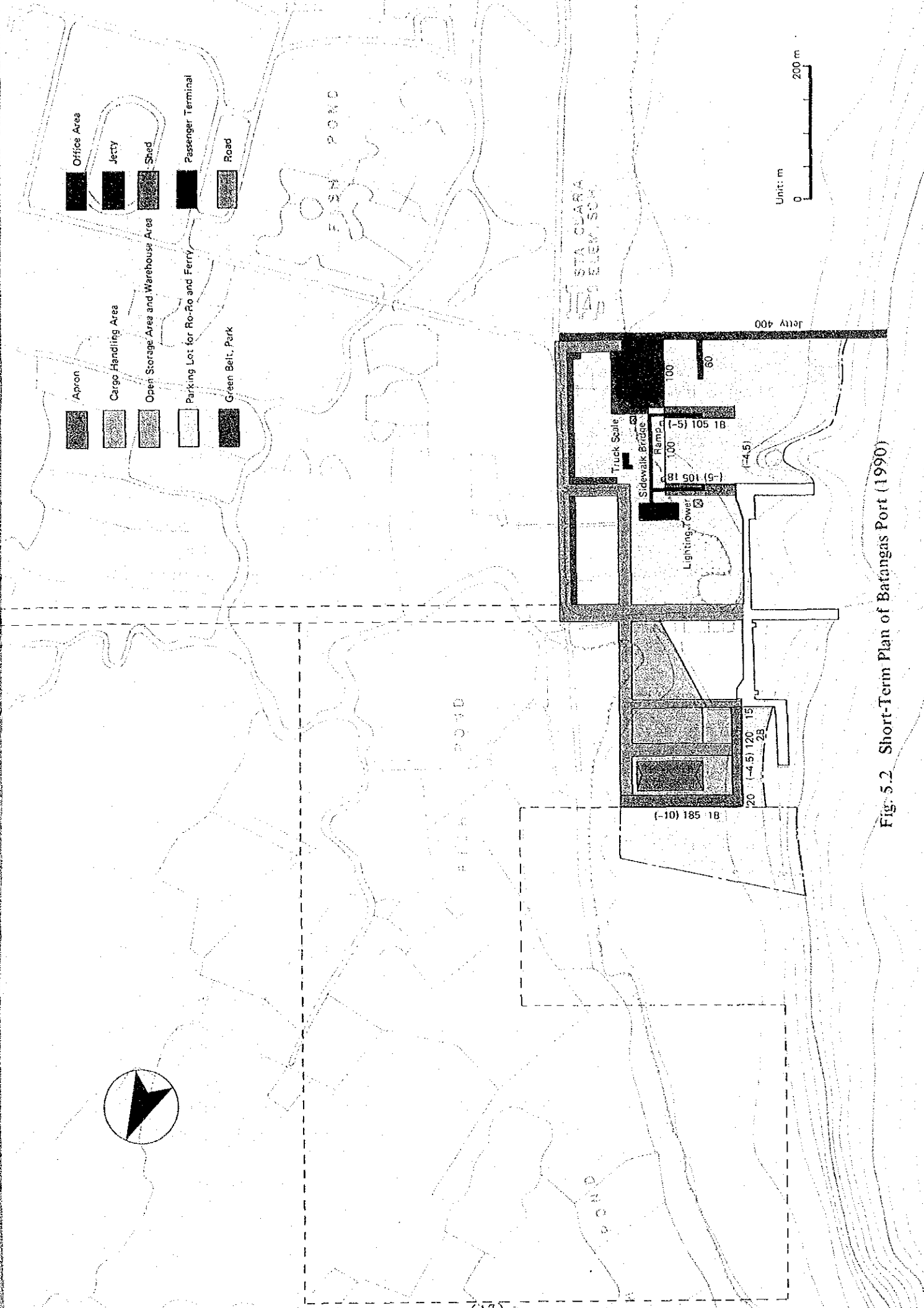


Fig. 5.2 Short-Term Plan of Batangas Port (1990)

## 7. Design and Cost Estimate

(1) The following facilities are selected for preliminary designs:

A. Mooring facilities

- i) Ro-Ro vessel berth (pier)
- ii) Ro-Ro vessel berth (marginal wharf)
- iii) -4.5 m general cargo berth
- iv) -10.0 m general cargo berth
- v) Small craft berth

B. Jetty and breakwater

- i) Jetty (east part)
- ii) Jetty (west part)
- iii) Breakwater

(2) Since the Ro-Ro vessel berth (marginal wharf) and the -10.0 m general cargo berth are considered the most significant structures in the Short-term Plan, alternative designs of three typical types, i.e. gravity type, sheet pile type and open type, are carried out to determine the best basic structural type for these two facilities. From comparison of construction costs and construction and structural characteristics, we conclude that the sheet pile type should be selected as the basic structural type for both the Ro-Ro vessel berth (marginal wharf) and the -10.0 m general cargo berth.

