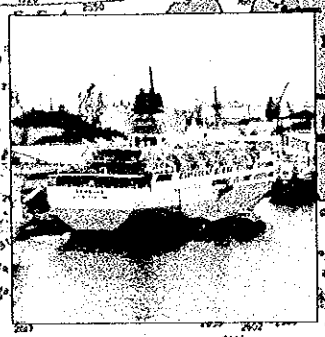
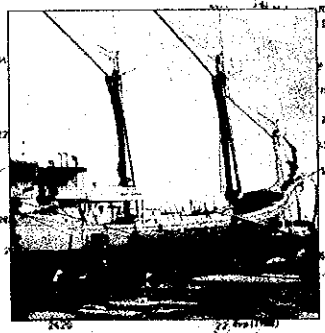
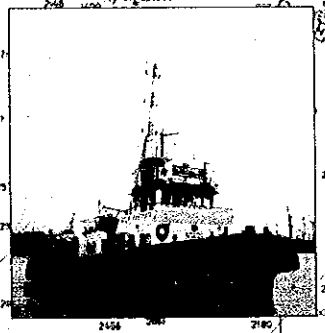
Japan International Cooperation Agency (JICA)
Directorate General of Sea Communication (DGSC)
Ministry of Communications

社会開発調査部報告書

FINAL REPORT
THE STUDY ON THE PORT DEVELOPMENT STRATEGY IN THE REPUBLIC OF INDONESIA



APPENDIX VOLUME I

PART I :PRSENT CONDITION

March 1999

THE OVERSEAS COASTAL AREA DEVELOPMENT INSTITUTE OF JAPAN(OCDI)

Japan International Cooperation Agency (JICA)
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FINAL REPORT
THE STUDY ON THE PORT DEVELOPMENT STRATEGY IN THE REPUBLIC OF INDONESIA

APPENDIX VOLUME1
PART1:PRSENT CONDITION

March 1999

THE OVERSEAS COASTAL AREA
DEVELOPMENT INSTITUTE OF JAPAN(OCDI)

PREFACE

In response to a request from the Government of the Republic of Indonesia, the Government of Japan decided to conduct a study on Port Development Strategy in the Republic of Indonesia and entrusted to study to the Japan International Cooperation Agency.

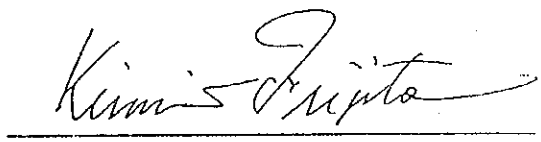
JICA selected and dispatched a study team headed by Dr. Tadahiko Yagyu, Senior Advisor of the Overseas Coastal Area Development Institute of Japan (OCDI) to the Republic of Indonesia, three times between November 1997 and December 1998.

The team held discussions with the officials concerned of the Government of the Republic of Indonesia and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

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

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Indonesia for their close cooperation extended to the study.

March 1999



Kimio Fujita
President
Japan International Cooperation Agency

LETTER OF TRANSMITTAL

March 1999

Mr. Kimio FUJITA
President
Japan International Cooperation Agency

Dear Mr. Fujita:

It is my great pleasure to submit herewith the Final Report of the Study on Port Development Strategy in the Republic of Indonesia.

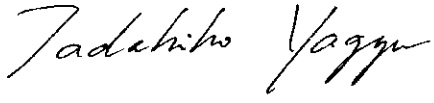
The study team of the Overseas Coastal Area Development Institute of Japan (OCDI) conducted surveys in the Republic of Indonesia over the period between November 1997 and December 1998 as per the contract with the Japan International Cooperation Agency.

The findings of this study, which are compiled in this report, were fully discussed with the officials of the Ministry of Communications of the Indonesian Government and other authorities concerned to formulate the Port Development Strategy in the Republic of Indonesia for the period up to the year 2018.

On behalf of the study team, I would like to express my heartfelt appreciation to the Government of the Republic of Indonesia, the Ministry of Communications and other authorities concerned for their diligent cooperation and assistance and for the heartfelt hospitality which they extended to the study team during our stay in the Republic of Indonesia

I am also greatly indebted to the Japan International Cooperation Agency, the Ministry of Foreign Affairs, the Ministry of Transport and the Embassy of Japan in Indonesia for giving us valuable suggestions and assistance during the preparation of this report.

Yours faithfully,



Tadahiko Yagyu
Team Leader for the Study
on Port Development Strategy
in the Republic of Indonesia

Map of Indnesia

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VOLUME II

PART 2 PORT DEVELOPMENT STRATEGY

ABBREVIATION LIST

A	ADPEL	Port Administrator Office
	AMDAL	Environmental Impact Analysis
	ADB	Asian Development Bank
	ASEAN	Association of South East Asian Nations
	ATN	Aids to Navigation
B	BAPEDAL	Environmental Impact Management Agency
	BAPPEDA	Provincial Development and Planning Board
	BAPPENAS	National Development Planning Agency
	BHI	Indonesia Legal Entity
	BIRO	Bureau
	BKPM	Investment Coordination Board
	BKPMD	Regional Investment Coordination Board
	BOD	Biological Oxygen Demand
	BOR	Berth Occupancy Rate
	BOT	Built-Operate-Transfer
	BPS	Central Bureau of Statistics
	BTKP	Shipping Safety Technology Office
	BUMN	State Owned Company
C	CFC	Chlorofluorocarbon
	CFS	Container Freight Station
	CHT	COSCO-HIT Terminals (Hong Kong) Limited.
	COD	Chemical Oxygen Demand
	COSCO	China Ocean Shipping Company
	CT I	Container Terminal I
D	Dati I	First Level Local Government (Province)
	Dati II	Second Level Local Government (District / Municipality)
	DGLC	Directorate General of Land Communication
	DGSC	Directorate General of Sea Communication
	DNI	Negative Investment List
	DO	Delivery Order
	DO	Dissolved Oxygen

E	EDI	Electric Data Interchange
	EIA	Environmental Impact Assessment
	EIDC	Eastern Indonesia Development Council
	EIJA	Export Import Bank of Japan
	EMKL	Sea Freight Forwarding Company
F	FIRR	Financial Internal Rate of Return
	FOI	Foreign Direct Investment
G	GBHN	National Development Guideline
	GDP	Gross Domestic Product
	GHG	Green House Gas
	GOI	Government of Indonesia
	GOJ	Government of Japan
	GRDP	Gross Regional Domestic Product
	GRT	Gross Register Tonnage
	GT	Gross Tonnage
H	HGB	Building Use Right
	HIT	Hongkong International Terminal Limited.
	HMC	Harbor Mobile Crane
I	IBRD	International Bank of Reconstruction and Development
	IDB	Islamic Development Bank
	IEAT	Industrial Estate Authority of Thailand
	ILS	Inter-Island Liner System
	IMF	International Monetary Fund
	INPRES	President Instruction
	INSA	Indonesian National Ship Owner Association
	IPC	Indonesia Port Corporation
J	JICA	Japanese International Cooperation Agency
	JKT	Jakarta
	JO	Joint Operation
	JVC	Joint Venture Company

K	KANPEL	Port Administration Office (Non-commercial Port)
	KANWIL	Province Office of a Central Ministry
	KANWIL DEPHUB	Regional Office of MOC
	KAPET	Integrated Economical Development Area
	KM	Minister Decree
	KSO	Kerjasma Operasi (Joint Operation)
L	L't Beacon	Lighted Beacon
M	MOC	Minister of Transport
	MOF	Minister of Finance
	MOTC	Ministry of Transport and Communications of Thailand
	MOU	Minute of Understanding
	MPA	Maritime and Port Authority
	MSDP	Maritime Sector Development Program
	MSTC	Maritime Training Center
	MTL	Modern Terminals Limited.
N	Nav. Aids	Navigation Aids
	NPSP	National Port System Plan
O	OD	Origin and Destination
	OECF	Overseas Economic Cooperation Fund
P	PAT	Port Authority of Thailand
	PBM	Stevedoring Company
	PBMTO	Terminal Operator Loading-unloading
	PDB	Port Development Board
	PEB	Export Documents
	PELNI	Indonesian National Shipping Company
	PERINTIS	Pioneer Ship System to Serve Remote Area
	PERUMKA	Indonesia State Railways
	PELRA	Rakyat (Traditional Wooden Vessel)
	PERSERO	State-Owned Company
	PERTAMINA	State-Owned Oil Company
	PERUM ASDP	State-Owned Ferry Terminal Company
	PJP II	The Second Long Term Development Plan

	PKL	Local Activity Center
	PKN	National Activity Center
	PKW	Regional Activity Center
	PL	Sailing Vessel
	PLM	Sailing Vessel with Engine
	PP	Government Regulation
	PPKB	Permintaan Pelayanan Kapal dan Barang (The Demands of Ship and Good Services)
	PPSA	One Roof Port Service Center
	PSA	PSA Company (changed from Port of Singapore Authority)
	PSP	Private Sector Participation
	P.T.	Limited Company
	PTPI	IPC (Indonesia Port Corporation)
	PT.RUKINDO	Indonesia Dredging State Limited Company
R	REPELITA	National Five-year Development Plan
	REPELITADA	Local Five-year Development Plan
	Rp.	Rupiah
	RTRW	Spatial Use Plan
S	SAR	Search and Rescure
	SFD	Saudi Arabia Fund Development
	SIMOPPEL	Port Operation Management Information System
	SLOT	Sea-Land Orient Terminals Limited.
	SO	Supervisi Operasi (Operation Supervisor)
	SOLAS	International Convention on Safety of Life at Sea
	SS	Suspended Solid
	STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
T	TEU	Twenty Foot Equivalent Unit
	TKBM	Loading / Un-loading Workers
	TOR	Term of Reference
	TSP	Total Suspended Particular
U	UPT	Technical Planning Unit
	ULCC	Ultra Large Crude Oil Carrier

V	VLCC	Very Large Crude Oil Carrier
W	WB	World Bank
	WPPI	Central Area of Industrial Development

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PART 1 PRESENT CONDITIONS

PART 1

PRESENT CONDITIONS

Appendix A RESULTS OF FIELD SURVEY IN ASIAN COUNTRIES

Appendix A RESULTS OF FIELD SURVEY IN ASIAN COUNTRIES

A.1 Thailand

A.1.1 Introduction

In Thailand, which is part of the Asian continent, all major ports were located along the riverside in past days, but at present, ports suitable for internationalization are developing on the coast.

PAT (Port Authority of Thailand) is the main organization to manage and operate ports under the general supervision of the MOTC (Ministry of Transport and Communications).

The main functions and responsibilities of PAT are to manage and operate only two ports ; Bangkok Port and Laem Chabang Port ; however through these two ports, approximately 95 percent of international trade passes.

A.1.2 Activity of PAT

PAT was established in 1951. Under control of the Board of Commissioners (Chairman is Commander-in-Chief Royal Thai Navy), PAT takes charge of port planning, port construction, port management and operation.

PAT's major policy comprises the following:

- To develop existing ports in accordance with the internal/external changes
- To ensure optimum efficiency and fairness in the rendering of port services
- To promote the use of ports and port development in order to serve international trade and enhance the stability of the country.

Head office is located in Bangkok, and branch offices are located in two ports; Bangkok Port and Laem Chabang Port. (See Figure A.1.1)

A.1.3 Outline of Ports

(1) Laem Chabang Port (See Figure A.1.2, Figure A.1.3 and Table A.1.1)

- Laem Chabang Port plays the most important role as the gateway to international trade not only for metropolis Bangkok but also for the whole country. The role of this port is similar to that of Bojonegara Port in Indonesia, which is considered as a substitution for Tanjung Priok Port.

- There is an industrial estate zone close to port area, which is not managed by PAT Laem Chabang, but managed by IEAT (Industrial Estate Authority of Thailand) under control of another ministry.

- Development concept of this port is based on the plan formulated by OCDI before. The construction was started in 1987, and partly, port facilities have been completed and open from 1991. PAT Laem Chabang constructs the basic facilities, such as quay, breakwater, channel, basin, land reclamation, access road, and so on. After that, the necessary upper part facilities for operation are constructed by private sector which is determined by tender one by one in each terminal, and terminal operation is entrusted to them.

- At present, among phase I plan (i.e. construction plan of 10 berths), 4 container berths and one grain berth are already operating. Phase II plan started from 1997 as a ten-year development plan, in which mainly container berths will be developed. Moreover, phase III plan will be conducted after phase II according to the master plan.

- Container volume handled at Laem Chabang Port already exceeded 1 million TEU/year in 1996. The target handling volume of phase II plan is 3.5 million TEU/year, and that of final plan is 8.5 million TEU/year. (See Figure A1.4)

- Operation method of Laem Chabang Port is different from that of Bangkok port. While PAT is directly responsible for all operational aspects of Bangkok port, Laem Chabang is privatized; even yard facilities required for operation are constructed by the private sector. This privatized operation method is similar to that of Japanese public port corporation.

