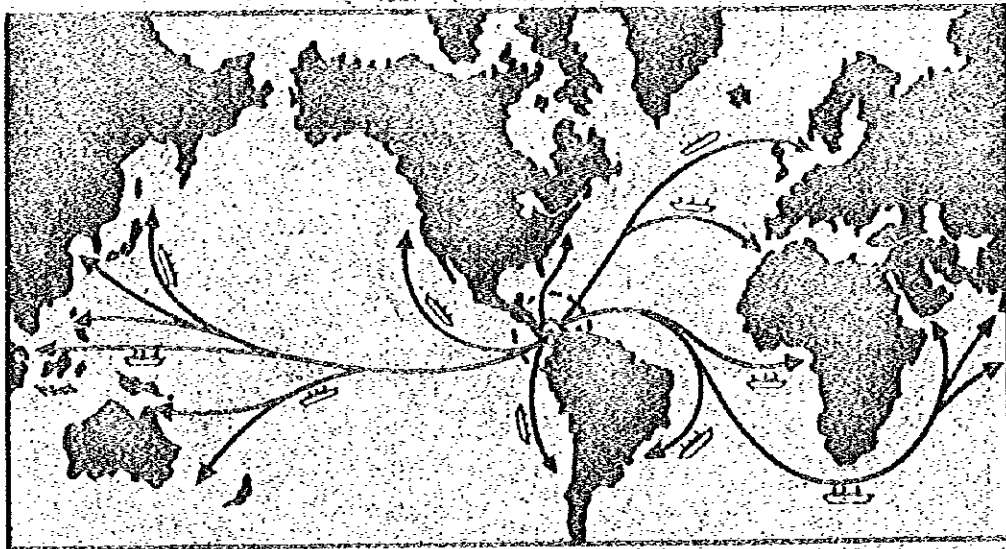
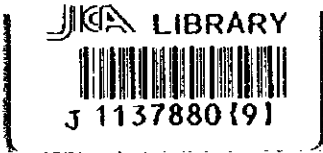


NATIONAL PORT AUTHORITY
THE REPUBLIC OF PANAMA

THE STUDY ON THE DEVELOPMENT PLAN OF THE PORT OF BALBOA IN THE REPUBLIC OF PANAMA

FINAL REPORT

SUMMARY



JUNE 1997

THE OVERSEAS COASTAL AREA DEVELOPMENT INSTITUTE OF JAPAN (OCDI)
PACIFIC CONSULTANTS INTERNATIONAL (PCI)

SSF
JR
97-078(1/4)

RY

EXCHANGE RATE

1 US Dollar = 1 Balboa = 108.9 Yen
(as of September 1996)

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

NATIONAL PORT AUTHORITY
THE REPUBLIC OF PANAMA

THE STUDY ON THE DEVELOPMENT PLAN
OF
THE PORT OF BALBOA
IN
THE REPUBLIC OF PANAMA

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SUMMARY

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1137880(9)

PREFACE

In response to a request of the Government of the Republic of Panama, the Government of Japan took pleasure in conducting a study on the development of the port of Balboa and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Panama a study team headed by Mr. Takao HIROTA, President of the Overseas Coastal Area Development Institute of Japan (OCDI), and composed of members from this institute and another company, Pacific Consultants International (PCI), three times between May 1996 and March 1997.

The team held discussions with the officials concerned of the Government of Panama, and conducted field surveys at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

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

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Panama for the close cooperation they extended to the team.

June 1997



Kimio FUJITA

President

Japan International Cooperation Agency

LETTER OF TRANSMITTAL

June 1997

Mr. Kimio FUJITA
President
Japan International Cooperation Agency

Dear Sir,

I have the honor to submit herewith the Final Report for the Study on the Development Plan of the Port of Balboa in the Republic of Panama.

This report is the outcome of works between March 1996 and June 1997 which included three field surveys. The work was undertaken by the Overseas Coastal Area Development Institute of Japan (OCDI) and Pacific Consultants International (PCI) as per the contract with the Japan International Cooperation Agency (JICA).

Based on the findings of these surveys and utilizing data and information collected, and along the line of the scope of work which was agreed upon by both governments, the report is formulated to cover the following subjects;


- (1) To formulate a master plan for the existing port and new terminals for container cargoes, etc., up to the year 2015
- (2) To conduct a feasibility study on a short-term plan up to the year 2005 based on the master plan.

The study shows the importance of the overall development of the Port of Balboa and its proper administration, management and operation. I earnestly hope that necessary measures will be taken to implement the projects and recommendations.

I would like to note that the completion of the study is greatly owed to the collaboration with APN (Autoridad Portuaria Nacional) and other related ministries, government agencies, authorities, shipping lines and agents.

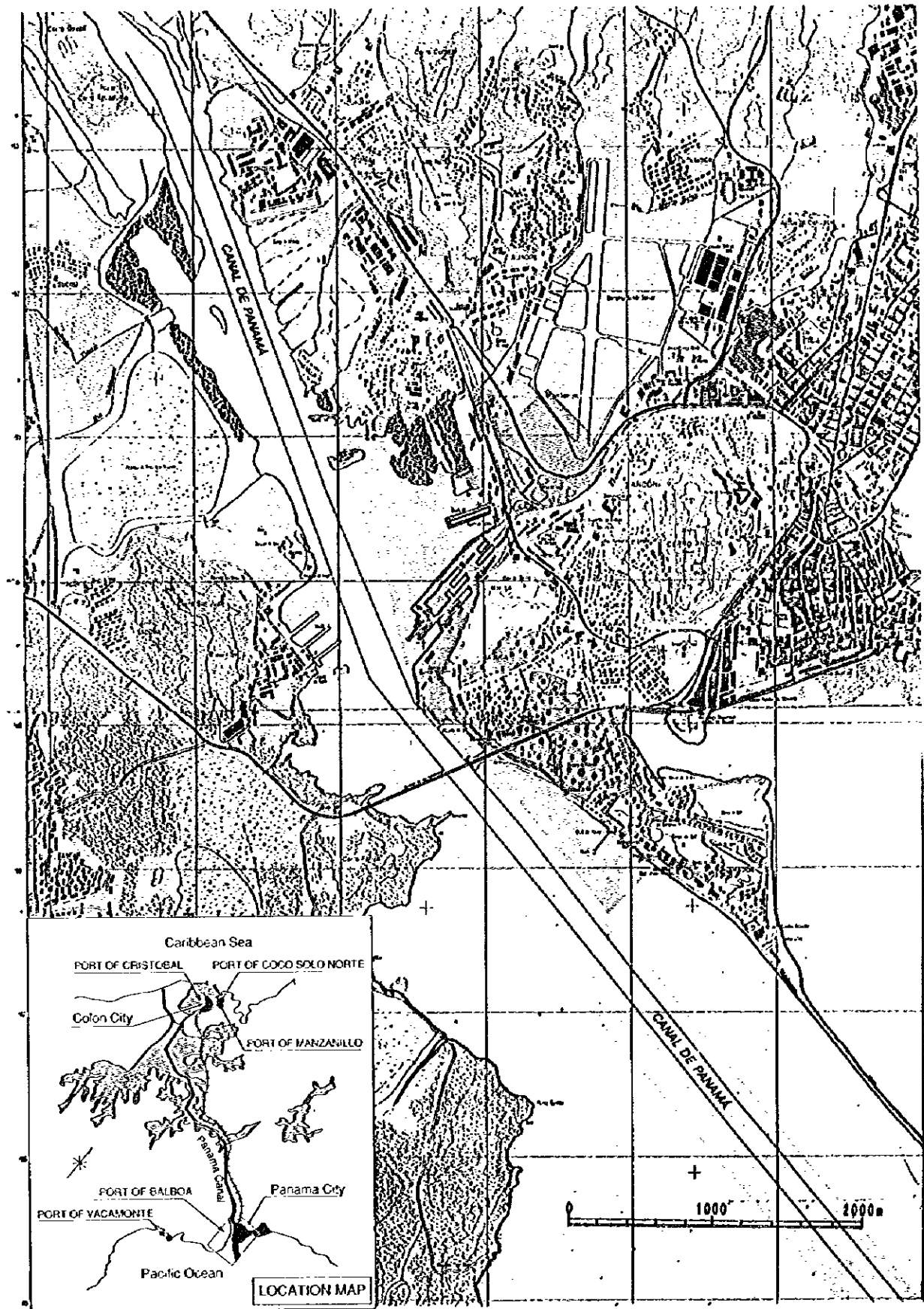
I am also greatly indebted to JICA, the Ministry of Foreign Affairs, the Ministry of Transport and the Embassy of Japan in Panama for giving us valuable advice and assistance at every step throughout the course of the study.

Yours sincerely,



Takao HIROTA
Team Leader for the Study
on the Development Plan of the Port of Balboa

CURRENT LAND USE



APN (Land)

PCC



APN (Water)

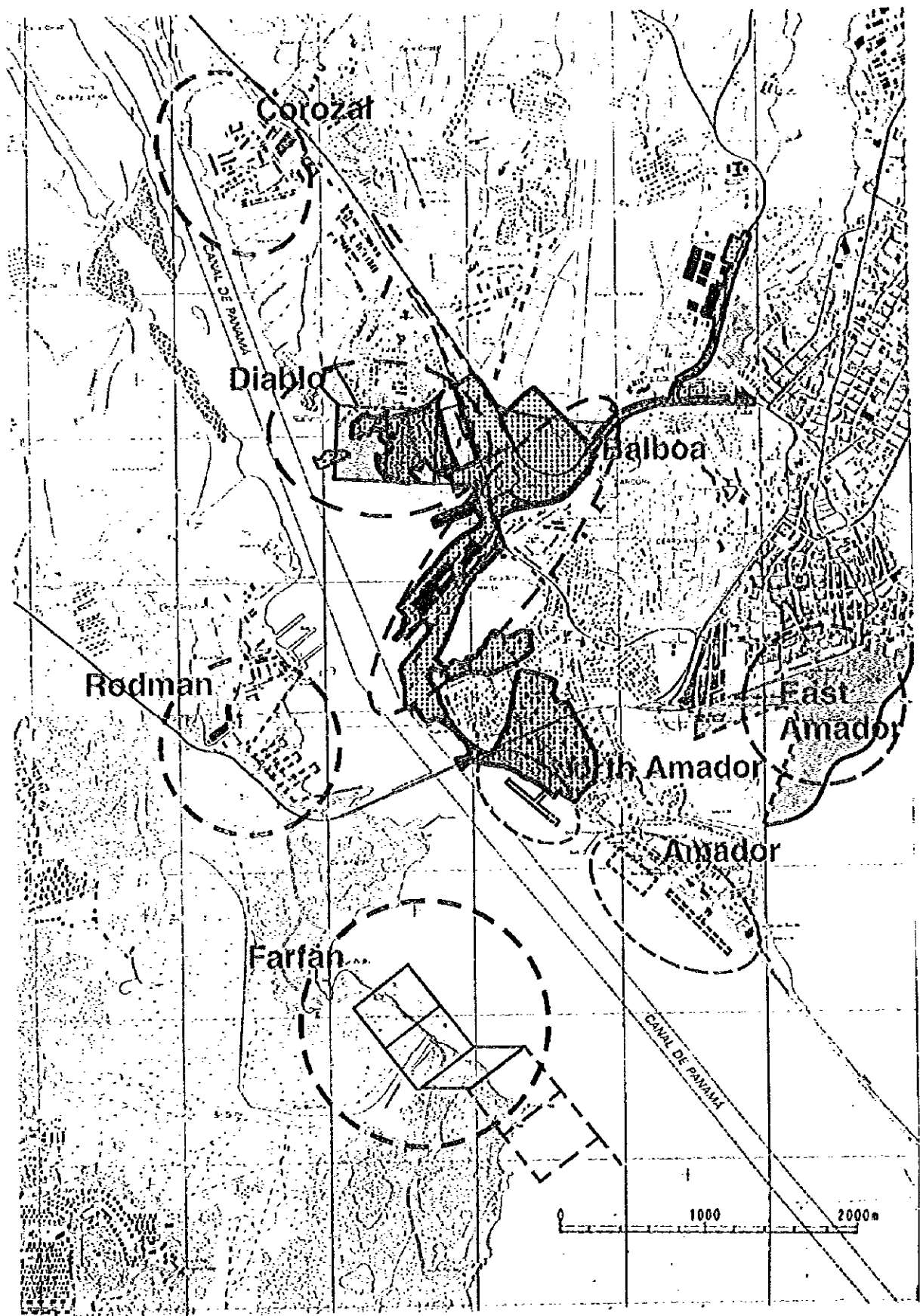


U.S. Base

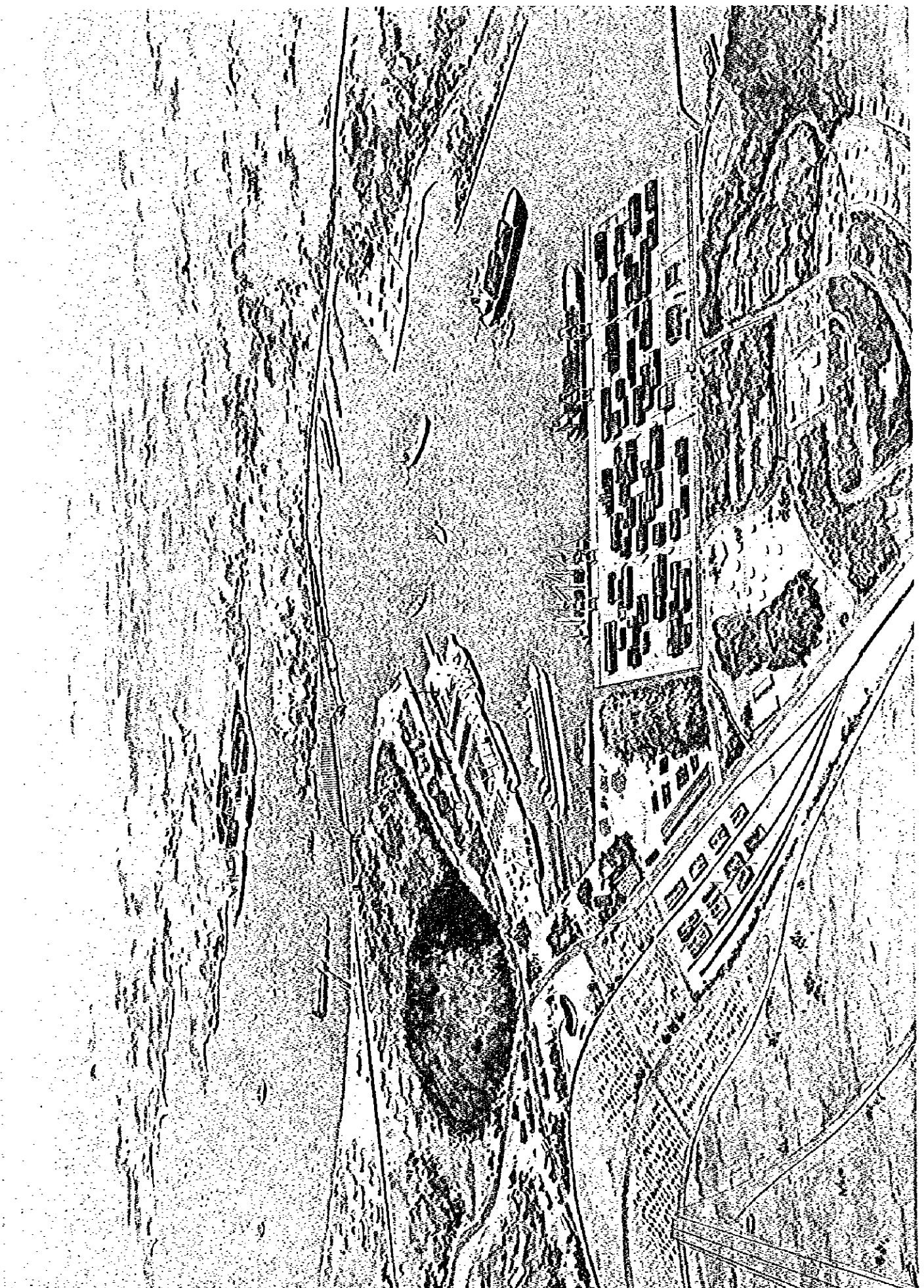


Air Port

PROJECTS OF THE STUDY



- -
- CURRENT PORT AREA** **SHORT TERM PLAN (2005)** **OTHER PROJECTS**
MASTER PLAN (2015)
POST MASTER PLAN



ABBREVIATION LIST

A	APN	National Port Authority
	ARI	Interoceanic Regional Authority
E	EIA	Environmental Impact Assessment
	EIRR	Economic Internal Rate of Return
	EIS	Environmental Impact Study
	EPZ	Export Processing Zone
H	HIT	Hongkong International Terminals
I	IEE	Initial Environmental Examination
	INRENARE	National Institute for the Renewable Natural Resources
M	MIPPE	Ministry of Planning and Economic Policy
	MIT	Manzanillo International Terminal
P	PCC	Panama Canal Commission
	PPC	Panama Ports Company, S. A.

