5.2 Port facilities of Major Ports in Greater Capital Region

5.2.1 Outline of Port Facilities

The present condition of the major port facilities of the port of Manila, Batangas and Subic are shown in Table 5-1 to 5-6.

Table 5-1 Mooring facilities

MICT

Pier No.	Length (m)	No. of Berth	Depth	Remarks
1-3	900	4	12.4	
4	-	-	12.4	-Plan (1 Berth)
Sub-total	900	4	-	

South Harbor

Pier No.	Length (m)	No. of Berth	Depth	Remarks
3	644.3	4(1)	2.5-11.9	Container 375m
5	755.6	5	6.4-11.0	(2 Berth)
9	771.4	5	4.6-11.7	
13	844.7	7	5.6-12.1	
15	753.0	5(2)	7.4-11.9	
Sub-total	3,769.0	26(3)	-	

Note: ( ) Berths not in operation

North Harbor

Pier No.	Length (m)	No. of Berth	Depth	Remarks
2	300.2	4	5.0	
4	515.3	7	5.0-6.0	
6	514.2	7	5.0-6.0	
8	522.6	7	5.0-6.0	
10	521.3	7	5.0-6.0	
12	521.4	7	5.0-6.0	
14	523.7	7	5.0-6.0	
16	604.0	7	5.0-6.0	
Sub-total	4,022.7	53	-	

Note: Except slip (14 berth, 933.8m)

Pasig

Pier No.	Length (m)	No. of Berth	Depth	Remarks
Public Wharf	2,637.2	41	-	North Bank
		22	-	South Bank
Sub-total	2,637.2	63	-	

Batangas

Pier No.	Length (m)	No. of Berth	Depth	Remarks
1	254.0	4	5.0-11.0	
2	196.0	5	6.0	
3	168.0	4	3.5	
Sub-total	618.0	13	-	

(Continued)

Subic Pier No.	Length (m)	No. of Berth	Depth	Remarks
Alava Wharf				
Alava Pier	980.7	8	7.5~15.0	
Juliet Pier	30.0	3	7.5	
Rivera Wharf				
Rivera Wharf	768.0	17	6.0~13.5	
Bravo Pier	370.8	6	9.3	
Access Pier	217.5	3	9.3	
Marina (Osir Basin) Area				
Osir Basin	-	-	6.0	Small crafts
Marine Terminal Area				
Sattler Pier	450.0	2	12.8	Naval Supply Depot
Covered Pier	450.0	3	12.6	〃
Boto Wharf				
Boton Wharf	648.3	8	9.6	
Leyte Wharf				
Leyte Pier	150.0	5	15.0	
Recreational Pier	150.0	3	3.0	
Nabasan Wharf				
Navasan Wharf	180.0	1	13.8	
Camayan Wharf				
Camayan Pier	135.0	6	10.5	
Grande Island Wharf				
Grande Island Pier	45.0	3	7.5	
Total	4,575.3	68	-	

Table 5-2 Supporting Facilities

Back-up Area

unit; (sq.m)

	Port Area	Warehouse	Transit Shed	Passenger Term.	CFS	Container Yard	Open Storage
MICT	606,740	---	---	---	27,238	290,321	---
South Harbor	850,000	38,724	32,534	4,314	9,616	100,650	24,300
North Harbor	198,155	---	20,291	18,453	---	(88,988)	121,326
sub total	1,654,895	38,724	52,825	22,767	36,854	390,970	145,626
Batangas	25,112	---	---	360	---	---	920
total	1,680,007	38,724	52,825	23,127	36,854	390,970	146,546

unit; (sq.m)

	Port Area	Warehouse	Transit Shed	Passenger Term.	CFS	Container Yard	Open Storage
Pasig	42,285	12,113	---	2 Ferry Term.	---	14,572	15,600

unit; (sq.m)

	Port Area	Warehouse	Transit Shed	Passenger Term.	CFS	Container Yard	Open Storage
Subic (NSD)	41 ha	22 houses	---	---	---	2,090	2 places
Subic (SRF)	55 ha	---	---	---	---	---	---

note: Naval Supply Depot (NSD)
Ship Repair Facility (SRF)

Table 5-3 Main Cargo-Handling Equipment

MICT	Shore Crane	4 units	35 ton * 3 units, 40 ton * 2 unit
	Transfer Creane	11 units	40 ton
	Straddle Carrier	14 units	30.5~35 ton
	Prime Mover	48 units	
	Forklift	54 units	3~6 ton
South Harbor	Shore Crane	4 units	30.5 ton * 2 units, 40 ton * 2 unit
	Foreklift	118 units	2.5~5 ton * 110 units, 10~25 ton * 8 units
	Top Loaders	6 units	25 ton * 2 units, 40 ton * 4 units
	Clamsheil	56 units	
North Harbor	Forklift	178 units	2~5 ton * 128 units, 6~35 ton * 50 units
	Midium Crane	24 units	6~15 ton
	Heavy Crane	9 units	15~35 ton
Batangas	Forklift	1 units	
Subic	Shore Crane	2 unit	50 ton * 1 unit, 25 ton * 1 unit

Table 5-4 Anchorage

	Basin(ha)	Depth(m)	Remarks (M2)
MICT	26.0	12.0	260,597 x 1
South Harbor	14,665.1	7.0-10.3	8,147,280 x 18
North Harbor	21.2	8.0	17,662 x 12
Batangas	-	22.0-27.0	-
Total	14,712.3	-	-

Table 5-5 Breakwater

MICT	1,800 m
South Harbor	West Breakwater 2,300m, South Breakwater 880m
North Harbor	North Breakwater 1,900m

Table 5-6 Channel

	Length (m)	Width (m)	Depth (m)
MICT	4,000	250	12.5
South Harbor	3,000	200	10.5
North Harbor	-	300	8.0

5.2.2 Present Utilization of Port of Manila

The piers in the Port of Manila accommodate different types of cargo depending on the physical condition of each pier. For example, Pier No.3 and 5 of South Harbor and MICT are used mainly for foreign containerized cargo, while Pier Nos. 4, 10, 12 and 14 of North Harbor are used primarily for domestic containerized and breakbulk cargo.

Table 5-7 to Table 5-10 show the average berth occupancy rate, the average tonnage handled per ship and the average size of ship, ratio of container cargo to whole cargo, and volume per container, respectively.

Table 5-11 to 5-12 show average service time and average length of calling vessels at Manila Port.

Table 5-7 The Average Berth Occupancy Rate

Unit: %

		1988	1989	1990	1991	1992
FOREIGN	MICT	31	45	43	46	50
	SOUTH HARBOR	26	40	55	34	43
DOMESTIC	NORTH HARBOR	68	75	76	72	70

SOURCE: PPA

Table 5-8 The Average Cargo Volume per ship,
The Average Size of Ship in 1991

		CARGO VOLUME (MT)	VESSELS		AVERAGE CARGO/SHIP	AVERAGE GRT
			GRT (MT)	NO. OF VESSELS		
FOREIGN	MICT	3,887,630	15,231,707	1,111	3,499	13,710
	BERTH	3,887,630	15,231,707	1,111	3,499	13,710
	ANCHORAGE	0	0	0	0	0
	SOUTH HARBOR	4,992,480	10,297,123	1,632	3,059	6,310
	BERTH	2,763,505	6,115,626	1,116	2,476	5,480
	ANCHORAGE	2,158,975	4,181,497	516	4,184	8,104
DOMESTIC	NORTH HARBOR	10,494,541	13,819,382	5,506	1,906	2,510
	BERTH	10,454,654	13,779,311	5,481	1,907	2,514
	ANCHORAGE	39,887	40,071	25	1,595	1,603

SOURCE: PPA

Table 5-9 Ratio of Container Cargo to Whole Cargo in 1991

		CARGO VOLUME (MT) [A]	BULK CARGO VOLUME (MT) [B]	CONTAINERIZED CARGO (MT) [C]	CONTAINERIZED RATIO C/(A-B) (%)
FOREIGN	MICT	3,887,630	0	3,881,645	99.8
	SOUTH HARBOR	2,763,505	410,240	1,118,951	47.5
DOMESTIC	NORTH HARBOR	10,454,654	55,298	6,946,332	66.8

SOURCE: PPA

Table 5-10 Cargo Volume per Container in 1991

		VOLUME OF CONTAINER (MT)	NUMBER OF CONTAINER (TEU)	VOLUME/ CONTAINER T/UNIT
FOREIGN	MICT	3,881,645	464,582.0	8.36
	SOUTH HARBOR	1,118,951	166,565.5	6.72
DOMESTIC	NORTH HARBOR	6,946,332	407,361.5	17.10

SOURCE: PPA

Table 5-11 Average Service Time

Unit: Hour

		1988	1989	1990	1991	1992
FOREIGN	MICT	29.09	22.23	17.66	16.86	17.96
	SOUTH HARBOR	58.17	76.96	94.61	69.70	75.20
DOMESTIC	NORTH HARBOR	85.34	84.65	83.62	77.82	56.75

SOURCE: PPA

Table 5-12 Average Length of ship at Berth in 1991

		VESSELS	TOTAL LENGTH OF VESSEL (m)	AVERAGE LENGTH (m)
FOREIGN	MICT	1,111	179,416	161.5
	SOUTH HARBOR	1,116	126,329	113.2
DOMESTIC	NORTH HARBOR	5,481	449,219	82.0

SOURCE: PPA

5.3 Land and Water Area Use Around Port

5.3.1 Land and Water Area Use Around Port

(1) Port of Manila

The present situation of land and water area use of the Port of Manila is very complicated. Behind the port area of the North Harbor, the 39.5m wide Marcos Road runs along the wharf. many settlers live on one side to the road. It is always very crowded with cars, cargo trucks, container trucks, jeepneys and people near the entrance of the three (3) gates. The Port area roads are confusing, because of less open storage area and parking area.

The roads of South Harbor are not so confusing compared to that of the North Harbor. MICT's roads are even less confusing compared to that of the two (2) harbors mentioned above.

The area of anchorage basin is always used for handling the foreign bulk.

(2) Port of Batangas

Around the water area of the Port of batangas, is a natural coast with enough depth for ship anchorage and ship calls. Behind the port area, many settlers live along the road leading to Batangas City. Behind these houses area fishponds, farm land, low wetted area, mangroves and creeks.

(3) Port of Subic

The proponent having a land use plan for the area around the Port of Subic which is under the jurisdiction of Subic Bay Metropolitan Authority (SBMA) needs to get an approval from SBMA.

The water area around the Port of Subic is in good condition, natural, deep water and sheltered harbor.

5.3.2 Ongoing Project/Development Plan in Port Sector

(1) Port of Manila

The Medium Term Public Investment Program (1993-1998) by PPA including the ongoing projects is shown in Table 5-13.

Table 5-13 Medium Term Public Investment Program (1993-1998)

PORT/PROJECT	TERM	REMARKS
1. Second Manila Port Project (ADB)	1993-1994	On-going
2. Fourth IBRD Port Project (IBRD)	1993	
3. Manila Grains Terminal Project (BOT)	1993-1995	
4. South Harbor Bulk Terminal Project (BOT)	1993	
5. Batangas Port Development Project Phase I (OECF)	1993-1996	On-going
6. Batangas Port Development Project Phase II (OECF)	1995-1998	

Source: PPA

The North and South Harbors under the rehabilitation based on the Second Manila Port Project. Under this project, the existing port facilities, particularly the antiquated berthing and storage facilities will be improved to meet the increasing demand of sea cargoes.

1) North Harbor

The construction of 375 meters marginal wharf with a movable Roll-on Roll-off (Ro/Ro) ramp and open storage adjacent to Pier No.14 is under construction.

The rehabilitation works include land reclamation, pavement of existing piers and slips, improvements of roads, stacking area, installation of navigation aids and provision of water supply.

This year, the new stacking area between Pier No.16 and Veteran Shipyard will be completed.

2) South Harbor

Rehabilitation works at the South Harbor consist of existing structural elements of Piers 3, 5, 9 and 15, the widening of the aprons on both sides of Pier 9, demolition, repair and construction of various transit sheds on the piers.

These rehabilitations will also be finished next year (1994).

3) MICT

The extension work Phase III, has already started in May of this year. It will take three years to finish the work. According to the expansion program, the plan is to adjust a berth width of 300 meters length, a backup area with a width of 8.3 hectares, rail extensions. When the expansion program is finished, the container yard will be further extended to stack 28,000 TEUs. With these improvements, MITC will be in a position to handle one million (1,000,000) TEUs.

(2) Port of Batangas

Batangas Port Development Project Phase I starts this year (1993) by using OECF loan. Before the construction, the negotiations for the resettlement are now taking place between the government office and the settlers around the port area.

According to the Development Plan, the overall objectives in the creation of the port are as follows:

1. To be capable of efficiently serving Mindoro Island and other islands with economic range of Ro-Ro and Ferry Services.
2. To be a conventional general cargo port of the domestic trade demand.
3. To have a basic foreign general cargo capability to enable it to respond to the demand arising from regional development such as the CALABARZON scheme.
4. To provide additional port capacity to supplement the excess traffics which may overflow from the Port of Manila.

(3) Subic

The U.S. facilities in the Subic Naval Base was turned over to the Government of the Philippines in December 1992.

Republic Act No.7227, known as the "Bases Conversion and Development Act of 1992", was approved on March 13, 1992. This Act provides for the establishment of a

Subic Special Economic and Free Port Zone (SSEFPZ) covering the Subic Baselands, Olongapo City, Subic Municipality and portions of Hermosa and Morong Municipalities.

According to the Subic Conversion Program, the existing port facilities of the Subic Naival Supply Depot and other facilities are to be considered for development into a commercial general cargo port. Under the Conversion Program, Proposed land use plan should be finally decided by the Board of Directors of the Subic Bay metropolitan Authority (SBMA).

CHAPTER 6 PORT ACTIVITIES OF MAJOR PORTS

6.1 Cargo Volume Handled at Port

Water transportation is characteristically a simple facility for mass transport. It can be refereed from the traffic volumes by mode shown in Table 6-1, that water transportation accounts for one-third of freight traffic and one-fourteenth of passenger traffic in whole country.

Table 6-1 Approximated National Model Split, 1980
(Domestic Traffic)

	Freight		Passenger	
	Ton-kilometer (billion)	Share (percent)	Passenger-kilometer (billion)	Share (percent)
Road	22.00	65	53.0	90
Sea	14.00	35	4.0	7
Rail	0.04	-	0.4	1
Air	negligible	-	1.2	2
Total	34.04	100	58.6	100

Source: Transport policy, Feb. 1989, Regional Seminar by ADB & World Bank

Statistics regarding cargo and passengers at base port (refer to Table 6-2) indicate the traffic volume and the average annual growth rate of each base port. With respect to cargo volume, Manila N-Harbor, Manila S-Harbor, Cebu, MICT and Iloilo, in this order, are the top five ports in 1991 and the total volume (25.8 mn.ton) of cargoes handled in these ports, accounts for 74% of the whole volume handled in all base ports. With regards to passenger statistics, Cebu, Manila N-Harbor, Iloilo, Zamboanga and Batangas are the top five ports in 1991 and the total number of passenger (11.7 mn.persons) accounts for 78% of passengers in all base ports. Table 6-3 shows the top five ports and their compositions.