(3) As for the other facilities, appropriate preliminary designs are made. The following are the basic structural types which are selected for the other main facilities:

- i) Ro-Ro vessel berth (pier) . . . . . open type
- ii) -4.5 m general cargo berth . . . . . sheet pile type
- iii) Small craft berth . . . . . sheet pile type
- iv) Jetty (east part) . . . . . sheet pile type + sloping type
- v) Jetty (west part) . . . . . sloping type
- vi) Breakwater . . . . . concrete block type

(4) Based on the results of the preliminary design, the construction schedule of the Short-term Development Plan for the year 1990 is determined as shown in Table 7.1. Under this construction program, actual construction will start in the third year and be completed by the end of the fourth year. The total construction period is thus estimated to be four years, assuming no extraordinary delays.

(5) The total construction costs for the Master Plan are estimated to be approximately 1,450 million pesos at October 1984 prices, of which 259 million pesos are for the implementation of the Short-term Development Plan (Table 7.2).



Table 7.2 Construction Costs for the Short-term Development Plan

| Item No. | Description                 | Unit | Quantity | Unit Price (₹) |         |         | Amount (1,000 ₹) |         |         |
|----------|-----------------------------|------|----------|----------------|---------|---------|------------------|---------|---------|
|          |                             |      |          | L.C            | F.C     | Total   | L.C              | F.C     | Total   |
| 1        | -10 m wharf                 | m    | 185      | 51,000         | 130,000 | 181,000 | 9,435            | 24,050  | 33,485  |
| 2        | -5 m wharf                  | m    | 105      | 30,100         | 123,700 | 153,800 | 3,160            | 12,988  | 16,148  |
| 3        | -5 m wharf (pier)           | m    | 105      | 35,900         | 81,600  | 117,500 | 3,769            | 8,568   | 12,337  |
| 4        | -4.5 m wharf                | m    | 155      | 37,300         | 83,200  | 120,500 | 5,781            | 12,896  | 18,677  |
| 5        | Revetment                   | m    | 200      | 18,100         | 43,200  | 61,300  | 3,620            | 8,640   | 12,260  |
| 6        | Breakwater                  | m    | 60       | 68,500         | 500     | 69,000  | 4,110            | 30      | 4,140   |
| 7        | Jetty (East Part)           | m    | 130      | 23,200         | 37,600  | 60,800  | 3,016            | 4,888   | 7,904   |
| 8        | Jetty (West Part)           | m    | 270      | 44,300         |         | 44,300  | 11,961           |         | 11,961  |
| 9        | Dredging                    | m³   | 430,000  | 9              | 27      | 36      | 3,870            |         | 15,480  |
| 10       | Passenger Terminal          | m²   | 1,200    | 2,500          | 2,500   | 5,000   | 3,000            | 3,000   | 6,000   |
| 11       | Transit Shed                | m²   | 5,000    | 1,750          | 1,750   | 3,500   | 8,750            | 8,750   | 17,500  |
| 12       | Green Belt                  | m²   | 6,600    | 150            |         | 150     | 990              |         | 990     |
| 13       | Pavement (Parking Lot)      | m²   | 16,000   | 380            |         | 380     | 6,080            |         | 6,080   |
| 14       | Pavement (Open Yard)        | m²   | 12,000   | 40             |         | 40      | 480              |         | 480     |
| 15       | Roads                       | m²   | 33,000   | 430            |         | 430     | 14,190           |         | 14,190  |
| 16       | Forklifts                   | Ls   | 1        |                |         |         | 10               | 2,450   | 2,460   |
| 17       | Truck Scale                 | Ls   | 1        |                |         |         | 230              | 580     | 810     |
| 18       | Lighting                    | Ls   | 1        |                |         |         | 1,700            | 3,540   | 5,240   |
| 19       | Sidewalk Bridge             | Ls   | 1        |                |         |         | 6,300            | 17,100  | 23,400  |
| 20       | Temporary Facilities        | Ls   | 1        |                |         |         | 760              |         | 760     |
| 21       | Mobilization/Demobilization | Ls   | 1        |                |         |         | 1,540            | 11,770  | 13,310  |
| 22       | Compensation                | Ls   | 1        |                |         |         | 645              |         | 645     |
| 23       | Engineering (5%)            | Ls   | 1        |                |         |         | 4,669            | 6,542   | 11,211  |
|          | Sub Total                   |      |          |                |         |         | 98,066           | 137,402 | 235,468 |
| 24       | Physical Contingency (10%)  | Ls   | 1        |                |         |         | 9,934            | 13,598  | 23,532  |
|          | Total                       |      |          |                |         |         | 108,000          | 151,000 | 259,000 |