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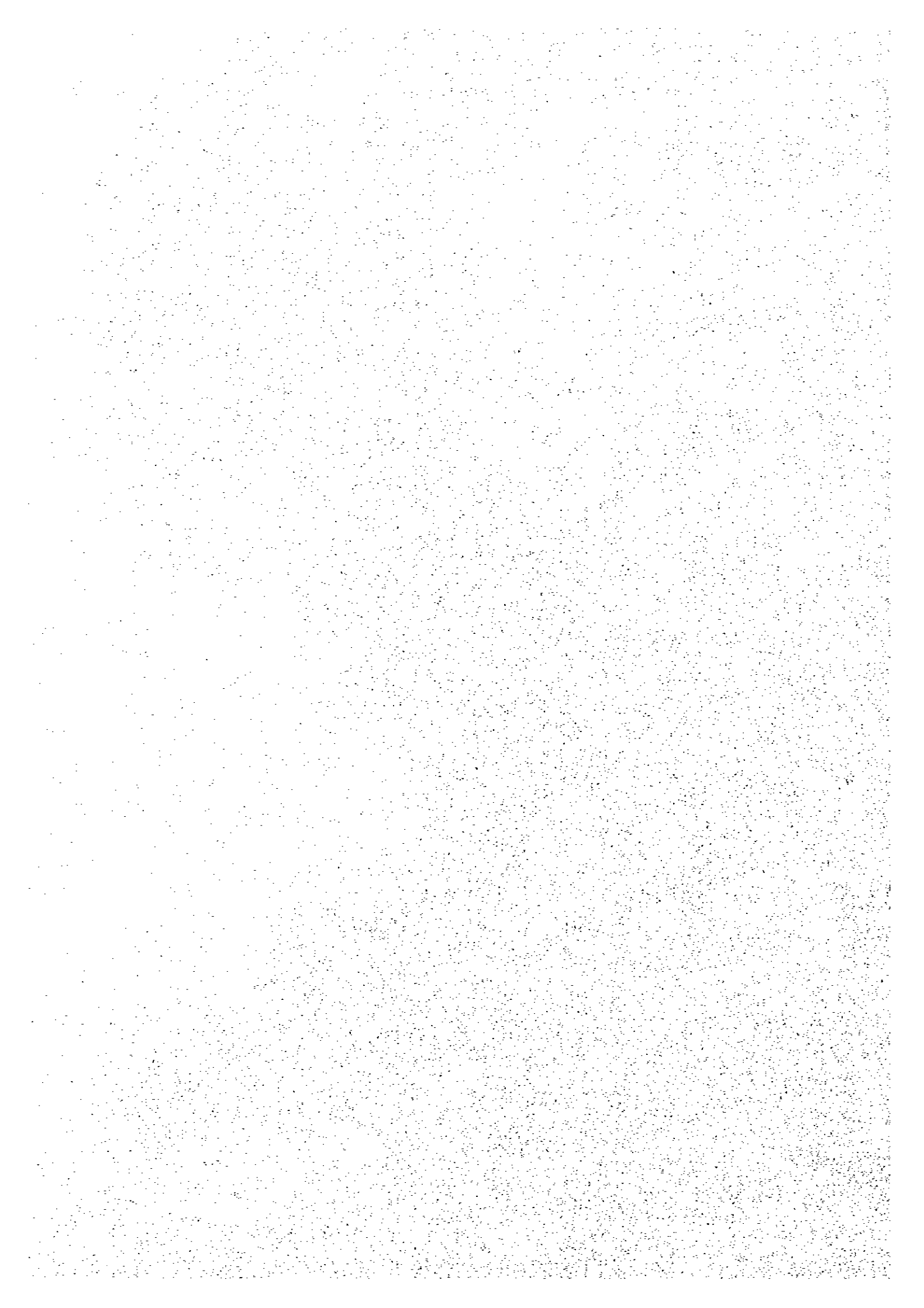
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| 9. Natural Condition | Mr. Juan ALVARADO | Deputy Engineering Director |
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Interoceanic Region Authority	Ms. Montserrat Burrillo
National Maritime Commission	Ms. Magela Cabrera
Panama Canal Commission	Mr. Carlos Alvarado, Mr. Jaime Bocanegra
Civil Aeronautics Bureau	Mr. Julio Martinis, Mr. Gregorio Montecer
Panama Canal Institute,	Dr. Victor Reyes,
University of Panama	Mr. Esteban Martinez
Panama Railroad	Mr. Gilberto Ortiz
Ministry of Commerce	Ms. Elisa Lopez
Ministry of Public Works	Mr. Damian Quijano
Ministry of Planning	Mr. Horacio Estribi, Ms. Eira Rosas
National Institute for the Renewable Natural Resources	Mr. Erasmo Ballester

EXECUTIVE SUMMARY



EXECUTIVE SUMMARY

Background and Objectives

1. The port of Balboa is situated at the Pacific entrance to the Panama Canal. Even though its facilities are obsolete and the layout is not suitable for modern port operation, its strategic location as a transshipment hub for the Central and South America has attracted the attention of many shipping circles in recent years.

2. After the opening of MIT at Manzanillo and the transfer of Coco Solo Norte to Evergreen management, immediate rationalization of remaining terminals at Cristobal and Balboa has become imperative to Panama (Note: For the location of respective ports, see "LOCATION MAP" in the opening pages of this book).

3. Under such circumstances, the Government of Panama requested Japan International Cooperation Agency (hereinafter referred to as "JICA") to conduct a feasibility study for Balboa port modernization. Accordingly, JICA, the official agency responsible for the implementation of technical cooperation programs of the Government of Japan, has initiated the Study, in close cooperation with the authorities concerned of the Government of Panama.

4. Objectives of the Study are to cover formulation of both a master plan for the period up to 2015 and a short-term development plan within the framework of the master plan for the period up to 2005. The study includes not only physical facility planning but recommendations on the management, operation, utilization and organization for the Port of Balboa.

5. During the study period, negotiations for concession of port management at Balboa and Cristobal have progressed. At the end of 1996, the Government of Panama and Panama Ports Company (PPC) which is a subsidiary company of Hutchison International Port Holdings Limited reached an agreement on the contract for the concession.

6. The Final Report covers the short term and long term development program including a technical and economical feasibility analysis. After considering various alternatives, this report is based on an assumption that the port management and operation will be performed according to the concession agreement.

Master Plan

General Concept

7. The present port area at Balboa is limited in terms of a large scale development. Therefore, the existing port area may be used for the short term development. For the long term master plan, it is necessary to acquire a suitable location outside of Balboa area.

8. While the short term expansion will be deployed at Diablo area, future development space can be found at Farfan area.

9. The master plan should be coordinated with future canal alignment as well as the existing one (Note: For general information of the Study, see "CURRENT LAND USE" and "PROJECTS OF THE STUDY" in the opening pages of this book).

Container Terminal

10. Future volume of container traffic at Balboa is not only related to the growth rate of its past cargo handling trend or GDP of Panama, but also related to potential transshipment demand for Pacific Latin American ports. Such potential traffic is also closely related to the facility and service level offered at Balboa.

11. Potential traffic at Balboa is also related to the traffic through the canal. According to the latest information, traffic through the canal is growing steadily which is indicative of the general economic recovery in Central and South American countries in recent years .

12. Potential container traffic at Balboa in 2005 is estimated as 360,000 TEU for the low growth case and 510,000 TEU for the high growth case, and in 2015 as 760,000 TEU for the low growth case and 1,100,000 TEU for the high growth case. After the year 2000, approximately 80 % of the above container traffic volume will consist of transshipment containers.

13. In order to accommodate rapidly growing container traffic, full scale container terminal has to be developed at Diablo area. The new terminal at Diablo can accommodate two full size container berths with the capacity of approximately 600,000 to 800,000 TEU.

14. Since the area available at Balboa including Diablo is limited, additional

capacity for container handling and other cargo must be secured at the other side of the Canal. Considering necessary room for turning basin in front of the waterfront and the new canal alignment for the third lock development, the only possible choice for the future development site is in the Farfan area at the west side of the canal and south side of the American Bridge. The area is now used mainly as a dumping site of dredged materials as well as a military communication antenna yard. Its vast space with flat land will be not only suitable for a large scale container terminal but sufficient for an industrial complex.

15. Construction of this new terminal at Farfan area should be started well before 2015 to meet the demand. Moreover, this site may be allocated for a new terminal operator other than the concessionaire at Diablo if necessary. In such an event, opening of this terminal may be permitted at a much earlier time, even before the year 2010.

Other Terminals (Note: The details of the present situation and the future plan of the port will be explained later. See Figure 1-2-1 and Figure 2-3-1 to 2-3-3 in "SUMMARY")

16. Grain, automobile and breakbulk cargo will remain at Balboa for the foreseeable future. They have to be handled at the consecutive berths and the central pier located in the center of the existing port (piers No.14,15,16 and 18).

17. Ferries for islands and other small crafts will continue to use the piers at the back of the existing port (piers No.17 and 19). Relocation of the ferry terminal to Amador is not accepted in the Amador development plan contemplated by ARI.

18. A part of tuna boats now moored at Balboa will be moved to the Port of Vacamonte, located approximately 20 km west of Balboa. However, some of the large size tuna boats may continue to call Balboa.

19. At present, cruise ships principally call at the central pier located in the center of the port (pier No. 18). The north side of this pier will continue to accommodate these ships while a new cruise ship terminal is planned at Amador.

20. Quays for sand and gravel handling (pier No. 20) have to be relocated at the north of the new container terminal at Diablo.

21. The dry docks and accompanied facilities require some expansion in the future. Berthing facilities for ship repair at the neighboring berth (pier No. 8) are

insufficient and use of other berths in the proximity will be necessary (use of No.7 and even No.14 will become necessary).

22. The berth at the south end of the existing port (pier No. 6) is used as an oil terminal as well as for other cargoes at present. In order to avoid possible fire hazard, oil and other cargoes should be separated at this terminal as soon as possible. An alternative oil terminal may be built at the south side of the American bridge in front of the tank farms. Also, Rodman US navy pier in front of Balboa area will become soon operational as another commercial oil terminal.

Urgent Program

23. The consecutive berths located in the center of the existing port (piers No.14,15 and 16) are being converted to a container terminal for temporary use. With installation of two gantry cranes and creation of some yard space by clearing the existing buildings and railway yard, annual capacity of up to 120,000 TEU will be obtained.

24. Because of the size and the form of the yard and also possible conflict with other types of cargo, this terminal is not suitable for efficient container operation. In order to recover lost traffic from MIT and to attract transshipment demand, container handling at this terminal should be carried out only until the terminal at Diablo becomes available.

Short Term Plan

25. A full scale container terminal will be constructed at Diablo district adjacent north to the existing port (Balboa district). Considering the area available on land and existence of hard rock at a relatively shallow level underground, excavation of this area has to be minimized. Consequently, a quay wall of 700 m in length and yard space of 500 meter in width will be the maximum size possibly secured in this area. This terminal will provide capacity of up to 800,000 TEU which is sufficient to cater for the high case traffic volume expected in the year 2005 or low case in the year 2015.

26. Because of the inadequate layout and conflict with other commodities and activities, the area used for the urgent scheme should not be used for the future container facility in principle.

27. The berths neighboring the existing dry docks (piers No.7 and 14) will be

used for cereal, automobile and other types of general cargo handling for the time being. After completion of Diablo container terminal, these activities will be concentrated at the conventional berths to the north (piers No.15 and 16).

28. A 600 m long berth for cruise ships is contemplated at the west side of Amador area. This terminal will relieve congestion of Balboa basin. In order to secure safe navigation in front of the terminal, the new cruise ship berth should be parallel to the main navigation channel.

29. Dry docks of various sizes are located in the south part of the existing port (between piers No.7 and 14). The Panamax size dock, in particular, is the only repair facility of this size available along the Pacific coast of the American Continent from Mexico to Chile. Considering the future demand of the ship repair business, expansion of this facility may be required. Therefore, when the neighboring berth (piers No.14) is relieved from tentative container operation, the piers on the south (piers No.7 and 14) should be converted to the fitting berths attached to the dock yard. In the long term plan, additional dock yard with new Panamax size (same as the third lock size) may be necessary.

Future Canal Alignment

30. When the traffic through the canal requires the third lock construction, the alignment of the navigation channel needs to be shifted. This realignment requires removal of three piers (piers No.1, 2 and 3) at Rodman. The oil handling at these piers will also be moved to a new site. The new site will be located about 400 meters further south of the south pier.

31. At the completion of the third locks, the maximum size of vessels passing through the channel will become 150,000 tons and the width of the channel needs to be expanded. In this connection, the western side of the pier of American bridge and the tip of the Rampeolas at Farfan may have to be removed. This means renewal of American bridge. However, because construction of a new bridge involves a high cost and traffic through the channel at the early stage after the expansion of the channel will not be saturated with traffic, the bridge may be retained for a few more decade after completion of the third locks.

32. Use of the Pier No.6 for oil handling must be terminated with the new canal alignment because there will no longer be any distance separating the channel and the pier facing it (the pier No.6), which would make operations at the pier more dangerous.

33. The relocation of the above-mentioned berth and oil berths at Rodman may be executed as a part of the third locks construction project.

34. Construction material supply base and working craft quays for the third locks may be made available if Farfan terminal area is partially developed. The proposed container terminal will be developed at the northern part of the new Farfan area and the southern shore of Farfan will be made available for the working crafts as well as material supply berths during construction of the third locks.

Environmental Aspects

35. The water quality at Balboa and its vicinity is contaminated by discharge of sewage water through Crundu River and Marea Salas river at the small mangrove swamp between Balboa district and Diablo district (north of Pier 18). The water quality will hardly be affected by the Project of the Study.

36. In order to mitigate destruction of the small mangrove swamp at Diablo by the Project, plantation of mangrove at the east side of Amador will serve the purpose.

37. No other significant effect on the environment by the Project is expected. Although effects of land filling or dredging are limited within a permissible scale it is important to keep the surveyed records and minimize effects of such works.

Port Administration

38. The Port Authority of Panama (APN), which is the state-run port management body, manages and operates six major ports and several other secondary ports in this country, including the port of Balboa. APN inherited the port facilities at Cristobal and Balboa from Panama Canal Commission in 1979. These facilities are old and inadequate for modern containerized cargo handling. Because of their conventional operation system, the manpower which was also inherited from PCC is excessive for the container system.

39. In order to trim governmental expenditures, the Government of Panama has decided to privatize various government service sectors including APN and the Railway. Privatization has already been introduced to certain port functions such as dry docks, tug service and bunkering.

40. Full scale container terminal development at Manzanillo was initiated by a private operator, Manzanillo International Terminal (MIT), in 1994. MIT has not only absorbed much of the container traffic from APN's Cristobal terminal but attracted additional traffic which otherwise would be handled by other Caribbean ports. Similar concession has been introduced to Coco Solo Norte.

41. Because of their vast potential to serve as hub ports for the region and because of the success of MIT, Cristobal and Balboa have attracted the attention of many international shipping lines and operators. After transfer of Coco Solo Norte to Evergreen management, remaining terminals at Cristobal and Balboa must immediately be rationalized to be competitive with other privatized terminals.

42. Panama Railway, which until today has been under state management, may not be suitable as a land transportation tool of port related cargo for such a short distance. Rail sidings in the port area are only obstructing efficient cargo handling operation rather than contributing to efficient clearance of cargo. Therefore, reform or privatization of the railway should be considered separately from the port operation.

New Port Management System

43. In July 1996, Hongkong International Terminals, Limited (HIT), an affiliate company of Hutchison International Port Holdings Limited, was selected for the concessionaire for Cristobal and Balboa terminal operation.

44. The Government of Panama grants in concession to the Panama Ports Company (PPC), which is a subsidiary company of HIT, the development, construction, operation, administration and management of designated area in the ports of Cristobal and Balboa. Most of the port workers and management staffs now employed by APN will be discharged and only a limited number of people will be re-employed by the new company.

45. The company will pay a fixed fee to the government and a variable fee to APN. The variable part corresponds to ten percent of the gross receipts by the activity of the company.

46. Even after introduction of concession system to most of the port facilities, APN is expected to function as an effective landlord of the port. Important

functions include overall planning of the port in the country, both physical layout and functional coordination. APN is also responsible for collection of revenues from remaining concessionaires.

47. Emphasis should be placed on the functions of APN to control and supervise concessionaires and lessees, and liaison activities as well as establishment of monitoring system to secure revenues. Monitoring safety and pollution in the port area is also one of the important responsibilities of APN.

Project Evaluation

Project Cost Estimates

48. For the project cost, the short-term development and long-term development are considered. The passenger terminal planned at Amador, Rodman oil terminal and the railway related investments are excluded from the Project. Relocation of the oil terminals at Pier No, 1,2,3 and 6 accompanied by the future canal re-alignment is also excluded from the Project.

49. The short term project until 2005 is estimated as 208 million Balboas which includes 700 m long container berths at Diablo, 4 sets of gantry cranes and other necessary equipment.

50. The long term project until 2015 is estimated as 464 million Balboas including 700 m long quay for containers with adequate equipment at Farfan accompanied by necessary land reclamation and channel dredging.

Economic Analysis

51. EIRR of the short-term development plan is assessed at 21.33 % in the high growth case and 19.17 % in the low growth case. The short-term plan provides sufficient return to the national economy even in the low growth case.

Financial Analysis

52. Financial condition of the Project is analyzed from two different angles. One of the aspects is the financial position of the national government in relation to the Project. The other angle is the financial position of the PPC in relation to the Project.

53. APN provides existing port facilities to PPC for operation but legal ownership of such assets belong to APN. Also all facilities developed by the

Company belong to the Company until the term of the contract expires. In return, the national government and APN receive annuities for these concession.

54. Receipts of the national government in relation to the Project will increase compared with the net-receipts from APN in the past as far as the rationalization of APN is enforced and conditions of the concession are faithfully fulfilled.

55. Financial position of PPC depends not only on the gross revenues but is also related to various cost elements. Based upon rough assumption and following conditions stipulated in the concession agreement, PPC will generate a net surplus after 2014 in the low growth case or close to the turn of the Century in the high growth case.

Conclusion

56. As far as the rationalization of APN is enforced and conditions of the concession are faithfully fulfilled, the Project to rehabilitate Balboa port and development of new container terminals and other facilities at Diablo, Farfan and their vicinity is economically feasible and financially viable.

Recommendations

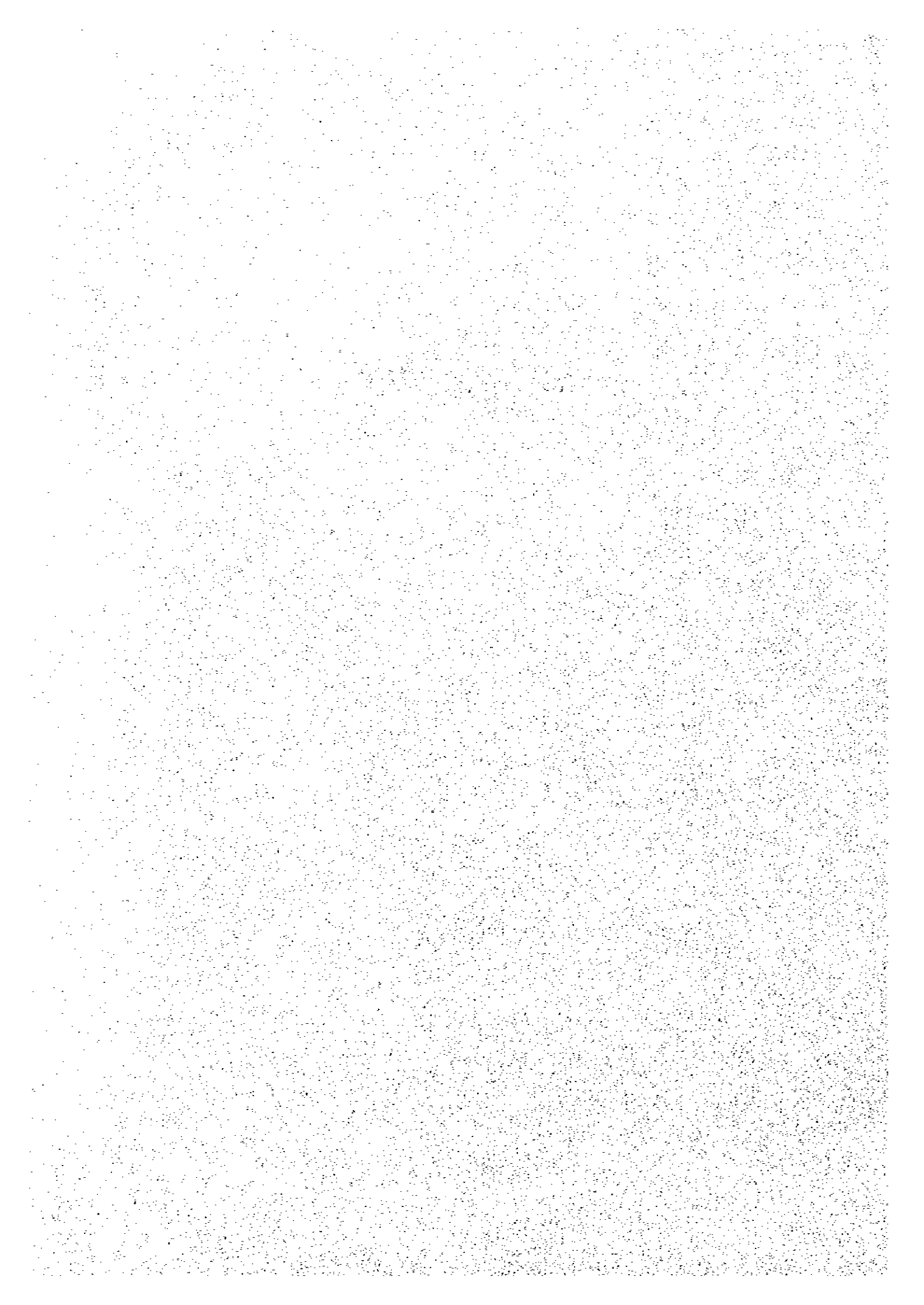
57. Even though the prime objective of PPC is container terminal operation, other cargoes and ships should be able to use Balboa without impartial treatment. APN should continue to monitor its operation and, if necessary, coordinate port users and the operator.