- Private operation company consists of a major foreign shipping company and local companies (ratio of investment from local companies must be over 51%).

- Regarding the 4 container berths which were already developed in Phase I plan, (though the scope of construction by PAT Laem Chabang is a little bit different per each berth,) it is a remarkable fact that all construction (i.e. construction of basic facilities by PAT Laem Chabang and construction of necessary yard facilities for operation by each private operation company) could be finished within four years.

- Port tariff is determined by PAT. The fee and the period in land lease contract between private operation companies and PAT are determined on a case by case basis in consideration of the scope of construction by PAT Laem Chabang.

- The operations in each container terminal of Laem Chabang Port, though there are differences among each company, are highly efficient, especially as compared with Bangkok port. For example, the case of TIPS Co., Ltd., which is a private operation company affiliated with Japanese shipping lines, is shown as follows;

  - 250 workers, 2 shifts, Operational 24 hours every day
  - Chassis turn-round time in 10 min (in 12 min until 1996)
  - Gantry crane with capacity of 30TEU/hour
  - Berth capacity of over 200 thousand TEU/year with two gantry cranes
    (In 1997, it is expected to be over 300 thousand TEU/year because of addition of one more gantry crane.)
  - Easy communication in English with shipping line
  - Treatment of 75 ships/month, including 16 liner ships/week and spot use

- Meanwhile, there are some issue as follows ;

  - Although private operation companies which operate 4 container berths have opportunities to hold a meeting together, they don't have cooperative relationship in terms of the arrangement of ships and cargo handling facilities and yard.
  - A large container berth project with a water depth of 16m, berth length of 350m and 500m yard is planned in phase II plan by means of "BOT". However, it might be difficult to attract foreign companies if the ratio of investment from local companies must be over 51%.
  - Phase II and phase III plan include no measures to increase operational efficiency, such as continuous berth lease or cooperative operation method.

- In the case of TIPS Co., Ltd., there are 16 liner ships/week consisting of 2 American lines, 7 Japanese lines and other inter-Asian lines. They succeeded in service by direct ship from America and Japan as they expected. Japanese lines and other inter-Asian lines call to Bangkok Port as the final port after calling to Laem Chabang Port.

- Another problem concerns the relation between the port and industrial estate of the backside. Enterprises in the industrial estate should be able to take advantage of Laem Chabang Port, especially since berth depth is planned to be increased and access road connected directly to the highway is also planned. However, there are not many enterprises now located in the industrial estate that can make the best use of Laem Chabang because the industrial estate is being developed and managed not by PAT, but by a different authority: IEAT.

- As is well known, the traffic congestion in Bangkok is a very serious problem. Therefore government of Thailand determined to limit container handling at Bangkok Port to one million TEUs/year (though 1.5 million TEUs/year were handled in 1995). And under the government policy to boost Laem Chabang Port, the development of container berths in this port has been rapidly executed (See Figure A.1.5).

- There are 6 container depots used for both truck and rail in the suburbs of metropolitan Bangkok. Container cargoes are transported by truck chassis through the approximately 100km highway from Laem Chabang Port to the container depots, and delivered to the metropolitan area.

The ratio of rail freight transport is still small, around 20%, but there is a plan to increase the ratio to 80% by improving the line from single-track to double-track.

And there are many inland-container yards owned by shipping companies along the highway.

- Container cargoes are currently not transported between Laem Chabang Port and Bangkok Port by feeder ship line. But there is a plan to develop triangle lines by RoRo ship between Laem Chabang Port, Bangkok Port and Prachuab Port in the southern part of Thailand. At present container cargoes in southern part of Thailand are mainly handled in Penang Port of Malaysia.

(2) Bangkok Port (See Figure A.1.6 and Figure A.1.7)

- Bangkok Port is located along the riverside, and the water depth is only 8.5m. In addition it is located about 60km far from the mouth of the river. Regarding the channel in the river, the width is only 100m in the straight section, and there are some bending parts, so that the size of entering ship is restricted.

- In order to maintain the channel, maintenance dredging on the scale of 3 - 4 million m3 per year is required.

- As already mentioned, in order to lessen the traffic congestion in Bangkok city area, government of Thailand determined to limit container handling at Bangkok Port. Nonetheless, modernization of container berth is still being pursued to effectively use the limited port area and improve efficiency.

- Meanwhile in this port, around 6,000 staff of PAT Bangkok are employed (in PAT Laem Chabang, only around 230 staff are working). This is because Bangkok Port is still directly

operated by PAT. Privatization of the system is requested by MOTC according to the governmental policy, and is being examined at present. This is one of the general subjects to be discussed concerning port management and operation.

Figure A.1.1 Organization of PAT

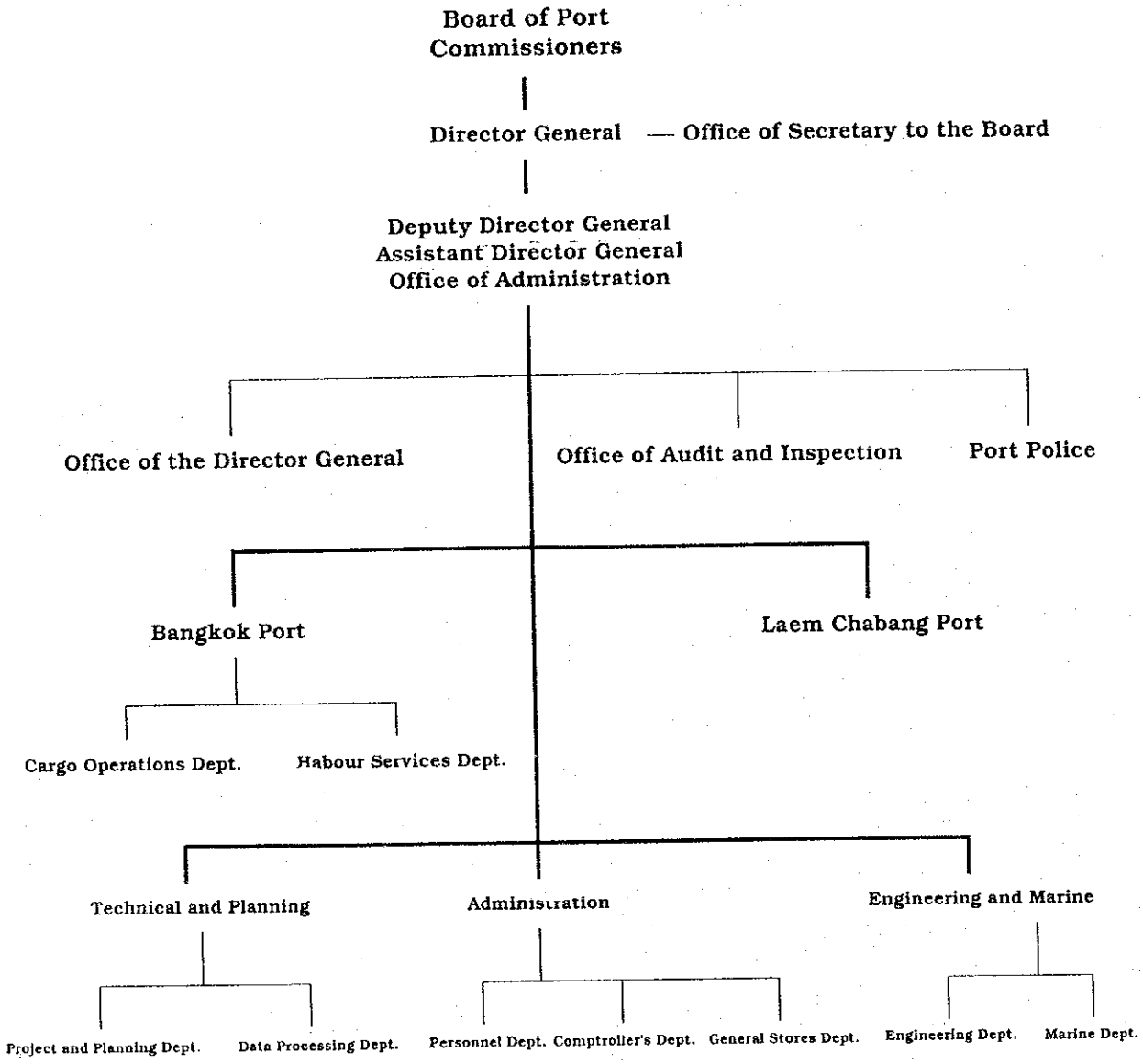


Figure A.1.2 Laem Chabang Port

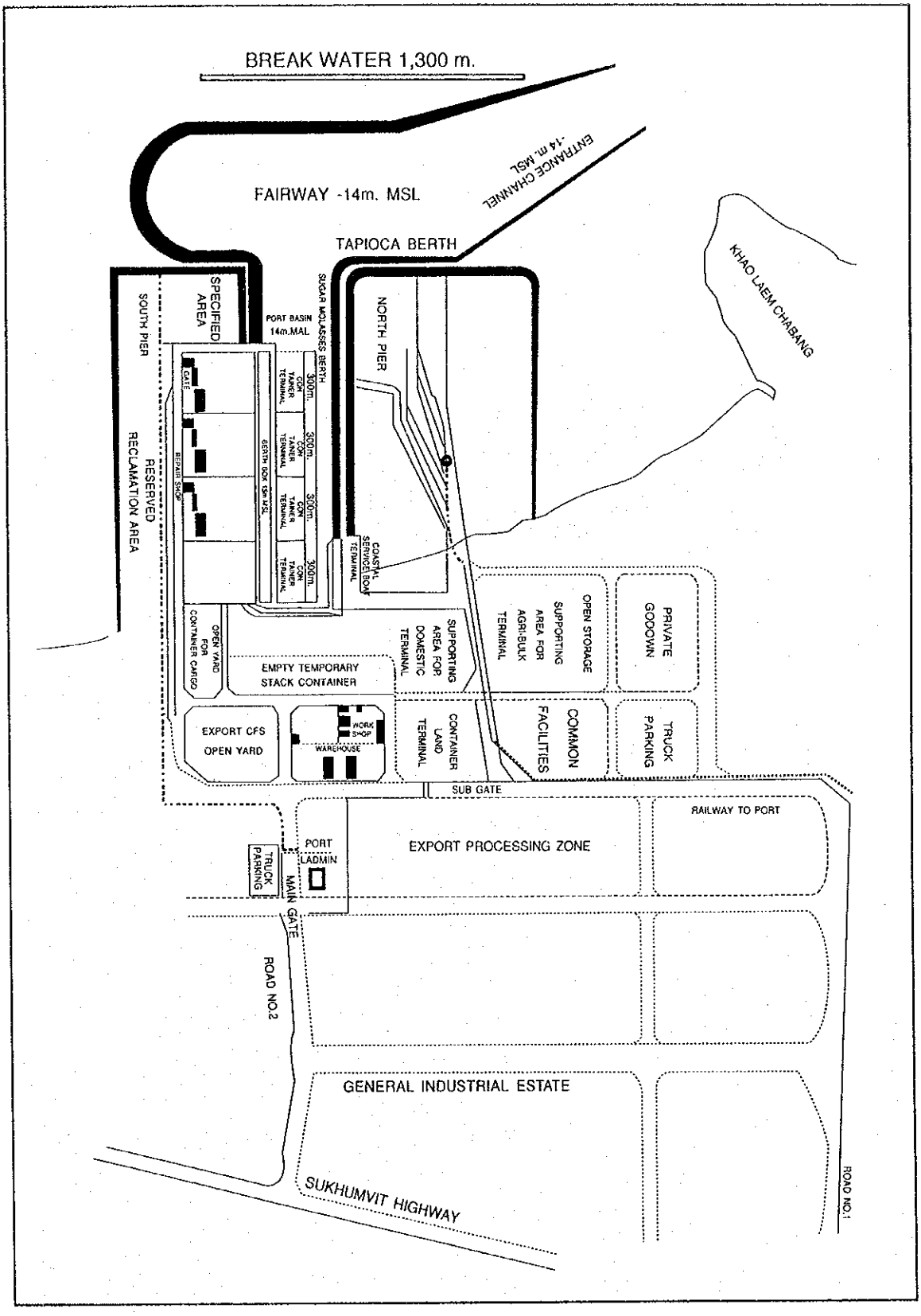


Figure A.1.3 Laem Chabang Port (Future Plan)