## 8. Economic Analysis

- (1) The purpose of the economic analysis is to investigate whether or not the proposed Short-term Development Plan is feasible from the viewpoint of the national economy. The economic internal rate of return (EIRR) is used for evaluating the economic benefits compared to the economic costs.
- (2) The following shadow rates are applied to convert the investment costs, estimated at market prices, into economic prices:
  - a) Shadow exchange rate . . . . . 1.2
  - b) Shadow wage rate of unskilled labors . . . . . 0.8
- (3) The following three items are selected as tangible benefits for the calculation of the EIRR:
  - a) Incremental value added arising from domestic cargoes (including Ro-Ro)
  - b) Savings in transportation costs of Ro-Ro vessels
  - c) Savings in the berth waiting costs of foreign vessels
- (4) The resulting EIRR is 35.05% for the base case.
- (5) Individual sensitivity tests were conducted to analyze the change in EIRR based on changes in five major factors, cargo volume, construction cost, peso value, ship cost and unit value added, as follows

| Different Assumptions |              | EIRR (%) |
|-----------------------|--------------|----------|
| Cargo Volume          | 10% decrease | 19.69    |
| Construction Cost     | 10% increase | 32.31    |
| Peso Value            | 10% decrease | 34.61    |
| Ship Cost             | 20% decrease | 31.29    |
| Unit Value Added      | 10% decrease | 33.80    |

- (6) The result of the economic analysis is that the EIRR of the base case well exceeds the opportunity cost of capital in the Philippines. So, this project is fully feasible from the economic point of view.

## 9. Financial Analysis

- (1) The purpose of the financial analysis is to evaluate:
  - a) The financial viability of the operating entity responsible for the Short-term Development Plan.
  - b) The profitability of the Short-term Development Plan itself.

(2) Financial viability of PPA

(Assumptions)

a) Port Development Plan

On-going projects: IBRD 3rd Project, Manila International Container, Cargo Handling Equipment, Port of Irene

Future projects: Manila North Harbor, Port of Tacloban, Port of San Fernando, IBRD 4th Project

b) Cases for projection

“With” case: On-going projects + Future projects + the Short-term Development Plan

“Without” case: On-going projects + Future projects

(Results)

a) It is necessary to raise port tariff rates as follows:

“With” case 20% in 1990

“Without” case 10% in 1990

b) In both cases, all the financial ratios show good values.

(3) Financial viability of the Port of Batangas

(Assumptions)

a) Revenue from port charges are calculated in accordance with the tariff rates as of October 1985 and a tariff rate increase of 20% in 1990 based on PPA's financial analysis.

b) Total investment of the Short-term Development Plan is 259 million pesos (October 1984 prices) at market prices.

c) Loan terms for the foreign currency portion of the project (about 59% of the total investment) are:

Interest Rate ..... 4.25% annually

Maturity ..... 25 years including 7 years of grace period.

(Results)

a) The net operating revenue will always exceed the total expenses from the beginning of construction to the end of the period of calculation. Even during the five years after 1990, when amortization of depreciation costs and interest on loans will impose the heaviest burden on the financial position, a net income of over 50 million pesos will be generated annually. Thereafter, net income will gradually increase in accordance with the decrease in interest payments.

b) It will not be necessary for the PPA head office to provide working funds in any year, and the Port of Batangas will continue to supply surplus funds as it has in the past.

c) All the financial ratios show very good values.

(4) Financial rate of return (FRR)

- a) The FRR of this project is 0.48%.
- b) One of the main purposes of this project is to develop Ro-Ro-related facilities. The construction costs of these facilities are over 50% of the total costs. Generally, Ro/Ro terminals are composed of various facilities (wharf, passenger terminals, parking lots and so on) and Ro-Ro terminals can only be operated efficiently by the entire complex of these facilities. However, facilities other than the wharf produce no direct profit in accordance with PPA's port tariff rate. Therefore, the FRR of this project is low, and this value does not necessarily reflect the real profitability of the project.
- c) The FRR without the non-profitable facilities (i.e. passenger terminal, sidewalk bridge and jetty) is 2.2%.