58. The government of Panama and APN should not only provide service and fulfill their obligations under the concession contract but also extend every effort to promote activity of Balboa port by various channels of port selling opportunities.

59. APN should improve port statistics in order to secure revenues.

60. After the initial period of development at Balboa, the government should proceed to Farfan area development at the earliest opportunity.

SUMMARY



SUMMARY

I GENERAL

1.1 General Understanding on Current Situation of the Port of Balboa.

1. The Republic of Panama is a country which is blessed with excellent marine transport capability, facing both the Atlantic and Pacific Ocean which are connected by the Panama Canal.

2. Under the circumstances, the Ports of Balboa on the Pacific side and Cristobal on the Atlantic side are playing the most important roles, among over 20 ports of APN, in contributing to the national economy thanks to their advantageous location at the Pacific and Atlantic entrance of the Canal.

3. The Port of Balboa is playing an important role not only in handling cargoes for the hinterland covering the entire country, Panama City in particular, and the Colon Free Zone, but also in supplying bunkering and ship repair service to vessels calling the port and transiting the Canal.

4. While the port may have the potential to become the predominant cargo distribution center on the Pacific side of Central/South America, its current facilities and operation are not able to keep pace with the cargo increase and modernization in recent years, mainly due to the relatively short experience of APN in this field compounded by severe budget constraints.

5. After the opening of MIT at Manzanillo and the partial transfer of Coco Solo Norte to Evergreen management on the Atlantic side, the port of Balboa and the port of Cristobal are required to be rationalized and modernized. If realized, this would have a favorable impact on the economic activities of the country.

6. Those in industrial and marine transport business circles both in and out of Panama are now strongly expecting the Port of Balboa to realize its potential capability in serving a substantial amount of cargo which is vital for stimulating the economic development of the country.

7. Considering the various factors surrounding the port, such as the future expansion of the Canal, the development of the Colon Free Zone and new Export Processing Zones (EPZs), active development of competing neighboring ports, prevailing wave of privatization due to the severe financial position of the country,

substantial amount of potential cargo traffic, and so on, it is exactly the right time for the Government to take confident action for the effective improvement of the port under carefully examined port plans with proper administration and management.

1.2 Present Situation of the Port of Balboa

1.2.1 Port Facilities

8. The port of Balboa, constructed in the inlet at the Pacific entrance of the Panama Canal without breakwaters, has 12 wharves having a total length of 2,462 m and a dry dock complex. Pier No. 18 is a finger type pier. Piers No. 14, 15 and 16 are marginal type piers. Almost all the piers have a depth of 9 - 12 meters at present.

9. Containers are handled at Piers No. 14, 15 and 16. There isn't sufficient space for container handling, and no exclusive quay cranes are installed at present. Pier No. 18 is the only berth which has a cargo shed.

10. Ship supplying service is also one of the major functions of the port of Balboa due to its location near the Panama Canal. The dry dock complex consists of three different size dry docks. The principal dry dock is almost the same size of the locks of the Canal. The Balboa tank farm has more than 30 fuel storage tanks with the capacity of over 1.5 million barrels.

11. The following figure illustrates the facilities layout of the port of Balboa. The major dimensions of the berths at the port are shown below.

Table 1-2-1 Major Dimensions of Berths at the Port of Balboa

Pier No.	Length (m)	Depth (m)	Major Use	Ship Supplies	Remarks
6	226	9.2	grain, vehicle, bunker	water, bunker	grain handling equipment, bunker handling equipment, bunker tank
7	343	9.0-9.9	bunker, chemical product	water, bunker	bunker handling equipment, chemical handling equipment, bunker tank, chemical tank
8	143	8.5	(for dry dock)		
13	84		(for dry dock)	water	
14	236	9.3-9.5	grain, container, ship repair	water, bunker	grain handling equipment, tugboat, no container crane
15	352	9.7	container, vehicle	water, bunker	no container crane
16	223	9.5-9.7	container	water, bunker	no container crane
17	92	7.0	for launch, passenger ship	water	
18-S	305	10.2-12.0	general cargo	water, bunker	
18-W	64	7.5	for small ship	water, bunker	
18-N	305	8.6-9.5	general cargo, passenger ship	water, bunker	
19	89	8.0	launch (PCC)	water, bunker	
(total)	2,462				

Source : APN and PCC

Note : Berth Depth is measured at the distance of 5 meters from the berth as of February, 1995. Dredging in the front of principal piers was carried out in 1992, up to 10.7 meters (35 feet) at the distance of 5 meters, and 12.8 meters at the distance of 15 meters (42 feet) from the berths.

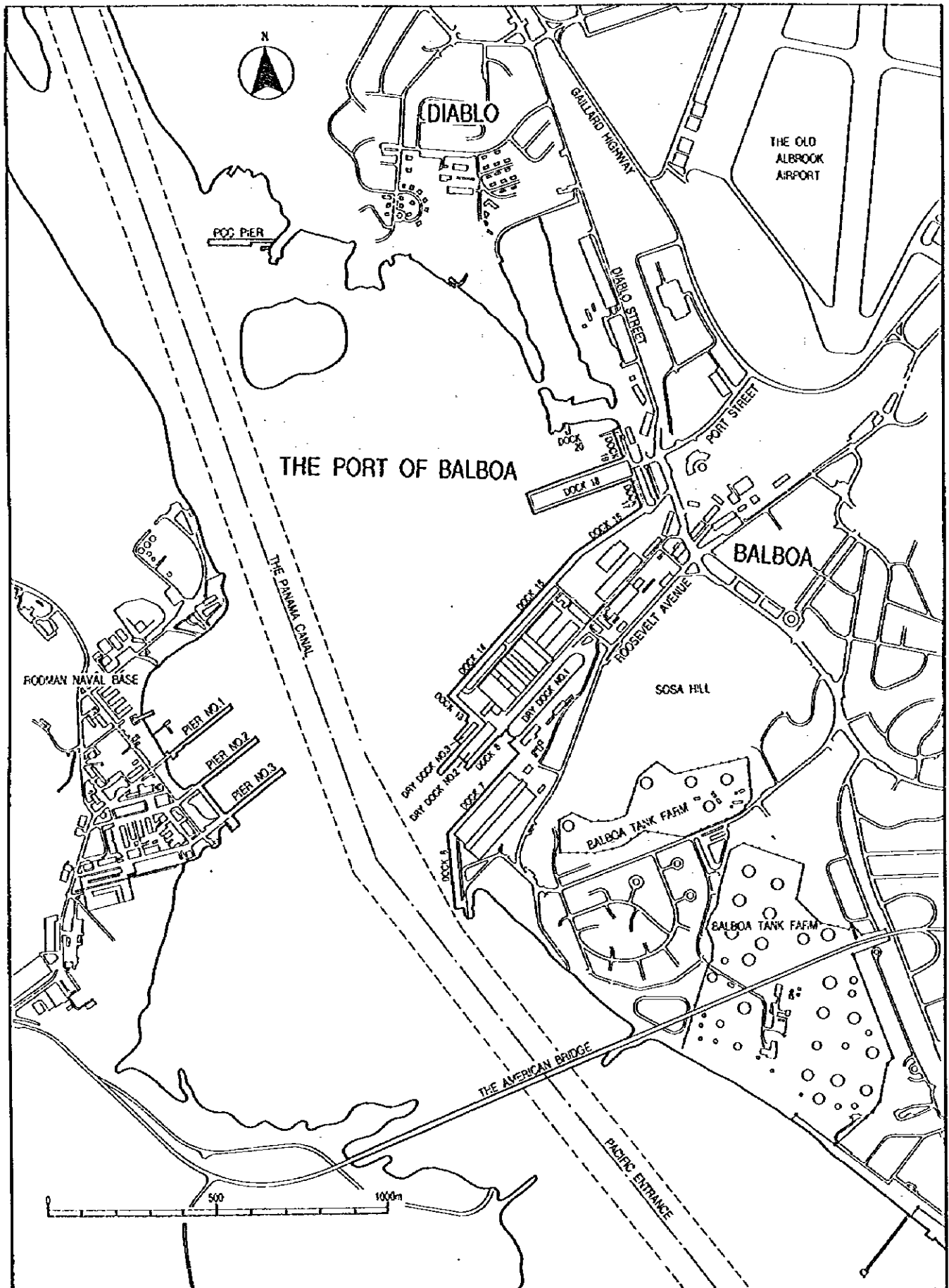


Figure 1-2-1 Layout of the Port of Balboa

1.2.2 Port Activity

12. All cargo handled at the port of Balboa is for overseas trade. Figure 1-2-2 shows the transitions of cargo volume by operations(unloading/loading) at the port of Balboa. The cargo volume has fluctuated and gradually increased since 1988. The share of the total cargo in Panamanian ports was 15% in 1995. With regard to Figure 1-2-2, 91% of cargo volume was unloaded(imported) in 1995.

13. Figure 1-2-3 and Table 1-2-2 show the transitions of cargo volume by packing types at the port of Balboa. The share of bulk cargo has been dominated since 1988 and it marked 63% in 1995. Container cargo has fluctuated strongly and the share of that was 30% in 1995. The container cargo of 44 thousand TEUs was handled and the share of importing cargo was 74% in 1995.

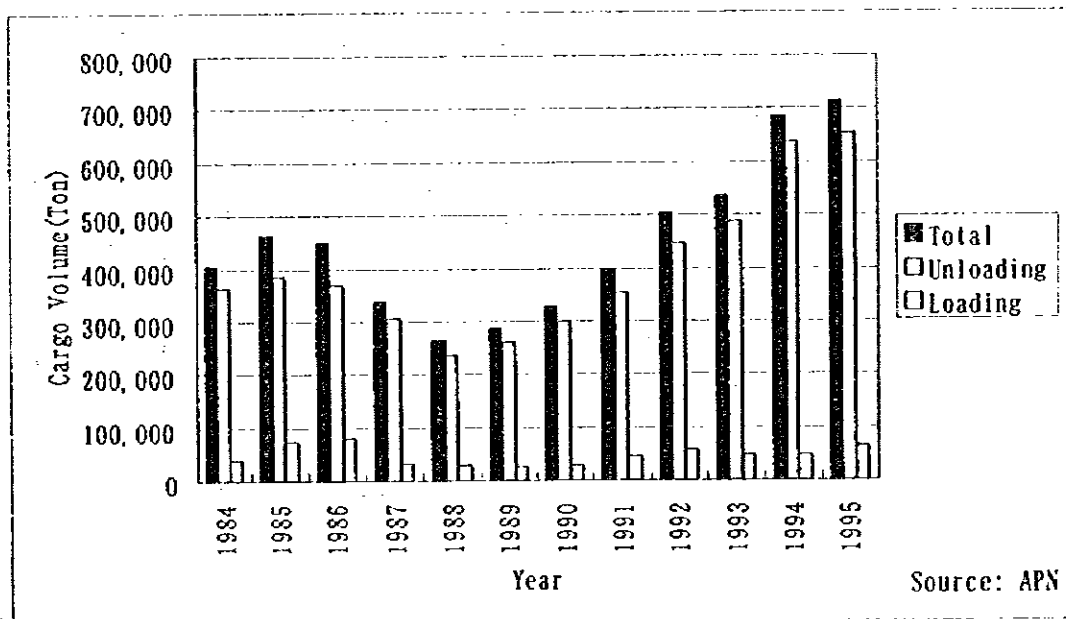


Figure 1-2-2 Cargo Volume Handled by Operations at Port of Balboa

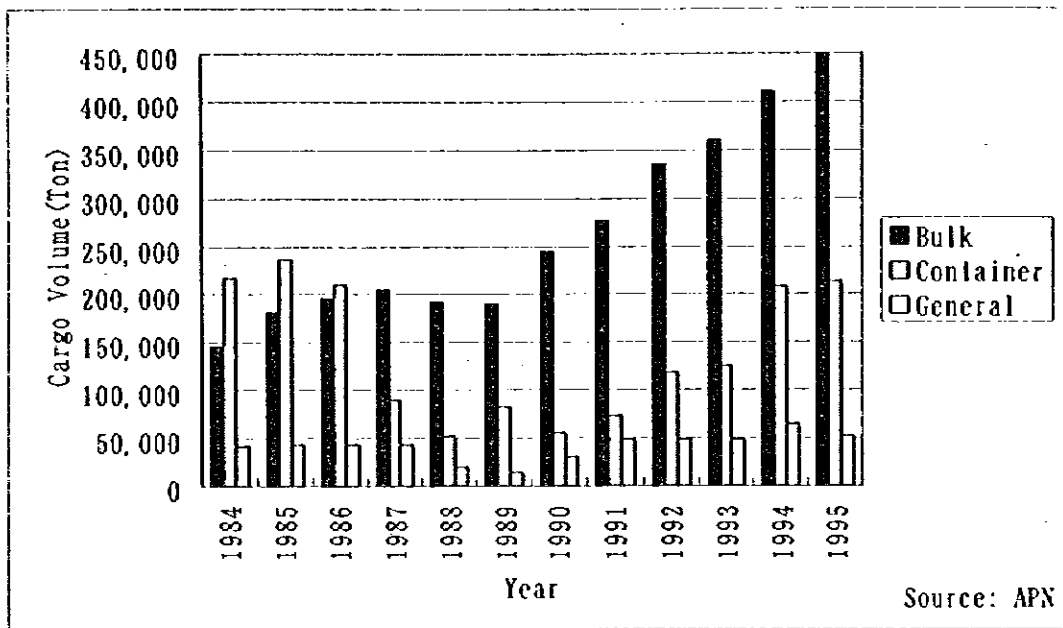


Figure 1-2-3 Cargo Volume Handled by Packing Type at Port of Balboa

Table 1-2-2 Cargo Movement of Container Handled at the Port of Balboa

Year	Cargo Volume (ton)			No. of Container (TEU)			No of Laden Cont. (TEU)		
	Unload	Load	Total	Unload	Load	Total	Unload	Load	Total
1987	74,150	16,378	90,528	9,287	8,965	18,252	9,141	2,675	11,816
1988	37,632	14,804	52,436	4,840	5,131	9,971	4,364	2,367	6,731
1989	63,050	19,836	82,886	7,750	6,335	14,085	7,430	3,130	10,560
1990	35,430	19,908	55,338	5,181	5,543	10,724	4,635	3,094	7,729
1991	46,857	27,179	74,036	6,896	5,612	12,508	5,040	4,071	9,111
1992	72,479	46,233	118,712	8,651	7,926	16,577	6,467	5,763	12,230
1993	84,824	40,722	125,546	10,411	10,419	20,830	8,650	5,237	13,887
1994	167,901	40,913	208,814	24,455	20,334	44,789	22,686	5,878	28,564
1995	158,086	55,683	213,769	21,529	22,739	44,268	20,625	7,566	28,191

Source : A P N

1.2.3 Port Management & Operation and Financial Condition

(1) Port Management and Operation

14. APN, as the state-run port management body, manages and operates 17 public ports in Panama including the Port of Balboa with six major offices in the Central Office, two Port Administration Offices at the side of both Balboa and Cristobal, and other minor port offices. APN is supported by a total of approximately 2,300 personnel including administrative staff and operational workers. See Figure 1-2-4 for Organization of APN.

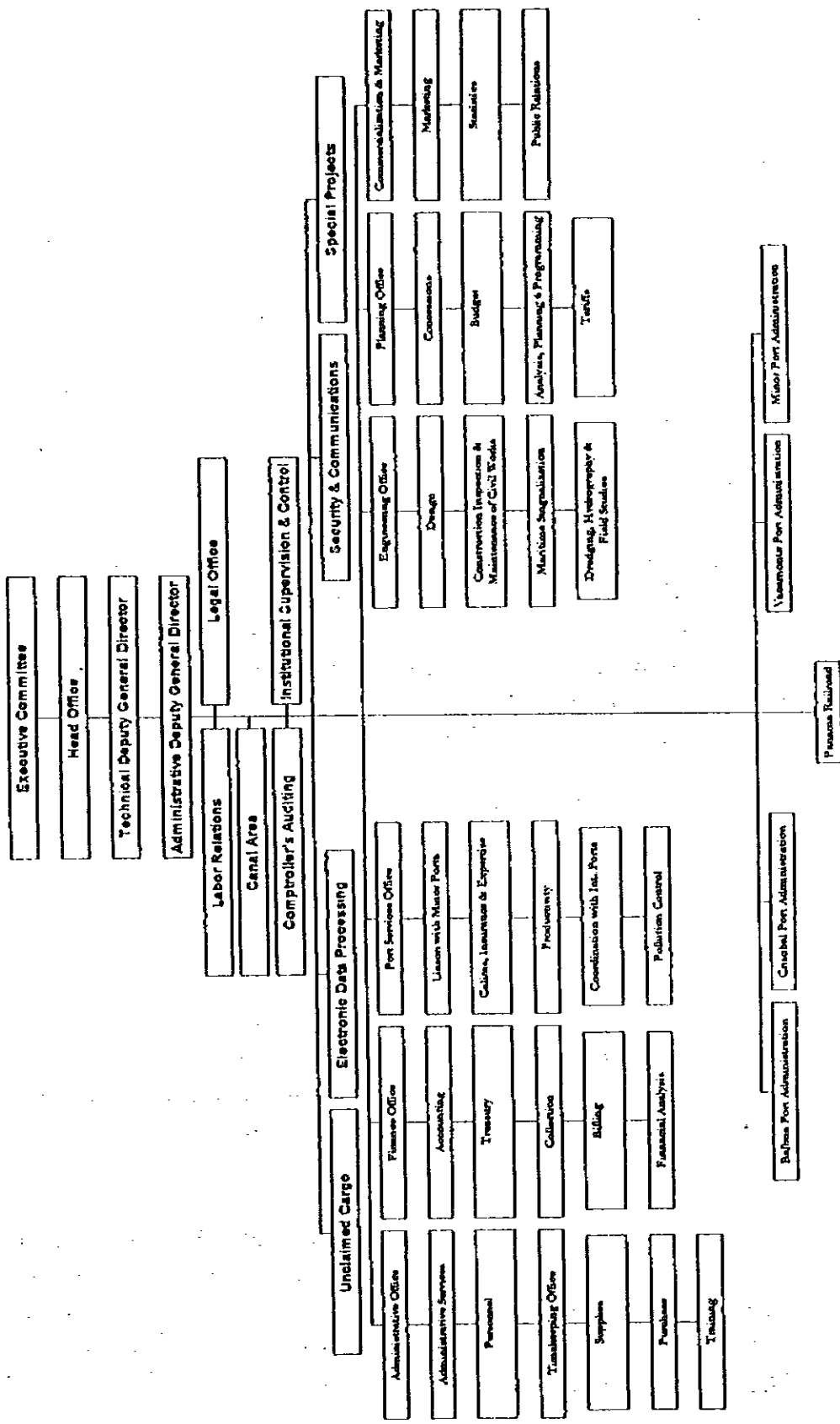


Figure 1-2-4 Organization of APN

15. The Administration Office of Balboa Port as well as Cristobal is under supervision of APN Central Office. The Port Administrator, who represents the APN General Director at the premises of the port, cooperates with directors of the office on management and operation of the port. The organization of the office which has more than five hundred staff consists of two units; Support and Linkage, and six departments at the Executive level.