TABLE 6-2 STATISTICS OF CARGO AND PASSENGER AT BASE PORT

(UNIT: TON, PERSON, RATE)

PORT		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	ANNUAL GROWTH
BATANGAS	CARGO	391,810	461,597	394,659	453,594	444,833	485,140	561,677	707,769	808,121	1,029,878	999,602	0.106
	PASSENGER	593,783	635,619	737,032	672,207	642,782	626,071	632,746	1,032,736	1,261,625	1,299,829	1,200,434	0.089
CAGAYAN DE ORO	CARGO	813,517	889,230	877,530	868,771	809,895	847,087	1,033,694	1,278,412	1,312,719	1,483,070	1,420,489	0.062
	PASSENGER	461,932	625,304	778,643	600,029	510,221	579,509	585,021	652,075	814,362	857,856	776,594	0.069
CEBU	CARGO	2,425,243	2,495,010	2,717,206	2,547,334	2,243,306	2,485,508	3,342,639	4,738,394	5,032,389	4,123,568	4,477,668	0.077
	PASSENGER	2,931,712	3,388,225	3,692,595	3,091,518	2,539,707	2,939,975	3,207,289	4,095,329	4,247,385	4,098,854	3,890,632	0.038
DAVAO	CARGO	622,186	723,636	941,916	1,273,050	1,354,548	1,125,223	1,512,056	1,826,627	1,502,834	1,451,212	1,338,199	0.097
	PASSENGER	0	67,989	64,427	83,465	39,424	32,167	67,055	99,376	107,726	107,339	116,441	0.140
DUMAGUETE	CARGO	303,021	286,156	341,259	197,059	203,215	239,249	262,615	257,120	320,770	386,745	337,119	0.032
	PASSENGER	310,413	312,867	408,206	409,547	323,976	353,418	372,696	429,068	439,450	478,909	432,503	0.042
GENERAL SANTOS	CARGO	725,863	808,818	780,784	786,160	711,858	775,453	715,902	859,506	851,350	843,722	850,326	0.019
	PASSENGER	132,259	137,218	136,003	103,310	98,144	99,275	120,246	118,748	126,526	107,853	106,528	-0.015
ILIGAN	CARGO	271,773	274,077	290,872	250,296	253,673	225,453	240,910	314,257	357,923	352,466	403,043	0.047
	PASSENGER	203,381	208,354	208,247	190,516	168,837	166,322	156,498	210,615	224,099	264,098	250,721	0.029
ILOILO	CARGO	1,124,810	1,042,768	1,085,631	1,058,420	806,593	918,503	1,231,117	1,412,745	1,572,290	1,695,839	1,913,536	0.065
	PASSENGER	1,324,798	1,273,538	1,414,453	1,287,506	1,291,518	1,266,947	1,521,994	1,701,472	2,027,642	2,239,178	2,111,706	0.052
JOLO	CARGO	113,031	143,351	149,137	123,882	132,027	119,865	120,703	107,597	165,513	44,714	111,720	0.132
	PASSENGER	171,822	204,203	257,687	301,597	207,826	204,463	292,076	327,052	208,893	104,173	292,056	0.178
LEGASPI	CARGO	224,374	227,205	227,426	214,570	186,913	232,611	261,261	276,336	267,199	233,906	220,904	0.004
	PASSENGER	15,511	15,108	11,359	1,070	0	0	0	0	0	0	0	-0.393
MANILA-N.HARBOR	CARGO	5,831,463	6,290,749	7,200,720	5,775,748	6,230,273	6,792,913	8,294,237	9,637,381	10,572,343	10,642,989	10,494,541	0.067
	PASSENGER	2,280,476	2,503,790	2,797,215	2,043,950	1,244,514	1,221,408	2,041,216	2,036,893	2,394,658	3,118,941	3,175,992	0.070
MANILA-S.HARBOR	CARGO	4,824,206	4,791,862	5,056,219	3,527,378	3,689,124	4,016,380	5,515,104	5,895,735	6,492,755	6,446,435	4,928,590	0.018
	PASSENGER	33,663	22,883	31,245	29,756	39,153	33,032	28,193	24,738	50,398	85,198	10,672	0.074
M.I.C.T.	CARGO	448,653	752,543	995,867	912,415	852,116	1,117,948	1,478,195	1,560,974	2,463,997	3,214,346	3,942,370	0.265
	PASSENGER	0	0	0	0	0	0	0	0	0	0	0	0.000
NASIPIT	CARGO	24,439	120,011	205,128	187,916	259,138	230,223	251,690	246,120	319,773	464,610	597,495	0.591
	PASSENGER	13,176	70,779	125,228	203,405	265,289	285,877	327,456	451,854	555,991	585,815	488,029	0.679
POLLOC	CARGO	191,571	275,110	281,937	268,697	258,006	399,302	487,150	552,327	443,458	329,063	493,744	0.132
	PASSENGER	0	16,616	55,866	50,970	59,505	51,817	68,549	30,975	76,953	56,804	68,728	0.393
PUERTO PRINCESA	CARGO	100,156	104,246	113,825	87,645	81,906	84,432	117,082	118,220	141,938	197,848	181,147	0.077
	PASSENGER	49,235	49,250	51,379	56,096	68,064	63,828	79,737	83,903	90,169	118,865	131,227	0.108
SAN FERNANDO	CARGO	406,152	446,948	587,489	405,857	449,457	483,748	496,648	582,111	534,890	449,159	773,099	0.097
	PASSENGER	0	0	0	0	0	0	0	0	0	0	0	0.000
SURIGAO	CARGO	180,686	253,202	305,582	245,028	94,400	92,222	190,015	323,357	448,246	174,702	127,172	0.104
	PASSENGER	301,848	275,477	282,556	257,596	263,532	294,835	313,094	335,043	381,610	378,499	332,788	0.013
TACLOBAN	CARGO	355,625	379,740	464,838	305,707	202,653	223,216	329,929	390,115	381,023	372,984	407,943	0.042
	PASSENGER	331,773	438,824	442,783	373,862	286,736	354,865	409,398	319,192	253,660	278,037	328,513	0.019
ZAMBOANGA	CARGO	793,138	604,794	505,384	463,936	465,083	499,107	611,479	654,673	642,677	709,981	620,591	-0.015
	PASSENGER	967,152	894,954	1,014,454	894,014	868,139	1,010,287	1,008,399	1,222,042	1,298,052	1,265,431	1,311,210	0.036
T O T A L	CARGO	20,171,717	21,371,053	23,523,409	19,953,463	19,729,017	21,393,583	27,054,103	31,739,776	34,632,208	34,647,237	34,639,298	0.061
	PASSENGER	10,122,934	11,140,998	12,509,378	10,650,414	8,917,367	9,584,096	11,231,663	13,170,811	14,559,199	15,445,679	15,024,774	0.047

Table 6-3 Top Five Base Ports (1991)

cargo			passenger		
Manila N-Harbor	30	%	Cebu	26	%
Manila S-Harbor	14		Manila N-Harbor	21	
Cebu	13		Iloilo	14	
MICT	11		Zamboanga	9	
Iloilo	6		Batangas	8	
Total	74		Total	78	

Source: PPA

6.1.1 Port of Manila

Manila North Harbor, South Harbor, and MICT shares 30%, 14%, and 11%, respectively, of the whole cargo volume of the Philippines in 1991. Increase of cargo volume, more notably, that of container cargo, is remarkable, especially at the North Harbor and the MICT.

From the historical trend of cargo(refer to Figure 6-1), domestic container cargo and foreign container cargo increase year by year, but the domestic non-container cargo and the foreign non-container cargo do not indicate any distinct changes in these volumes.

(1) South Harbor

The main cargo handled at the South Harbor is international trade goods. The total volume of cargoes has remained at this level of less than 6.5 mn.tons in these 14 years. The statistical data by year does not show any increasing nor decreasing trends(refer to Figure 6-2).

Figure 6-3 indicates volume by commodity handled at the South Harbor in 1991. Iron and Steel is the top commodity handled at the South Harbor, and is imported as breakbulk cargo from abroad. Other General Cargo comes in second and is handled as foreign container cargo. Crude Mineral and Chemicals are also imported as bulk cargo and container cargo, respectively.

(2) North Harbor

The main cargo handled at the North Harbor is domestic trade goods. These cargo

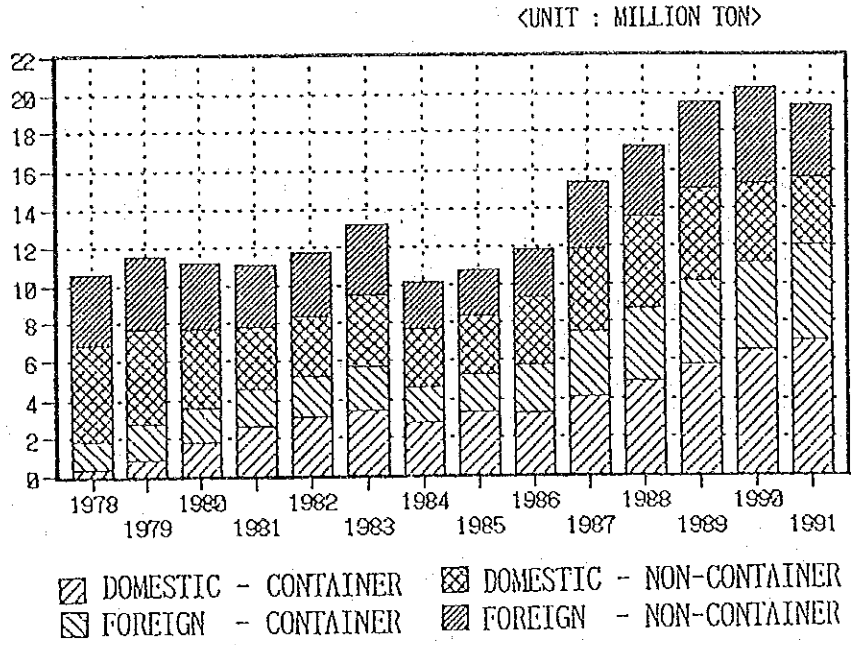


Figure 6-1 Historical Trend of Cargo at Port of Manila (1978-1991)

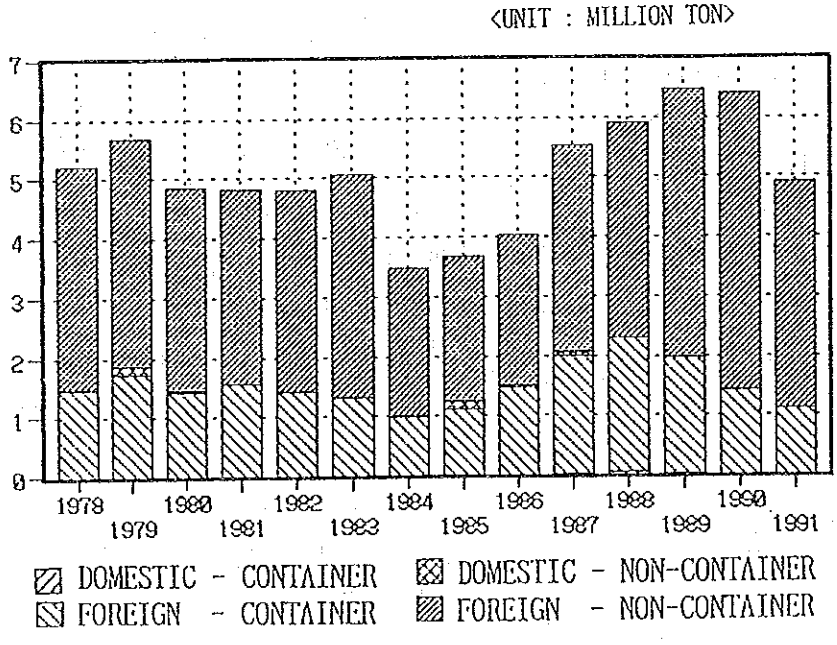


Figure 6-2 Historical Trend of Cargo at South Harbor (1978-1991)

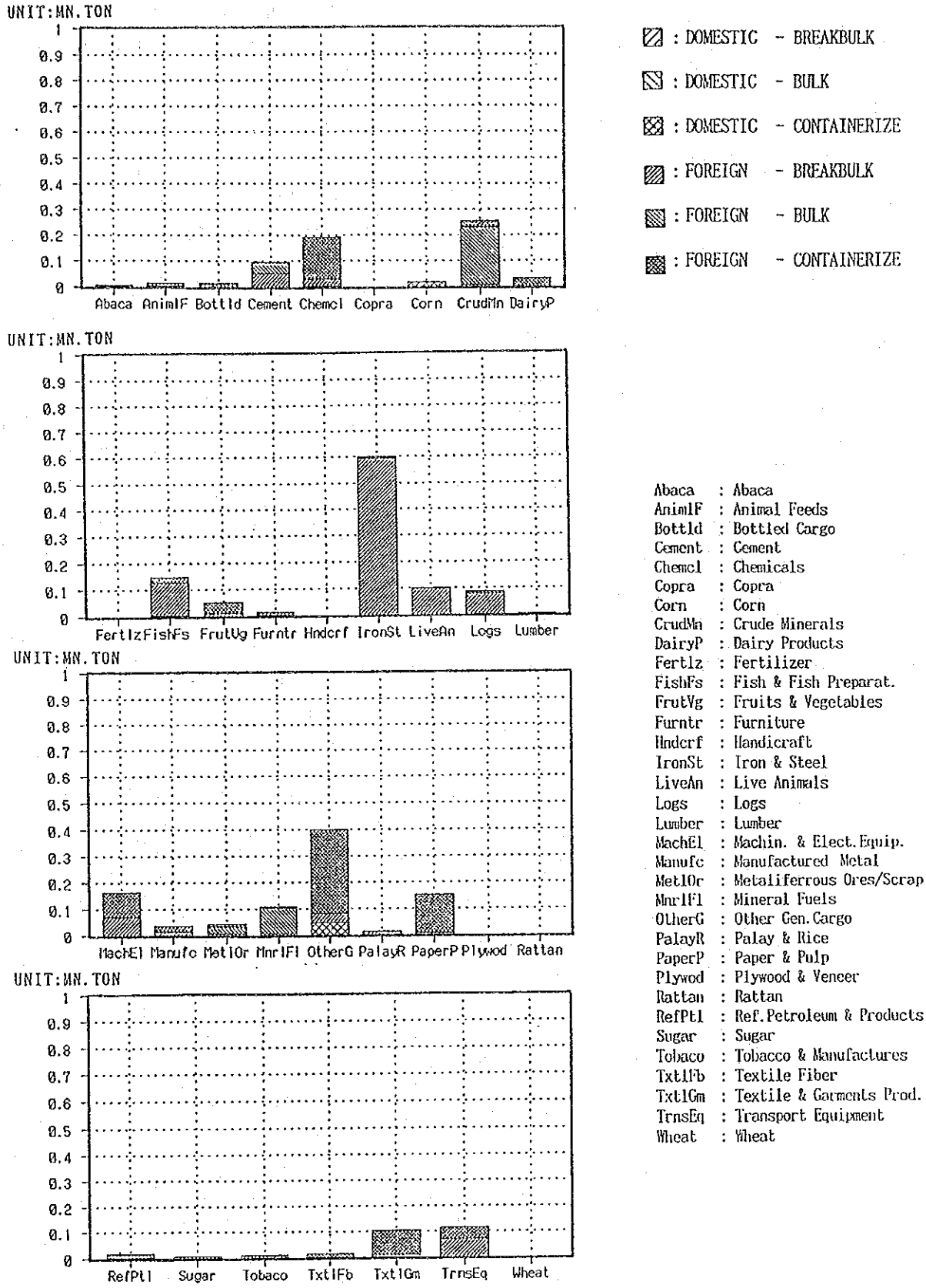


Figure 6-3 Cargo by Commodity at South Harbor (1991)

is transported by RO-RO ships and cargo ships. Non-container cargo has not changed in volume, but domestic container cargo has increased in volume from 1978 to 1991. The share of container cargo with respect to whole cargo exceeded 50% from 1988 to 1991(refer to Figure 6-4).