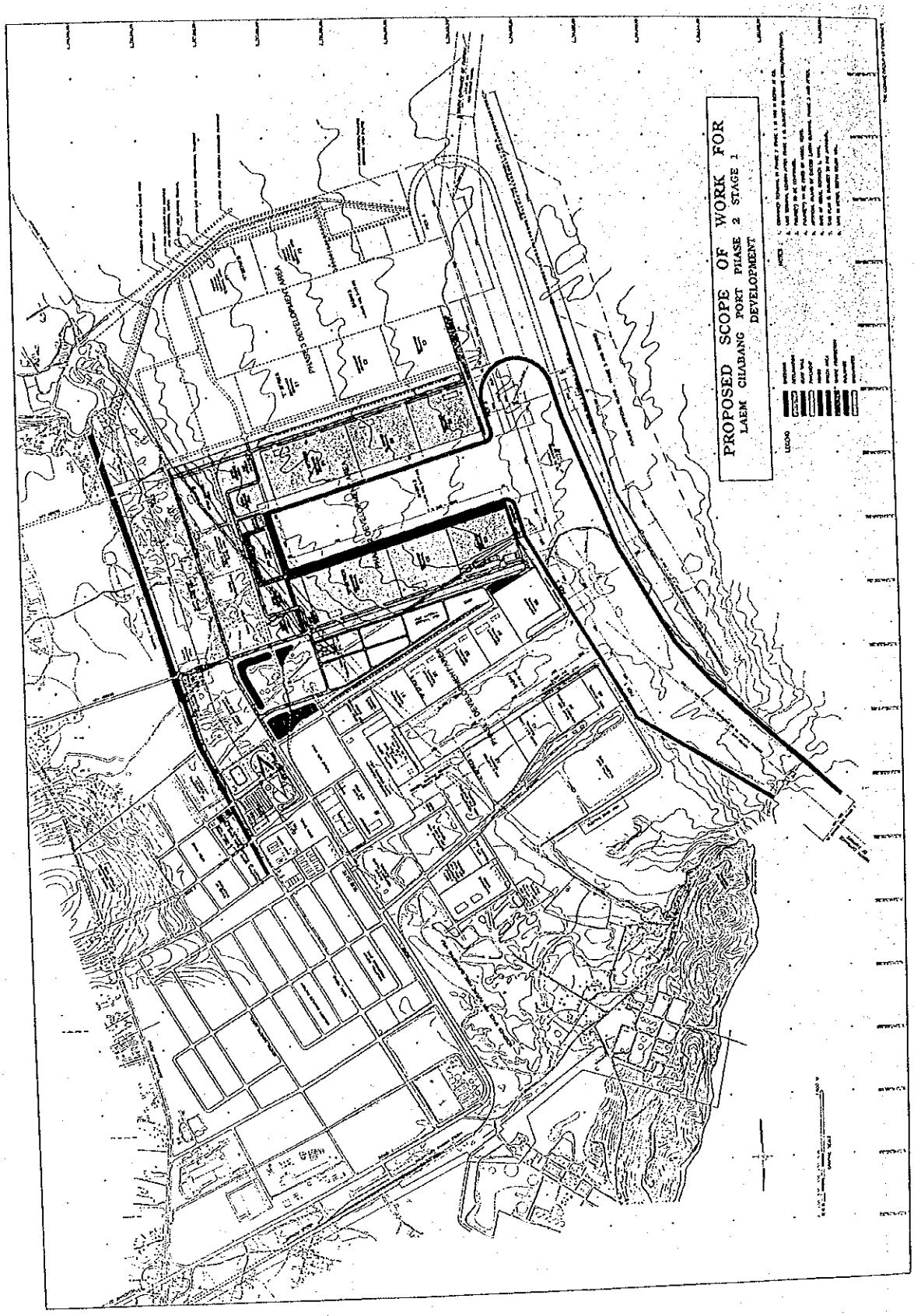


Table A.1.1 Performance of Laem Chabang Port

Items	1991 Start Jan.91	1992	1993	1994	1995	1996	1997	1998 Oct. 1997
1 Number of calling vessels (calls)								
1.1 Cargo	68	223	664	1,158	1,549	2,359	2,864	238
1.2 Passenger	1	7	11	8	12	19	11	-
1.3 Barge	5	23	87	457	349	119	40	3
1.4 Other	-	-	-	-	-	462	310	43
Total	74	253	762	1,623	1,910	2,959	3,225	284
Increasing Rate (%)	-	241.89%	201.19%	112.99%	17.68%	54.92%	8.99%	7.17%
2 General Cargo (Metric Tons)								
2.1 Import General Cargo	674,255	1,195,045	458,108	228,423	265,830	643,541	895,294	29,328
2.2 Export General Cargo	6,821	9,925	25,790	168,723	593,508	929,025	1,316,133	32,760
2.3 Shifting / Transshipment	-	1,606	846	22,873	53,605	-	-	-
Total	681,076	1,206,576	484,744	420,019	912,943	1,572,566	2,211,427	62,088
Increasing Rate (%)	-	77.16%	-59.82%	-13.35%	117.36%	72.25%	40.63%	-43.27%
3 Containerized Cargo (Metric Tons)								
3.1 Import Containerized Cargo	510	35,603	684,613	1,478,015	2,187,074	2,813,787	3,796,901	104,041
3.2 Export Containerized Cargo	20	44,073	870,839	1,860,586	2,695,301	4,039,290	6,139,784	599,368
3.3 Shifting / Transshipment	14,359	5,729	26,121	84,754	147,360	176,820	138,834	10,431
Total	14,889	85,405	1,581,573	3,423,355	5,029,735	7,029,897	10,075,519	713,840
Increasing Rate (%)	-	473.61%	1751.85%	116.45%	46.92%	39.77%	43.32%	14.95%
4 Container (TEU.)								
4.1 Import Container	59	3,974	80,183	153,190	235,591	335,296	483,195	50,734
4.2 Export Container	1	4,740	86,489	173,189	253,783	374,798	540,476	52,232
4.3 Shifting / Transshipment	1,300	582	2,390	6,859	14,252	18,536	12,392	1,075
Total	1,360	9,296	169,062	333,238	503,626	728,630	1,036,063	104,041
Increasing Rate (%)	-	583.53%	1718.65%	97.11%	51.13%	44.68%	42.19%	28.00%
5 Revenue (Million Baht)	83.57	180.23	449.48	571.06	737.79	839.41	1,082.32	82.01
6 Expense (Million Baht)								
6.1 Operation	17.44	28.63	78.05	99.54	110.11	85.89	57.23	2.80
6.2 Depreciation	9.70	290.85	314.69	316.68	317.41	317.40	320.36	21.66
6.3 Loan interest	-	106.23	110.92	117.20	114.00	120.00	114.00	10.00
6.4 Other expenses	24.50	73.21	56.77	62.93	64.40	105.59	163.20	14.09
Total Expenses	51.64	498.92	560.43	596.77	622.34	623.43	668.01	48.55
7 Net Profit (Loss)	31.93	(318.69)	(110.95)	(25.71)	115.45	215.98	414.31	33.46