16. With regards to management of the water area, PCC controls the water area within the Canal offering pilotage service and Ministry of Finance & Treasury is in charge of navigation control. APN is responsible for the installation of maritime facilities in the area and port activities within the boundaries of the port are also under control of APN. In cooperation with PCC, the Administration Office of the Port of Balboa is in charge of berthing and departure of vessels. The berth and shed allotment, and cargo operation are also conducted by the office.

17. The Port of Balboa, the one and only significant container-handling port on the Pacific Coast of Central and South America, contains various functions besides cargo handling. For example, the Port of Balboa is expected to play not only a role as a cargo handling base, but a role as an important "rest house" for vessels to and from the Pacific Ocean, offering maritime services such as bunkering, water supply, dry dock, launch, etc.

18. Since 1979 when the Port of Balboa and Cristobal were transferred from the United State of America in keeping with the Panama Canal Treaty, APN has managed and operated both ports. However, APN has not always been successful in increasing cargo volume because of its old facilities which are inadequate for modern containerized cargo handling.

19. The government of Panama is presently planning to privatize various public services including port activities. In the Port of Balboa, dry docks, towing, tug boat, bunkering and inland deposit services have been already privatized and even water supply, launch and other services provided by public sectors at present are under going privatization.

20. Since December, 1993 when the government and MIT' agreed on a concession contract granting the right to develop container terminals and port facilities and manage and operate them, privatized terminal operations has been introduced. In the Port of CoCo Solo Norte which used to be a domestic one, Taiwanese Shipping Line "Evergreen" is going to begin operations under a similar

concession contract. Even in the port of Balboa, several joint-companies from all over the world bid for the concession contract to develop a large project in the summer of 1996, and as a result, it has been decided that HIT, as the successful bidder, will operate Balboa and Cristobal Port, and develop the area surrounding the ports.

(2) Present Financial Condition

1) APN

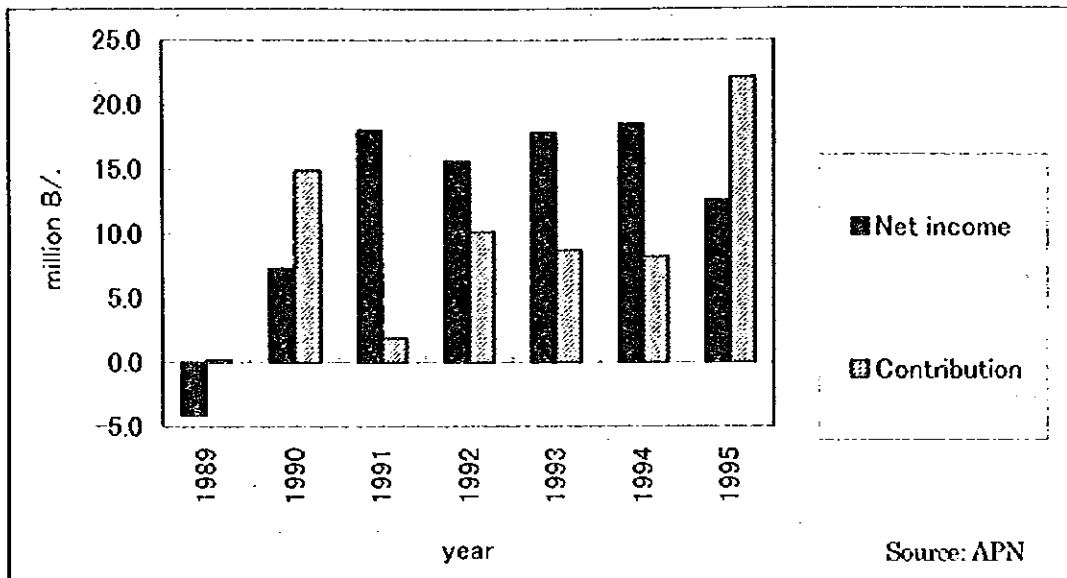
21. The total revenue of APN was 73.9 million Balboas in 1994, and 64.6 million Balboas in 1995. The cargo handling services account for the greatest part of revenues, representing about 70% of total revenues in 1995.

22. APN employs an International Port Tariff system for Cristobal and Balboa and a Domestic Port Tariff system for other ports. The international tariff system was changed and a new tariff item "Movement" was established in February, 1996. There is a 50% discount on "Movement" of container for transit.

23. The concession is the revenues that APN earns from the Contract of Lease and the Contract of Concession. The lease was 80.8 % of all concession contracts in the main four ports in 1995. Recently, a new type of concession contract, for example MIT in Manzanillo and Evergreen in Coco Solo Norte has been concluded by the National Government. It authorized the development of the wharves and its operation. Revenues from MIT were less than 50 thousand Balboas from May 1994 to March 1995.

24. The total operating expense of APN was 49.2 million Balboas in 1995. The personnel expenses cover a large part of operating expenses, representing 68% of total expenses in 1995.

25. Net income of APN was 12.6 million Balboas in 1995. The National Government collects a contribution from APN which amounted to 22 million Balboas in 1995. This contribution is not linked to the income level of APN. The total contribution has reached 70 million Balboas since 1982 (See Figure 1-2-5).



Note: "Contribution" means contribution to the National Government

Figure 1-2-5 Change of Net Income and Contribution to the National Government

26. The internal reserve of APN has been permitted to be used only for the purpose of dredging by the National Government. The total internal reserve was only 6.7 million Balboas as of December 31, 1995.

27. The financial plan of APN, for example budget, borrowing plan and repayment plan is made by MIPPE rather than APN. APN has no autonomy as far as its budget decision is concerned.

28. APN has three external loans of which the current amount was 8.9 million Balboas at the end of 1995. Unpaid interest on the loan including currency fluctuation was 25.9 million Balboas at that time. Repayment on a part of the loans has stopped since 1993.

29. APN had fixed assets of 976 million Balboas of the present book value as of December 31, 1995. Land is the most important asset with a value of 82% of all fixed assets of APN. The depreciation rate for cargo handling equipment is exceedingly high, more than 85%.

2) Balboa Port

30. The total revenue of Balboa Port was 19 million Balboas in 1995.

31. The total expenses of Balboa Port in 1995 was 11 million Balboas excluding depreciation of fixed assets. The great part of the expenses was the personnel expenses, representing 76.6 % of the total in 1995. The reason for the high personnel expenses of Balboa comes not only from the number of workers but also from the high expenses for each worker. The repairs and maintenance expenses represented only 14.4% of the total in 1995.

1.2.4 Natural Conditions around the Port

32. The natural conditions relevant to port development are generally favorable except tidal and geotechnical conditions. No stormy weather is experienced; the development sites both for the short-term (Diablo) and long-term (Farfan) are sheltered from intruding offshore waves; no strong currents hinders the ship maneuvering; earthquake is not concern although a certain seismic force is taken into account in structural design.

33. The tidal range between Mean Monthly High Water and Mean Monthly Low water is about 5.8 m. This large tidal range requires much deeper quay walls and more sophisticated fender systems than Port of Cristobal where the tidal range is only about 0.55 m.

34. Subsoil at Balboa, Diablo and Farfan is "La Boca Formation" which is comprised of the surface marine origin sediments layer, residual soils weathered from the sedimentary parent rock. Basalt and dacite intrusions are observed at Pier No. 6 and Pier No. 7. Technically, the elevation of the rock encounter determined the structural types of the existing piers; they were constructed in dry conditions and the foundation is cast-in-situ concrete piles or concrete abutments rested or anchored into the base rock. Because of the rock encounter, deepening of the existing piers for accommodating over-panamax vessels is technically invalid.

35. At Diablo, the rock exists shallower than Balboa. Therefore, expansion of the port straight to the north is not technically viable: the quay walls of the new berths should be made at the north of the Balboa Inner Harbor, expanding westerly from the existing Pier No. 20. The quay wall is recommended to be the same type as the existing piers at Balboa, namely an open concrete deck supported by cast-in-situ piles.

36. Rock lies beneath the Farfan Swamp: excavation for creating a new port basin into this swampy area is technically unsound. The quay walls should be aligned as close as possible to the canal to avoid a huge quantity of underwater rock excavation.

37. Offshore Amador Tank Yard where the oil berths are to be located, the surface sediments are underlain by the weathered rock which is dredgable by a powerful cutter suction dredger. Therefore, the allocation of the oil berths to this water area is technically viable.

II Master Plan (2015)

2.1 Basic Policy for the Development of the Port of Balboa

(1) Basic Understanding on Master Plan

1. The port of Balboa is a basic infrastructure for all kinds of cargoes and passengers for the national economic development, and vessels transiting the Canal for ship supply and repair as well. The government, as an owner of the port, should continue to take full responsibility in securing these functions for open public use.

(2) Expected Functions for the Port

2. Expected functions for the port are as follows:

- 1) The potential traffic demand through the port of Balboa has been evaluated, based on its strategic location at the Pacific entrance to the Canal and its proximity to the population center of Panama.
- 2) The master plan with the target year of 2015 and the short term plan for 2005 including alternatives has been prepared in accordance with the resulting traffic projections.
- 3) Full scale container terminals are to be developed as soon as possible, in order that the port may realize its potential transshipment demand. Transshipment will form an important link in the chain of the marketing strategy of the port of Balboa.
- 4) Based on the above, the possible future functions and services expected at the port of Balboa can be identified as follows:
 - i) Principal port for cargo handling
 - (a) Principal port for the main and feeder line services for transshipment cargoes to / from major ports at the Pacific side of Central and South America
 - (b) Principal port for import and export cargoes for domestic consumption and production, the Colon Free Zone, and the Export Processing Zones

- ii) Ship repair and bunkering center for vessels calling the port and transiting the Canal, etc.
 - (a) Ship repair and maintenance center
 - (b) Bunkering service center
- iii) Other major functions
 - (a) Calling Port for cruising passenger boats to promote tourist industry
 - (b) Land use related to the port activities

(3) Planning Stage and Development Scenarios for the Port concerning Cargo Flow

3. The development process is divided into 4 stages, namely Urgent, Short Term, Long Term and Post Master Plan. Outline of development scenario of each stage is as follows. (Needless to say, order of stages may be changed to remain competitive with other private entities.)

Urgent Stage (-2000)

- 1) The port will start to serve the vessels operated on main lines with the feeder transport for Central and South American west coast after the improvement of the existing berths (as the tentative container terminal).

Short Term Plan Stage (-2005)

- 1) The port will start to establish its position as a major port for transshipment operation for the Central and South American west coast.
- 2) The port with a new full container terminal will serve the increasing container traffic for the Free Zone and the developing Export Processing Zones.
- 3) At the existing piers, general cargo and bulk cargo other than containerized cargo will be handled.

Master Plan stage (-2015)

- 1) The port will assure its position as a major port for transshipment operation with additional full container terminals.
- 2) The cargo flow at the port will increase with the expansion of the Free Zone and the construction of the Export Processing Zones.

Post Master Plan Stage (2015-)

- 1) The full scale services for transshipment operation between main lines and feeder lines will be realized after the expansion of the Canal for post Panamax type vessels.

2.2 Future Demand of Cargo, Passenger Traffic, and Ship Service

4. Two different methods, macro forecast and micro forecast, are applied to estimate domestic cargo volume at the port of Balboa. To forecast transshipment container cargo at the port of Balboa, however, the potential container cargo for Balboa is identified as the total container traffic in Pacific Latin America and a part of the potential container will be transshipped at Balboa.

5. Table 2-2-1 and Table 2-2-2 show the forecast results of domestic cargo and transshipment to be handled by Balboa port. In consequence, the total cargo volume including transshipment is estimated as 2.5 million tons in 2005 and 4.79 million tons in 2015 based on the high growth case, and 3.65 million tons in 2005 and 7.59 million tons based on the low growth case. In terms of domestic cargo only, the forecast cargo volume in 2015 in the high growth case is about 4.7 times greater than in 1995 and while it is about 2.8 times greater in the low growth case. Container cargo including the transshipment is estimated as 510,000 TEUs in 2005 and 1,090,000 TEUs in 2015 based on the high growth case, and 360,000 TEUs in 2005 and 760,000 TEUs based on the low growth case. The ratio of the number of the transshipment container cargo per all container cargo was about 15% in 1995. However, in 2005, it is estimated to reach approximately 82% in the high growth case, and about 78% in the low growth case.

6. Table 2-2-3 summarizes the forecast of passenger traffic and ship service. The forecast of passenger traffic was carried out based on the master plan at Amador by ARI (Interoceanic Region Authority). The forecast of ship service (bunkering and ship repair) was carried out based on the statistics of corresponding private companies because these activities are already privatized.

Table 2-2-1 Summary of Cargo Forecast at Balboa

Year	Unit: Metric Ton						
	1995 (Actual)	2005			2015		
	Low Case	Medium	High Case	Low Case	Medium	High Case	
Import Cargo							
Bulk Cargo							
Solid Bulk	376,128	566,000	713,000	860,000	842,000	1,268,000	1,694,000
Liquid Bulk	66,376	100,000	126,000	152,000	149,000	224,000	299,000
Sub Total	442,504	666,000	839,000	1,012,000	991,000	1,492,000	1,993,000
General Cargo							
Container	140,536	292,000	337,000	382,000	514,000	646,000	777,000
Break Bulk	50,013	73,000	85,000	96,000	129,000	162,000	191,000
Sub Total	190,549	365,000	422,000	478,000	643,000	807,000	971,000
Total Import Cargo	633,053	1,031,000	1,261,000	1,490,000	1,634,000	2,299,000	2,964,000
Export Cargo							
General Cargo							
Container	38,847	94,000	94,000	94,000	203,000	203,000	203,000
Break Bulk	2,293	10,000	10,000	10,000	23,000	23,000	23,000
Total Export Cargo	41,140	104,000	104,000	104,000	226,000	226,000	226,000
Import & Export Cargo	674,193	1,135,000	1,365,000	1,594,000	1,860,000	2,525,000	3,190,000
Container Transshipment							
	34,386	1,368,000	1,710,000	2,060,000	2,934,000	3,671,000	4,400,000
Grand Total	708,579	2,503,000	3,075,000	3,654,000	4,794,000	6,196,000	7,590,000

Source: JICA Study Team

(Note) Outline of Cargo Forecast

1. Domestic Cargo

(1) Future Socio-economic Indices

Population 1.5%/year(1995-2005), 1.2%/year(2005-2015)

GDP (high case) 5.0%/year(2005, 2015)

...based on the high growth rate of the last ten years

(low case) 2.4%/year(2005, 2015)

...based on the low growth rate of the last five years

(2) Macro Forecast

Domestic Cargo = 265.68 × GDP — 880,008 (Correlation: R = 0.949)

(3) Micro Forecast

Cargo volume in the micro forecast is based on future GDP, productivity of unit area, etc., taking into consideration past trends by each commodity. General cargo is forecasted based on local cargo, the Colon Free Zone, and EPZ around Balboa. Container cargo is estimated using current containerization ratio (80% for import, 90% for export).

2. Transshipment Container Cargo

The potential container for Balboa is identified as the total container traffic in Pacific Latin America (Mexico, El Salvador, Panama, Colombia, Ecuador, Peru, and Chile) and forecasted based on the past records of the Gross Domestic Product in the corresponding seven countries and their correlation with the container cargo volume handled in 13 major container ports in the area. Ten percent of the regional container cargo is assumed to be transshipped at Balboa in 2005, and 15% in 2015. The high or low case is assumed so that 20% of the cargo in the corresponding case will be gained or lost respectively.

Table 2-2-2 Summary of Forecast for Container Cargo at Balboa

Year	1995	2005			2015		
	(Actual)	Low Case	Medium	High Case	Low Case	Medium	High Case
Import Cargo							
Laden Container (Metric Ton)	140,536	292,000	337,000	382,000	511,000	646,000	777,000
(TEU)	20,625	38,000	44,000	50,000	67,000	81,000	101,000
Empty Container (TEU)	901	2,000	2,000	2,000	3,000	4,000	4,000
Total Import (Metric Ton)	140,536	292,000	337,000	382,000	514,000	646,000	777,000
(TEU)	21,529	40,000	46,000	52,000	70,000	88,000	105,000
Export Cargo							
Laden Container (Metric Ton)	38,847	94,000	94,000	94,000	203,000	203,000	203,000
(TEU)	7,566	13,000	13,000	13,000	27,000	27,000	27,000
Empty Container (TEU)	15,173	26,000	26,000	26,000	56,000	56,000	56,000
Total Export (Metric Ton)	38,847	94,000	94,000	94,000	203,000	203,000	203,000
(TEU)	22,739	39,000	39,000	39,000	83,000	83,000	83,000
Import & Export (Metric Ton)	179,383	386,000	431,000	476,000	717,000	849,000	980,000
(TEU)	37,791	79,000	85,000	91,000	153,000	171,000	188,000
Transshipment							
(Metric Ton)	34,386	1,368,000	1,710,000	2,060,000	2,934,000	3,671,000	4,400,000
(TEU)	6,477	282,000	352,000	423,000	603,000	754,000	905,000
Grand Total							
(Metric Ton)	213,769	1,754,000	2,141,000	2,536,000	3,651,000	4,520,000	5,380,000
(TEU)	44,268	361,000	437,000	514,000	756,000	925,000	1,093,000

Source: JICA Study Team

Table 2-2-3 Future Demand of Passenger Traffic and Ship Service

Year	1995	2005	2015
Annual Passenger	31,185	94,600	234,000
Bunkering Service (barrel)	14,713,814	25,500,000	34,000,000
Ship Repair Calls	73	105	105

Source: JICA Study Team

2.3 Long Term Physical Layout Plan

7. After various alternatives of sites and procedures for the development of the port were carefully compared and examined, the following plan was formulated as the best physical layout plan for long term. Every function of the port is expected to be clearly separated from each other and arranged in the future.