The most volume of commodity handled at the North Harbor is 1.4 million tons of Other General Cargo. Two-thirds of this Cargo are containerized. Iron and Steel has the second largest volume and is handled as bulk cargo. Logs and Sugar also have high ratios as bulk cargoes(refer to Figure 6-5).

(3) MICT

The main cargo handled at the MICT is international trade goods (refer to Figure 6-6). Annual growth rate in 1984, is indicated at -8% and at -7% in 1985, but the average annual growth rate for these 10 years is 27%.

Figure 6-7 shows cargo volumes of import and export from 1978 to 1991, and it can be seen that the volume of import exceeds that of export by approximately one million tons in 1989 and 1990, and seven hundreds thousand tons in 1991.

The principal commodities handled at MICT are Chemicals, Textile & Garments Products, Machine & Electric Equipments and Other General Cargo(refer to Figure 6-8).

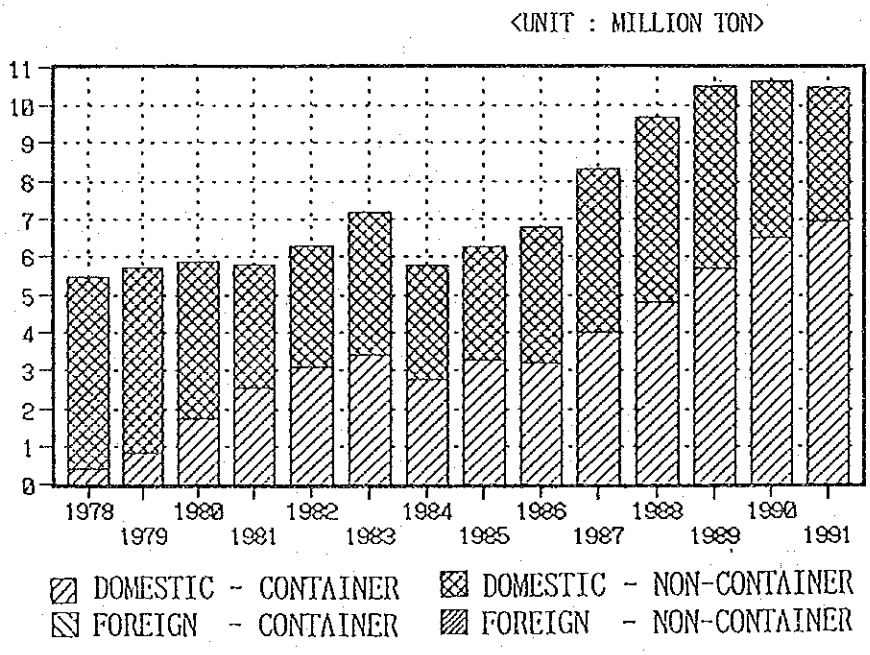
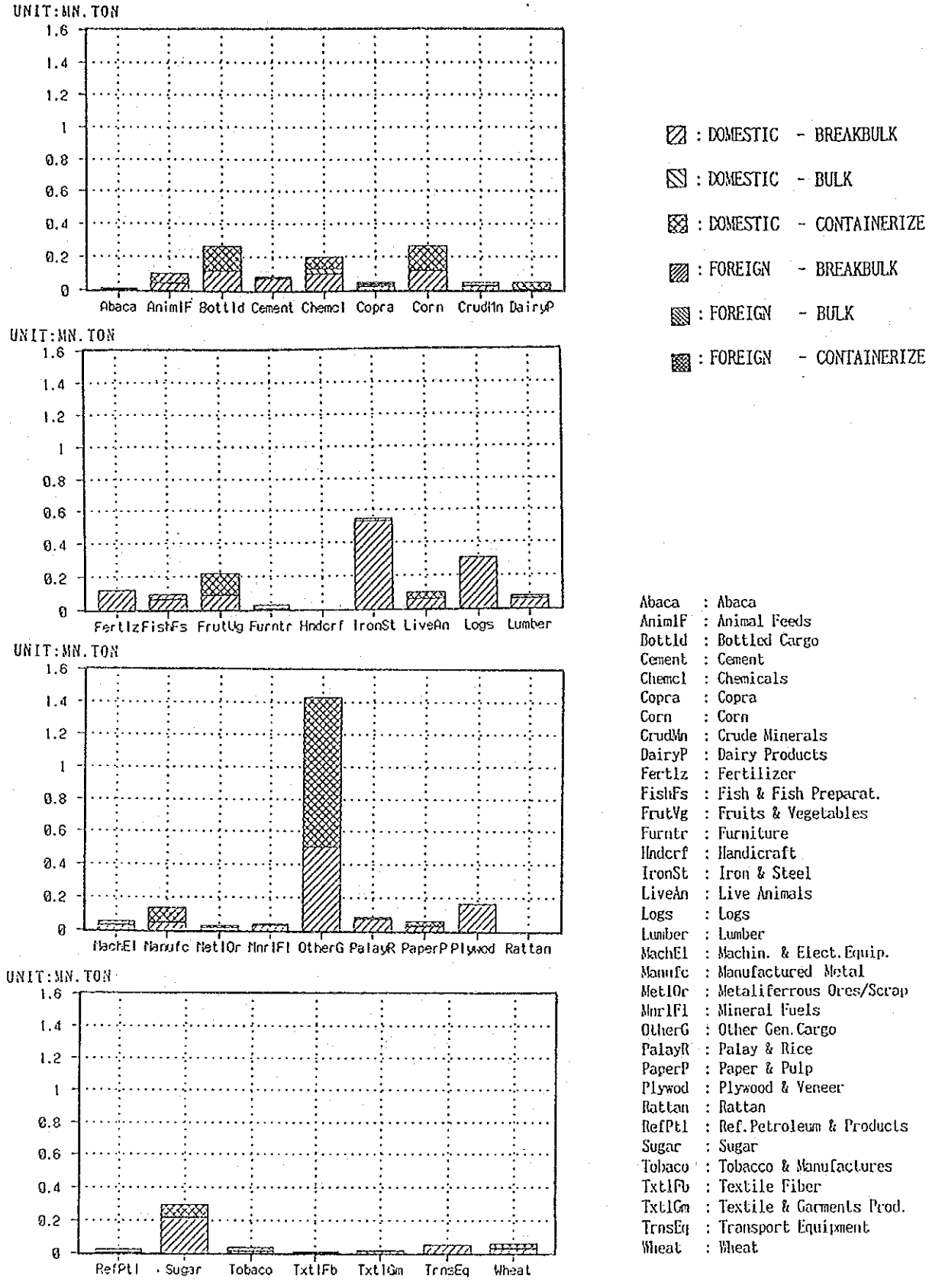


Figure 6-4 Historical Trend of cargo at North Harbor (1978-1991)



Abaca : Abaca
AnimlF : Animal Feeds
Bottld : Bottled Cargo
Cement : Cement
Chemcl : Chemicals
Copra : Copra
Corn : Corn
CrudMn : Crude Minerals
DairyP : Dairy Products
Fertlz : Fertilizer
FishFs : Fish & Fish Preparat.
FrutVg : Fruits & Vegetables
Furntr : Furniture
Hndcrf : Handicraft
IronSt : Iron & Steel
LiveAn : Live Animals
Logs : Logs
Lumber : Lumber
MachEl : Machin. & Elect. Equip.
Manufc : Manufactured Metal
MetlOr : Metaliferrous Ores/Scrap
MnrlFl : Mineral Fuels
OtherG : Other Gen. Cargo
PalayR : Palay & Rice
PaperP : Paper & Pulp
Plywod : Plywood & Veneer
Rattan : Rattan
RefPtl : Ref. Petroleum & Products
Sugar : Sugar
Tobaco : Tobacco & Manufactures
TxtlFb : Textile Fiber
TxtlGm : Textile & Garments Prod.
TrnsEq : Transport Equipment
Wheat : Wheat

Figure 6-5 Cargo by Commodity at North Harbor (1991)

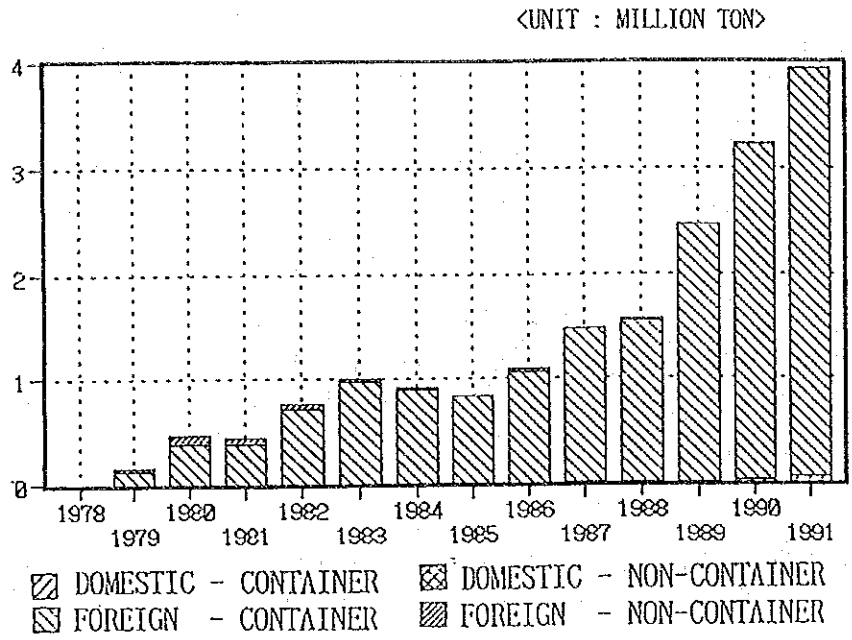


Figure 6-6 Historical Trend of Cargo at MICT (1978-1991)

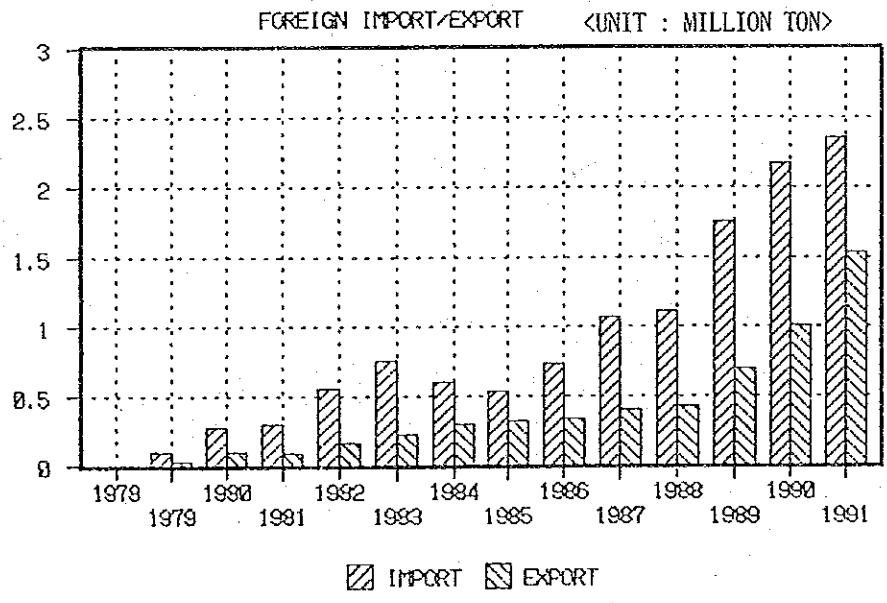
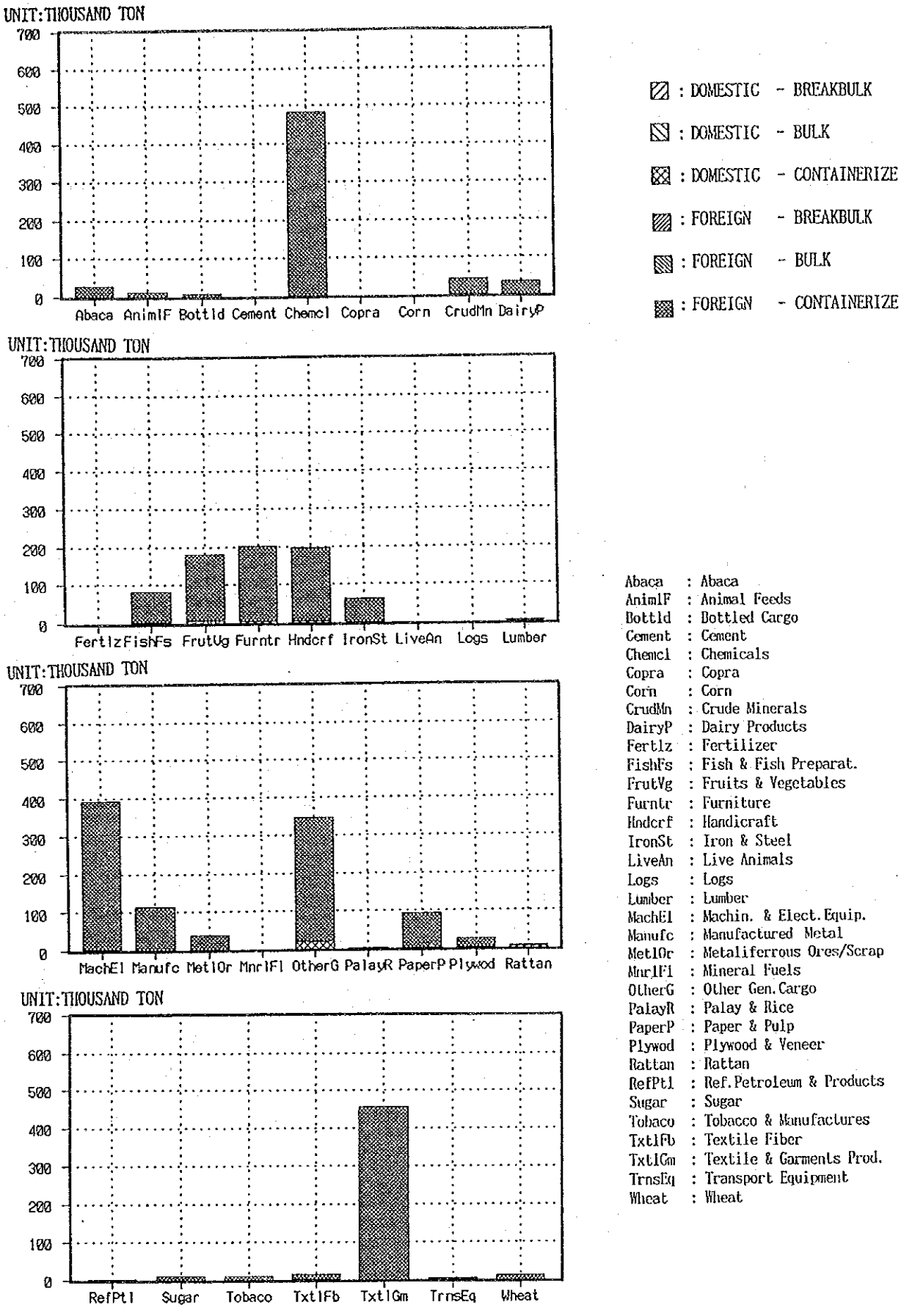


Figure 6-7 Import and Export of Container Cargo at MICT (1978-1991)



Abaca : Abaca
AnimlF : Animal Feeds
Bottld : Bottled Cargo
Cement : Cement
Chemcl : Chemicals
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Corn : Corn
CrudMn : Crude Minerals
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FishFs : Fish & Fish Preparat.
FrutVg : Fruits & Vegetables
Furntr : Furniture
Hndcrf : Handicraft
IronSt : Iron & Steel
LiveAn : Live Animals
Logs : Logs
Lumber : Lumber
MachEl : Machin. & Elect. Equip.
Manufc : Manufactured Metal
MetlOr : Metaliferrous Ores/Scrap
MnrlFl : Mineral Fuels
OtherG : Other Gen. Cargo
PalayR : Palay & Rice
PaperP : Paper & Pulp
Plywod : Plywood & Veneer
Rattan : Rattan
RefPtl : Ref. Petroleum & Products
Sugar : Sugar
Tobaco : Tobacco & Manufactures
TxtlFb : Textile Fiber
TxtlGm : Textile & Garments Prod.
TrnsEq : Transport Equipment
Wheat : Wheat

Figure 6-8 Cargo by Commodity at MICT (1991)

6.1.2 Port of Batangas

The cargo volume handled at the Port of Batangas is one-tenth of the cargo handled at the North Harbor in 1991. The main commodity in this port is transportation equipment, and cargo transported by jeepney, like fruits, is included in this commodity. Figure 6-9 shows a historical trend of cargo at Batangas.