Figure A.1.4 Capacity of Laem Chabang Port

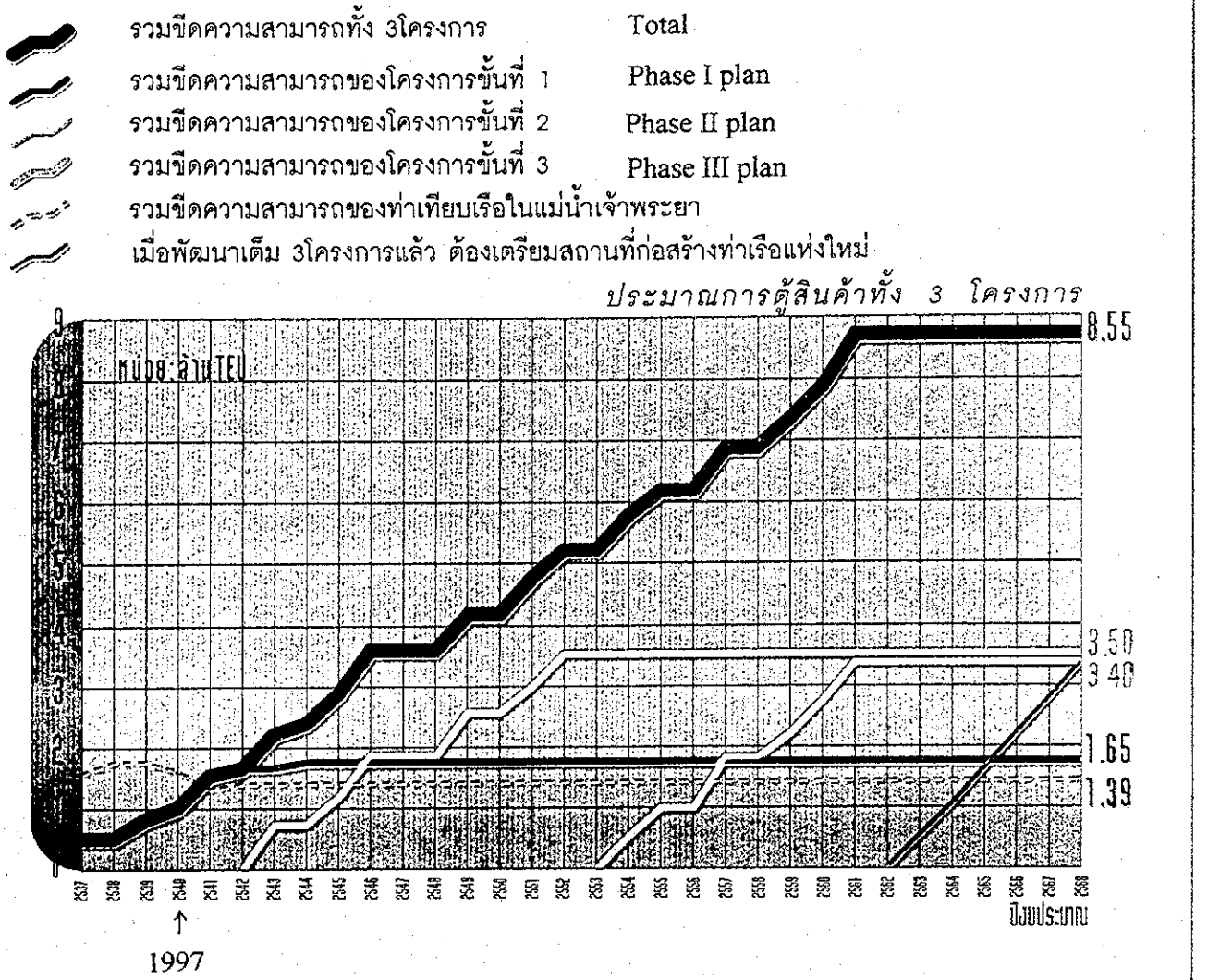


Figure A.1.5 Capacity of Port in Thailand

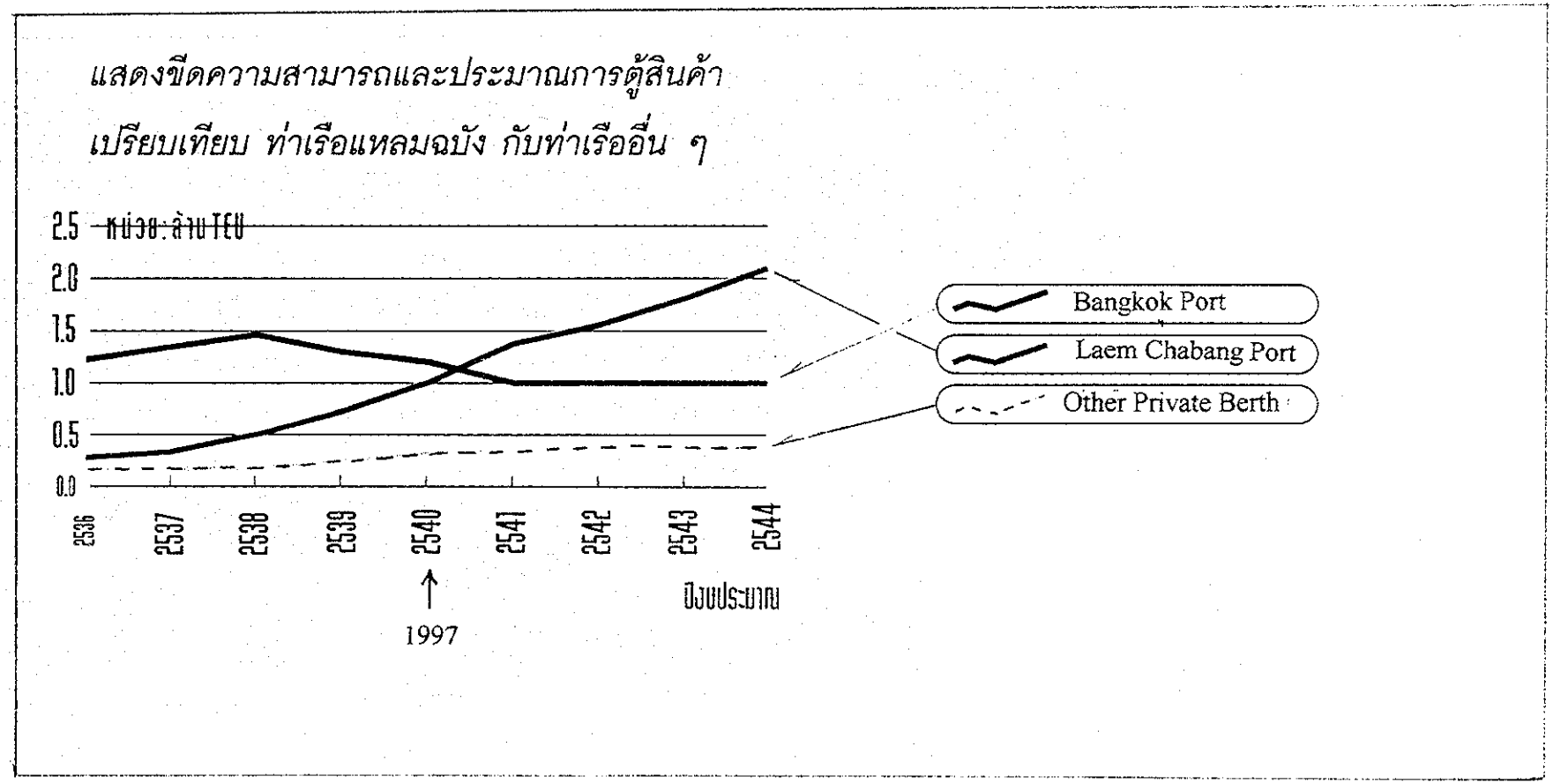


Figure A.1.6 Bangkok Port

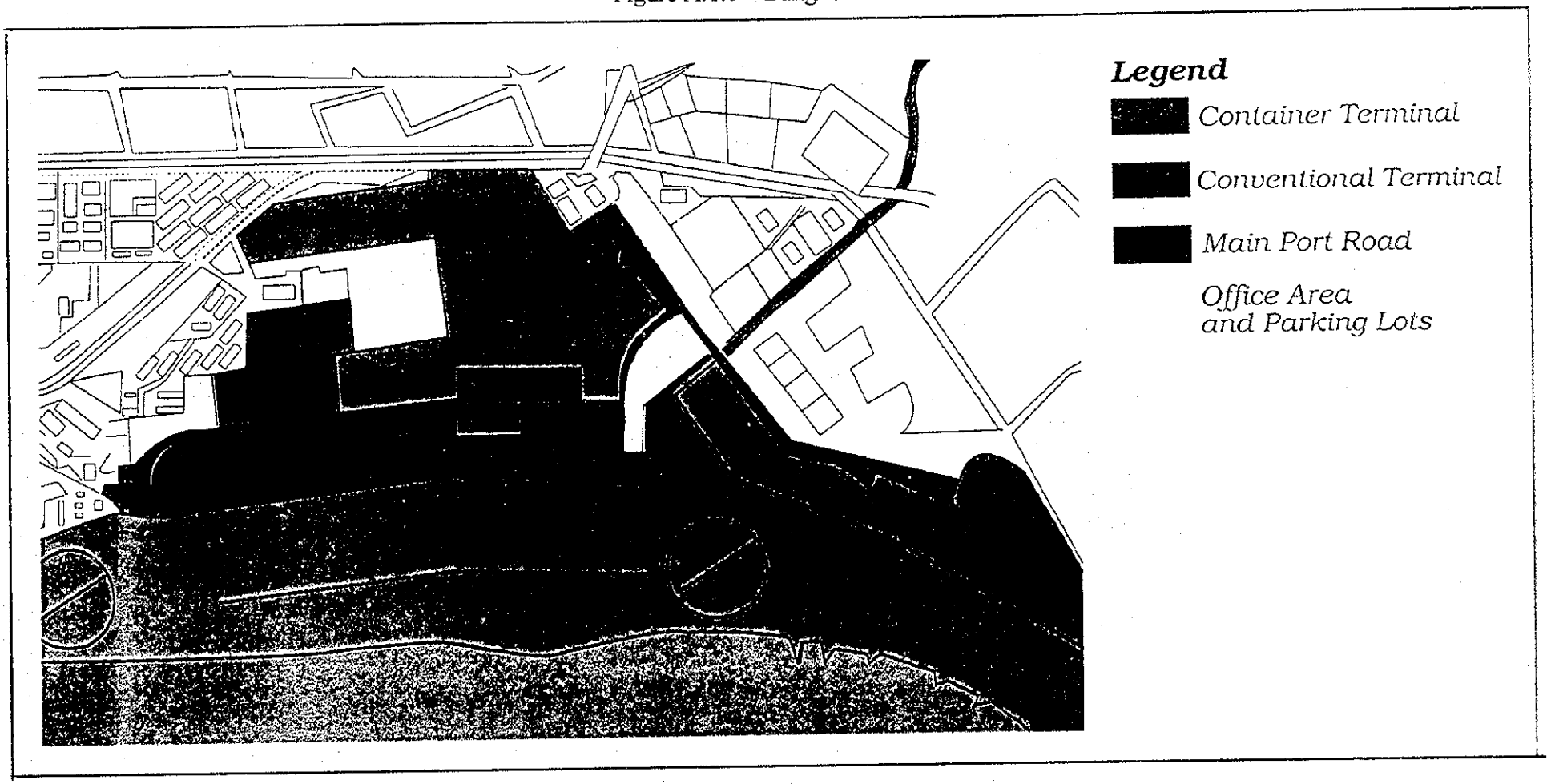
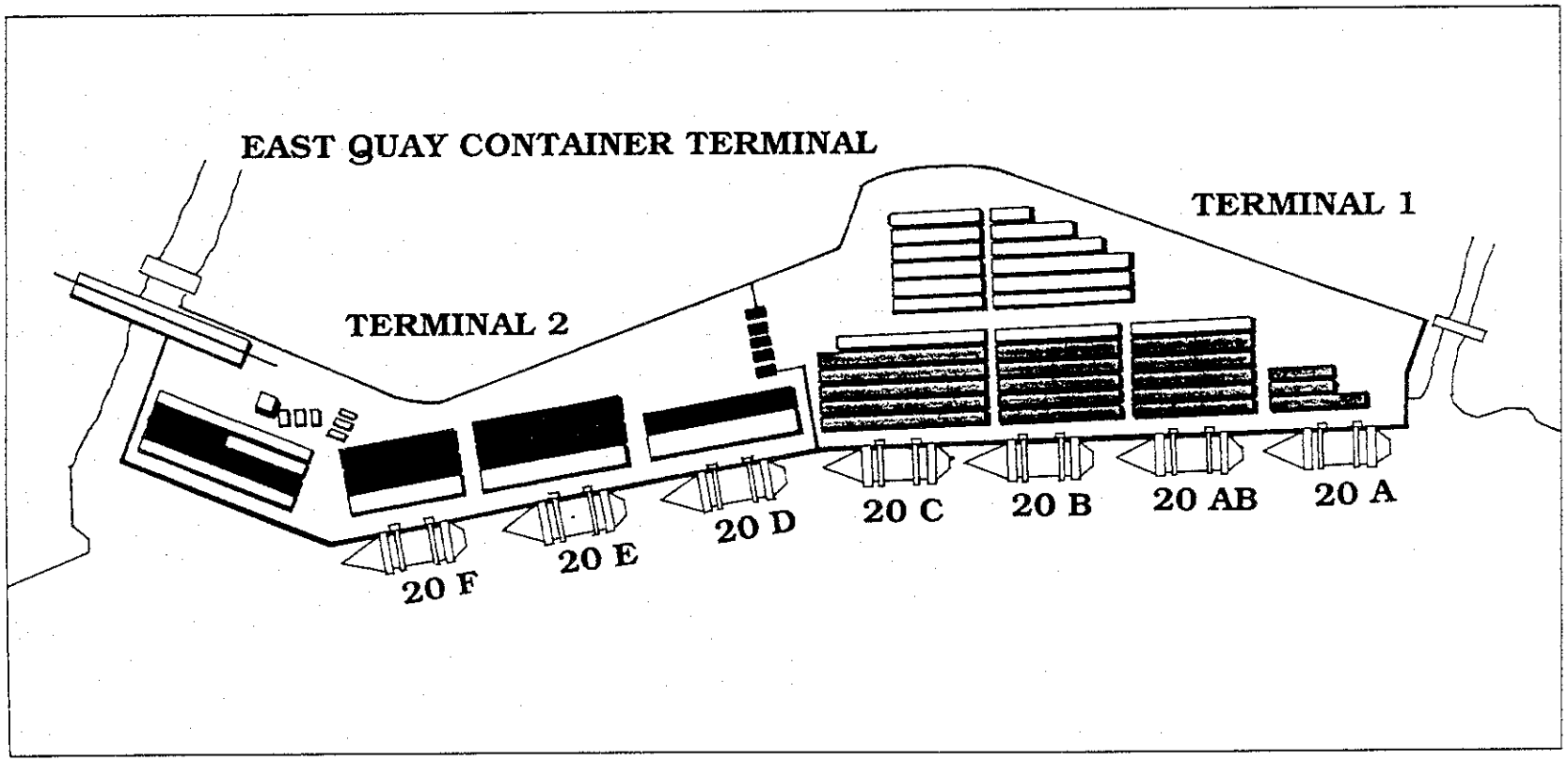


Figure A.1.7 Bangkok Port (Container Terminal)



TERMINAL 1-2

Appendix A.2 Philippines

A.2.1 .Introduction

Administration of ports and harbors in Philippines falls under the responsibility of the DOTC(Department of Transportation & Communication). The PPA(Philippine Port Authority) is responsible for management and operation of almost all the ports and in the country. In recently, however, there is a sign of establishment of the SPA(Sebu Port Authority).

A.2.2 Function of The DOTC

The DOTC has not local branches and its charges are limited to functions of head office, namely supervision and approval of the port management and operation by PPA or other organizations. As for Feeder Ports, the DOTC also implements the port planning and construction, which have been taken over from DPWH(Department of Public Works & Highways). After construction of these ports, the DOTC entrusts the port management and operation to the PPA.

A.3 Function of The PPA

A.3.1. Organization

The PPA which was established in 1975 by a Presidential Decree is a Government Cooperated Body. The DOTC supervises the PPA which is headed by Board of Directors. Members and the chairman of the Board of Directors are relevant Ministers and Minister of The DOTC.

At present, 122 ports are managed by the PPA which consists the head office with four departments, 5 PDOs(Port District Offices) and 22 PMOs(Port Management Offices).

In appearance, the PPA is an independent organization in respect of its finance. But, a part of its income is passed to the government and the government in return gives subsidies to the PPA.

A.3.2. Business

Main business of the PPA are port planning, construction, management and operation. The business includes establishment of port tariffs, approval of establishment of private ports, construction of port facilities and decision-making for the 25-Year Port Development Plan.

The PPA is in charge of all practical port activities including port policing, but not cargo handling which is contracted to private sectors.

A.4. Philippine Port Affairs

A.4.1. The 25-Year Port Development Plan

During the first five years(1992-1996), the total cargo handling volume at ports in Philippines registered the growth rate of 5.8%, from 110.84 million tons in 1992 to 138.91 million tons in 1996. This continuing upward trend of the maritime trade in Philippines has to be supported by the necessary infrastructure.

In view of the above situation, the PPA came out with the 25-Year Port development Plan, which was approved in principle by the President in July, 1995. About 90 projects are included in the plan which was started in 1996.

The major strategies of the 25-Year Port Development Plan are as follows:

① Developing Competitive International Ports

As cargoes should be handled in ports nearest to their origin/destination and meet the needs of clients in the international maritime community, the following ports will be fitted with necessary equipment, facilities and supporting services that are up to world standards:

Irene, Sual, Manila, Batangas, Puerto Real, Pagbiliao, Iloilo, Cagayan de Oro, General Santos and Zamboanga.

② Rationalizing the Hubs-Spokes System

The PPA will promote the satisfactory Hubs-Spokes system for supporting establishment of the intermodal transport system in the Philippines. The Hubs-Spokes system will serve between major ports and small towns and cities through

its feeder service of sea transportation. Therefore, hub-ports and spokes(satellite ports) will be expanded/improved in terms of both port facilities and equipment.

③ Promoting Transport for Manila－Cebu Corridor

The PPA will improve/expand ferry terminals on the route between Manila and Cebu for economic activities at Visayas economic area by increasing road transportation.