Functional allotment of the Port at each stage of development is shown in Table 2-3-1.

(1) New Container Terminals and Other Necessary Facilities at Diablo and Balboa (See Figure 2-3-1)

- Two (2) consecutive container berths

Berth Depth	-13.0 (~ 14.0) m		
Berth Length		700 m	
Terminal Area	24.5 (~ 35.0) ha		
(Cargo Handling Capacity 600,000 (~ 800,000) TEUs/year)			
- Two (2) berths for tuna boats with improvement of the port of Vacamonte

Berth Depth	-7.5 m	Berth Length	180 m
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- Two (2) berths for sand barges which use Pier 20 with concession

Berth Depth	-4.0 m	Berth Length	120 m
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- Increasing the depth of the northern section of Pier 18 for passenger cruiser ships

Berth Depth	-10.0 m	Berth Length	280 m
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(2) New Container Terminals at Farfan (See Figure 2-3-2)

- Two (2) consecutive container berths

Berth Depth	-14.0 (~ 15.0) m
Berth Length	700 m
Terminal Area	24.5 (~ 35.0) ha

(3) Oil Terminal at North Amador (See Figure 2-3-3)

- One (1) tanker pier and two (2) oil barge piers

Berth Depth	-12.0 (~ 14.0), -7.5, and -5.5 m
Berth Length	240 (~ 280), 130, and 100 m

(4) Other Projects

- New Small Piers at Corozal for Pier No.19 at Balboa (PCC) (See Figure 2-3-1 and "PROJECTS OF THE STUDY" in the opening pages of this book)
- Cruise Ship Pier and Boating Marina at Amador (ARI) (See Figure 2-3-3)
- Oil Terminal at Existing Rodman (ARI), which will be relocated and expanded to the south it in the process of the construction of the new Canal (See Figure 2-3-2)

Table 2-3-1 Functional Allotment of the Port at Each Stage of Development

Time Span to be Considered	Major Functions					
	Container Terminal	Automobile	Grain	General Cargo	Bunker (Import)	Dry Dock
<i>Present</i>	Pier 14, 15, 16	Pier 6, 15, 16	Pier 6, 14	Pier 16, 18	Pier 6, 7	Pier 14
<i>Urgent</i> (Instant Improvement)	Pier 14, 15, 16 (yard expansion and new equipment)	Pier (7), 14, 15, 16 (yard expansion)	Pier (7), 14, 15 (new equipment)	Pier 16, 18	Pier 6(, 7) and (partial transfer)	Pier 7(, 14)
<i>Short Term 2005</i> (Feasibility Study)	Diablo (and Farfan) (new terminal)	Pier 15, 16 (yard expansion)	Pier 15, 16	(Pier 16 and) 18 south	Pier 6 and Rodman (and/or north	Pier 7, 14
<i>Long Term 2015</i> (Master Plan)	Diablo and Farfan (new terminal)	Pier 15, 16 (and/or Farfan) (new terminal)	Pier 15, 16	(Pier 16 and) 18 south	north Amador and south Rodman	Pier 7, 14 (and/or Farfan) (expansion)
<i>Post Long Term</i> <i>After 2015</i>	Diablo and Farfan	Pier 15, 16 and/or Farfan	Pier 15, 16 (and/or Farfan)	(Pier 16 and) 18 south	north Amador and south Rodman	and Farfan

Time Span to be Considered	Major Functions					
	Passenger Cruiser	Tuna Boat	Sand Vessel	Ferry and Launch	PCC Launch	Tugboat
<i>Present</i>	Pier 18	Pier 18	Pier 20	Pier 17	Pier 19	(Pier 14)
<i>Urgent</i> (Instant Improvement)	Pier 18	Pier 18	Pier 20	Pier 17, 19	Pier 19	Pier 18
<i>Short Term 2005</i> (Feasibility Study)	Pier 18 (north and/or Amador)	north Balboa (new pier)	Diablo (new pier)	Pier 17, 19	north Corozal (new PCC terminal)	Pier 18
<i>Long Term 2015</i> (Master Plan)	Pier 18 north and Amador	north Balboa (new pier)	Diablo (new pier)	Pier 17, 19	north Corozal (new PCC terminal)	Pier 18
<i>Post Long Term</i> <i>After 2015</i>	Pier 18 north and Amador	north Balboa (new pier)	Diablo (new pier)	Pier 17, 19	north Corozal (new PCC terminal)	Pier 18

Note 1: all the canal area, related to the Canal and US military, will be reverted to Panama by 2000.

Note 2: the new third lock of the Canal will be constructed by 2020.

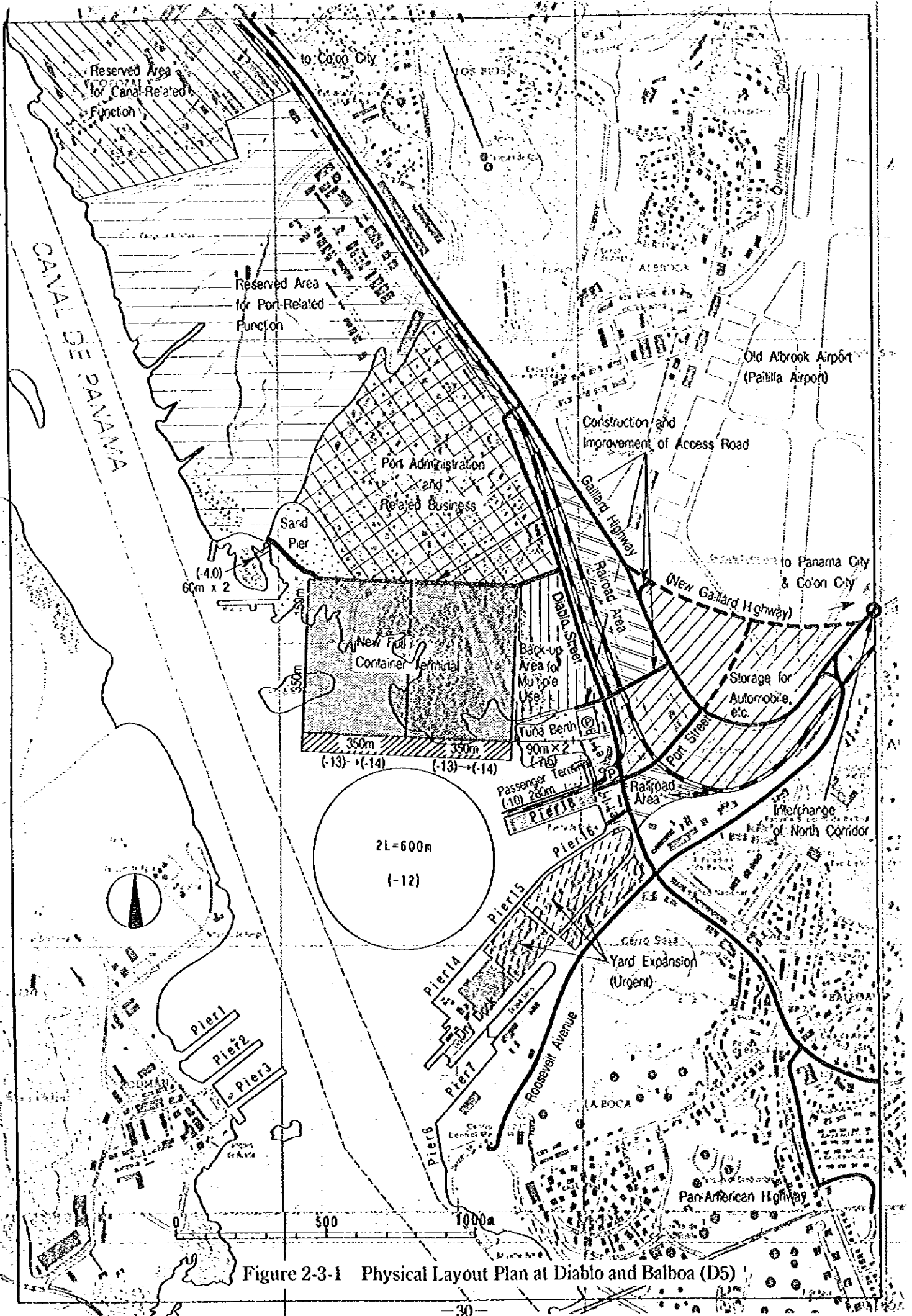


Figure 2-3-1 Physical Layout Plan at Diablo and Balboa (D5)

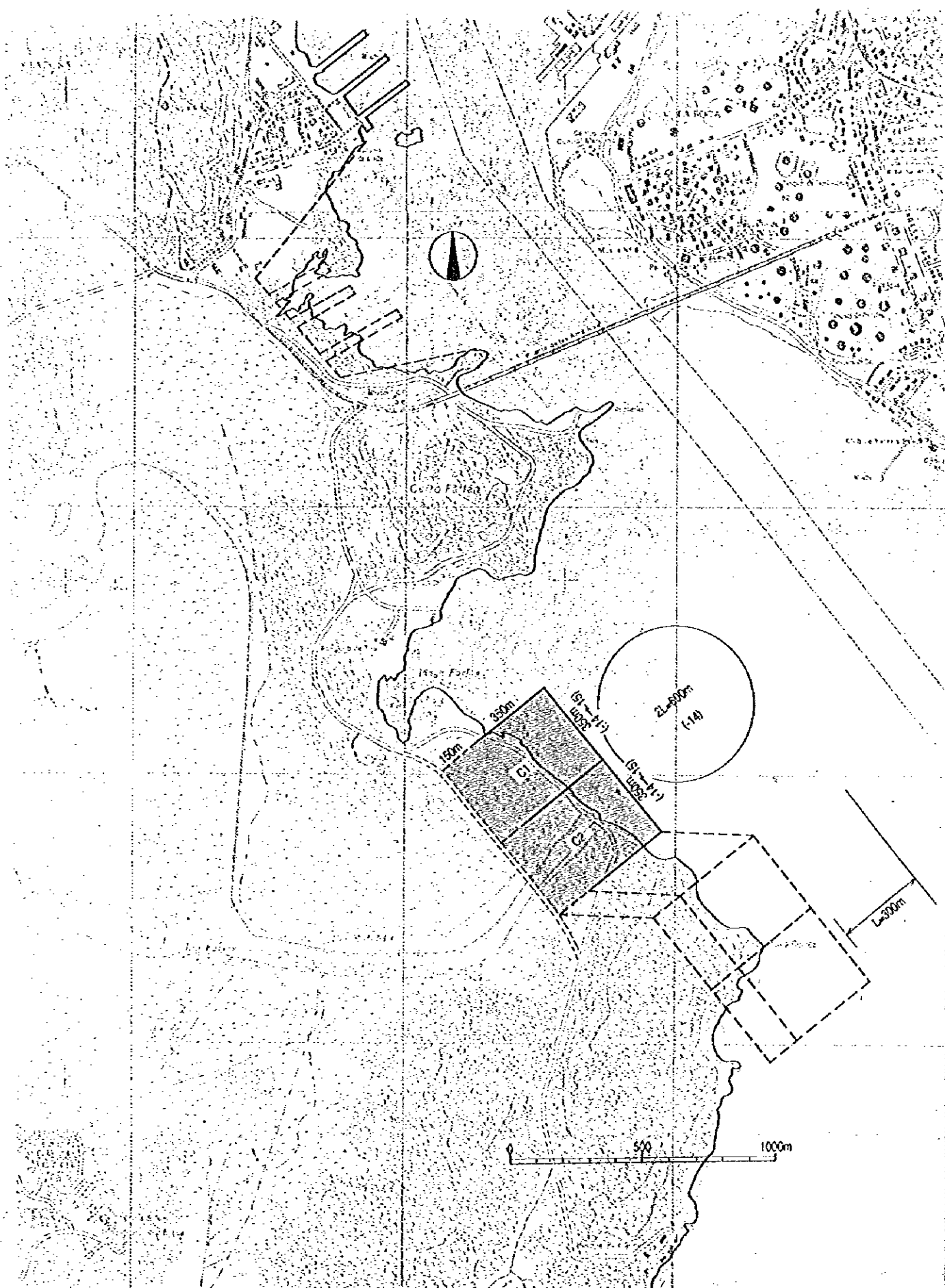


Figure 2-3-2 Surrounding Area of New Container Terminal at Farfan

OCRA

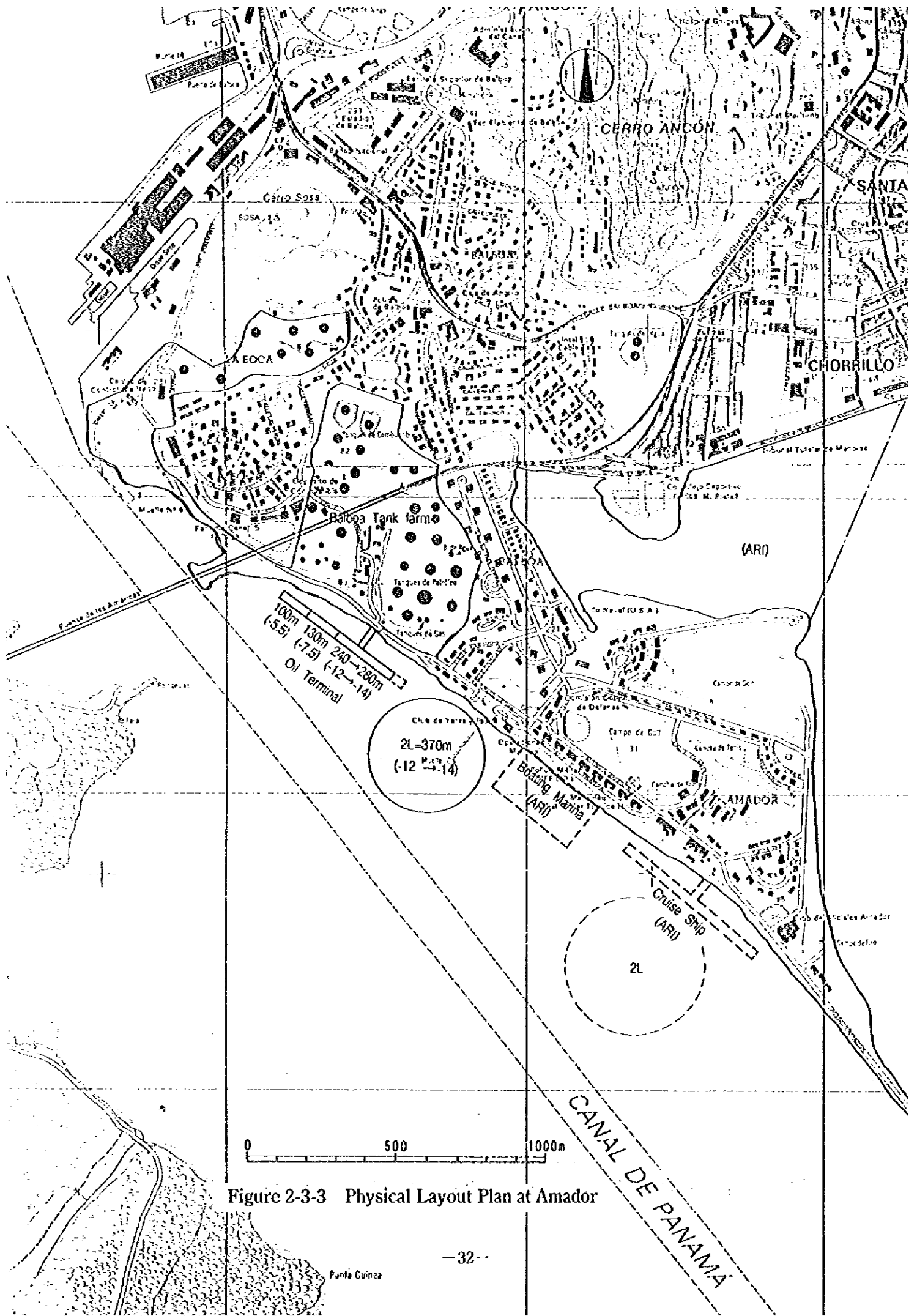


Figure 2-3-3 Physical Layout Plan at Amador

(Note) Selection of the Best Alternative Plan

1. Five (5) alternative plans for Site-Diablo (D1-D5) and three (3) for Site-Farfan (F1-F3) are prepared and analyzed for the Master Plan.
2. In Site-Diablo, the major difference among these alternatives lies in how to arrange the quay face line of the container terminal because the space is limited in terms of both land and water area. In addition, the subsoil investigation of the JICA Study Team revealed that various types of rock are found around the land area of Site-Diablo, which will substantially increase the construction cost. Alternative Plan D-5 minimizes dredging in the existing land area while securing the necessary turning basin in the water area. At the same time, this plan is further cost effective since large calling vessels can utilize the large Pacific tidal difference (approximately 6 meters), tuna boats can use the Port of Vacamonte, and so on.
3. In Site-Farfan, representative alternative plans are land reclamation off the seashore (F1), land digging into the seashore (F2) and land reclamation along the seashore (F3). Former two alternatives (F1 and F2) have been abandoned, however, due to low future expansion potential or the high dredging cost of hard rock, which was found in the above subsoil investigation.
4. The major alternative plans are shown as follows;

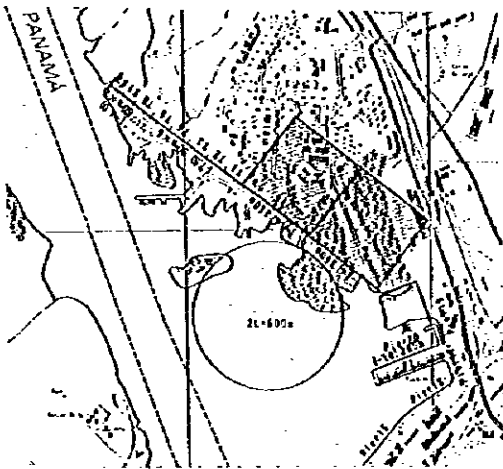


Figure 2-3-4 Alternative Plan at Diablo District (D3)

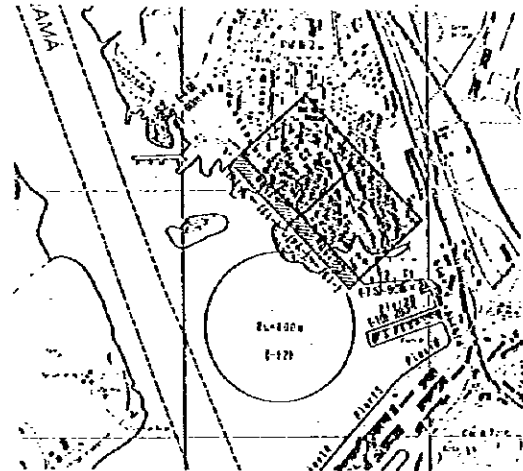


Figure 2-3-5 Alternative Plan at Diablo District (D4)

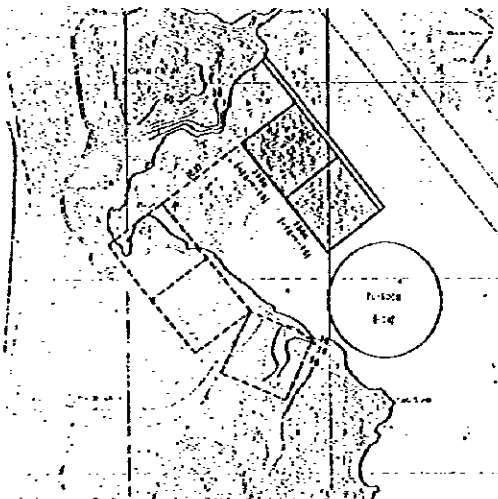


Figure 2-3-6 Alternative Plan at Farfan District (F1)

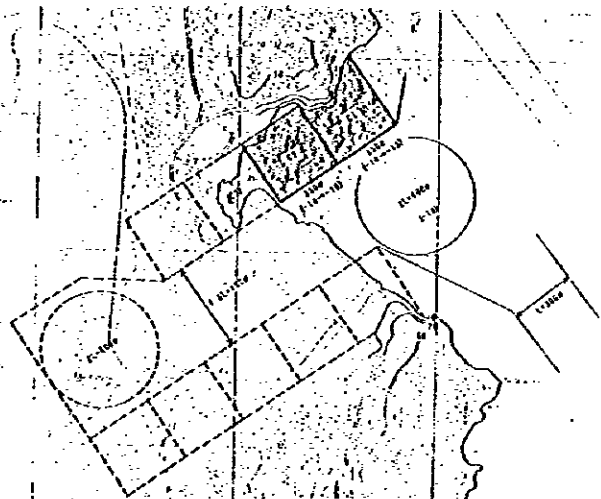


Figure 2-3-7 Alternative Plan at Farfan District (F2)

2.4 Land Use Plan

8. The function of the port is fulfilled in combination with the road network system and surrounding area. Land use plan of surrounding area and the road network for the Long Term Plan is explained as follows.