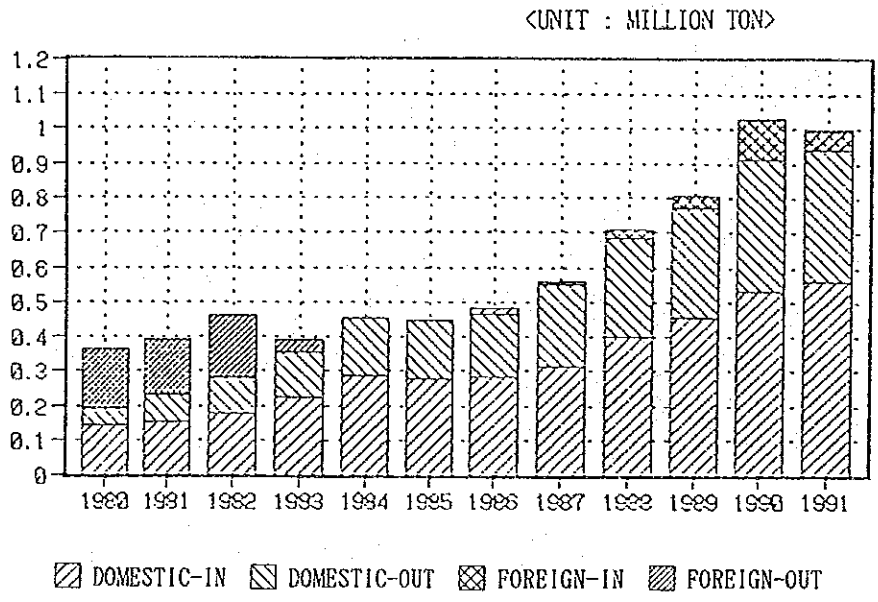


Figure 6-9 Historical Trend of Cargo at Batangas (1978-1991)

6.1.3 Other ports in Greater Capital Region

There are several terminal ports in the Greater Capital Region. Pasig River is the terminal port of PMO South Harbor, Limay and Subic are the terminal ports of PMO North Harbor. Siain is the terminal port of PMO Batangas. The volumes of cargo handled at terminal ports are shown in Table 6-4.

Table 6-4 Volume of Cargo at Terminal Port

<UNIT: TON>

PARTICULARS	1980	1981	1982	1983	1984	1985
Port-PASIG						
Cargo thruput	890,948	629,781	1,171,550	1,199,831	855,000	876,375
Domestic	890,948	629,781	1,171,550	1,199,831	855,000	876,375
Foreign	0	0	0	0	0	0
Port-SIAIN						
Cargo thruput	6,378	1,781	1,757	2,186	2,694	3,277
Domestic	6,378	1,781	1,757	2,186	2,694	3,277
Foreign	0	0	0	0	0	0

PARTICULARS	1986	1987	1988	1989	1990	1991
Port-PASIG						
Cargo thruput	506,966	2,047,409	3,478,579	3,761,080	3,761,080	3,893,944
Domestic	506,966	2,047,409	3,478,579	3,761,080	3,761,080	3,893,944
Foreign	0	0	0	0	0	0
Port-SIAIN						
Cargo thruput	4,159	50	1,447	7,325	7,325	2,737
Domestic	4,159	50	1,447	7,325	7,325	2,737
Foreign	0	0	0	0	0	0

6.2 Container Cargo Handled at Port

The volume of container cargo has been radically increased in response to the world wide containerization of maritime transportation. Even if the Manila Port is not a hub port of world container ship route, it has been developed as the leading port in the Philippines. Container cargo of the foreign trade is handled at the South Harbor and the MICT and that of the domestic trade is handled at the North Harbor. The statistics of container cargo are shown in Table 6-6. The foreign trade container cargo has increased in volume at the Port of Manila, because the modern container terminal has been operating from 1978. Shares of the MICT and the other ports on handling of foreign containers are shown on Table 6-5.

The volume of container cargo has increased in the 1980s. The average level of growth rate of container cargo from 1979 to 1991 is 16% and after 1990 the rate is around 9%. The ratio of container cargo to whole cargo was 18% in 1979 and increased to 62% in 1991.

Table 6-5 Shares of the Base Ports on International Container Traffic (1991)

PORT	IMPORT			EXPORT		
	TEU	SHARE	EMPTY.TEU	TEU	SHARE	EMPTY.TEU
CAG. DE ORO	2,518	1%	2,466	3,491	1%	16
CEBU	18,268	5%	6,858	22,788	7%	2,267
GEN. SANTOS	605	0%	590	1,058	0%	153
MICT	214,107	62%	9,067	210,987	61%	93,205
S.HARBOR	109,054	32%	3,658	110,315	32%	46,166
TOTAL	344,552	100%	22,639	348,639	100%	141,807

6.3 Passenger Movement

The passenger traffic of the whole country was 10.1 million persons in 1981 and 15.0 million persons in 1991. Thus, the average ratio of passenger traffic has increased by 4% from 1981 to 1991.

6.3.1 Port of Manila

The passenger terminals of the Manila Port are located at the North Harbor. The Manila North Harbor has a share of 21% of the total number of passenger of the Philippines in 1991. Table 6-7 shows the statistics of passenger of North Harbor.

6.3.2 Port of Batangas

Passengers traffic at the Port of Batangas was about 1.2 million persons in 1991 and ranked fifth in the Philippines. Most of them go to/come from Mindoro island, riding on ferry boats. The historical statistics of passengers is shown in Table 6-7.

Terminal ports, namely Pasig River, Limay, Subic and Sian, are not used for passenger traffic. So, there is no record regarding passengers in the terminal ports in Greater Capital Region.

Table 6-6 Statistics of Container Cargo of Base Ports in the Philippines (1978-1991)

PORT		1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	GROWTH RATE
BATANGAS	DOMESTIC	0	0	0	0	0	0	0	0	0	0	0	0.000
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0.000
CAGAYAN DE ORO	DOMESTIC	197,338	273,917	284,183	278,467	272,377	350,209	435,068	506,383	559,214	605,863	612,272	0.120
	FOREIGN	0	0	689	1,750	12,497	8,512	10,227	7,698	23,828	42,100	38,714	0.655
	TOTAL	197,338	273,917	284,872	280,217	284,874	358,721	445,295	514,081	583,042	647,963	650,986	0.127
CEBU	DOMESTIC	493,668	514,763	538,926	483,329	641,664	568,325	1,063,075	1,256,660	1,539,354	1,433,838	1,974,424	0.149
	FOREIGN	46,446	39,815	92,209	64,371	61,980	110,786	186,740	230,845	281,094	188,455	174,514	0.142
	TOTAL	540,114	554,578	631,135	547,700	703,644	679,111	1,249,815	1,517,505	1,820,448	1,622,293	2,148,938	0.145
DAVAO	DOMESTIC	278,438	400,928	509,578	561,819	534,463	519,891	703,591	765,848	799,718	823,713	905,138	0.126
	FOREIGN	4,216	22,661	0	78	12,631	2,246	12,541	63,814	1,284	0	0	0.000
	TOTAL	280,652	423,589	509,578	561,897	547,094	522,140	716,132	829,662	801,002	823,713	905,138	0.124
DUMAGUETE	DOEMSTIC	0	45,338	49,980	21,661	33,758	43,237	44,108	50,745	59,132	104,845	90,152	0.079
	FOREIGN	0	0	0	0	0	0	0	0	0	0	590	0.000
	TOTAL	0	45,338	49,980	21,661	33,758	43,287	44,108	50,745	59,132	104,845	90,742	0.080
GENERAL SANTOS	DOMESTIC	154,691	231,864	234,822	258,580	262,498	266,417	271,137	306,382	301,166	393,242	443,297	0.111
	FOREIGN	5,729	2,529	918	0	0	0	0	5,791	7,530	11,836	29,687	0.179
	TOTAL	160,420	234,393	235,740	258,580	262,498	266,417	271,137	312,173	308,696	405,078	472,984	0.114
ILIGAN	DOMESTIC	38,923	41,997	52,545	60,096	57,892	72,715	88,403	123,100	190,905	179,116	230,207	0.195
	FOREIGN	0	0	0	533	6,527	0	0	0	0	0	0	0.000
	TOTAL	38,923	41,997	52,545	60,629	64,419	72,715	88,403	123,100	190,905	179,116	230,207	0.195
ILOILO	DOMESTIC	132,043	163,598	157,551	170,345	166,947	198,688	243,340	240,488	342,337	388,835	519,083	0.147
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	132,043	163,598	157,551	170,345	166,947	198,688	243,340	240,488	342,337	388,835	519,083	0.147
JOLO	DOMESTIC	0	0	0	0	0	0	0	0	0	0	0	0.000
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0.000
LEGASPI	DOMESTIC	0	0	0	0	0	0	0	0	0	0	0	0.000
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0.000
MANILA NORTH HARBOR	DOMESTIC	2,570,207	3,187,746	3,421,188	2,777,378	3,271,944	3,220,268	3,998,275	4,784,338	5,700,525	5,492,458	6,951,127	0.113
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	2,570,207	3,187,746	3,421,188	2,777,378	3,271,944	3,220,268	3,998,275	4,784,338	5,700,525	5,492,458	6,951,127	0.113
MANILA SOUTH HARBOR	DOMESTIC	0	0	0	0	0	2,346	16,177	58,930	37,720	10,394	5,792	0.198
	FOREIGN	1,545,169	1,426,403	1,310,349	970,985	1,119,974	1,481,351	1,975,775	2,241,788	1,932,177	1,449,073	1,119,379	-0.032
	TOTAL	1,545,169	1,426,403	1,310,349	970,985	1,119,974	1,483,697	1,991,952	2,300,718	1,969,897	1,459,457	1,125,171	-0.031
M.I.C.T.	DOMESTIC	0	0	0	0	0	3,316	11,980	18,877	8,667	23,491	54,695	0.752
	FOREIGN	383,535	705,226	970,795	903,682	847,418	1,090,956	1,366,059	1,533,564	2,449,097	3,182,363	3,882,540	0.250
	TOTAL	383,535	705,226	970,795	903,682	847,418	1,094,272	1,378,039	1,552,441	2,457,764	3,205,854	3,937,235	0.262
NASIPIT	DOMESTIC	0	0	0	0	0	36,736	59,523	16,858	29,691	109,595	197,135	0.399
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	0	36,736	59,523	16,858	29,691	109,595	197,135	0.399
POLLOC	DOMESTIC	78,739	112,310	137,480	163,238	163,293	192,287	176,968	198,003	244,010	214,183	224,506	0.110
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	78,739	112,310	137,480	163,238	163,293	192,287	176,968	198,003	244,010	214,183	224,506	0.110
PUERTO PRINCESA	DOMESTIC	0	29,301	51,527	32,444	35,476	36,037	44,986	50,198	61,756	93,473	89,994	0.133
	FOREIGN	0	0	0	0	0	0	24	0	0	0	16	0.000
	TOTAL	0	29,301	51,527	32,444	35,476	36,037	45,010	50,198	61,756	93,473	90,010	0.133
SAN FERNANDO	DOMESTIC	0	0	0	0	0	0	0	0	0	0	0	0.000
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0.000
SURIGAO	DOMESTIC	0	4,635	23,364	17,084	18,704	19,920	26,243	23,845	19,626	21,517	22,053	0.189
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	4,635	23,364	17,084	18,704	19,920	26,243	23,845	19,626	21,517	22,053	0.189
TACLOBAN	DOMESTIC	0	31,710	0	0	0	0	0	68,227	89,922	85,689	80,048	0.055
	FOREIGN	0	0	0	0	0	0	0	10,851	0	0	0	0.000
	TOTAL	0	31,710	0	0	0	0	0	79,078	89,922	85,689	80,048	0.004
ZAMBOANGA	DOMESTIC	0	0	0	0	11,794	48,202	85,502	96,262	149,795	159,683	168,696	0.559
	FOREIGN	0	0	0	0	0	0	0	0	0	0	0	0.000
	TOTAL	0	0	0	0	11,794	48,202	85,502	96,262	149,795	159,683	168,696	0.559
TOTAL	DOMESTIC	3,944,047	5,038,107	5,461,144	4,824,441	5,470,810	5,578,594	7,268,376	8,595,144	10,133,538	11,139,935	12,568,619	0.123
	FOREIGN	1,985,095	2,195,634	2,374,960	1,941,399	2,061,027	2,593,851	3,551,366	4,094,351	4,695,010	4,873,827	5,245,440	0.102
	TOTAL	5,927,140	7,234,741	7,836,104	6,765,840	7,531,783	8,272,498	10,819,742	12,689,495	14,828,548	16,013,762	17,814,059	0.116

SOURCE: PPA

Table 6-7 Statistics of passenger at major ports in Greater Capital Region (1980-1991)

PARTICULARS	1980	1981	1982	1983	1984	1985
BATANGAS						
Passenger	630,427	593,783	635,619	737,032	672,207	642,782
Disembarked	341,007	328,492	349,458	421,673	336,161	343,228
Embarked	289,420	265,291	286,161	315,359	336,046	299,554
MNL NORTH HARBOR						
Passenger	2,295,945	2,280,476	2,503,790	2,797,215	2,043,950	1,244,514
Disembarked	1,125,731	1,146,197	1,271,392	1,420,120	1,088,132	716,408
Embarked	1,170,214	1,134,279	1,232,398	1,377,095	955,818	528,106

PARTICULARS	1986	1987	1988	1989	1990	1991
BATANGAS						
Passenger	626,071	632,746	1,032,736	1,261,625	1,299,829	1,200,434
Disembarked	322,233	278,932	496,945	635,356	667,293	601,295
Embarked	303,838	353,814	535,791	626,269	632,536	599,139
MNL NORTH HARBOR						
Passenger	1,221,408	2,041,216	2,036,893	2,394,658	3,118,941	3,176,308
Disembarked	742,019	1,084,382	1,108,911	1,370,095	1,708,330	1,692,534
Embarked	479,389	956,834	928,982	1,024,563	1,410,661	1,483,774