④ Improving the Ro-Ro Network

In the Philippines, there are more than 40 Ro-Ro routes. The PPA plans to establish the Ro-RO network in its effort to achieve the transport integration.

⑤ Enhancing Sea Transport Along the Pan-Philippine Highway

The PPA has programmed rehabilitation of ferry terminals which has been turned over by the DOTC. Ferry terminals are located along the Pan-Philippine Highway. The operation of these terminals is one of the projects lined-up for privatization.

⑥ Supporting EAGA Development

In support of the East Asia Growth Area(EAGA), the PPA has recommended the grant incentives to vessels traveling along the EAGA routes in form of a preferential tariff rates which effectively makes the domestic tariff rates applicable to international vessels calling at ports covered by the EAGA.

Bbout 90 projects are compiled in the 25-Year Port Development Plan.

Basic policies of the 25-Year Port Development Plan are as follows:

① Privatization
② Decentralization
③ Deregulation

The PPA has the 5-Year Medium-Term Public Investment Program(MTPIP), of which contents are included in the 25-Year Port Development Plan. The MTPIP was prepared with cooperation from the National Economic and Development Authority(NEDA). The term of current MTPIP is from 1997 to 2001.

A.4.2 Privatization

In Philippines, the pilot port project of privatization is Manila International Container Terminal(MICT), which was privatized in June 1988. At the MICT, functions of the operation, management and development are performed by a private company, called the International Container Terminal Services Inc.(ICTSI). It is a consortium of private firms. The PPA, however, retains the supervisory and regulatory role during the 25-year Lease agreement.

The PPA is promoting privatization of ports strongly, according to the Executive Order issued in November 1994 for accelerating the Demonopolization and privatization program for Government Ports. Therefore, there are 49 BOT projects in the before said 90 projects of the 25-Year Port Development Plan.

A.5. Others

A.5.1 Present Status of Containerization

At public ports under the PPA's jurisdiction, the ratio of the total container cargo volume(31million ton in 1996) to the total cargo volume(138million ton in 1996) is about 22 percent, a very high figure. It is assumed that the ratio of total container volume to the total general cargo volume in public ports is more than 70 percent.

For domestic trade, the ratio of the container cargo volume to the total cargo volume in public ports under the PPA jurisdiction in 1996 is approximately 26 %, which exceeds the ratio of foreign trade. This is a special feature of sea transportation in this country and worthy of note in the world.

Already mentioned in 4－2, the MITC is operated by ICTS under the contract with the PPA. Major facilities and cargo handling equipment at MITC are as follows:

a. berths: 4 berths(length:900m, depth:-12m)
b. CFS: 3
c. Container yard: 29ha.
d. Ship-shore cranes for container: 9(Capacity: 40 tons)
e. Rubber tire transfer cranes: 21(Capacity: 40 tons)

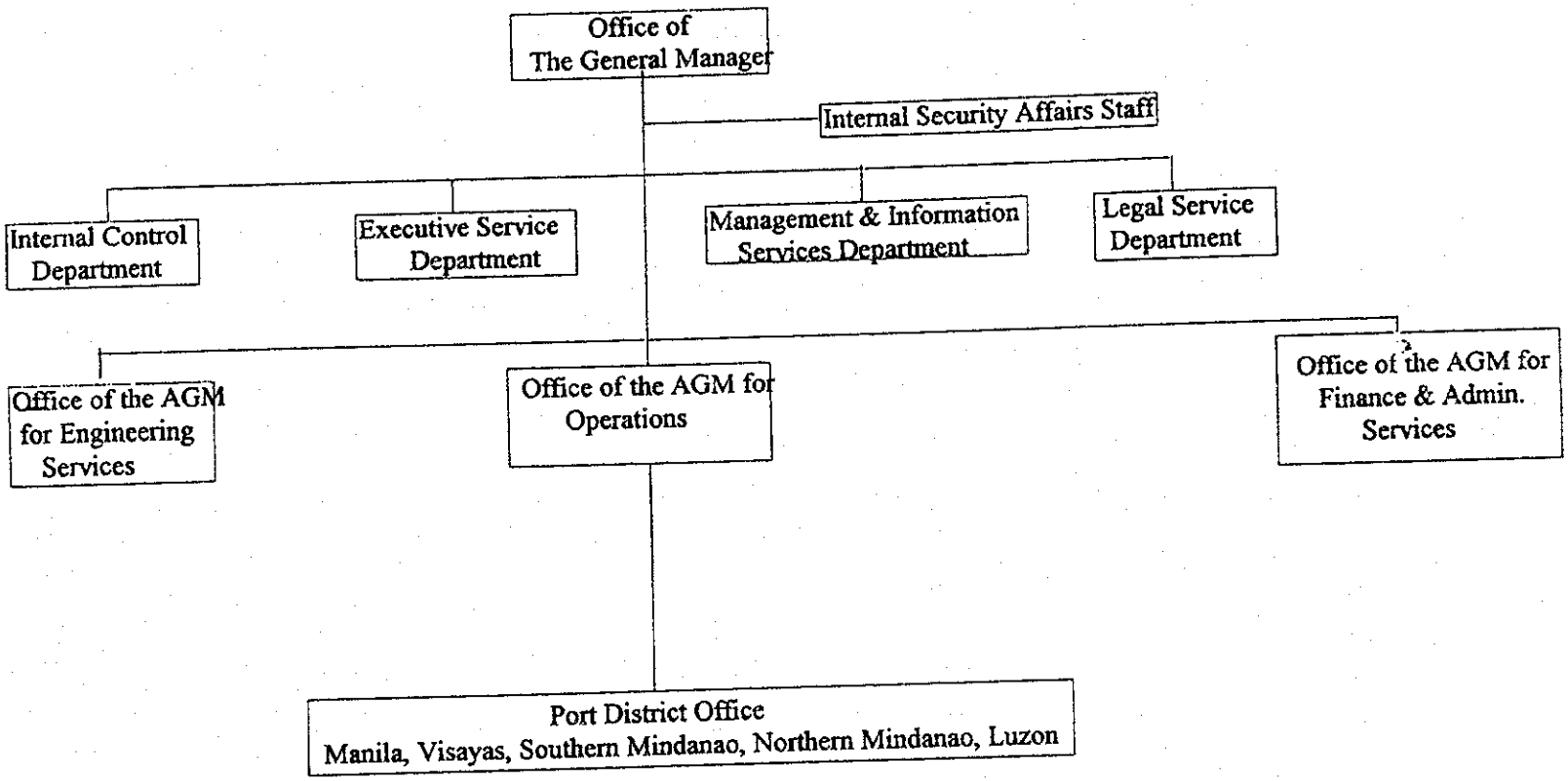
Operation, management, expansion/improvement of port facilities and establishment of cargo handling equipment at South Harbor are done by Asian Terminal Inc.(ATI) under the contract with the PPA. The PPA collects the money from contractors for use of facilities and various other fees for approvals. It acts like a landlord.

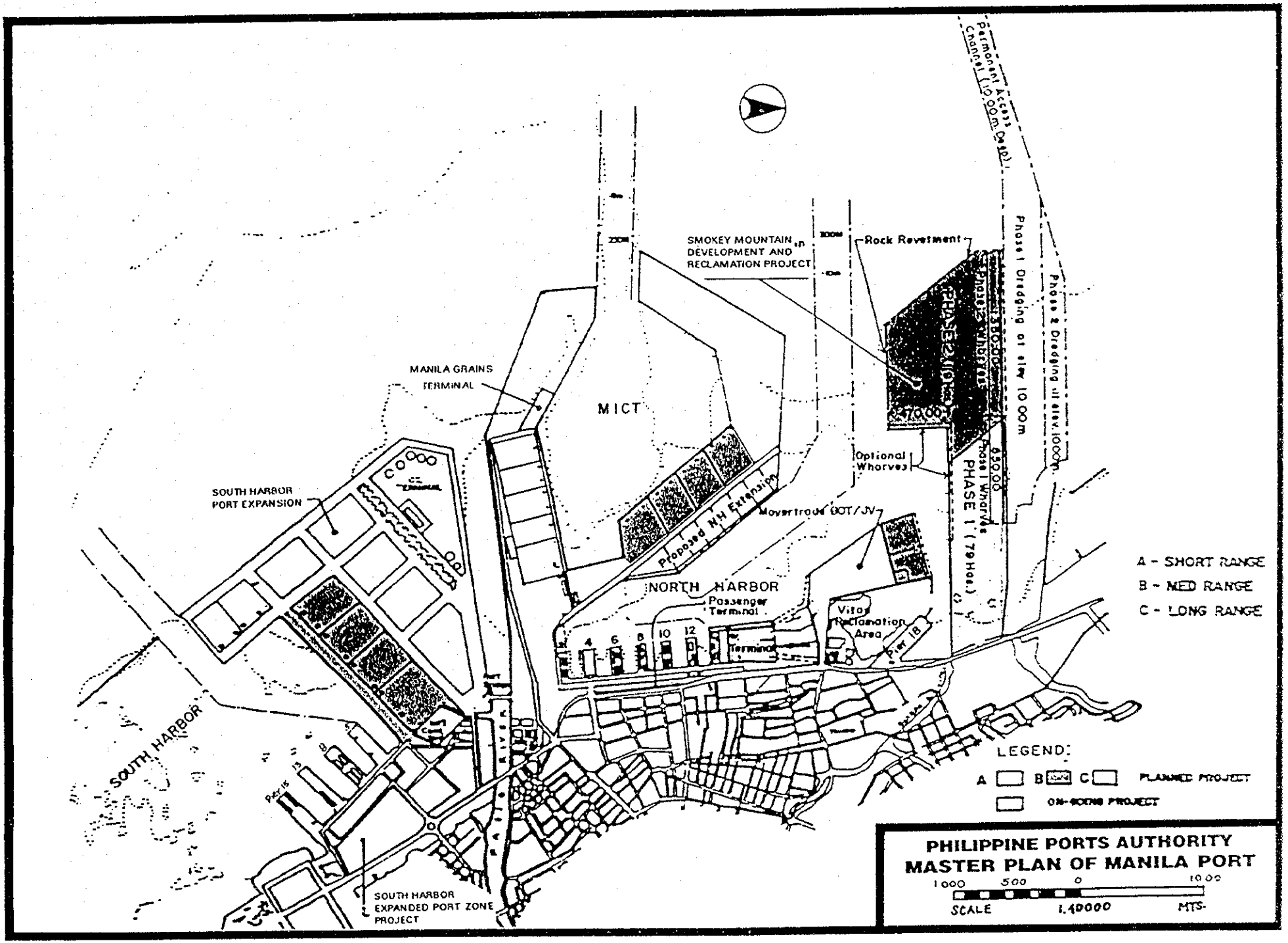
A.5.2 Present Condition of Port Management and Operation

At all public ports under the PPA, terminal operation is by private companies under the contract with the PPA. The PPA does not assume direct operation of port terminals at all ports under the PPA.

It is assumed that many BOT and JV projects were proposed for the 25-Year Port Development Plan.

Figure A2.1 Organization Chart of Philippine Port Authority




Permanent Access Channel (10.00m Deep)
SMOKEY MOUNTAIN DEVELOPMENT AND RECLAMATION PROJECT
Rock Revetment
Phase 1 Dredging at elev 10.00m
Phase 2 Dredging at elev 10.00m
PHASE 2 (110 Has.)
Phase 2 Wharves
380.00
470.00
650.00
Phase I Wharves
PHASE 1 (79 Has.)
Optional Wharves
MANILA GRAINS TERMINAL
MICT
SOUTH HARBOR PORT EXPANSION
Proposed N.H Extension
Movertrough BOT/JV
NORTH HARBOR
Passenger Terminal
Vital Reclamation Area
Pier 18
Terminal
SOUTH HARBOR
Pier 15
PASIG RIVER
SOUTH HARBOR EXPANDED PORT ZONE PROJECT
A - SHORT RANGE
B - MED RANGE
C - LONG RANGE
LEGEND:
A
B
C
PLANNED PROJECT
ON-GOING PROJECT
PHILIPPINE PORTS AUTHORITY
MASTER PLAN OF MANILA PORT
1000 500 0 1000
SCALE 1:40000 MTS.

Appendix A.3 Hong Kong

A.3.1 Current Activities of Port of Hong Kong

A.3.1.1 Outline

Hong Kong is geographically in an advantageous position for China's trade from/to the North America and Europe. Hong Kong has been also keeping a good relationship with China even in the period under U.K.'s jurisdiction. (See Figure A.3.1)

Port of Hong Kong is characterized as the container port. About 90 % of its trade passes through the port in the form of container cargo. So we focus the characteristics of the container cargo handling in this appendix.