(1) Surrounding Area of the Existing Port (See Figure 2-3-1)

9. Passenger flow is separated from cargo flow and integrated as much as possible around the entrance of the port (around Pier No. 19). Some container yard space was prepared for urgent program for container handling.

10. It is appropriate to put automobiles (compact and mobile) in the south area of the new alignment of the existing Gaillard Highway (New Gaillard Highway) because the new airport will be moved from Paitilla to the north of the highway.

(2) Surrounding Area of New Container Terminal at Diablo (See Figure 2-3-1)

11. According to the increase of container cargo handling, shipping and trading activity will be concentrated in this area. Sufficient space should be reserved in the back the port.

12. Railway as land bridge between the new container terminal and those on the Caribbean side should be introduced in such a way as might not affect the terminal operation. Only an access line for passenger terminal is allowed.

(3) Surrounding Area of New Container Terminal at Farfan (See Figure 2-3-2)

13. Since Farfan is almost virgin area, the entire development project should be conducted in a well organized manner. It should be reserved for related activities like cargo handling, land transportation, storage, trade and industrial complex.

2.5 Approximate Project Cost and Implementation Program

14. The project cost for the Master Plan is summarized in Table 2-5-1.

Table 2-5-1 Cost Summary for the Master Plan (D5/F3)
(Unit : Million US\$)

Urgent Measures	58.4
Short-Term Development	
CT 1 st Stage	66.8
CT 2 nd Stage	58.9
Tuna Boat Berths	11.9
Sand/Gravel Berths	0.7
Renovation of Pier No. 18	0.8
Substitute Mangrove at Amador	1.6
Master Plan	
CT 1 st Stage	137.7
CT 2 nd Stage	80.6
Oil Berths	26.4
Engineering Costs	20.3
Total	464.0

Notes: CT: Container Terminal

15. Figure 2-5-1 shows the implementation program for the recommended alternative in the high-growth case; namely the combination of Alternative Plan-D5 (short-term) and Alternative Plan-F3 (long-term).

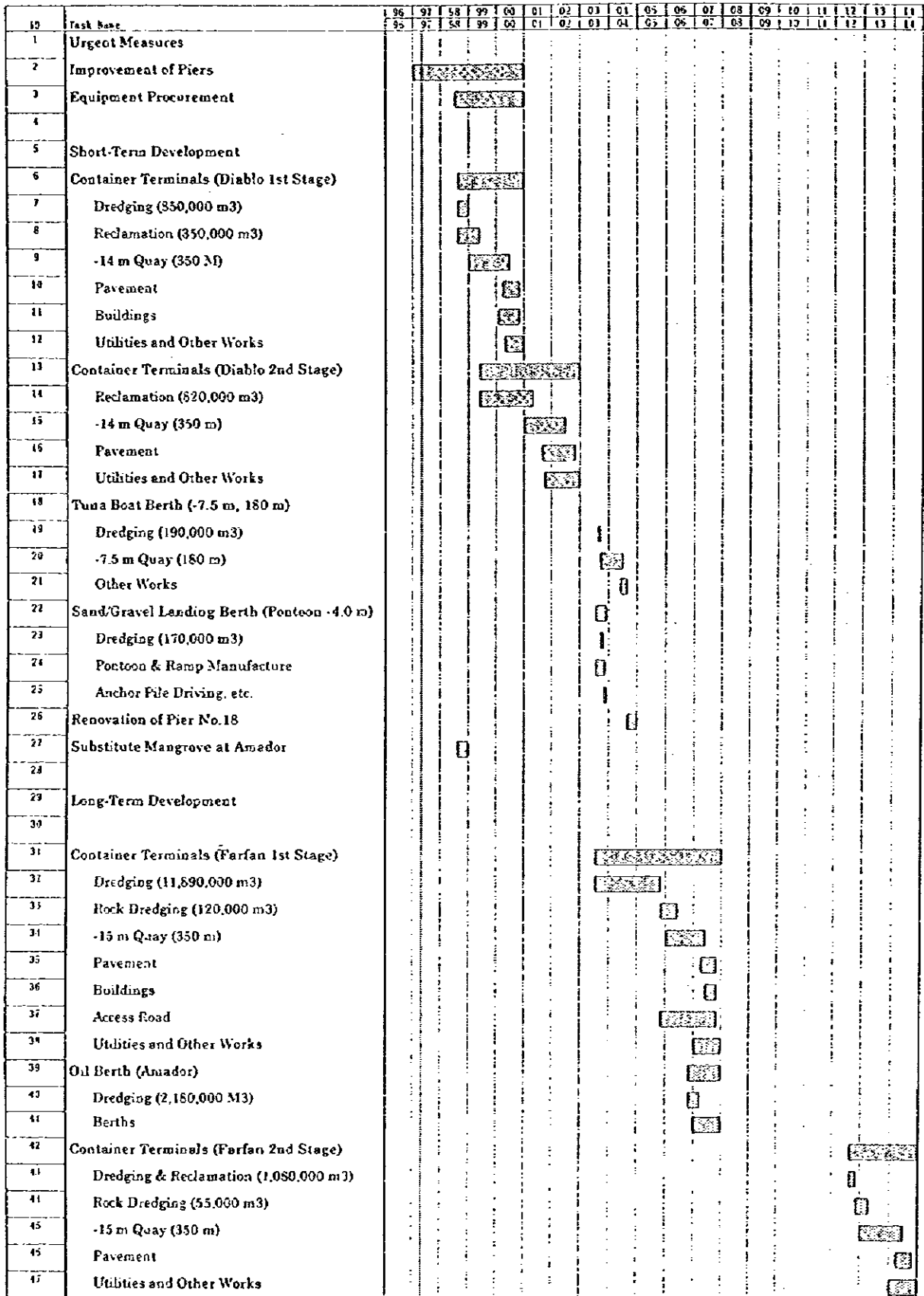


Figure 2-5-1 Implementation Program

III Short Term Plan (2005)

3.1 Short Term Physical Layout Plan

1. The projects for the short term are selected based on the long term plan as previously stated. The detailed layout plan (Container Terminal, Passenger Terminal, Tuna Berth and Sand Pier at Balboa and Diablo) is shown in Figure 3-1-1. A new access road from the new container terminal to the Diablo Road (desirable 4 lanes) will be constructed, and related existing roads should be improved.

3.2 Project Cost and Implementation Program

2. The Project Cost for the Short-Term Development is tabulated in Table 3-2-1 and the construction schedule in high-case demand is presented in Figure 3-2-1.

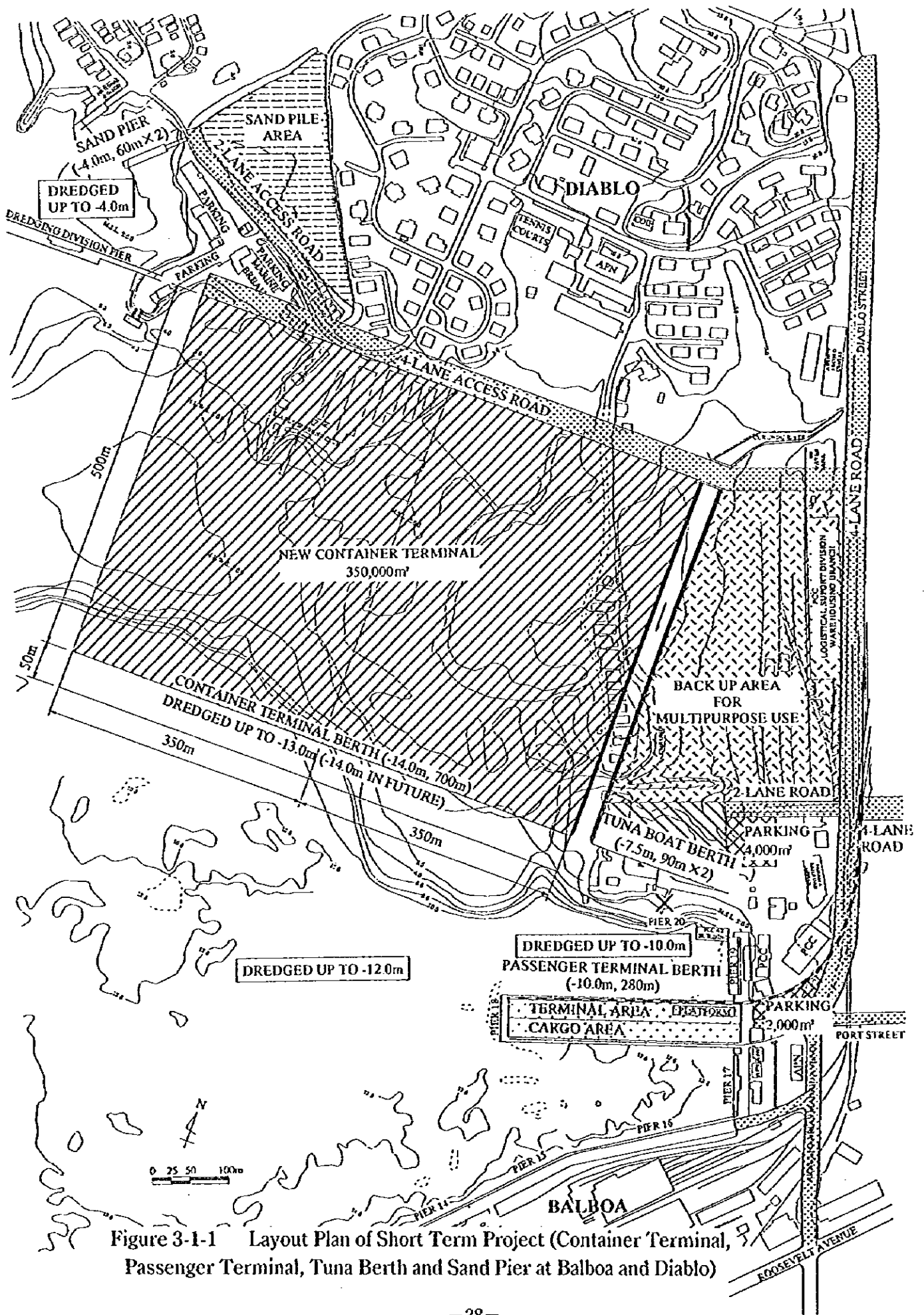


Figure 3-1-1 Layout Plan of Short Term Project (Container Terminal, Passenger Terminal, Tuna Berth and Sand Pier at Balboa and Diablo)

Table 3-2-1 Project Cost for Short-Term Development

Item No.	Description of Work	Unit	Quantity	Unit Rate	Total Amount
				(US\$)	(US\$)
A	Urgent Measures				
1	Improvement of Piers	ls.	1	45,000,000	45,000,000
2	Equipment				
	a. Panamax Container Quay-side Cranes	each	2	4,500,000	9,000,000
	b. Transfer Crane	each	3	1,000,000	3,000,000
	c. Reach Stackers	each	1	350,000	350,000
	d. Top Lifters	each	3	70,000	210,000
	e. Trailers	each	10	60,000	600,000
	f. Chassis	each	12	20,000	240,000
					13,400,000
	Urgent Measures, Civil Works				45,000,000
	Ditto, Equipment				13,400,000
	Ditto, Total				58,400,000
B	Short-Term Development				
1	Container Terminals (Diablo 1st Stage)				
1.1	Dredging (-13m)	cu. m.	850,000	2.0	1,700,000
1.2	Reclamation	cu. m.	350,000	6	2,100,000
1.3	- 14m Quay	l.m.	350	67,500	23,625,000
1.4	Pavement	sq. m.	110,000	150	16,500,000
1.5	Building	sq. m.	6,500	200	1,300,000
1.6	Electrical Works	l.s.	1	1,600,000	1,600,000
1.7	Utilities Works	l.s.	1	800,000	800,000
1.8	Access Road	l.m.	520	2,400	1,248,000
1.9	Miscellaneous Works	l.s.	1	4,890,000	4,890,000
					53,763,000
1.10	Post-Panamax Container Quay-side Crane	each	2	5,000,000	10,000,000
1.11	Transfer Cranes	each	3	1,000,000	3,000,000
					13,000,000
2	Container Terminals (Diablo 2nd Stage)				
2.1	Reclamation	cu. m.	820,000	6	4,920,000
2.2	- 14m Quay	l.m.	350	67,500	23,625,000
2.3	Pavement	sq. m.	123,000	150	18,450,000
2.4	Electrical Works	l.s.	1	400,000	400,000
2.5	Utilities Works	l.s.	1	200,000	200,000
2.6	Access Road	l.m.	350	2,000	700,000
2.7	Miscellaneous Works	l.s.	1	4,830,000	4,830,000
					63,125,000
2.10	Post-Panamax Container Quay-side Crane	each	1	5,000,000	5,000,000
2.11	Transfer & Reinstall of Panamax Container Quay-side Crane	l.s.	1	750,000	750,000
					5,750,000

Table 3-2-1 Project Cost for Short-Term Development

Item No.	Description of Work	Unit	Quantity	Unit Rate	Total Amount
				(US\$)	(US\$)
3	Tuna Boat Berths (Balboa)				
3.1	Dredging	cu.m.	190,000	1.5	285,000
3.2	- 7.5 m Quay	l.m.	180	50,000	9,000,000
3.3	Pavement	sq.m.	3,600	100	360,000
3.4	Access Road	l.m.	240	1,000	240,000
3.5	Electrical/Utilities/Miscellaneous Works	l.s.	1	1,980,000	1,980,000
					11,865,000
4	Sand/Gravel Landing Berth (Amador)				
4.1	Dredging	cu.m.	170,000	2.5	425,000
4.2	- 4.0 m Quay (pontoon type 60 m)	l.s.	1	200,000	200,000
4.3	Electrical/Utilities/Miscellaneous Works	l.s.	1	31,250	31,000
					656,000
5	Renovation of Pier No.18				
5.1	Passenger Terminal (3,000 m2)	sq.m.	3,000	150	450,000
5.3	Parking (6,800 m2)	sq.m.	6,800	50	340,000
5.4	Electrical/Utilities/Miscellaneous Works	l.s.	1	39,500	40,000
					830,000
6	Substitute Mangrove at Amador	cu.m	850,000	1	850,000
6.1	Soil Transport and Fill	l.m.	1,200	550	660,000
6.2	Submerged Dike	ha	14	4,500	63,000
6.3	Plantation				1,573,000
	Short-Term Development, Civil Works				121,812,000
	Ditto, Equipment				18,750,000
	Ditto, Total				140,562,000
	Civil Works, Total				166,812,000
	Equipment Total				32,150,000
	Total				198,962,000
	Engineering Cost				8,984,000
	Grand Total				207,946,000

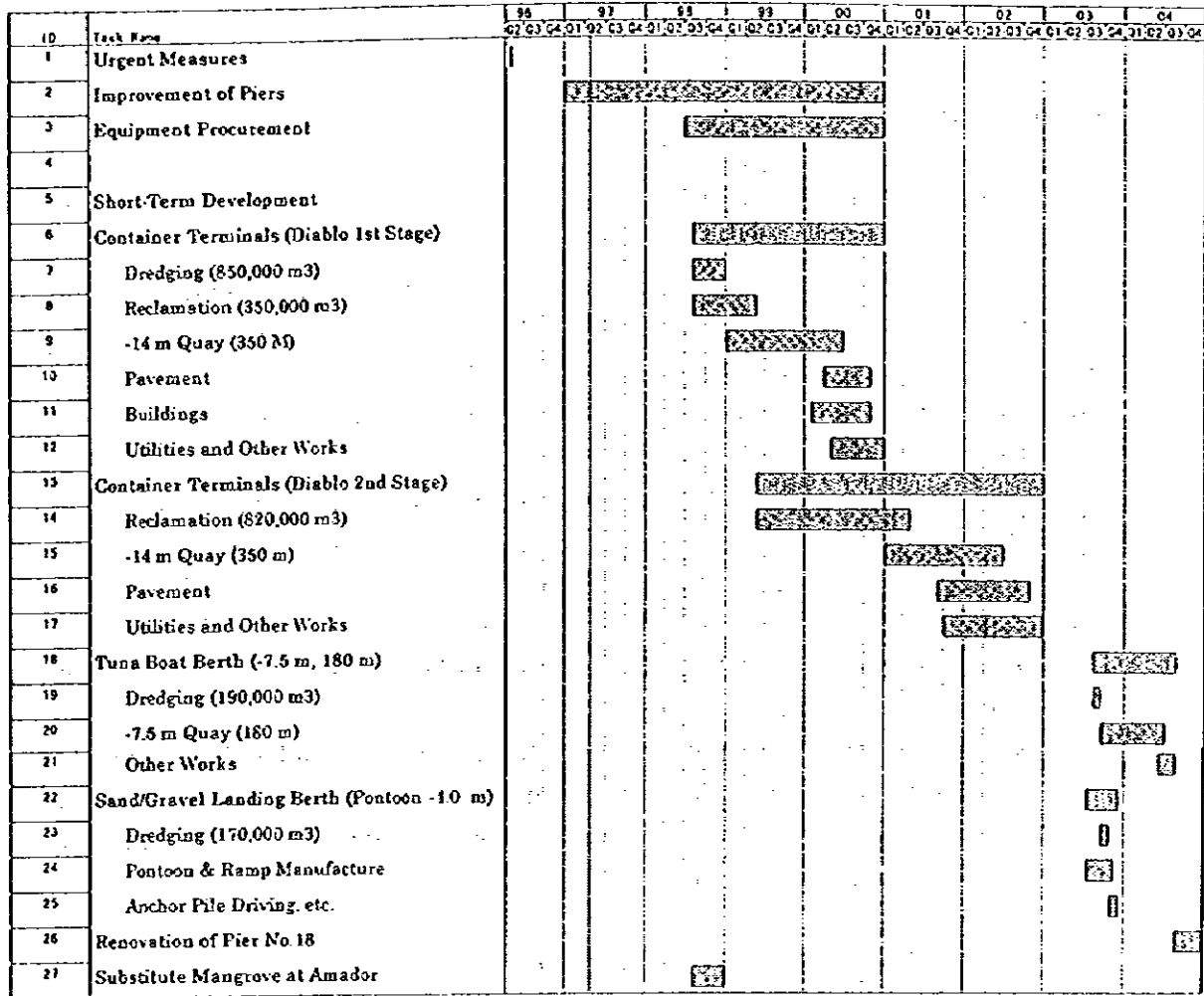


Figure 3-2-1 Construction Schedule of Short-Term Development (High-growth Case)

IV ADMINISTRATION, MANAGEMENT AND OPERATION

4.1 In the Long Term Stage

4.1.1 Management and Operation Issues at Balboa Port toward the 21st Century

1. Balboa Port should take the opportunity of HIT's terminal operation to be competitive with other neighboring ports in and outside of Panama in maritime trades. To this end, it is dispensable to establish an efficient management and operation system. Issues to be considered in this matter are as follows.