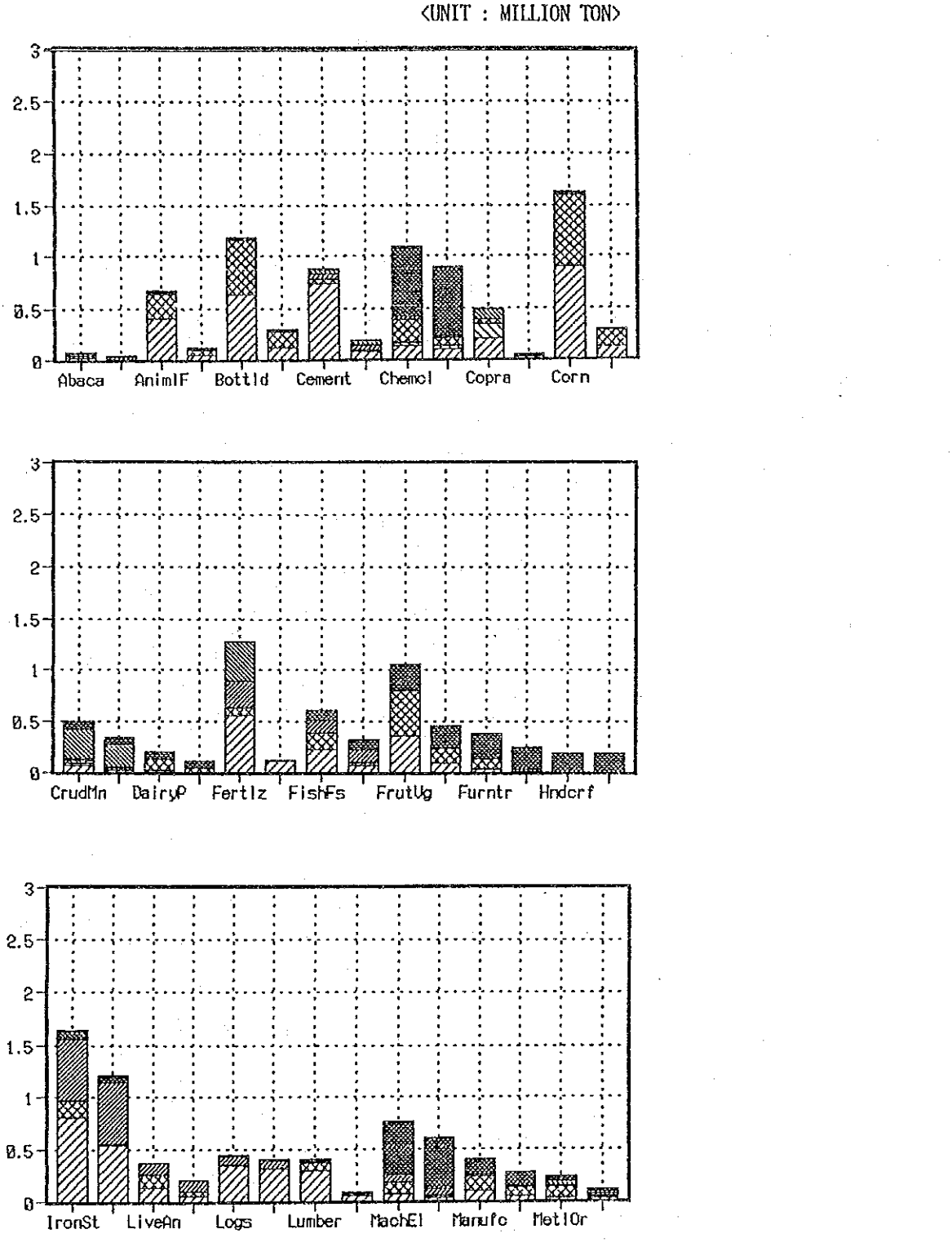
6.4 Hinterland and Inland Transportation

Generally, the hinterland of Port of Manila includes the whole country. According to Table 6-3, 55% of volume of cargoes handled at all base ports pass through the port of Manila, the biggest port in the Philippines. The Port of Manila has increased its influence with the modern container terminal. Figure 6-10 indicates the share of cargo handled at the Port of Manila by commodity compared to the whole Philippines.

For the purpose of defining the hinterland of the Port of Manila and inland transportation, the Study team did the origin-destination survey at the three harbors from June 1st to June 14th.

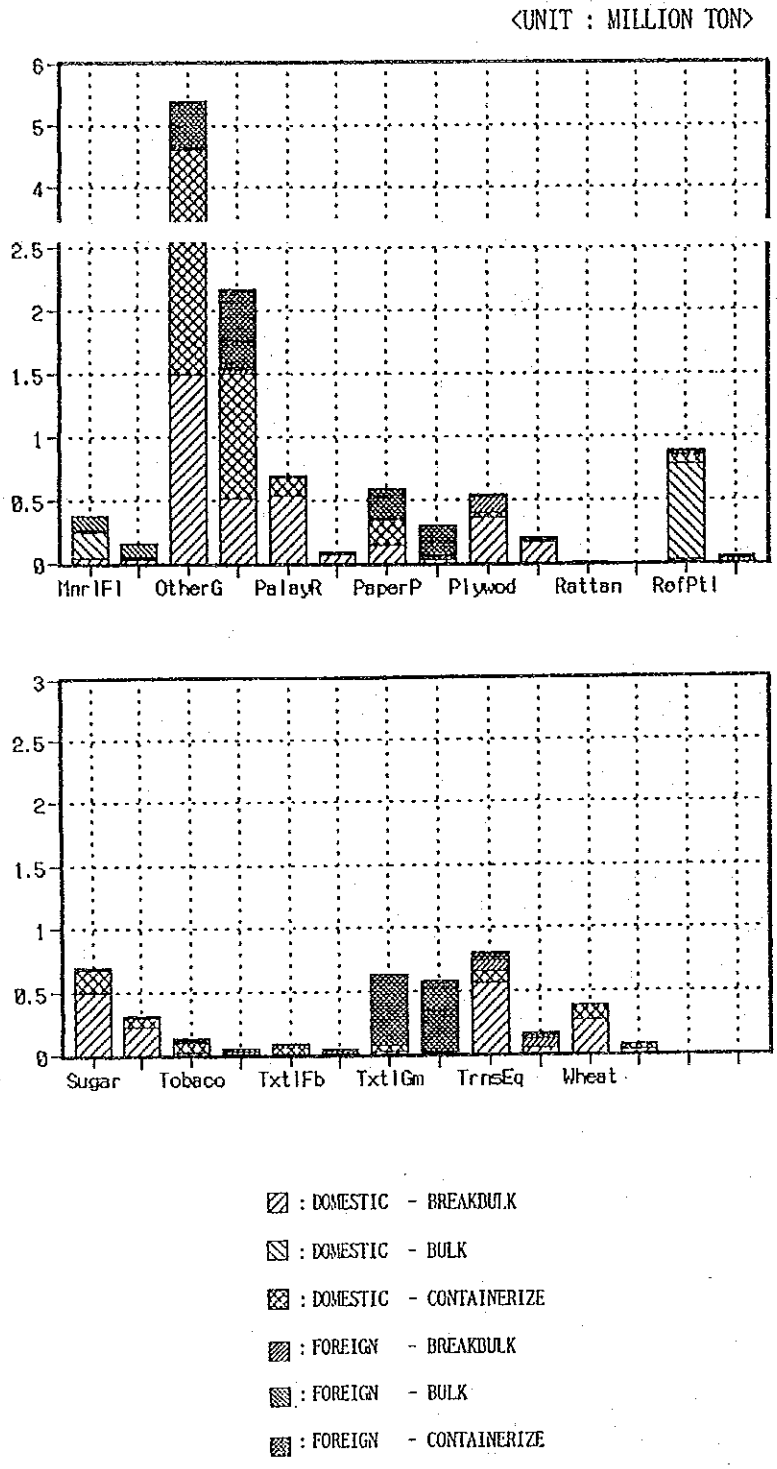
6.5 Vessels at Port

Ship calls of South, North, MICT and Batangas at berth (at berth and anchorage) were 803(2,494), 6,269(6,564), 285(303), and 3,943(3,943) respectively in 1980, and 1,209(1,728), 5,483(5,508), 1,265(1,265) and 5,634(5,634) respectively in 1991. Table 6-8 shows number of shipcalls at berth of major ports in the Greater Capital Region from 1980 to 1991.



NOTE : (left) All Base Ports + MICT
(right) Manla 3 horbors

Figure 6-10 Cargo Volume by Commodity of All Base Ports and Manila



COMMODITY

Abaca : Abaca
AnimlF : Animal Feeds
Bottld : Bottled Cargo
Cement : Cement
Chemcl : Chemicals
Copra : Copra
Corn : Corn
CrudMn : Crude Minerals
DairyP : Dairy Products
Fertlz : Fertilizer
FishFs : Fish & Fish Preparat.
FrutVg : Fruits & Vegetables
Furntr : Furniture
Hndcrf : Handicraft
IronSt : Iron & Steel
LiveAn : Live Animals
Logs : Logs
Lumber : Lumber
MachEl : Machin. & Elect.Equip.
Manufc : Manufactured Metal
MetlOr : Metaliferrous Ores/Scrap
MnrlFl : Mineral Fuels
OtherG : Other Gen.Cargo
PalayR : Palay & Rice
PaperP : Paper & Pulp
Plywod : Plywood & Veneer
Rattan : Rattan
RefPtl : Ref.Petroleum & Products
Sugar : Sugar
Tobaco : Tobacco & Manufactures
TxtlFb : Textile Fiber
TxtlGm : Textile & Garments Prod.
TrnsEq : Transport Equipment
Wheat : Wheat

Figure 6-10 continued

Table 6-8 Number of Shipcalls at Berth 1980-1991

PARTICULARS	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
MNL SOUTH HARBOR												
Ship Calls(Berth)	803	723	641	739	572	717	708	847	719	846	1,424	1,209
Domestic	0	7	0	0	0	4	0	6	0	6	157	66
Foreign	803	716	641	739	572	713	708	841	719	840	1,267	1,143
Terminal port-PASIG												
Ship Calls(Berth)	5,159	4,243	4,144	2,636	2,014	2,094	1,705	4,010	6,411	6,879	6,427	6,207
Domestic	5,159	4,243	4,144	2,636	2,014	2,094	1,705	4,010	6,411	6,879	6,427	6,207
Foreign	0	0	0	0	0	0	0	0	0	0	0	0
MNL NORTH HARBOR												
Ship Calls(Berth)	6,269	5,438	5,233	5,214	4,916	4,610	4,510	4,924	5,034	5,480	3,088	5,483
Domestic	6,269	5,438	5,233	5,214	4,916	4,610	4,510	4,924	5,034	5,480	3,088	5,483
Foreign	0	0	0	0	0	0	0	0	0	0	0	0
Terminal port-LIMAY												
Ship Calls(Berth)	3,272	3,157	2,897	2,326	2,527	2,593	2,641	2,782	3,301	3,414	3,752	3,991
Domestic	3,186	2,975	2,717	2,189	2,428	2,493	2,528	2,670	3,177	3,275	3,608	3,818
Foreign	86	182	180	137	99	100	113	112	124	139	144	173
Termi. p.-MARIVELES												
Ship Calls(Berth)	1,897	963	937	1,101	918	398	182	182	83	202	265	257
Domestic	1,811	872	831	1,012	864	361	138	172	79	193	253	235
Foreign	86	91	106	89	54	37	44	10	4	9	12	22
Terminal port-SUBIC												
Ship Calls(Berth)	n.a.	88	115	85	88	83	75	77	93	95	85	77
Domestic	n.a.	19	68	36	25	41	35	39	45	42	34	46
Foreign	n.a.	69	47	49	63	42	40	38	48	53	51	31
MNL INT. CONT. TERM.												
Ship Calls(Berth)	285	243	355	372	343	364	427	516	545	878	1,117	1,265
Domestic	0	0	0	0	0	0	34	95	85	63	102	163
Foreign	285	243	355	372	343	364	393	421	460	815	1,015	1,102
Base port-BATANGAS												
Ship Calls(Berth)	3,943	3,797	3,816	3,925	3,642	3,562	3,602	3,522	5,322	4,929	5,231	5,634
Domestic	3,883	3,883	3,737	3,740	3,895	3,636	3,559	3,504	5,308	4,193	5,175	5,591
Foreign	60	60	76	30	6	3	13	18	14	16	56	43
Terminal port-SIAIN												
Ship Calls(Berth)	792	259	251	104	96	136	110	3	27	50	47	15
Domestic	792	259	251	104	96	136	110	3	26	50	47	15
Foreign	0	0	0	0	0	0	0	0	1	0	0	0

Source: PPA

6.6 Present Condition of Calling Vessel Size

(1) Average Vessel Size and Number of Vessel

Figure 6-11 shows the average vessel size at the Port of Manila (MICT, South Harbor, North harbor) and Batangas from 1988 to 1991.

According to the figure, there is a tendency for the average vessel size at MICT to substantially increase, while the average vessel size at the North Harbor tends to slightly increase. On the other hand, average vessel size at the South Harbor shows a declining tendency(except anchoring vessel).

The average calling vessel size at the Port of Batangas tends to slightly increase.

Figure 6-12 shows the trend of number of vessels. Just as with the average vessel size, the number of vessels has increased substantially at MICT and slightly at the Port of Batangas. At South Harbor and North Harbor, however, the number of vessels has maintained a constant level in recent years.

(2) Present Maximum Vessel Size

Table 6-9 shows recent data on the average vessel size and largest vessel size at Port of Manila in December, 1992.

According to the table, the maximum size of container vessel calling MICT and South Harbor is 40,048 DWT and 25,500 DWT respectively.

The biggest vessel type is conventional vessel of which size is 45,470 DWT (L=190.5m) with self-ship's gear for handling break-bulk cargoes calling South Harbor. It is considered that she enters South Harbor by lightening load due to the limitation of berth's depth.