In 1995, Port of Hong Kong handled 12.5 million TEUs of container cargo, which is the largest number in the world. In 1996, Hong Kong's total container throughput amounted to 13.5million TEUs. The Growth rate was 7.3% over 1995. Over half of its throughput, or more than six million TEUs, originated from or was bound for China. And currently, Hong Kong accounts for over 80 % of Guangdong's trade. On the other hand, The transshipment rate is about 20% in average in recent years. (See Table A.3.1)

So Hong Kong has been playing a role as the Gateway of China, especially Southern China.

On the other hand, port charge of Port of Hong Kong is 365 US$/40Feet Container. It is as same as that in Japan. In case of the port charge of Singapore, Pusan and Takao, they are 187, 169 and 165 US$/40Feet Container respectively, which are much cheaper than that of Hong Kong. But based on the fact that Port of Hong Kong plays a role as the gateway of China, especially southern part, it seems that Hong Kong can handle the above big volume of the container cargo.

A.3.1.2 Characteristics of Container Cargo Handling

In Hong Kong there are 2 types of container handling, "Terminal Container Handling", in which container cargoes are handled in the container terminal, and "Mid Stream Container Handling", in which container cargoes are handled in the sea area. (See Picture A.3.1, Attachment A.3.1)

The most characteristic point of the "Terminal Container Handling" is high productivity

and efficiency for the container cargo handling. Details are already described in Chapter 10.4.

"Mid Stream Container Handling" is also characteristic system in Hong Kong. It has more than 150 years history. In this system, vessels which install the crane are used to move the containers from/to the container ship to/from the quay.

The number of the vessels is about 1,600 and about 200 of them are used exclusively for container handling. The container cargo throughput by this system is 2.9 million TEU in 1995 and about 26% for the total container cargo throughput. In Port of Hong Kong, this system plays a role mainly to supplement the container handling in the container terminals, since it can accommodate the container cargoes with reasonable price flexibly.

A.3.1.3 Current Situation of the Port Development

In Hong Kong there are 8 container terminals and 19 berths which were constructed and operated by 4 private terminal companies. These are big scale container terminals which depth is almost 10～15 m. Detailed situation is described in Attachment A.3.2.

Most of international cargo which are exported, imported or transshipped in Hong Kong are handled at Kwai Chung Container Terminal. This is the latest model Container Terminal consisting of 8 terminals managed by 4 private operation companies.

For mid-stream operation, government constructed and owns 62 mooring buoys and 9 public cargo working areas, 2 public waterfronts and 4 permitted sea fronts, providing some 8,700m usable sea frontage.

A.3.2 Port Development, Management and Operation

A.3.2.1 Current Policy

In Hong Kong, private sectors play dominant role on the port development, management and operation. On the other hand, the role of the government is not to disturb but to support private sector's free business activities. So, most of the port facilities are privately owned and operated, with minimal interference from government.

Above policies are summarized as follows.

1) Non Intervention Policy
2) Facilitating Investment by Private Sectors
3) Developing the port facilities which meet the demand

A.3.2.2 Function of the Government Organization

The Marine Department and Port Development Board are governmental organizations concerned to port activities.

Main role of the government is to support the smooth, swift and efficient port development by the private sectors. But regarding to the small scale port facilities, such as the port facilities for mid-stream cargo handling system, government itself conducts those port development.

On the other hand, the role of the private sector is to conduct the port development, management and operation. Now, four private companies currently operate the terminals at Kwai Chung Container Port, they are Hong Kong International Terminals Limited(HIT), Modern Terminals Limited(MTL), Sea-Land Orient Terminals(SLOT) and the joint venture of HIT and China Ocean Shipping Company(COSCO)(CHT). Outline of the above companies are shown in Figure A.3.3 and Attachment A.3.2.

(1) Marine Department

The Marine Department is responsible for all navigational matters in Hong Kong and the safety standards of all classes and types of vessels. Its stated mission is "to promote excellence in marine services". The functions it performs are, briefly, to

- facilitate the safe and expeditious movement of ships, cargoes and passengers within Hong Kong waters
- ensure compliance of safety and environmental protection standards by Hong Kong registered/licensed ships and ships using Hong Kong waters
- administer the Hong Kong Shipping Register and develop relevant policies, standards and legislation in line with international conventions
- ensure the competency of seafarers for Hong Kong registered/licensed ships and ships using Hong Kong waters and regulate their registration and employment
- co-ordinate maritime search and rescue operations
- combat oil pollution, collect vessel-generated refuse and scavenge floating refuse inside Hong Kong waters
- provide and maintain government vessels

(2) Port Development Board

Historically the Hong Kong Government has always adopted a laissez-faire approach to business development in the Territory and the port was no exception. In recent years,

however, with a rapidly expanding port, particularly in the field of containerization, the planning of future port requirements has become more complex.

It was therefore decided to form the Port Development Board in 1990 to advise the Governor, through the Secretary for Economic Services, on all aspects of port planning and development. While in no way usurping the private sector's involvement, the Board is responsible for:

- advising on strategic port needs
- listening to the views of port users
- acting on those views where necessary
- maintaining the regional competitiveness of Hong Kong's port
- co-ordinating Government and private sector involvement in planning and development.

The Board assesses port development needs in the light of changing demand, port capacity, productivity, performance and competition both locally and regionally. It recommends strategies for creating new port facilities and brings together Government and private sector involvement in the formulation of advice on their development. The Board also acts as a focal point for ideas and opinions expressed by port operators and others involved in port expansion.

A.3.2.3 Port Planning

The present port development has been conducted by the "Port and Airport Development Plan in Hong Kong" which was established in 1989 and which target year is 2004. This plan has been revised based on the review of the economic situation every two years by the "Port Development Board Committee" which was established in 1990. The members of this committee are composed of the people of learning and experience, port users, member of the Parliament, designer, representative of the related government organization and so on and can freely express their own opinions and request about the port development.

This committee is composed of the following five sub committee. (See Figure A.3.2 Attachment A.3.3)

1) Container Handling Committee
2) Port Land and Transport Committee
3) River Trade Cargo Facilities Committee
4) Ship Repair and Ancillary Facilities Committee
5) Committee for Strategic Planning for Hong Kong Waters

A.3.2.4 Future Prospect of the Port Activity

Now, Terminal 9 has been planned for Tsing Yi Island, opposite Kwai Chung Terminal. In addition, to cope with the demand forecast, Hong Kong is planning a completely new port in Lantau Island. This will consist of between 17 and 24 berths (depending on demand), so called Terminal 10 - 12 projects.

But recently, many ports in mainland China are growing up to modernized ports which are gate ways to commercial and industrial zones. They are Dalian, Xingang, Qingdao Shanghai in the north and Yantian, Shekou, Chiwan in the south. Some of large container ships which belongs to grand alliance are making direct call to Yantian, Shekou and Chiwan instead of calling Hong Kong. And some of large container ships are calling northern ports in China through the ports in Korea and Taipei instead of calling Hong Kong.

Outlines of the 3 new container port development projects in the southern China, are shown in Attachment A.3.4. Present containers volumes handled in these 3 ports are far below than the volume in the Port of Hong Kong. But as these ports develop, the volume of the container cargo in the Port of Hong Kong will not be able to increase as same as before days.

So the government thinks that reevaluation of the future development plan, such as terminal 10 to 12 in Lantau island, is necessary. The basic stance of the government for port development is to wait the further port development until the time, when necessity for port development becomes clear based on the precise demand forecast.

A.3.3 Instructive points to the port development in Indonesia

(1) Role of the government for formulating the master plan, authorizing the port master plan by utilizing the committee and so on

Even in Hong Kong, where the private sectors play dominant role for the port development, government is still responsible for formulating the port master plan, authorizing the port master plan by utilizing the Committee system and evaluating the environmental aspects and other institutional matter.

In Indonesia, particularly authorization of the port master plan by utilizing the committee system shall be also examined.

(2) Periodical reevaluation of the demand forecast

In Hong Kong every 2 years, reevaluation of the demand forecast is conducted by utilizing the above committee. Based on the result of reevaluation, they decide when and

which scale the future project will be conducted. This kind of reevaluation of the demand forecast is useful for effective and efficient port development.

(3) Pursue of the total productivity and efficiency in the container terminal

They continue to make efforts to improve the productivity and efficiency for container handling in the terminal by utilizing the latest high technology computer system. According to what the users of the port told us as the most advantageous point of Port of Hong Kong , they pointed out the fact that the ship can surely call at the terminal on time scheduled as well as the high productivity of the cargo handling at the terminal.

So, in order to improve the efficiency and productivity corresponding to the request of the users, not only increasing cargo throughput per year but also shortening the waiting time is very important.

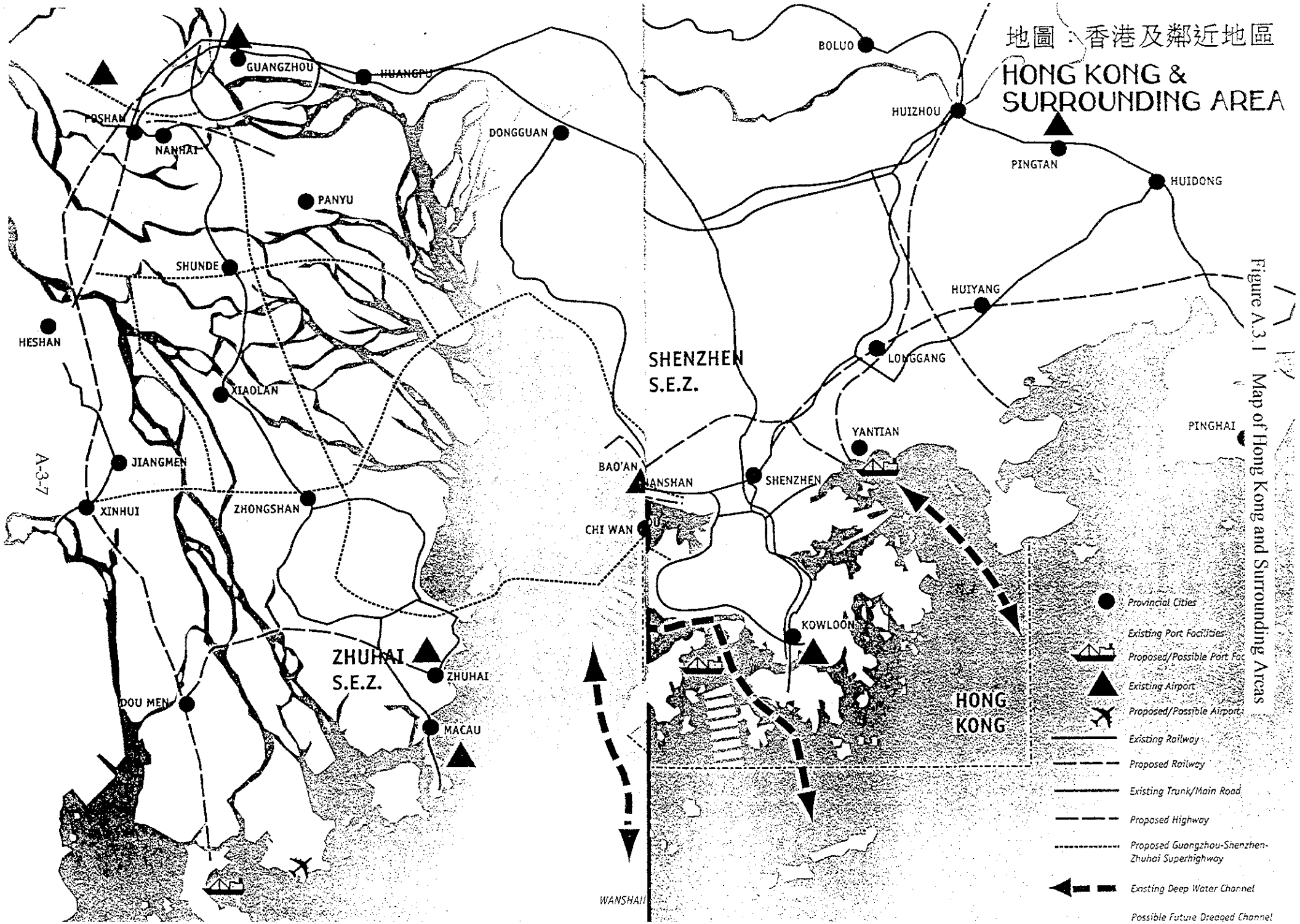


Figure A.3.1 Map of Hong Kong and Surrounding Areas

Table A.3.1 Summary of the Port of Hong Kong

Intenational Vessel Arrives				Container Throughput (TEUs)	Cargo Throughput ('000 Tonnes)	
Year	Ocean-going	River Trade			Ocean-goin	River Trade
		Inter-national Ferry	Trading Vessel			
1983@	11,476	31,033	33,753	1,837,047	31,569	5,417
1984@	11,883	34,377	37,564	2,108,583	35,293	5,940
1985@	13,346	38,017	43,931	2,288,953	39,689	7,864
1986@	14,109	40,784	44,096	2,774,025	47,469	8,820
1987@	15,241	43,016	47,347	3,457,182	53,557	9,410
1988@	17,089	45,460	52,577	4,033,427	61,321	10,069
1989@	18,999	46,964	50,216	4,463,709	64,655	9,027
1990@	20,363	48,302	54,141	5,100,637	66,008	9,287
1991@	22,631	49,392	57,280	6,161,912	76,445	11,147
1992	28,255	52,999	67,907	7,971,758	83,382	19,333
1993	33,042	55,837	76,775	9,204,236	96,100	22,038
1994	36,997	63,183	92,048	11,050,030	110,947	30,079
1995	41,478	64,476	109,272	12,549,746	127,175	28,732
1996	41,760	65,271	112,190	13,460,343	125,839	31,461