(5) Sensitivity analysis

Individual sensitivity tests were conducted changing the assumptions concerning three factors, cargo volume, construction costs and the peso exchange rate, by 10%.

The results are as shown in Fig. 9.1.

- (6) Based on these results, the Short-term Development Plan is feasible in terms of the viability of PPA and the Port of Batangas, as well as the profitability of the project itself.

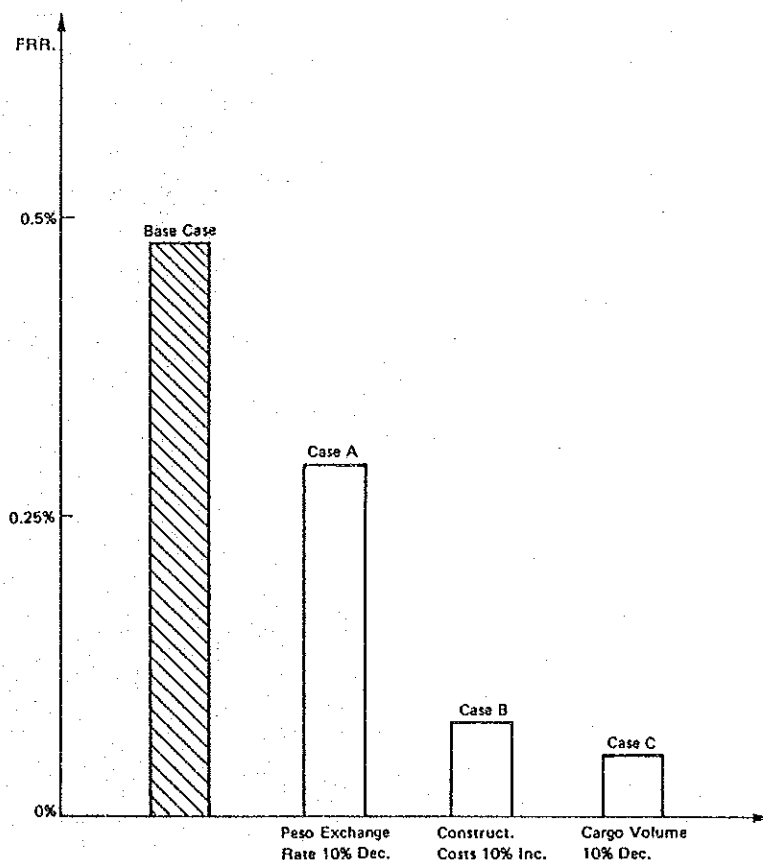


Fig. 9.1 Sensitivity Analysis





## OUTLINE OF THE STUDY



## OUTLINE OF THE STUDY

### 1. The Background of the Study

The Government of the Philippines has promoted the program of decentralizing industries outside Metro Manila with a view to changing its economy from one based on agriculture into an industrial economy. In the Five Year Plan (1983 ~ 1987) now being carried out, priority is given to development of infrastructure, especially to ports which are effective means of expediting industrialization and improving distribution of agricultural products.

The Port of Batangas is considered by the Government as one of the most important ports to be developed and as the key-point of development of Batangas City and its hinterlands, including the State of Batangas.

Batangas City, where the Port of Batangas is located, lies in the southwestern part of Luzon Island, approximately 100 km south of Metro Manila. The city belongs to Region IV of the Philippines' socio-economic divisions.

The Port of Batangas is noted as a port endowed with favourable natural conditions together with the geographical merit of being adjacent to Manila. As the district is rich in agricultural and mineral products, some industries have developed, including oil refineries, sugar manufactories and cement plants. Along the coast of Batangas Bay, many national, municipal, and private port facilities have been constructed though without a definite plan. Since the existing facilities of the Base Port have superannuated and congestion in the Port is increasing, primary importance should be attached to development of the Port, although effective use of the facilities and well-balanced development between the Port and the coastal zone should be taken into consideration.

The Japan International Cooperation Agency (JICA) organized and dispatched to the Philippines a preliminary study team in June 1984, and the JICA sent the Main Study Team in September through December, 1984.

### 2. Purpose and Study Method

The purpose of the Study is to formulate a master plan for the Port of Batangas (target year 2000) and to prepare a short term development plan for the period up to 1990, including its feasibility study.