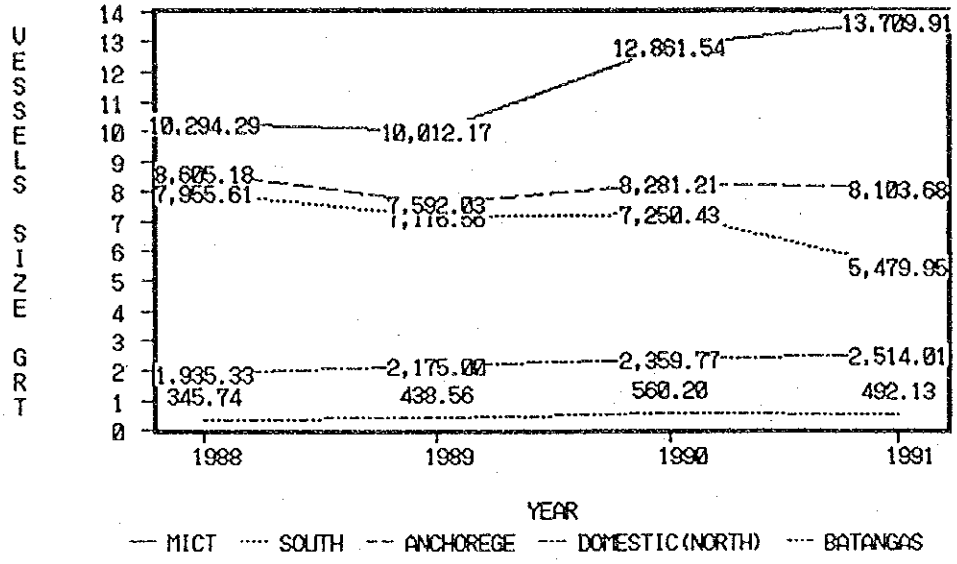


Figure 6-11 Average Vessels Size (GRT)

Table 6-9 Average Vessel Size and largest Vessel Size at Port of Manila in December, 1992

(at berth only)

	Name of Port	Type of Vessel		Number of Vessels	Average Vessel Size	Largest Vessel Size	Name of Vessel & Ports Call
Foreign	MICT	Container	(DWT)	104	14,700	40,048	MARO L (NATIONAL SHIP.CORP.)
			LOA(m)	-	154	190	from BUSAN
	SOUTH	Container	(DWT)	57	8,500	25,550	TOU HE (WALLEM SHIPPING)
			LOA(m)	-	120	169	from SHEKOU to BANGKOK (Pier 3)
		Combo	(DWT)	32	6,500	12,628	VIGOUR LUZON (ASIA)
			LOA(m)	-	107	143	from SINGAPORE to SINGAPORE (Pier 3)
		Conventional	(DWT)	52	8,400	45,470	RIO ASSU (CITADEL LINES)
			LOA(m)	-	108	191	from BANGKOK to KEELUNG (Pier 5)
		Passenger	(GRT)	2	17,400	21,903	NIPPON MARU (MAGSAYSAY AGENCY)
			LOA(m)	-	153	167	from HONGKONG to GUAM (Pier 5)
	Sub Total			247			
Domestic	NORTH	Conventional	(DWT)	174	3,200	12,478	L.LUZON, L.MINDANAO (LORENZO SHIP.)
			LOA(m)	-	80	143	from/to DAVAO, GEN.SANTOS, ZANBANGA
		Passenger	(GRT)	179	4,300	13,705	FILIPINA PRINCESS (SULPICIO)
			LOA(m)	-	110	181	from/to SEBU (Pier 12)
	Sub Total			353			
Ground Total				600			

Note: SOUTH (Pier 3 ~ Pier 15)
NORTH (Pier 2 ~ Pier 16)
Container means ship that handles containerized cargoes.
Combo means ship that handles the containerized and break-bulk cargoes.
Conventional means ship that handles break-bulk cargoes.

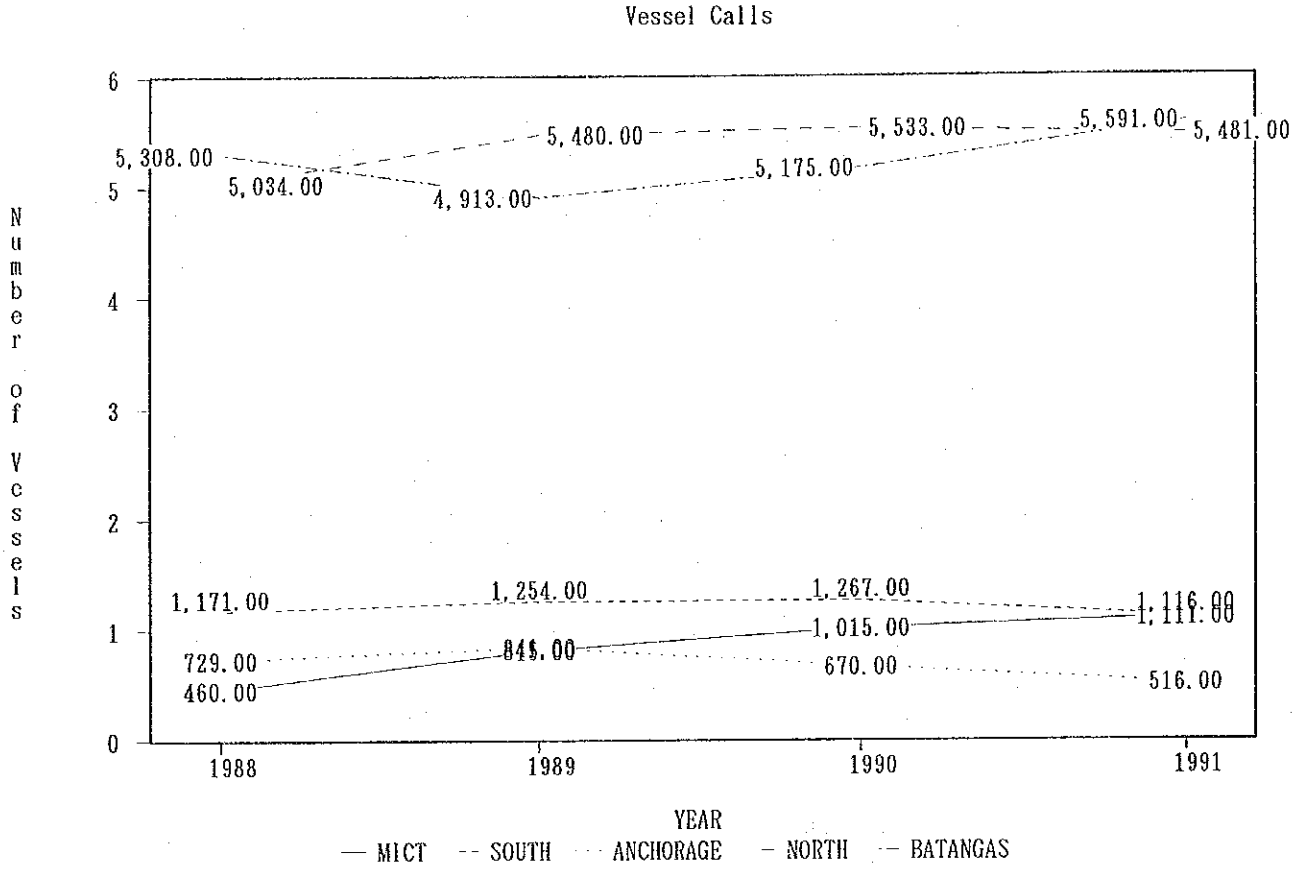


Figure 6-12 Number of Calling Vessels

(3) Share of Container and Conventional Vessels

a) Foreign Vessel

According to Table 6-9, in foreign trade, the share of container vessels at MICT and South Harbor is around 42% and 23% of foreign calling vessels respectively. If Combo (Combo means vessel loaded with container and non-container cargo) is included, the share of container vessels is around 78% of foreign calling vessels. On the other hand, the share of conventional vessels is around 21% of foreign calling vessels.

b) Domestic Vessels

According to Table 6-9, in domestic trade at North Harbor, it is noted that passenger vessels account for half of domestic calling vessels. It is also assumed that the passenger vessels include RO/RO type vessels. The biggest passenger ship, FILIPINA PRINCESS(13,705 GRT, L=180.5m), berths at pier No 12 and offers liner service from/to CEBU. The biggest general cargo ships, L.LUZON and L.MINDANAO(12,478 DWT, L=143m), berth at pier No 10 and provide liner service from/to DAVAO, GEN.SANTOS and ZANBOANGA.

CHAPTER 7 CARGO HANDLING SYSTEM

7.1 General

As described previously, the Port of Manila consists of three (3) ports; 1) the South Harbor for international bulk, container and passenger traffic; 2) the Manila International Container Terminal (MICT) for international container cargo; and 3) the North Harbor for domestic bulk, container and passenger traffic.

The South Harbor is furnished with four (4) container berths with four (4) gantry cranes, and other twenty-two (22) berths are for conventional cargo. Cargo handling at the South Harbor is undertaken by the Asian Terminal Inc. Cargo handling and operation are in good condition, except that the port is always busy and congested due to extremely narrow open space.

MICT is the most modern container cargo terminal of the Philippines situated between the South and North Harbors. It has usable quay length of approximately 900m with a minimum water depth alongside of about 12m. It currently has four (4) berths with six (6) gantry cranes. Cargo handling and operation at MICT are efficient and systematic. The management, operation and development of MICT are undertaken by the International Container Terminal Services Inc. (ICTSI) with which PPA signed the contract on 19 May 1988.

The North Harbor is the busiest port at the Manila Port. It has fourty-one (41) available berths with a water depth alongside of five (5) to six (6) meters. The cargo volume handled at the North Harbor in 1991 was more than 10.0 million tons, which is equal to sixty-one (61%) percent of the total cargo volume at the Port of Manila. However, the efficiency of cargo handling operations is often deteriorated by lack of open space and inadequate equipment. In addition, there are a considerable number of stevedoring companies involved in the management and operation at the North Harbor. To make matters worse, divided operations have been carried out on the particular piers by different cargo handling companies. It has been pointed out for a long time that this inefficient cargo handling system should be improved as soon as possible.