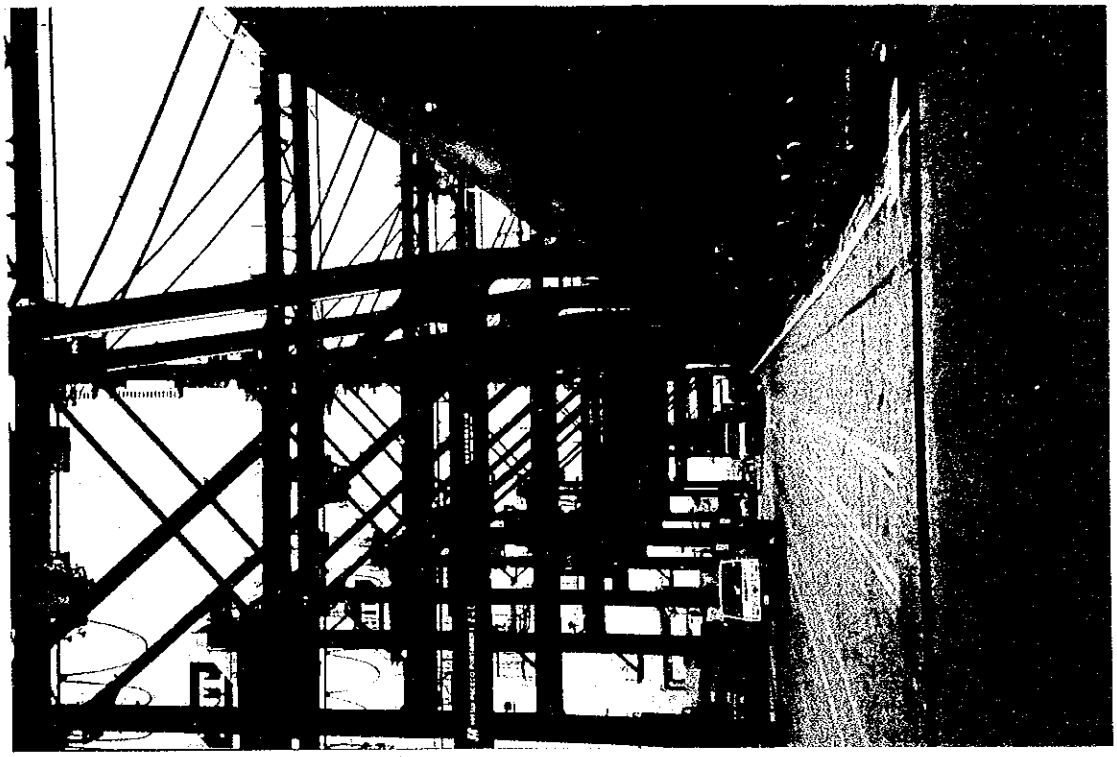
Note: @1992 and later statistics are based on new systems. Those for 1991 and earlier were compiled from old systems. Hence comparisons between these two periods may be distorted because both methodology and procedure have been changed.

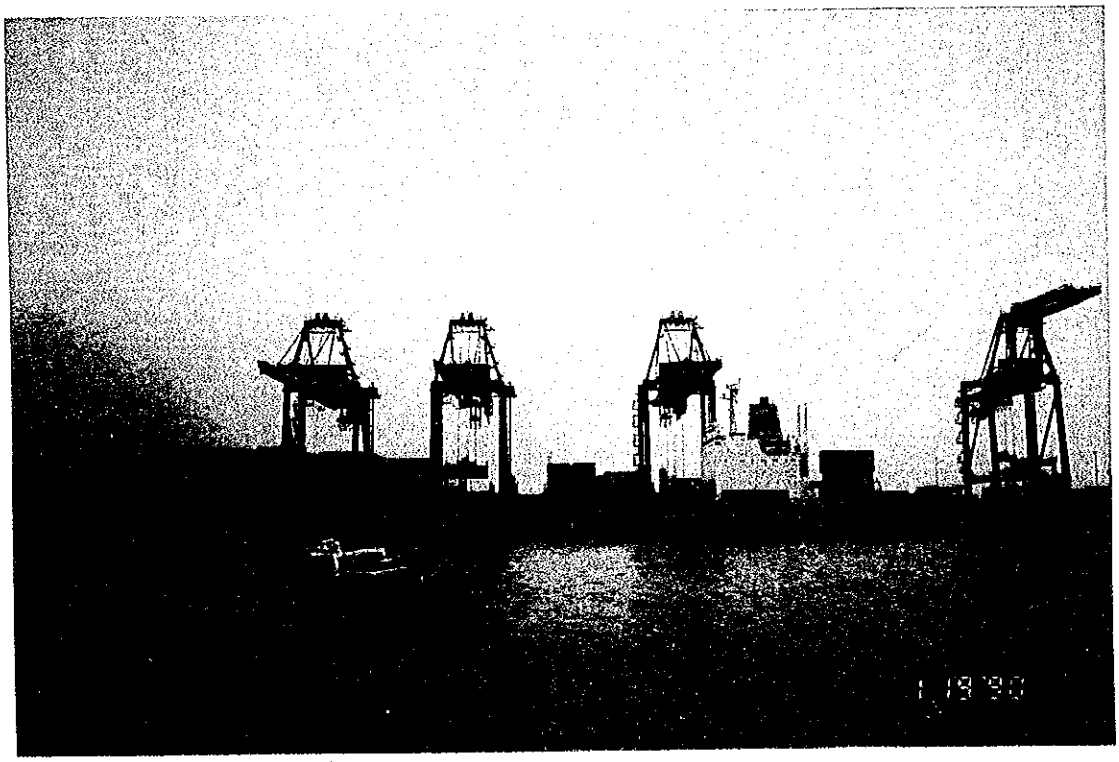
Source: http://www.info.gov.hk/marde

TOP 20 WORLD CONTAINER PORTS 1995/94 (TEU) RANKING

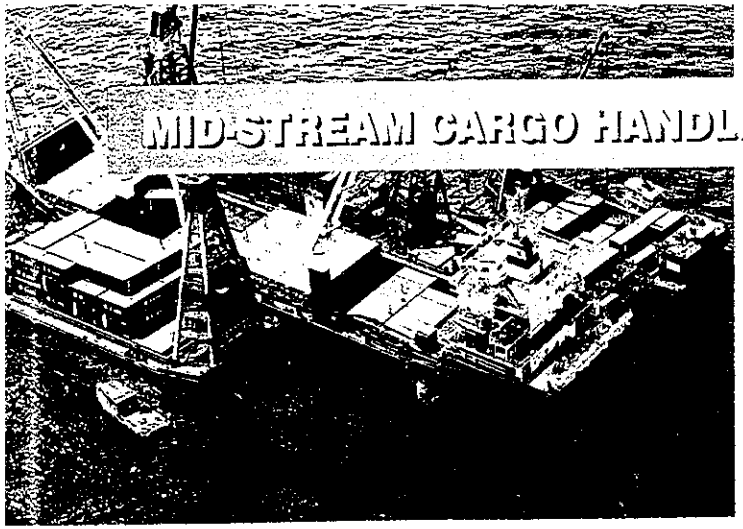
RANKING		PORT	1995	1994	%CHANGE
1995	1994				
1	1	Hong Kong	12,529,000	11,050,050	13.3%
2	2	Singapore	11,830,000	10,400,000	13.82%
3	3	Kaohsiung	5,053,183	4,899,879	3.13%
4	4	Rotterdam	4,789,000	4,539,000	5.51%
5	5	Busan	4,503,000	3,825,000	17.75%
6	7	Hamburg	2,890,181	2,727,718	5.95%
7	8	Long Beach	2,739,516	2,573,827	6.43%
8	10	Yokohama	2,756,810	2,317,103	15.94%
9	9	Los Angeles	2,555,206	2,518,618	1.45%
10	11	Antwerp	2,339,559	2,208,173	5.94%
11	13	New York	2,218,531	2,033,918	9.07%
12	15	Tokyo	2,177,709	1,805,402	20.62%
13	12	Keelung	2,165,193	2,046,588	5.79%
14	14	Dubai	2,070,000	1,881,990	9.98%
15	16	Felixstowe	1,923,936	1,746,653	10.14%
16	-	Manila	1,690,601	1,501,965	12.55%
17	23	Oakland	1,549,886	1,491,000	3.94%
18	17	San Juan	1,539,374	1,532,842	3.67%
19	18	Bremerhaven	1,532,000	1,502,286	1.97%
20	22	Shanghai	1,526,500	1,199,000	27.31%

Picture A.3.1 Activity of Container Terminal





MID-STREAM CARGO HANDLING

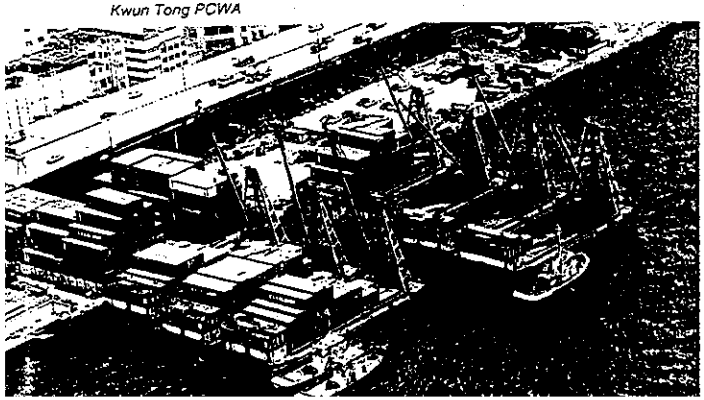


Mid-stream Cargo Handling

IN Hong Kong, mid-stream operations involve the loading and unloading of cargo ships mooring at buoys or anchorages in the harbour. A wide range of vessels from bulk, break-bulk, semi-container to fully cellular container ships are served. Cargoes are taken from ships to shore by lighters which have their own derricks.

THE lighters load and discharge cargoes at public cargo working areas, public waterfronts, permitted seafronts, and private waterfronts. Private waterfronts are generally called mid-stream sites. All public cargo working areas, public waterfronts and permitted seafronts are under the control of the Marine Department. They are used by small river or coastal craft and lighters from mid-stream. There are 9 public cargo working areas, 2 public waterfronts and 4 permitted seafronts, providing some 8,700m usable seafrontage.

Kwun Tong PCWA

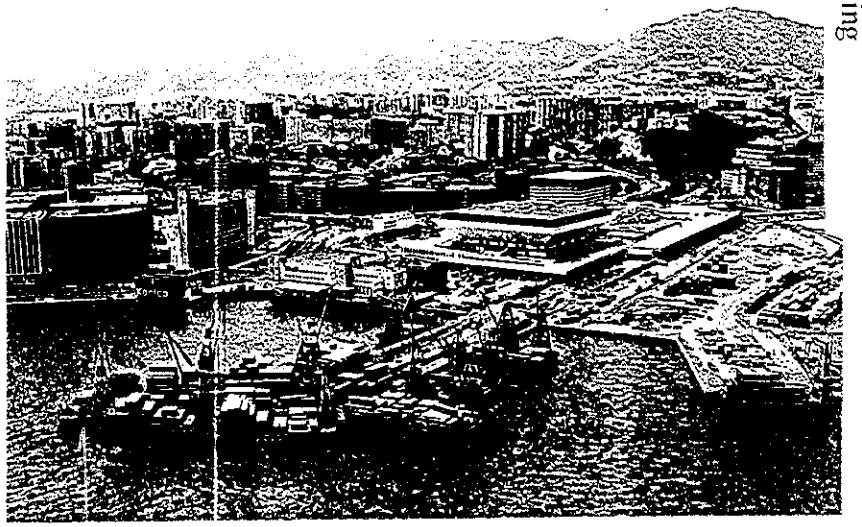


MID-STREAM sites or private waterfronts mainly handle cargoes from ocean-going vessels, although some of them are also involved in river trade. These sites are usually leased to private operators on a short term basis. There are now 19 mid-stream sites with some 3,600m of waterfrontage. These sites are scattered at Tuen Mun, Tsing Yi and around the Victoria Harbour.