- a) In reference to "How APN should be coordinated with private sectors on port management and operation at Balboa Port", APN should define its roles and strive to reform the present organization.
- b) Considering conditions under the terminal operation at the Balboa Port, the organization of Balboa Administration Office should be reconsidered and its expected roles should be defined.
- c) Paying attention to conditions not only for privatization by HIT in Balboa Port, but also to conditions after reversion of the Panama Canal, efficient management system for the control of water area, land area and port facilities should be prepared.

4.1.2 Expected Roles of APN in the Long Term Stage

2 Expected roles of APN in the long term stage are as follows:

- a) Establishment of the system to supervise concessionaires.
- b) Management and operation of areas which are not covered by the concession contract with HIT this time.
- c) Management and operation of the water area, the land area even where APN holds no property and port facilities, and control of port activities even outside of APN control.
- d) Establishment of a system to facilitate close communication with the Administration Office of Balboa Port.
- e) Enhancement of strategic marketing activities and statistical system.

4.1.3 Ideal Type of APN Organization

3. Considering future port activities into the 21st century, APN needs to become the following type of organization.

- a) "Strategic Organization" that can to compete with neighboring ports of Central and South America
- b) "Flexible and Systematic organization" that can immediately respond to needs of the times
- c) "Collaborative Organization" that can attain the target of the port in collaboration with private sectors after operation of the port is privatized

4.1.4 Privatization at Balboa Port

(1) Purpose of Privatization

4. The main reasons for privatization of ports with the concession for operation and development at Balboa and Diablo area (hereinafter referred to as "the concession at Balboa/Diablo") are as follows:

- ① Saving government expenses
- ② Efficient port operation (e.g. efficient cargohandling, simplification of document procedures)

5. For the concession to be viable, total concession fees of "the concession at Balboa/Diablo" must be exceed the net profit of APN's Balboa Port before privatization.

6. According to the concession agreement for the port operation and development, the concessionaire of "the concession at Balboa/Diablo" has the power to control both ports at the end of the canal. It is possible to regard this situation as a monopolization. However, Panama has ports other than Balboa and Cristobal such as ports of Coco Solo Norte and Manzanillo. Furthermore, when the new concession for the container terminal at Farfan area is started, a new concessionaire (different from the concessionaire at Balboa port) should be introduced. Therefore, even if all major functions are carried out by a concessionaire at Balboa Port, there is no fear that port activities will be monopolized.

(2) Operational Matters

7. The concessionaire of "the concession at Balboa/Diablo" will have to serve all types of calling ships. The berthing time and cargo handling cost of non-container ships are longer and lower than container ships. Therefore, care must be taken to ensure that non-container ships do not have a disadvantage for berthing and cargo-handling.

8. As to the operation, the concessionaire of "the concession at Balboa/ Diablo" must give care to the following matters.

- 1) Cargo handling must be highly efficient for quick dispatch of calling ships.
- 2) The number of employees must be reduced by mechanization and rationalization.
- 3) Operation expense must be reduced to acquire a large volume of transshipment container cargo.
- 4) Labor disputes and accidents should be avoided to ensure port activities are not interrupted.
- 5) Berth waiting time should be eliminated through effective berth assignment.
- 6) Reliable container sorting must be carried out with no damage to cargo.

9. The major handling cargo at Farfan area is transshipment container cargo. Therefore, in particular, the items 1), 4), 5) and 6) are important for the port operation.

(3) Necessity of New Container Terminal

10. Joint use of the same terminal for container ships and non-container ships would result in less efficient cargo handling than exclusive use by one type of ship.

11. A suitable container yard for a lot of transshipment containers can't be constructed just behind the docks Nos.14, 15 and 16. A tentative container terminal can be constructed at the area of these docks, but the area can not be modified to a full scale container terminal with a container yard capable of storing a lot of transshipment containers.

12. Accordingly, full scale container terminals should be constructed at Diablo area as soon as possible.

13. According to the demand forecast, the new container terminal at Farfan area should be opened in 2009 (high case).

4.2 In the Short Term Stage

14. On condition that privatized port operation by HIT is actually going to start shortly at the port of Balboa and Cristobal, it is recommended that APN should tackle the following plans on management and operation.

4.2.1 Radical Reform of APN Organization

15. APN has to urgently launch organizational reform including a drastic reduction in the number of employees. In addition to rationalization of present Administration Office of both Balboa and Cristobal, APN should take this opportunity of HIT's terminal operation to trim its organization including the Central Office which has not always been efficient and rational.

16. It is recommended that APN organization should be simplified by abolishing the special units directly linked to the General Director: only the Executive Committee, General Director, General Sub-Director and the Executive level are necessary to deal with practical business tasks. It is also recommended that some offices and sections at the Executive level to be integrated: "Administrative & Finance Dept.", "Planning & Development Dept.", "Port Management Dept." and "Trade & Marketing Dept." are organized at this level. Considering the container cargo volume handled at all ports in Panama in 2005, staff of APN Central Office should be reduced to approximately 200 to 250 employees including staff of two "Port Captain Offices"(newly established). See Figure 4-2-1 for the new organizational structure of APN.

17. Present Administration Office of both ports should be simplified by converting it to a "Port Captain Office". "Balboa Port Captain Office" with 10 to 15 staff members takes care of the port of Balboa in cooperation with HIT. On the Atlantic side, the "Atlantic Port Captain Office" with 15 to 20 staff members should supervise not only the port of Cristobal but also the other two ports of MIT and CoCo Solo Norte.

4.2.2 Establishment of Efficient Port Management System in Collaboration with Private Sectors.

18. APN should supervise terminal operations by private sectors in order for them to work in harmonization with APN's policy on port management and operation, and to safeguard the national interest of the Republic of Panama. Therefore, it is recommended that APN establishes a monitoring system for port

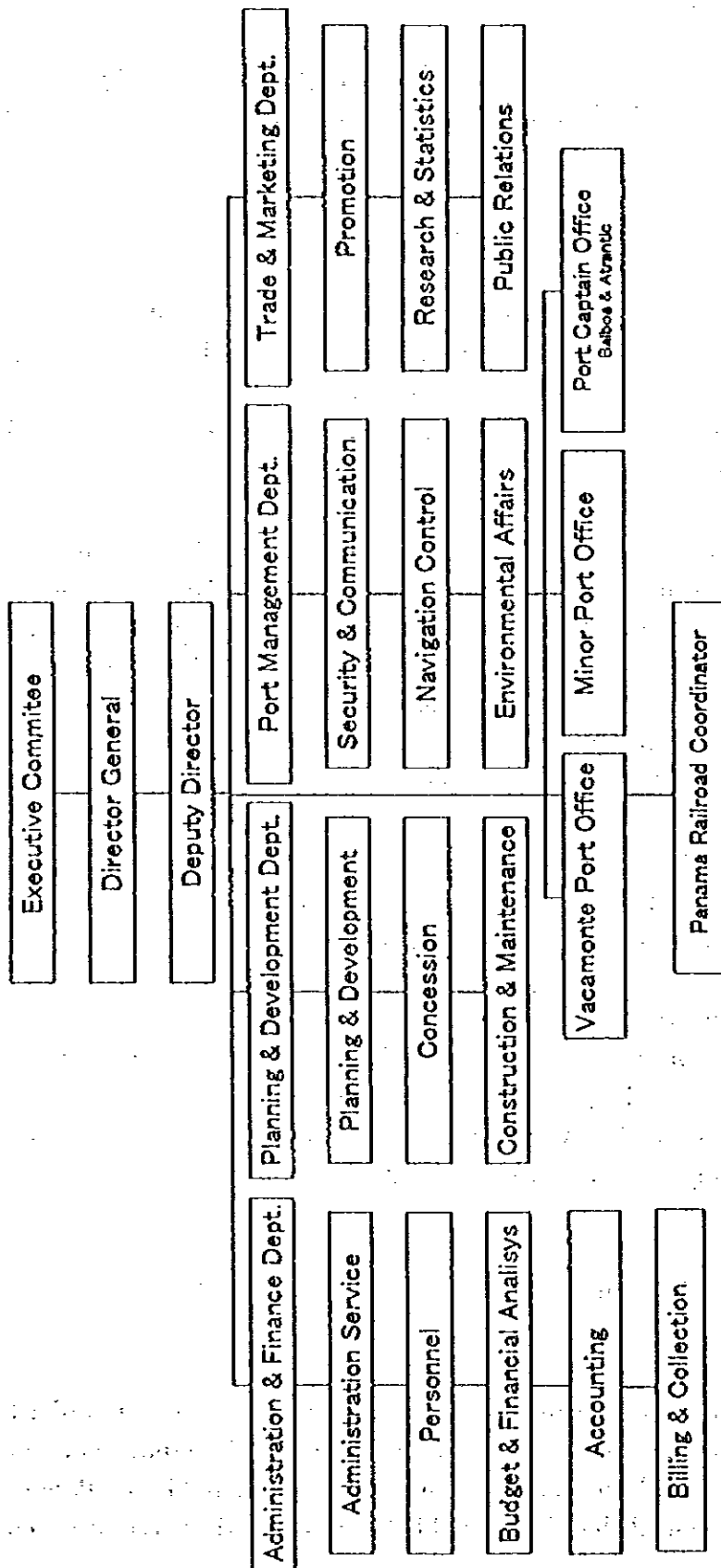


Figure 4-2-1 New Organizational Structure of APN (draft)

activities of private operators. In particular, APN should monitor HIT's operation to see if it is actually being conducted based on the concession contract from February 1st, 1997.

4.2.3 Enhancement of Strategic Marketing

19. In order to compete with neighboring ports of Central and South American countries, it is necessary to analyze the present situation of Balboa port, to forecast the future demand of the port, and then to feed such information back to marketing activities and port development as mentioned in the report on the long term plan.

20. More detailed statistical system is necessary to fully analyze the present situation of Balboa port. In other words, the statistical system should be organized by origin/destination and commodity of cargo as well as type of cargo. The system may require a computer network on a real-time base to ensure that updated information is always available.

21. To forecast the future demand of Balboa port, understanding domestic and foreign economies and worldwide maritime transportation surrounding Panama is necessary especially in forecast of container transshipment as mentioned in the demand forecast of the long term plan. Therefore, APN should keep updated information on the world economy and maritime transportation. To update such worldwide information, it is recommended that APN dispatch missions to large cities and advanced ports in corresponding areas.

22. To feed the demand forecast back to marketing activities, APN should make a concrete marketing policy of Balboa port as soon as possible. The marketing policy may include the following four items; a) hub port for container transshipment in Pacific Latin America, b) ship services of repair, bunkering, and water supply, c) cruise center, and d) distribution center of domestic cargo in Panama.

23. For port promotion, preparation of pamphlets, seminars, promotion missions, and information center are necessary. The information center should be established to provide customers of shipping companies, shipping agents, and shippers with easy access to port information.

V EVALUATION

5.1 Economic Evaluation

(1) Methodology

1. An economic analysis is conducted to appraise the economic feasibility of the master plan and the short-term plan for the new port facilities and the new port operation and management of Balboa Port from the viewpoint of the national economy.
2. The projects will be defined and compared to the "Without" case. Benefits and costs of both "with" case and "without" case will be calculated and evaluated. The economic internal rate of return (EIRR) based on a cost-benefit analysis is used to appraise the feasibility of the project.
3. The prerequisites of analysis are as follows;
 - 1) Base Year 1996
 - 2) Project Life 30 years from the time construction is completed
 - 3) "Without" case
 - a) No investment is made for the port
 - b) The import-export container cargo exceeds the existing handling capacity. The overflowed transshipment container cargo is lost.
 - c) The size of vessels is not larger and the working efficiency of cargo handling is not improved.
 - d) Substantial reduction in the existing number of workers and other means to rationalize management are not put into practice.
4. The items of the costs of projects are as follows;
 - 1) Construction Costs
 - 2) Replacement Investment Costs
 - 3) Operational Costs Personnel Costs Repair and Maintenance Costs Other Operational Costs
 - 4) Residual Value (negative cost)
5. The items of the benefits are as follows;
 - 1) Generation of foreign currency earnings from handling of transshipment

- container cargo
- 2) Savings in the transport cost for import and export container cargo
- 3) Savings in water transportation cost by enlargement of ship size and savings in mooring costs of ships by efficient container cargo handling
- 4) Savings in existing operational costs

(2) Evaluation of the Master Plan

6. The EIRR of the master plan is 16.13% in the low growth case and 16.44% in the high growth case. As a result, the master plan is feasible from the viewpoint of the national economy.

(3) Evaluation of the Short-term Plan

7. The EIRR of the short-term plan (Base Case) and the sensitivity analysis for three alternatives are shown in Table 5-1-1. This short-term plan development project is feasible from the viewpoint of the national economy as all cases yield an EIRR exceeding 10%.

Table 5-1-1 EIRR of the Short-term Plan (1997 - 2034) (%)

Case	Low Growth Case	High Growth Case
Base Case	19.17	21.33
Alternative A	17.21	19.23
Alternative B	17.02	19.02
Alternative C	15.26	17.15

Case A : The costs increase by 10%

Case B : The benefits decrease by 10%

Case C : The costs increase by 10% and the benefits decrease by 10%

(4) Other Economic Effects

8. The effects excluded in the calculation of EIRR are as follows;

a) Effects related to non-container ships

These effects include savings in waiting costs of ships, for example break bulk cargo ships and bulk cargo ships, by relieving port traffic congestion in the port.

- b) **Effects from the improvement of port operation and management**
These effects include savings in interest or time costs of cargo costs and reduction of cargo damage and accidents at the port.
- c) **Indirect effects from stability and low prices of the cargo supply**
Consumer demand will increase. Moreover, investors will have more confidence when they consider business opportunities, which means that regional development as well as port related businesses will be promoted.
- d) **Increase in Employment Opportunities**
The employment opportunities will increase because of the construction of Balboa Port, the new container terminals operation and promotion of the port related businesses and regional development in Panama.
- e) **Effects on the Panama Canal transits**
With the construction of new container terminals and the improvement of the facilities and services for the ship repair, bunkering, supply services and other cargo handling, additional vessel transits to the Canal will be generated.

5.2 Financial Evaluation

5.2.1 Financial Condition of Concessionaires

(1) Purpose of Financial Analysis for Concessionaires

9. In the last year of the contract of the concession for the operation and development of ports at Balboa/Diablo(hereinafter referred to as "the concession") the Panamanian government will make larger through its present port operations at Balboa Port.

10. The purpose of the financial analysis for the concessionaires(for Balboa/Diablo and Farfan) is to confirm the financial feasibility of concessionaires.

(2) Financial Analysis of Concessionaire in Short-term Development Plan

11. The major preconditions of the project are ① to secure the traffic road between the terminal in the port and the warehouse of consignees/shippers, ② to maintain a high level of port services. In this analysis, it is assumed that these

preconditions, especially securing the traffic road, are realized by the beginning of terminal operation.

12. Prerequisites of calculation for the financial statements.

Interest rate of long-term loans : 6 - 8 percent per annum

Grace period of long-term loans : 3 years

Loan period of long-term loans : 20 years(including a grace period)

Range covered by long-term loans: 100 % of construction costs and part of the compensation for discharge and transfer of APN's workers

Interest rate of short-term loans : 10 % per annum

Revenues of concessionaire: Cargo handling charges, anchorage fee(All tariffs are the present levels) and concession fee

Costs: Construction cost for Balboa and Diablo areas

Maintenance and repair costs, Administration cost, Depreciation cost,

Re-investment cost, Fixed Concession Fee: US\$16,650,000 Variable

Concession Fee: 10 percent of operation revenue

13. The finances of the concessionaire are evaluated using the financial statements. Results of the evaluation are as follows:

- 1) According to the profit and loss statements, the cumulated surplus of the concessionaire for works of the Short-term Development Plan is changed from minus to plus one year (High-growth Case) and seventeen years (Low-growth Case) after this concession comes into effect.
- 2) Debt Service Coverage Ratio exceeds 1.75 (World Bank standard) fourteen years (High-growth Case and Low-growth Case) after the concession comes into effect.
- 3) Operating Ratio keeps below 70 percent nine years (High-growth Case) and thirteen years (Low-growth Case) after the concession comes into effect.
- 4) Working Ratio keeps below 60 percent (World Bank standard) eight years (High-growth Case) and eleven years (Low-growth Case) after the concession comes into effect.

14. As a result, the financial condition of the concessionaire will be sound under the current contract of the concession.

(3) Financial Analysis of Concessionaire in Master Plan

15. The contents of the concession contract for Farfan area are expected to be almost the same as those of the concession at Balboa/Diablo area.

16. The financial condition of the concessionaire at Farfan area in the Master Plan is evaluated using the operating ratio and the working ratio.

1) Prerequisites of calculation for the Profits and Loss Statement

17. The condition of long-term loans and short-term loans, the items of costs of concessionaire at Farfan area for the Master Plan project are almost the same as for the project of Short-term development Plan. The differences are the items of revenues and kind of berths for the concessionaire.

Revenues of the concessionaire: Cargo handling charges and Anchorage fee (All tariffs are the present levels)

Berth type: Container berth

2) Results

18. Result of the evaluations are as follows:

A) According to the profit and loss statements, the condition of the cumulated surplus of the concessionaire for works of the Master Plan at Farfan area is changed from minus to plus after twenty years (High-growth Case) and twenty-four years (Low-growth Case) after this concession come into effect.