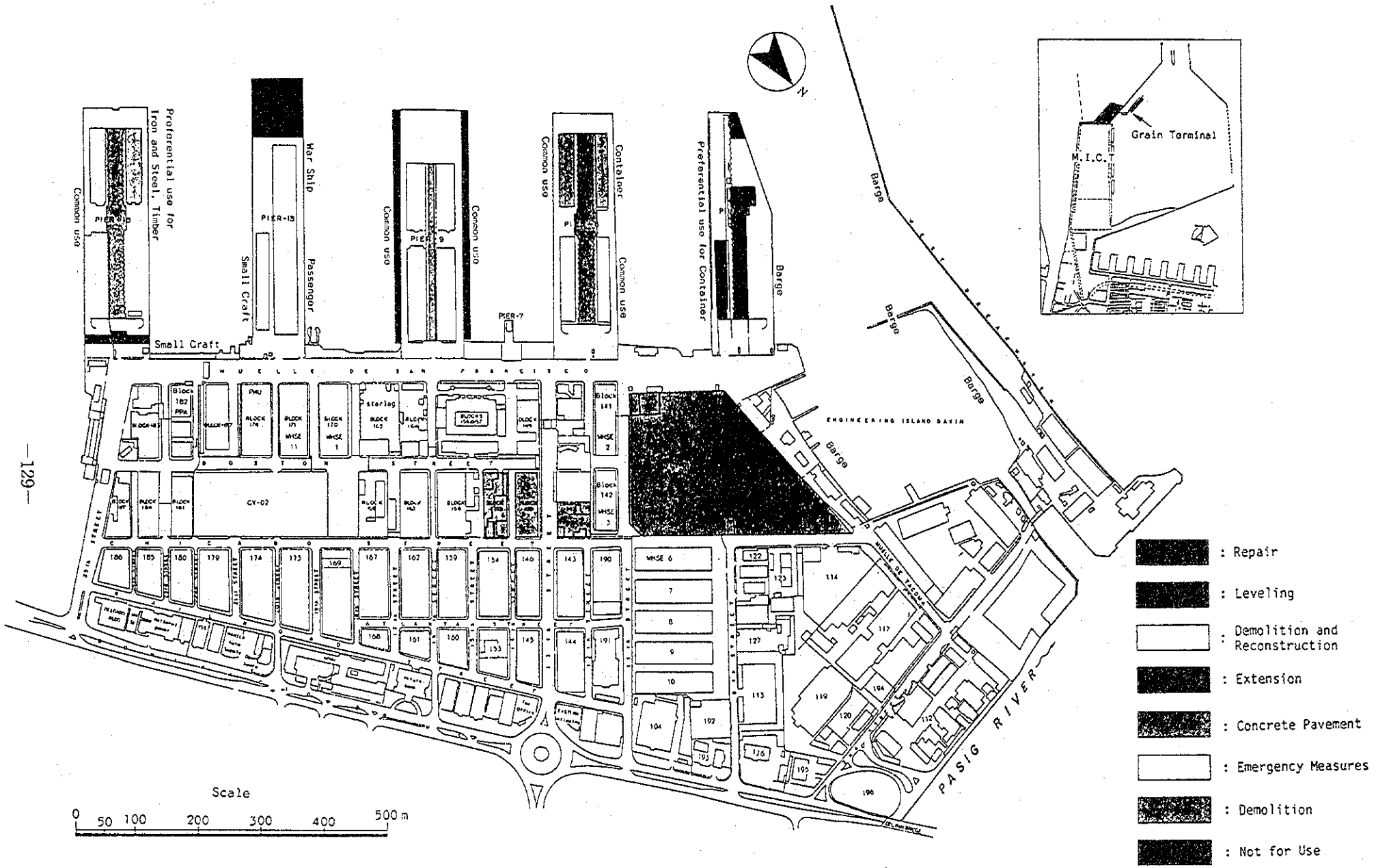


Figure 7-1 Port Facility layout at the South Harbor

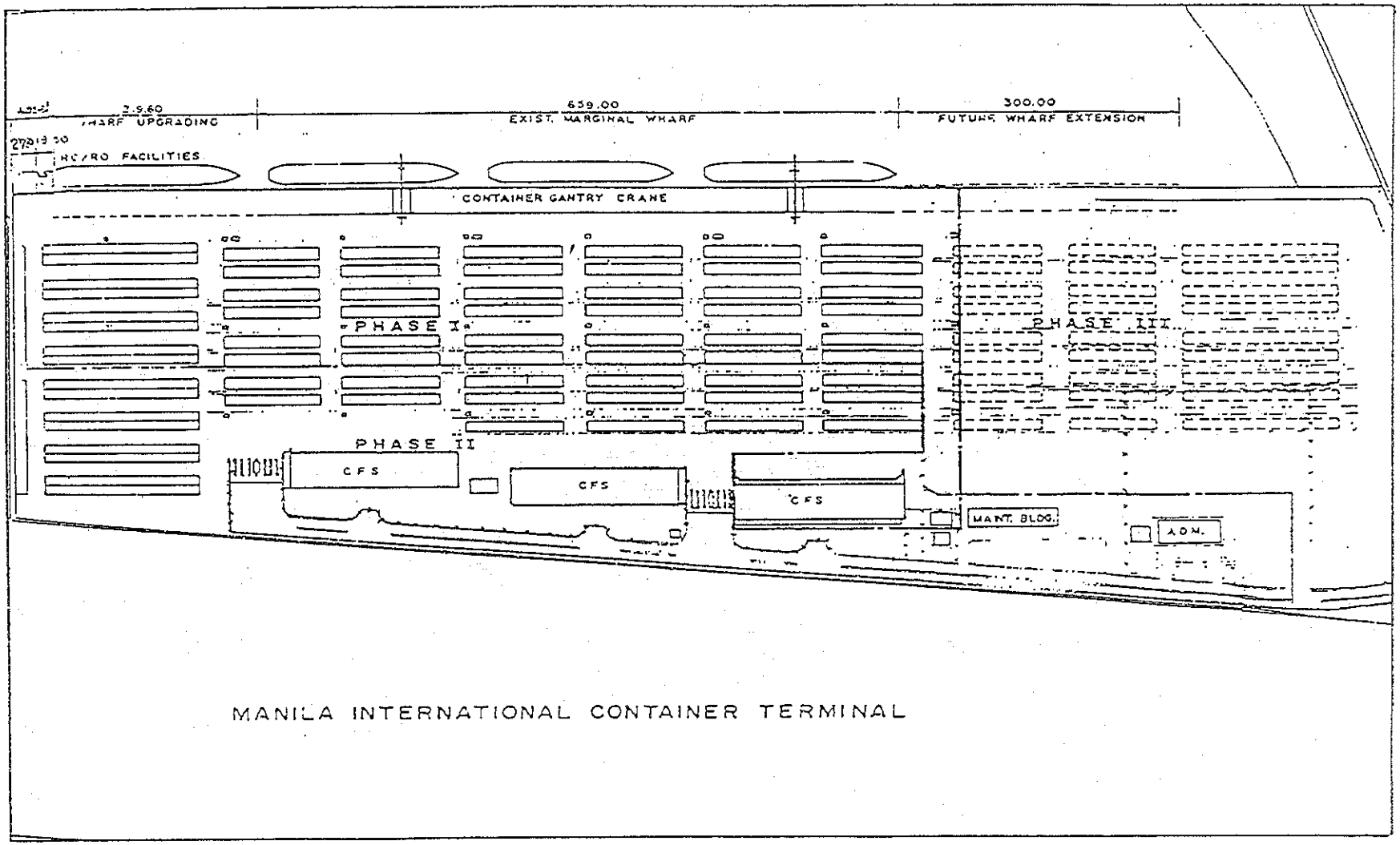


Figure 7-2 Port Facility Layout of Manila Int'l Container Terminal

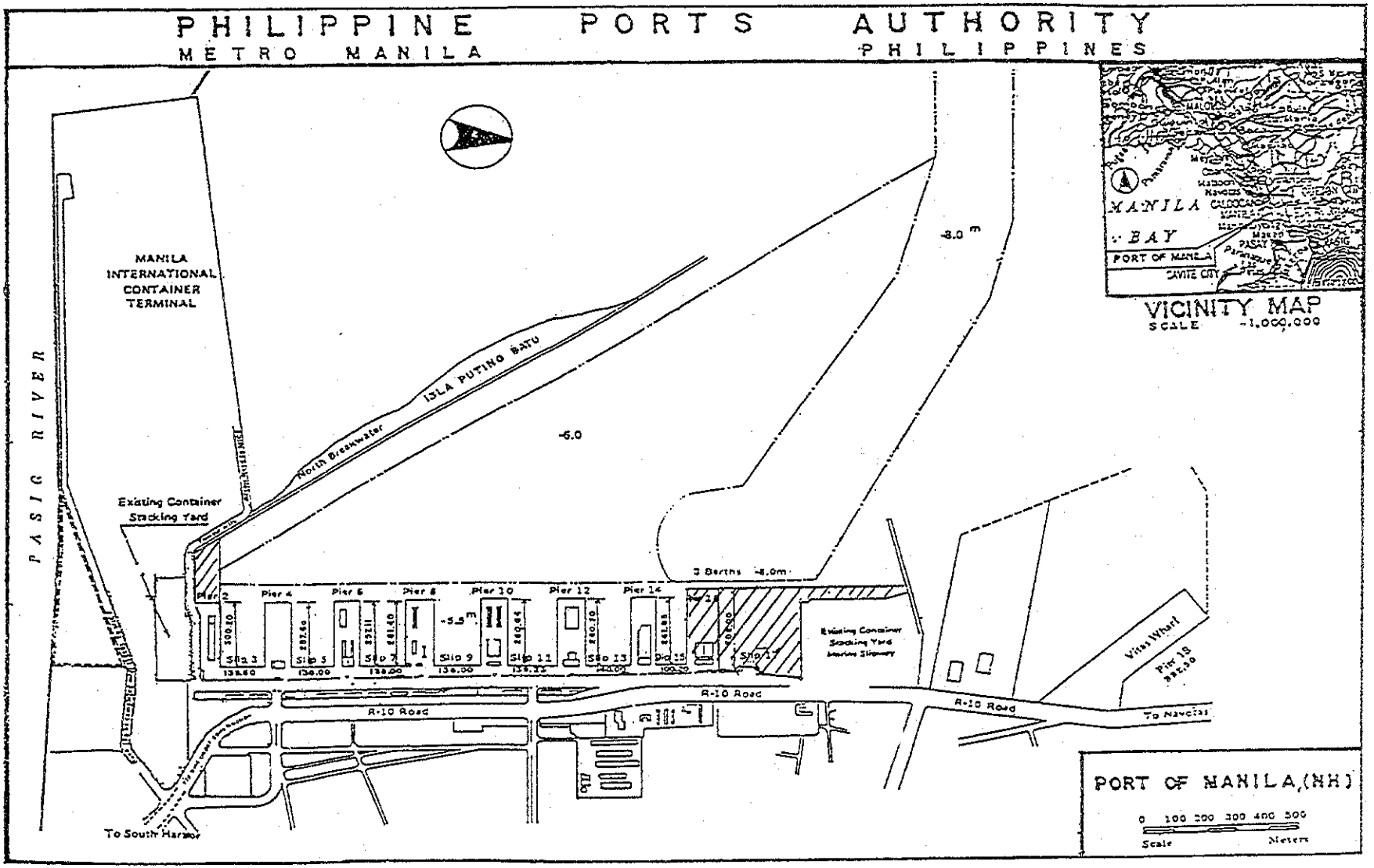


Figure 7-3 Port Facility Layout of the North Harbor

7.2 Inventory of Cargo Handling Equipment and Its Working Conditions

Cargo handling equipment by port (the South Harbor, MICT and the North Harbor) is shown in Table 7-1. The composition and number of cargo handling equipment at each port depend on the type and volume of cargoes handled at its port. MICT handles international container cargo only, thus cargo handling equipment is specialized for containers and satisfying an international standard. The North Harbor handles domestic breakbulk, container cargo and passenger. As a result, major cargo handling equipment is mobile cranes and folklifts. On the other hand, the South Harbor which handles international breakbulk and container cargo, results in being furnished with various kinds of equipment, including gantry cranes, top loaders and shifters.

The Study Team observed the working condition of equipment several times at each port. As far as the Study Team's field survey is concerned, it is noted that almost all cargo handling equipment in operation are generally in good condition.

7.3 Storage Facility

Table 7-2 and Table 7-3 show storage facilities and open storage areas at each port. There are eleven (11) transit sheds (36,208 sq.m.), nineteen (19) warehouses (70,000 sq.m.) and two (2) container yards (88,600 sq.m.) at the South Harbor. On the other hand, there are nineteen (19) transit sheds (19,911 sq.m.), one (1) warehouse (720 sq.m.) and six CFS at the North Harbor. One of the most remarkable points in terms of storage facilities at both harbors is the severe shortage of storage space within the port. In particular, growing container cargo requires the urgent provision of a large amount of container yard, but there is no more space left within the present port. Therefore, a considerable number of containers are stacked on the aprons, streets and alleys. This always forces stevedoring companies to result in unsatisfactory productivity of cargo handling. Lack of space for coping with increasing cargoes is the most serious problem at the South and North Harbor. At MICT, there are three (3) Container Freight Stations (CFS) and three(3) container yards. They are satisfying international standards. There is no space problem at MICT, but urgent improvement of access roads to/from MICT is now requested.

Table 7-1 Cargo Handling Equipment by Port

Handling Equipment	South Harbor	MICT	North Harbor
Gantry Crane	2	5	-
Mobil Crane			
- Heavy Crane (35 tons)	-	-	9
- Medium Crane (up to 15 tons)	-	-	24
Forklift			
- Heavy Forklift (greater than 15 tons)	4	-	17
- Medium Forklift (5 to 15 tons)	8	56	36
- Small Forklift (3 to 4 tons)	106	-	128
Straddle Carrier (30 to 35 tons)	-	14	-
Transtrainer	-	11	-
Toploader (25 to 40 tons)	6	-	-
Side Lifter (15 tons)	-	3	-
Shifter	8	-	4
Prime Mover	-	44	-
Cramshell (3 to 9 tons)	56	-	-
Chassis	-	119	-

Source: PPA, MARINE, ICTSI, AND UDI

Table 7-2 Storage Facilities by Port

NAME OF PORT	TYPE	NUMBER OF FACILITIES	FLOOR AREA (SQ.M.)	CAPACITY (M.T.0)
SOUTH HARBOR	Transit Shed	11	36,208	-
	Warehouse	19	70,000	-
MICT	CFS	3	27,238	-
NORTH HARBOR	Transit Shed	19	19,911	25,991
	Warehouse	1	720	

SOURCE: PPA and ICTSI

Table 7-3 Open Storage Area of Port

NAME OF PORT	TYPE	NUMBER OF FACILITIES	AREA	CAPACITY (TEU)
SOUTH HARBOR	Open Storage	-	24,300	-
	Container Yard	2	88,600	1,520
MICT	Container Yard	3	523,900	-
NORTH HARBOR	Open Storage	4	14,250	-
	Container Yard	6	19,000	-

7.4 Cargo Flow at Port

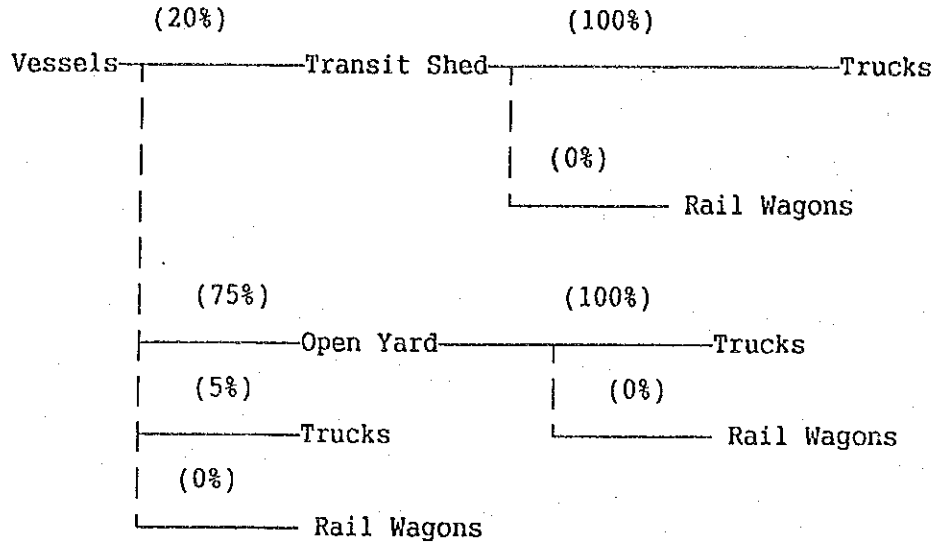
Cargo flow at ports provides the basis for evaluation of the capacity of port facilities. The following data at the Port of Manila are provided by each cargo handling company at each harbor. The distinct feature is that the small portion of domestic cargo is transported through the transit shed or open yard inside the port, except for outbound container cargoes. However, in case of international cargoes, almost all cargoes are transported through the transit shed or open yard.

Flow of general cargoes is shown in Fig. 7-4 and 7-5. In case of imported general cargo (South Harbor), 20 percent of cargo is transported through the transit shed, and 75 percent of cargo is transported through the open storage. Only 5 percent of cargo is transported directly to the outside of ports. In any case, inland transport is always by truck. In case of exported general cargo (South Harbor), 95 percent of cargo goes through the transit shed or open yard at ports. Only 5 percent of cargo is carried into vessels directly by truck.

In case of domestic general cargo (North Harbor), however, cargo handling is very different from the case of international cargo. Seventy to eighty percent of domestic cargo is transported through the transit shed or open yard, and 30 percent of cargo goes through those storage facilities for loading.

Fig. 7-6 to Fig. 7-7 shows the present container cargo flow at the South Harbor and MICT. As mentioned previously, containers handled at the South Harbor and MICT are international cargo, and containers handled at the North Harbor are domestic cargo. In case of international container cargo, there is no container carried directly to vessels from the outside of ports, or directly to the outside of ports from vessels. In other words, all containers are stored at container yards at first, before they are loaded into vessels or less than 10 percent of imported container is unpacked at shed, and less than 5 percent of exported container is packed at shed at ports. Transport mode to/from ports is absolutely by truck. In case of domestic container cargo, cargo flow is different from the case of international containers. Ninety seven (97) percent of inbound container is carried by truck directly to the outside of ports. This is due to lack of cargo handling space at the North Harbor, thus the North Harbor is now obliged to experience the quick cargo handling at the port all the time. On the other hand, 100 percent of outbound container is carried into a container yard at first, then loaded into vessels, but there is no outward container packed at shed at port.

(1) Discharging (Handling Ratio)



(2) Loading (Handling Ratio)

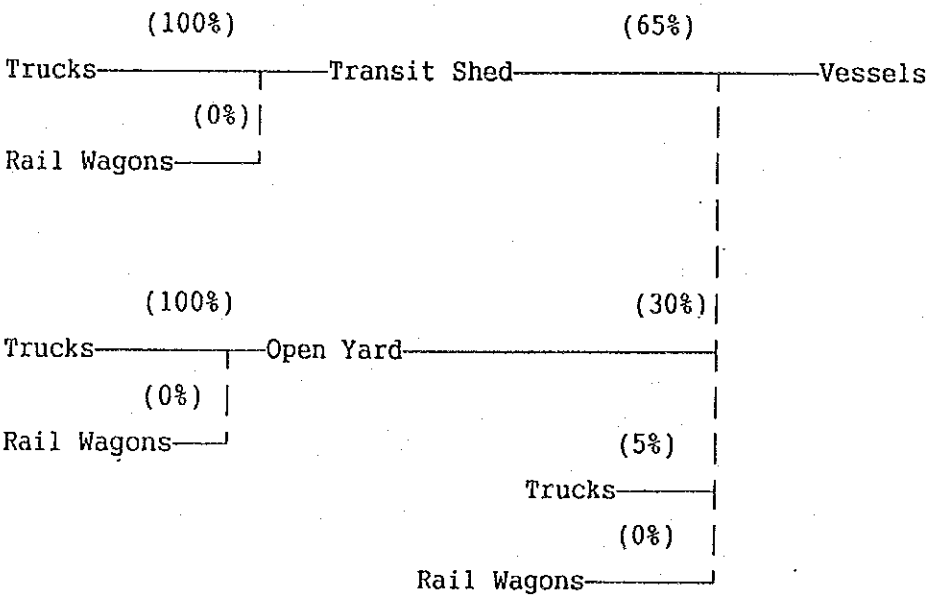
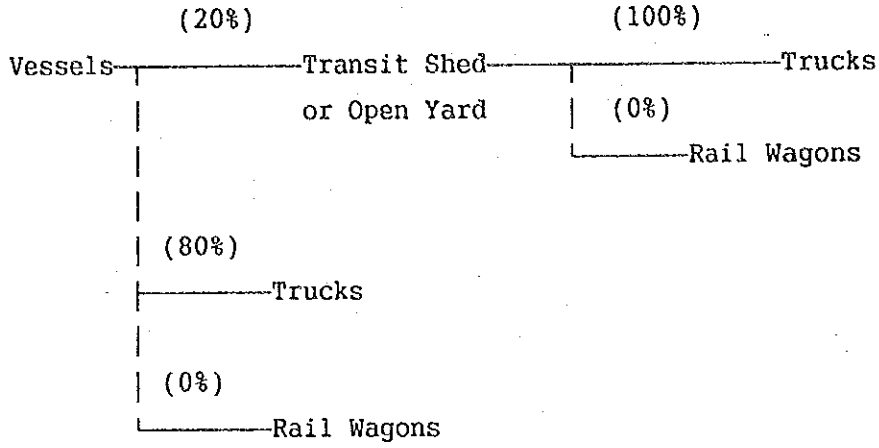


Figure 7-4 Present General Cargo Flow at South Harbor

(1) Discharging (Handling Ratio)



(2) Loading (Handling Ratio)