ABOUT 72% of the cargoes handled by the mid-stream sector in 1994 were containerised. These amounted to 2.8 million twenty-foot equivalent units or 25% of all containers handled in Hong Kong. Mid-stream container handling provides a lower cost alternative to container terminals,

Western District PCWA

and is particularly favoured by liners/shippers involved in intra-Asian trade. Its flexibility also enables it to absorb the overspill at the container terminals particularly in the peak season.



Mid-stream Site at Hung Hom

Attachment A.3.2 Activities of Private Companies

(1) Hong Kong International Terminals Limited(HIT)

HIT, with ten berths available at Terminals 4, 6 and 7, is the world's largest privately owned container operator. In a joint venture with COSCO, COSCO-HIT Terminals(Hong Kong) Ltd., HIT also has access to the two berths of Terminal 8(East) on Stonecutters Island. More than 450 ships a month are handled at HIT during its 24 hour a day, seven days a week operation. HIT handled over 4 million TEU in 1995.

A Yard Planning Computer System handles the container, cargo and yard planning operations and associated documentation. The Ship Planning Systems(SHIPS) enables two computer screens to link a profile of the vessel together with the yard stacks of containers to be loaded. The Information Exchange System(IES), a comprehensive data-based managing system, has been installed and shipping lines have direct access to selected data on the system. Container yard operations are supervised from the control tower where operators' man groups of modular consoles which are each provided with a trunk radio system, a computer terminal, a closed circuit television and an internal telephone.

The Container Freight Station is now located in the Hong Kong International Distribution Centre which is built over Terminal 4.

(2) Modern Terminals Limited(MTL)

MTL currently owns and operates Terminal 1, 2 and 5 at the northernmost end of Kwai Chung Container Port, as well as two berths on Terminal 8(West) on Stonecutters Island to the south of the port. MTL's throughput for 1995 totaled 2,111,586 TEU.

The logistics of container movements and storage on Terminals 1, 2, 5 and 8(West) are handled by two separate terms, who are in close contact with one another. Cargo documentation, stowage arrangements and ships' stability calculations are undertaken by operations and planning departments, which maintain close liaison with all incoming and outgoing vessels, their operators and agents.

MTL has invested heavily in information technology to expedite container movements and inventory control. The company consistently reviews and upgrades its systems and a local area network(LAN) is used to link computer terminals and workstations located in each department. The central computer also supports applications in the Container Yard, Container Freight Station, Engineering and Finance Departments.

A gatehouse automation project, incorporating tractor identification(TIDS), voice appointment(VAS) and booking information(BIS), was commissioned in May 1994. TIDS identifies and traces movements of tractors within the terminals, thereby improving security and the effectiveness with which tractors can be controlled. VAS is a 24 hour service which allows hauliers and shipping lines to make inquiries and make, change, or cancel

appointments t collect import Full Container Load(FCL) containers. BIS has been developed to improve the efficiency of gate movements, minimize data capture errors and backlog, and reduce the effort required for data reconciliation and document handling by shipping lines and shippers. In addition, detailed cargo information is exchanged with shipping lines through electronic data interchange(EDI) technology.

On average , more than 5,500 containers are loaded and unloaded at MTL every day. Nineteen quay side gantry cranes perform the primary job of movig the containers on and off the more than 2,000 vessels that call in at MTL every year. Some of these cranes can lift up to 40 tonners, extend 45.6 metres and move as many as 40 containers an hour.

(3) Sea-Land Orient Terminals Limited(SLOT)

Sea-Land Orient Terminals(SLOT) operates Berth No.3 at Kwai Chung and is positioned mid-way between the other two operators, HIT and MTL. SLOT handles about 20 vessels per week and throughput in 1995 was 880,334 TEU.

An in-house developed, Yard Inventory Control System, is used for container grounding and pick-up activities and is connected with the Gate and Vessel Stowage System, which facilitates pre-stacking of containers. Container yard operations are monitored through a Closed Circuit TV System at decentralised yard workstations. Vessel Stowage functions are performed using Advanced Stowage Planning which allows the planning of vessel loading sequences based upon the container's yard position.

The Gate System facilitates an average of 2,800 in-and-out transactions in a 24 hour period. A tractor Identity Card System is in use and Electronic Data Interchange of information with liner clients ensures efficient gate operations.

Container Freight Station operations for Terminal 3 take place in the Asia Terminal Centre, where there are 94 receiving and loading bays in operation. SLOT also operates a depot on South Container Port Road, near the entrance to Terminal 8, where repair service for minor damage to containers are available on site.

(4) COSCO-HIT Terminals(Hong Kong) Ltd.

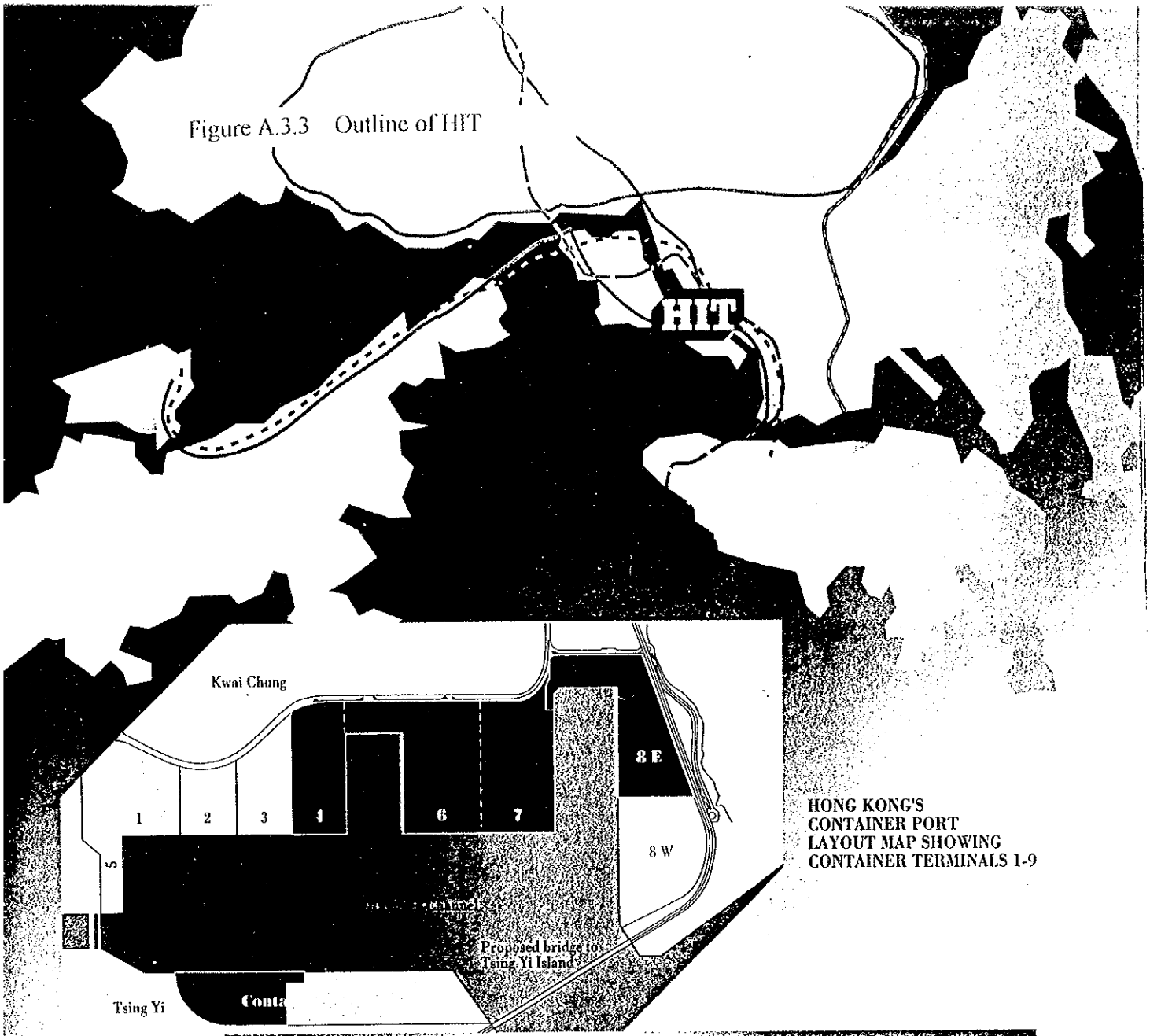
COSCO-HIT Terminals(Hong Kong) Ltd. (CHT) is a 50/50 joint venture between China Ocean Shipping(Group) Company(COSCO) and Hong Kong International Terminals Ltd.(HIT). The terminal is situated on the northern corner of Stonecutters Island and is joined to the Kwai Chung Container Port by a land bridge. It has a designed handling capacity of 900,000 TEU per annum. CHT commenced operations in January 1994 and became fully operational in July 1994. In 1995 it handled over 1 million TEU.

CHT operates a real time yard computer system and an up-to-date ship planning system. These systems ensure fast and efficient container movement. The entry and exit gates use bar code scanners, closed-circuit TV and direct computer links to provide fast and efficient

tractor turnaround.

Figure A.3.2 Port Development Plan

Figure A.3.3 Outline of HIT



HONG KONG'S CONTAINER PORT LAYOUT MAP SHOWING CONTAINER TERMINALS 1-9

KEY FACTS

FACILITIES		CONTAINER TERMINALS 4, 6, & 7	CONTAINER TERMINAL 8 EAST	CONTAINER TERMINAL 9
Total Area	(acres)	220	74	47
	(hectares)	89	30	19
Ship Berths		10	2	2
Barge Berths		2	4-5	–
Total Berth Length	(ft)	10,800	2,100	2,310
	(m)	3,292	640	700
Minimum Depth Alongside	(ft)	40 – 47.5	49.5	47.5
	(m)	12.2 – 14.5	15	14.5
Quay Cranes		32	9	10
Harbour Cranes		3	1	*
Rubber Tyred Gantry Cranes		102	32	*
Rail Mounted Gantry Cranes		24	–	*
Bridge Cranes		12	–	*
Frontloaders (Empty)		16	2	*
Toplifters (Laden)		5	1	*
Stacking Capacity	(TEUs)	61,137	23,814	20,000 – 25,000
Hongkong International Distribution Centre	(sq ft)	3,156,304	–	–
	(sq m)	293,231	–	–

** Exact figures will be released later*

Attachment A.3.3 Members of Port Development Committee

Board Committees 發展局及其委員會

PORT DEVELOPMENT BOARD MEMBERSHIP

Chairman
Mr Peter Thompson, OBE, JP

Members
The Hon Edward Ho Sing Tin, OBE, JP
Dr Frank Chao, JP
Mr Raymond Kwok
Mr Anthony Nightingale
Mr Benjamin Wong, JP
Mr David Wong Show Yeh, JP
Mr Gerry Forsgate, CBE, JP
Mr Li Ke-jun
Mr C C Tung
Mr Canning Fok
Mr Chan Wing Kee, OBE, JP
Mr The Hon Vincent H C Cheng, OBE, JP
Secretary for Economic Services (Ex Officio)
Secretary for Planning, Environment and Lands (Ex Officio)
Director of Marine (Ex Officio)
Director of Planning (Ex Officio)

香港港口發展局成員

主席
湯比達先生 OBE JP

委員
何承天議員 OBE JP
趙世彭博士 JP
郭炳聯先生
黎定基先生
黃沛棠先生 JP
王守業先生 JP
霍仕傑先生 CBE JP
李科濬先生
董建成先生
霍建寧先生
陳永基先生 OBE JP
鄭海泉議員 OBE JP
經濟司（當然官守）
規劃環境地政司（當然官守）
海事處處長（當然官守）
規劃署署長（當然官守）

Attachment A.3.4 Outline of the new container port development projects in Southern China

(1) Yantian International Container Terminal (YICT)

- commenced operation in 1994 and capable container handling up to 500,000 TEU per year;
- 2 container berth;
- since January 1996, big container vessel of Global Alliance is calling regularly.

(2) Shekou Container Terminal (SCT)

- commenced operation in 1991and capable container handling up to 500,000 TEU per year;
- 2 container berth;
- since June 1996, big container vessel of Grand Alliance is making regular call.

(3) Shenzhen Kaifeng Container Terminal (Chiwan)

- commenced operation in 1994;
- one container berth;
- loaded container in 1995 was 50,000 TEU