B) The operating ratio keeps below 70 percents fifteen years (High-growth Case) and twenty years (Low-growth Case) after the concession comes into effect.

C) The working ratio keeps below 60 percent fourteen years (High-growth Case) and nineteen years (Low-growth Case) after the concession comes into effect.

19. The financial condition of the concessionaire will be satisfactory assuming the contract is similar to that of the Balboa/Diablo concession.

5.2.2 Financial Analysis of Balboa Port Office of APN and the National Government

(1) Methodology

20. The purpose of the financial analysis is to examine the financial condition of Balboa Port Office of APN (excluding Panama Railroad) and the National Government during the project life in relation to the Balboa Port project. To execute the projects proposed in the Short-term Plan, the National Government will have to make more profits than before, and Balboa Port Office will have to increase productivity and its generated income within the limits of running the business of the concessionaire.

21. The financial analysis of Balboa Port Office and the National Government is examined based on its projected financial statements during the project life. The "Base Year" is set as 1996. The project life is assumed to be 30 years from the time of construction.

(2) Results of Analysis

22. The break-even ratio of the Balboa Port Office goes down every year, increasing the payability due to the decrease of the fixed expenses, for example, personnel expenses. The net income per head indicating productivity after the concession is generally greater than before. The working ratio indicating operational efficiency after the concession greatly improves, breaking 50 % every year.

23. The operating income of the National Treasury can cover the repayment and the interest on long-term loans because the debt repayment coverage ratio is higher than 1.75 almost every year.

24. Figure 5-2-1 shows the National Treasury receipts from Balboa Port including the revenues from PPC from 1990 to 2034. National Treasury receipts increase greatly after the concession. The receipts accumulated from 1997 to 2005 is 156 million Balboas (or US\$) in the low-growth case or 164 million Balboas (or US\$) in the high-growth case.

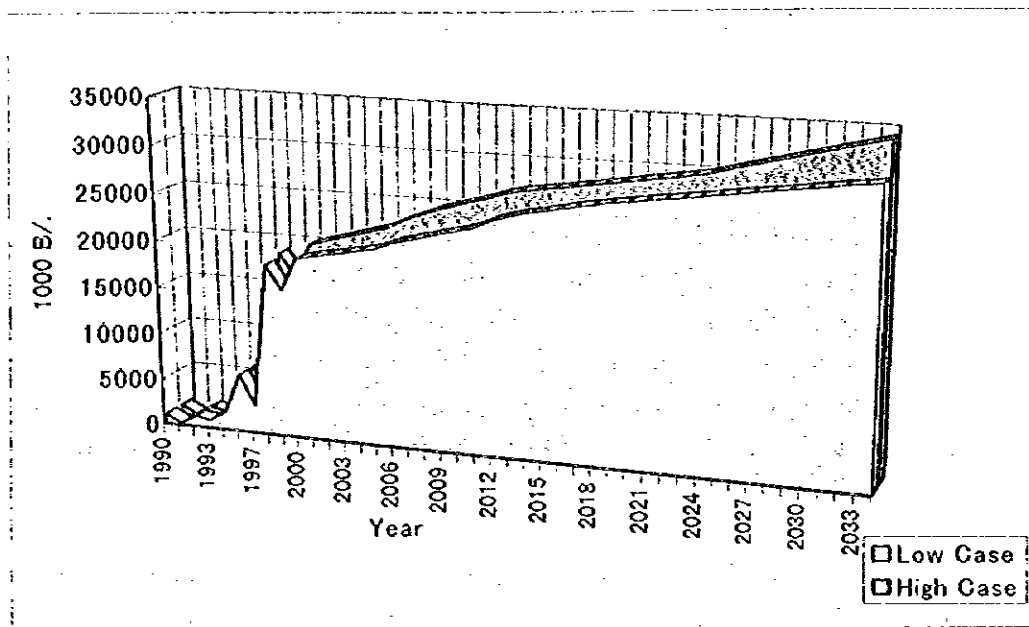


Figure 5-2-1 The National Treasury Receipts from Balboa Port

25. The financial condition of Balboa Port Office and the National Government after the concession with PPC will be satisfactory. However, this good situation is dependent on the following given conditions.

- a) Expenses including the personnel expenses are sharply reduced.
- b) Brisk port activity will generate steady revenues.
- c) Terms of the contract with PPC, in which the National Government and APN receives high fixed and variable annuities and is not required to make any investment, are complied with.

5.3 Environment Impact Assessment

(1) Rules and Regulations

26. The Law No.1 and No. 30 established in 1994 are the comprehensive and fundamental laws on the conservation, treatment and utilization concerning the environmental resources. This study will be obliged to submit Environmental Impact Studies (EISs) to INRENARE as other projects do. Guidelines of international organizations such as the UN are also applied correspondingly to these EISs.

(2) Present Environmental Condition

27. The area around the existing port has already been developed for a long time. The water quality around the port is contaminated by inflow of pollutant through small rivers from the inland city area. A small mangrove swamp is located at the mouth of these rivers north of Pier No.18. There is no other specific natural environment to be preserved.

28. The navigation channel of the Canal runs in front of the port. It is also used for vessels to call at the port. A residential area reverted from the US is located to the north of the port.

(3) Result of Assessment

29. The result of Environmental Impact Assessment (EIA) on the items selected through Initial Environmental Examination (IEE) is summarized as follows.

30. Impact of the project in the Short Term Plan on surrounding natural environment is small and negligible.

Table 5-3-1 Result of EIA

Item	Result of Evaluation
Air, Noise and Smell Quality	No significant impact by Short Term Plan. Settled by making new roads and improving existing roads or arranging sufficient space or greenbelt.
Water Quality	No significant impact by Short Term Plan. Appropriate countermeasures such as sewage processing system in inland areas are expected to be realized as soon as possible by all authorities concerned.
Terrestrial Ecology	No significant impact by Short Term Plan. New mangrove area will be created for mitigation. (See Figure 5-3-1)
Displacement of Villages and Facilities	No significant impact by Short Term Plan
Navigation Safety	No significant impact by Short Term Plan. Careful coordination is required between the new Canal construction and the master plan of this Study.
Others	
Marine Pollution	No specific problem is anticipated.
Disposal of Dredged Material	No specific problem is anticipated. Dredged material is utilized for various purposes.
Employment	Remarkable effect is expected on the whole.

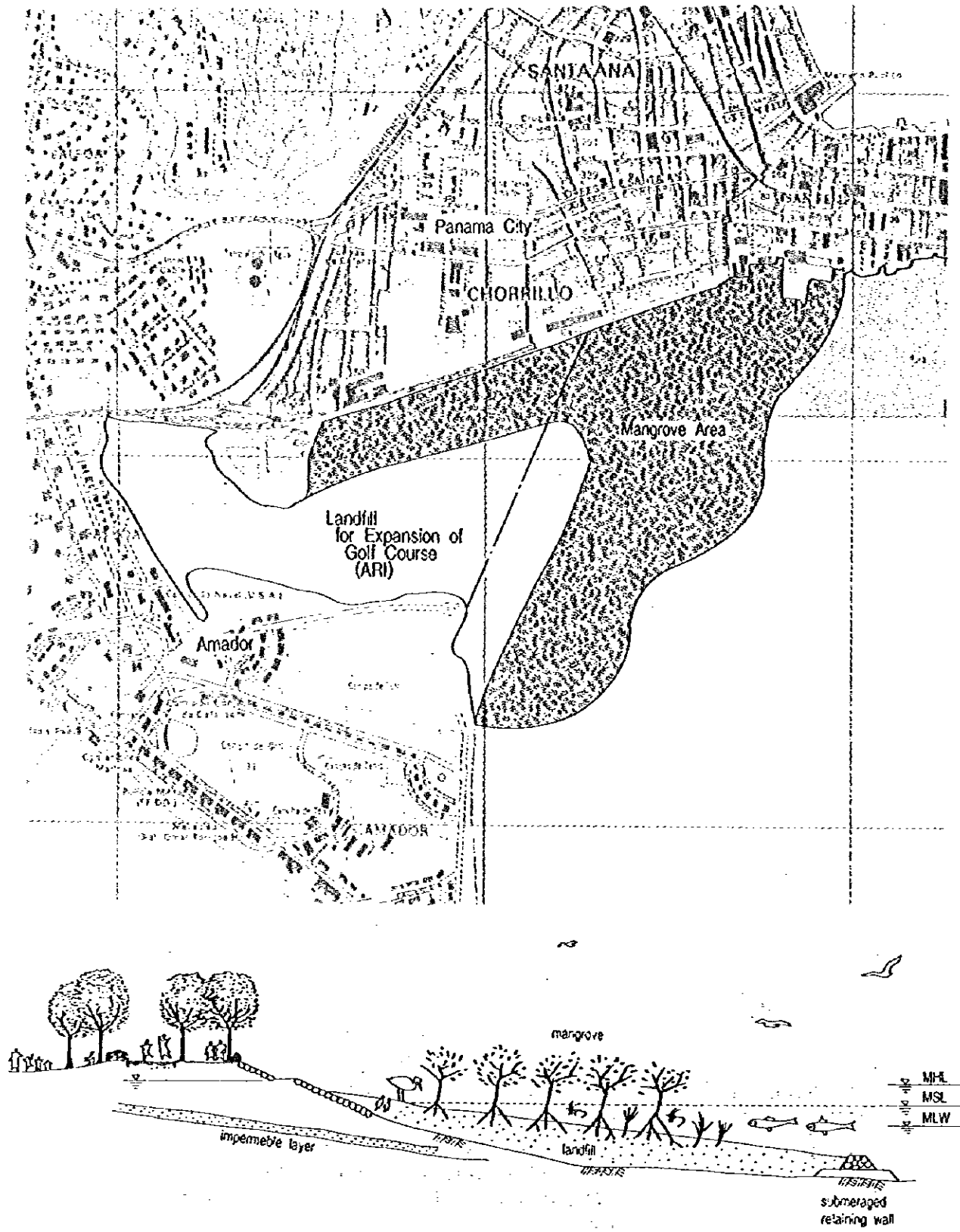


Figure 5-3-1 Image of Mangrove Area and its Cross Section

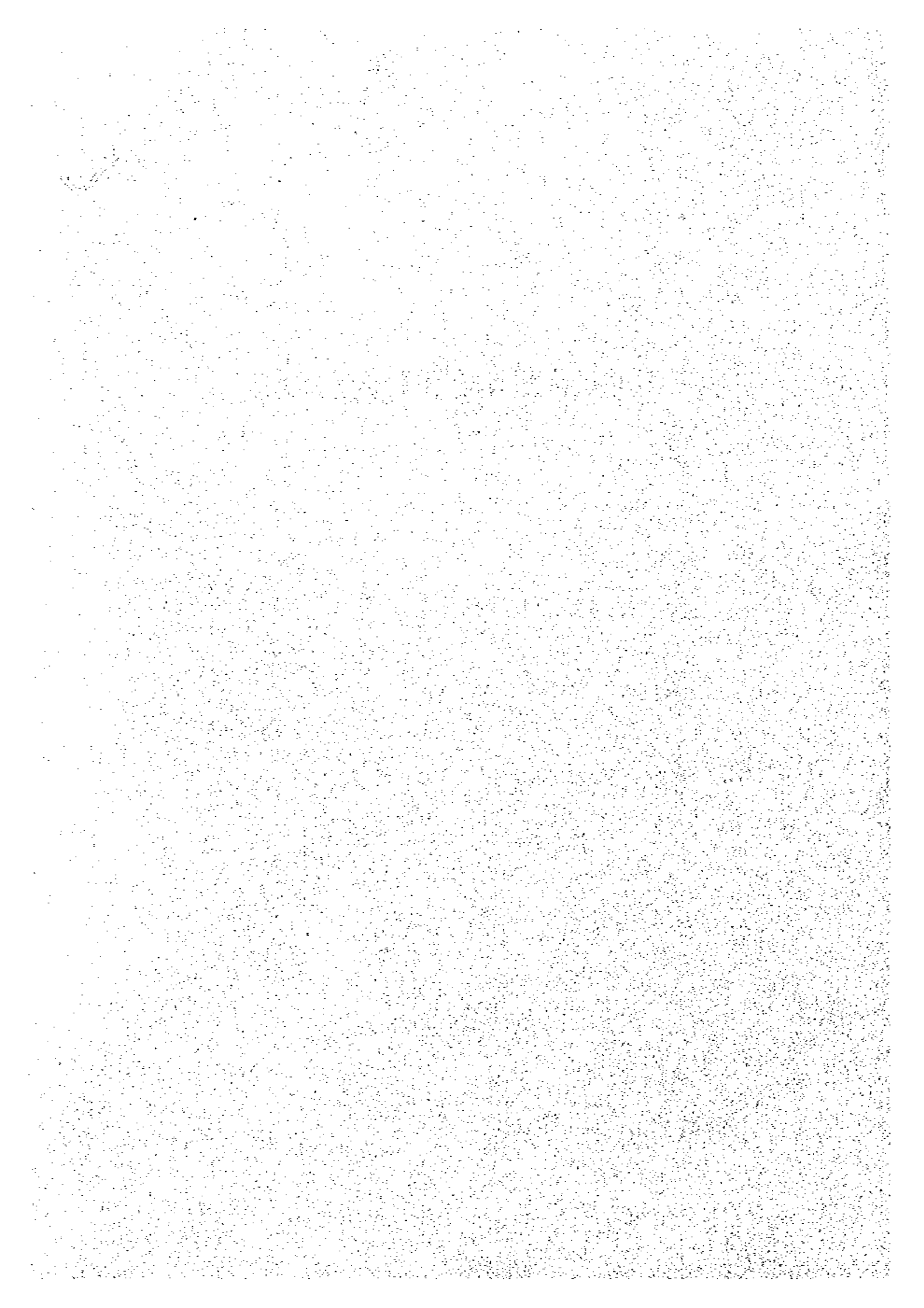
5.4 Overall Evaluation

31. The project in the Short Term Plan is feasible as summarized below.

Table 5-4-1 Overall Evaluation

Item	Result	Remarks
Engineering Soundness	Good	Project site is in good condition for construction.
Economic Feasibility	Good	Project greatly contributes to the national economy.
Financial Viability	Good	Project has high profitability and greatly contribute to National Finance.
Environmental Impact	Good	Project has no significant environmental impact . It's small and negligible.

RECOMMENDATION



RECOMMENDATION

(Basic Concept for Port of Open Public Use)

1. The port of Balboa is a basic infrastructure for all kinds of cargoes and passengers for the national economic development. Besides, vessels from all over the world count on its function as service port of ship supply and repair in transiting the Canal. The government, as an owner of the port, should continue to take full responsibility in securing these functions for open public use.

(Port Development Policy)

2. Considering the various factors surrounding the port, it is exactly the right time for the Government to take confident action for the effective improvement of the port under carefully examined port plans with proper administration and management. The plans recommended in the Study shall be utilized as a guideline for this purpose. Needless to say, however, they should be flexible enough to adjust to possible future contingencies.

(Container Terminal)

3. The port of Balboa occupies a strategic location with the Canal as a container transshipment hub for the Central and South America. From the viewpoint of cost and time saving, therefore, it is desirable to develop a full container terminal, equipped with good facilities and providing services at minimum cost at Diablo as soon as possible in stead of improving the existing port. Similarly, another terminal at Farfan might be necessary much earlier than expected.

(Ship Supply and Repair Services)

4. The port of Balboa was originally constructed mainly to offer ship supply and repair services to the vessels transiting the Canal. At present, the facilities for these services are almost saturated. The demand for them is expected to expand dramatically. All efforts should be made for their sound development, paying attention to the individual of each; in particular, appropriate sites must be secured.

5. The oil terminal, as it handles dangerous cargo, should be separated from the other port functions as soon as possible. It is desirable to be relocated and expanded in front of the tank farm. On the other hand, dry dock requires neighboring facilities and areas for future expansion since its equipment is too heavy to be relocated. They should be reserved for dry dock without other uses being assigned to them.

(Conventional Terminal)

6. The sufficient quay length for conventional activities such as grain, automobile, breakbulk, ferry for islands, launch, tugboat, tuna boat, cruise ship and working ship should be also assured in the future. For that purpose, the existing quays must be left and utilized as much as possible. In particular, slips around Pier No.18 are indispensable. It is also important to improve the port of Vacamonte for tuna boats which cannot receive necessary services at the port of Balboa.

(Relation to the future alignment of the Canal)

7. The future alignment of the Canal will affect the development of the port of Balboa. In this Study, a convenient and effective alignment of the Canal for tentative but long use is proposed in addition to the original one. All the port projects of the Study can meet each of two flexibly with some operating area. After the alignment is determined in detail, the port development plan will also be able to be adjusted to it.

(Appropriate Coordination for Successful Implementation of the Project)

8. At present, various kinds of activities and projects mix in confusion around the existing port. Successful implementation of the proposed projects requires appropriate coordination such as that with PCC for timely return of relevant facilities, with ARI for related projects, with MOP for road development plan, with DAC for flexible application of restricted surface, with railroad for appropriate relation to container transport, and with port users for effective port improvement.

(Reclamation to be Continued)

9. In view of the existence of the soft sediments layer at the short-term development area at Diablo, the filling work is to be carried out at the first stage development for both the first and second developments of the container terminal so that the consolidation can be expedited for the second development.

(Necessity of Detailed Subsoil Investigation)

10. The rock encounter to the alignment of the quay walls is one of the dominant elements for the project implementation. Detailed subsoil investigation should be conducted along the selected face-line of the quay wall of the short-term development. The final decision on the alignment and type of the quay wall should be based on more detailed subsoil information.

(Use of Dredged Materials from Canal)

11. As more than 1 million m³ of filling materials are required for the short-term development at Diablo, their availability with PCC should be negotiated since dredged materials from the Culebra Cut of the canal may be usable at a reasonable cost.

(Management and Operation)

12. On condition that HIT is actually going to start port operation shortly at the ports of Balboa and Cristobal, and in order to compete with neighboring ports in and out of Panama, it is recommended that ① APN should urgently launch its organizational reform including a drastic reduction in the number of employees, ② APN should monitor HIT's activities to see if it is actually being conducted based on the concession contract, ③ APN should make a concrete marketing policy and establish an efficient statistical system with a computer network on a real-time base.

(Collection of the Concession Fee)

13. As the National Government will collect the concession fee, the National Government should have the right of access to the information related to activities and revenues of PPC.

(Improvement of the Financial Code)

14. The execution of the budget must be coordinated with each budget item. The code of the budget is different from the code of the financial statement. And their code of account is so complicated that it is difficult for the accounting staff to understand. APN should remake the code of account to connect the budget with the financial statement and to make it easily understood by all accounting staff.

(Positive Efforts for Better Quality of Environment)

15. Development of port function itself does not have any significant impact on surrounding environment. It is desirable, however, to make positive efforts for better environment in close cooperation with authorities concerned. APN should establish environmental conservation policy in respect to port development and take necessary measures: for example, the support to the sewage treatment plan of the city area and the mangrove plantation as mitigation.

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