For this purpose, natural conditions survey, data collection and their analyses were conducted and hearings/discussions were held. In addition, the Team was able to fully exchange opinions/views with the Philippine counterparts throughout the course of the Study.

The following are the main contents of the study items.

- 1) Technical Investigation of Natural Conditions
- 2) Port Activities Forecast
- 3) Port and Harbor Planning
- 4) Design, Construction Methods and Cost Estimate
- 5) Economic and Financial Appraisal

### 3. Participants in the Study

#### 1) Study Team

|             |                  |   |
|-------------|------------------|---|
| Team Leader | Jiro Kano        | The Overseas Coastal Area<br>Development Institute of Japan<br>(OCDI) |
|             | Eiji Yasuda      | OCDI  |
|             | Shigeru Murata   | OCDI  |
|             | Hiroshi Sato     | OCDI  |
|             | Shigeki Terasaki | OCDI  |
|             | Shinichi Inoue   | OCDI  |
|             | Naohisa Katayama | OCDI  |
|             | Tomoaki Shimada  | OCDI  |
|             | Tsutomu Kusaka   | OCDI  |
|             | Makoto Yamamoto  | OCDI  |
| Coordinator | Eiji Tomida      | Japan International Cooperation<br>Agency (JICA)                      |

#### 2) Counterparts

##### PPA Head Office

|                           |                            |
|---------------------------|----------------------------|
| Prudencio B. MERCADO, JR. | Project Manager            |
| Tomas G. ILETO            | Civil Engineer             |
| Lolita BOISER             | Financial Planning Officer |
| Bernardita J. SAMIA       | Economist                  |
| Francis B. REYES          | Economist                  |
| Rolando R. AQUINO         | Economist                  |
| Estela P. PAJARELLANO     | Port Economist             |
| MA. Loreto S. YUTUC       | Budget Officer             |
| Milagros R. MENDOZA       | Clerk-Typist               |
| Sonia D. ABAD             | Clerk-Typist               |
| Ramon R. TAN              | Clerk-Typist               |
| Felisa L. MANAHAN         | Clerk-Typist               |

##### PMU-Batangas

|                           |                                   |
|---------------------------|-----------------------------------|
| Salvador L. Reyna         | Port Manager                      |
| Engr. Benito A. Carnero   | Port Engineer                     |
| Miss Rosalia S. Caraig    | Finance Officer                   |
| Mrs. Fe' C. Ferrer        | Administrative Officer            |
| Capt. Rafael M. Marasigan | Harbor Master                     |
| Engr. Antonio L. Bayani   | Assistant Port Engineer           |
| Mr. Leoncio P. Guico      | Area Supervisor, Port of Batangas |
| Mr. Rolando J. Reyes      | Operations Section                |
| Mrs. Amelia M. Velasquez  | Statistical Assistant             |

#### 4. Organization Visited by the Team

Philippine Ports Authority, Head Office  
Port Management Unit Batangas  
Asian Development Bank  
Atlantic Gulf and Pacific Corporation of Manila  
Bureau of Agricultural Economics  
Bureau of Agricultural Extension  
Batangas Bay Terminal Corporation  
Bureau of Coast and Geodetic Survey  
Bureau of Energy Utilization  
Bureau of Fisheries and Aquatic Resources  
Bureau of Forest Development  
Bureau of Customs  
Board of Investments  
Bureau of Mining  
Caltex (Philippines) Incorporated  
Central Bank of the Philippines  
Export Processing Zone Authority  
Fertilizer and Pesticides Authority  
Himmel Industries Incorporated  
Keppel Philippine Shipyard Incorporated  
Maritime Industry Authority  
Ministry of Human Settlement  
Mindoro Integrated Rural Development Plan  
Ministry of Agriculture  
Ministry of Trade and Industry  
Ministry of Transportation and Communications  
Ministry of Public Works and Highways  
National Economic and Development Authority  
National Coal Authority  
National Census and Statistics Office  
National Environmental Protection Council  
National Food Authority  
National Industrial Estate Program  
National Steel Corporation  
National Transportation Planning Project  
Office of the Governor (Batangas Province)  
Office of the Mayor (Batangas City)  
Philippine Atmospheric, Geophysical and Astronomical Services Administration  
Philippine Coconut Authority  
Philippine Cement Industry Authority  
Philippine Fishery Development Authority

**Pacific Flour Mills, Incorporated**  
**Philipinas Shell Petroleum Corporation**  
**Philippine Sugar Commission**  
**Philippine National Construction Company**  
**Philippine National Oil Company**  
**United Coconut Chemicals Incorporated**