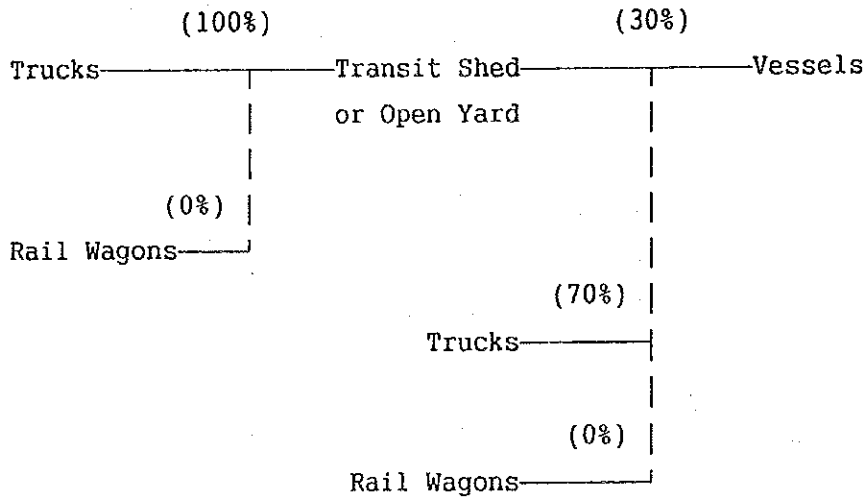
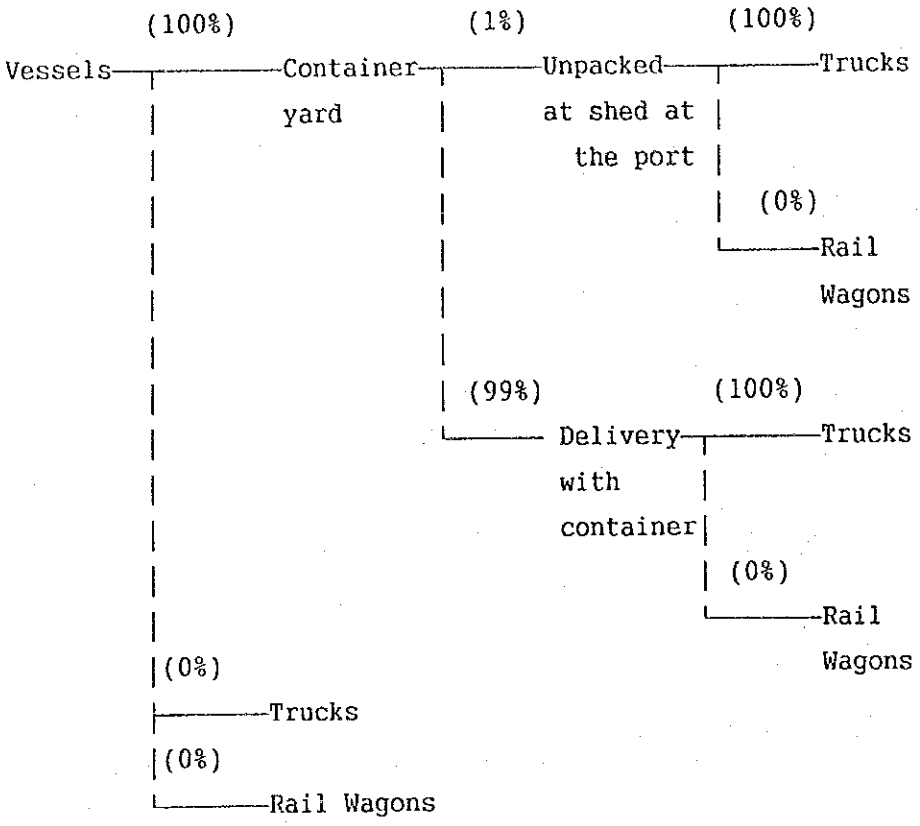


Figure 7-5 Present General Cargo Flow at North Harbor

(1) Discharging (Handling Ratio)



(2) Loading (Handling Ratio)

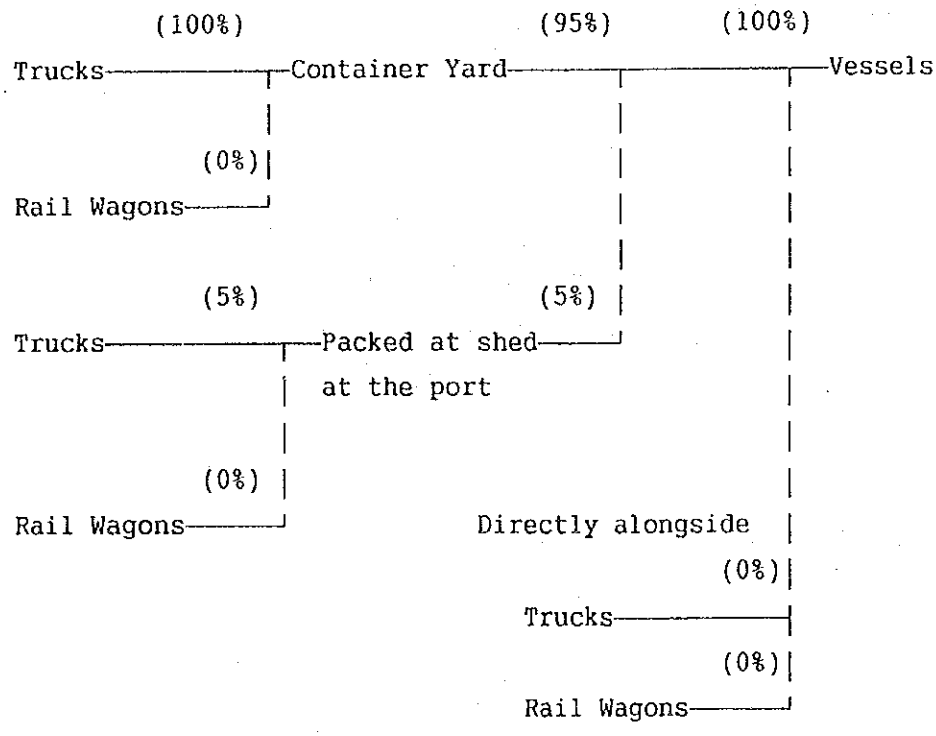
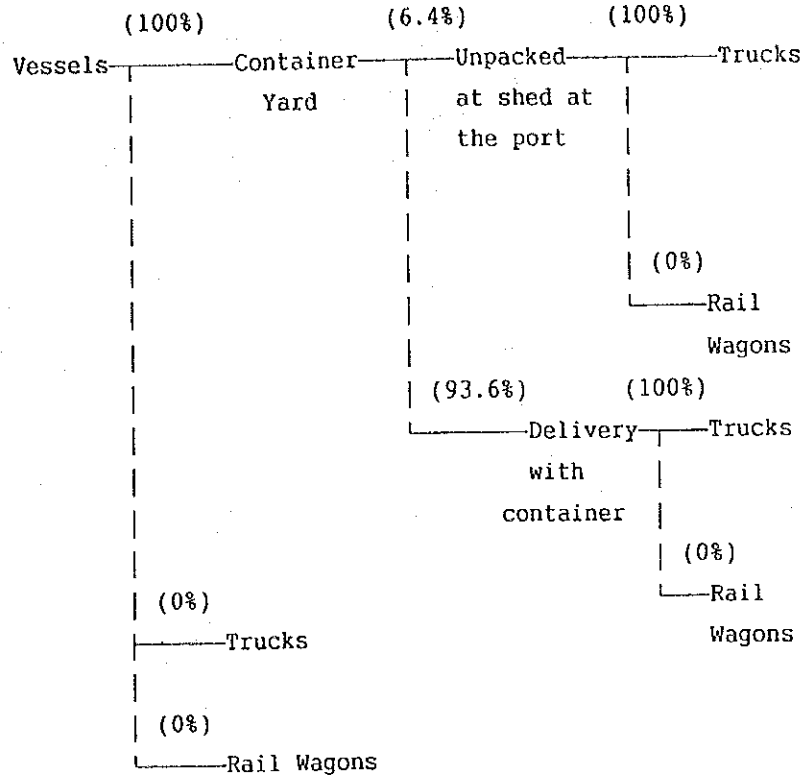


Figure 7-6 Present Container Cargo Flow at South Harbor

(1) Discharging (Handling Ratio)



(2) Loading (Handling Ratio)

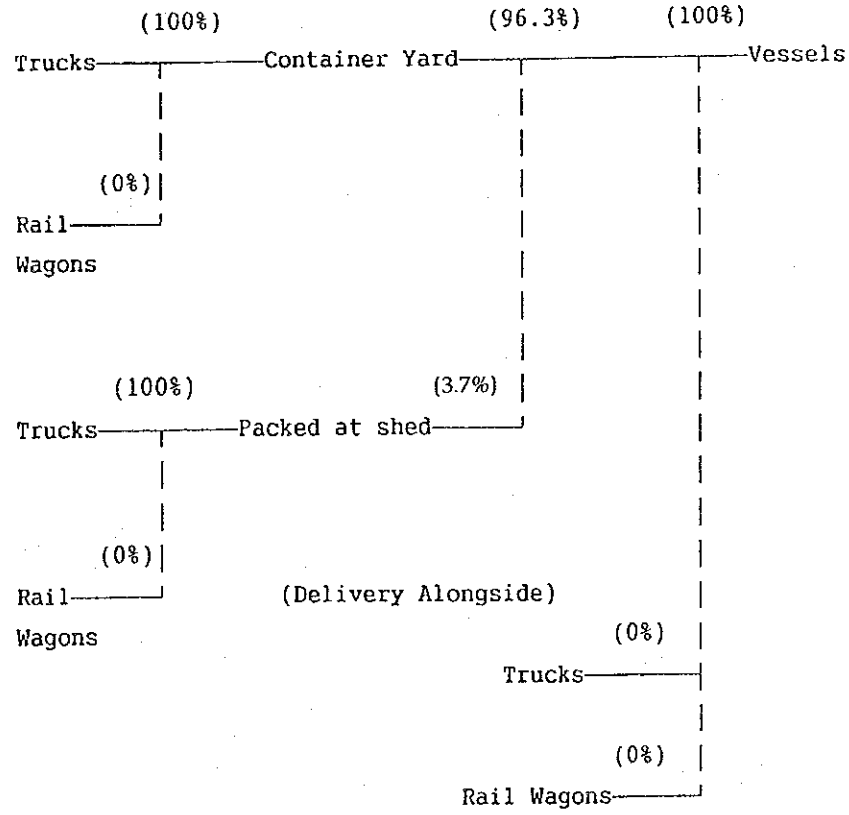


Figure 7-7 Present Container Cargo Flow at MICT

(1) Discharging (Handling Ratio)

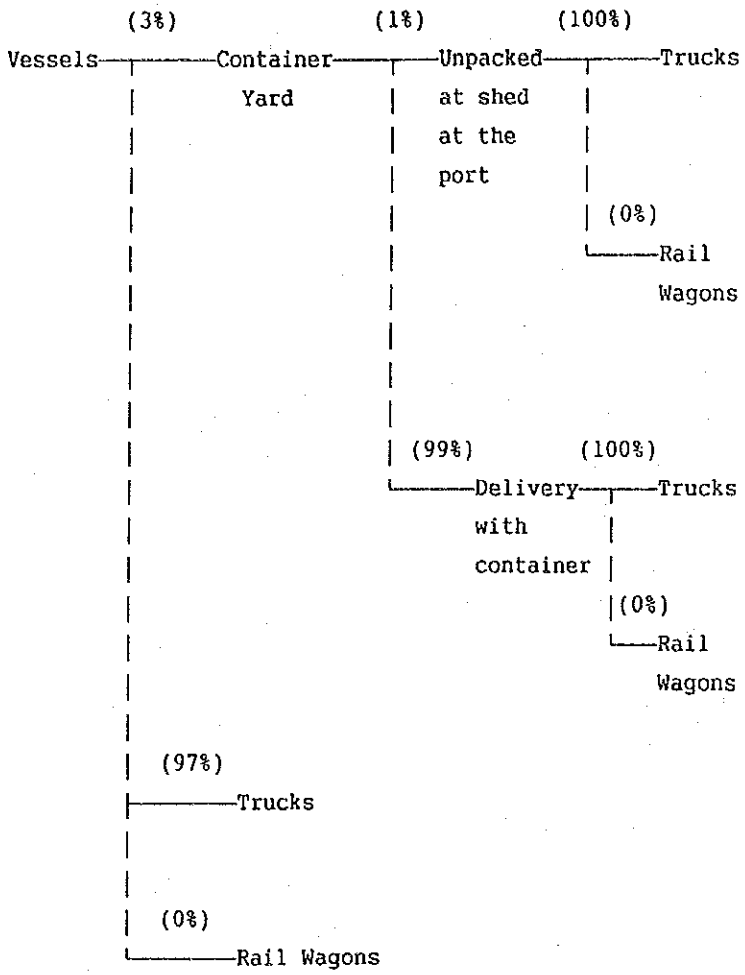


Figure 7-6(1) Present Container Cargo Flow at North Harbor

(2) Loading (Handling Ratio)

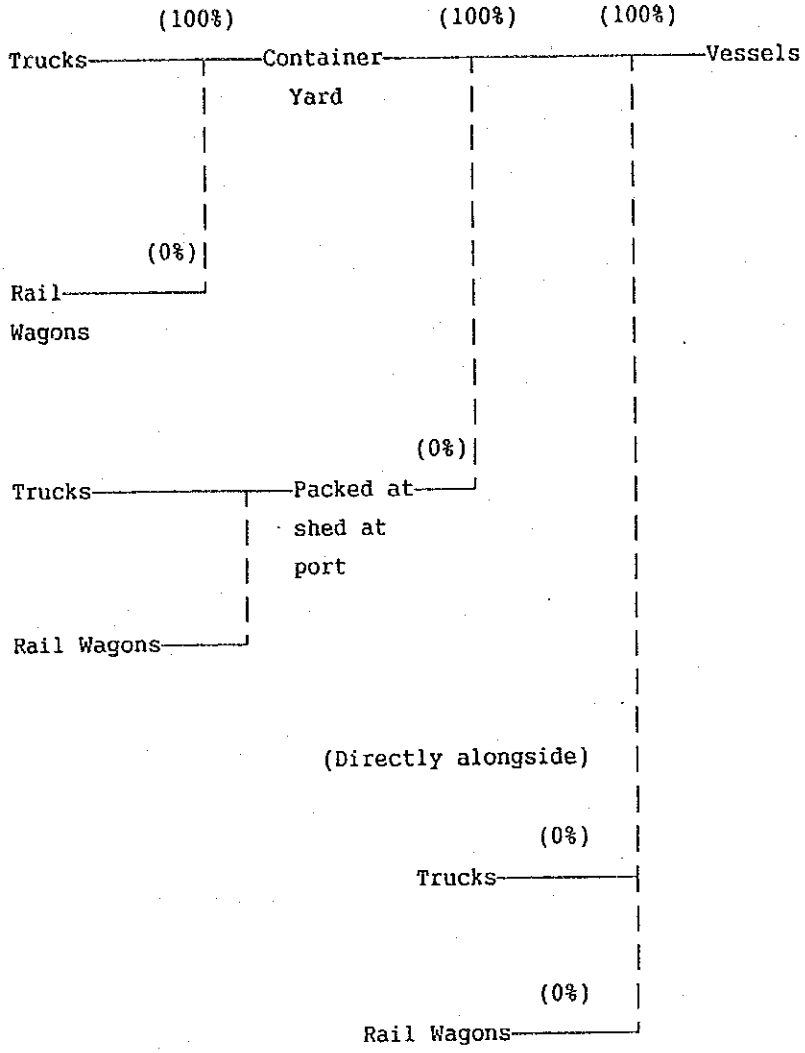


Figure 7-6(2) Present Container Cargo Flow at North Harbor

7.5 Productivity of Cargo Handling

7.5.1 Turn Around Time of Vessel

Table 7-7 shows the average turn around time at each port. Data is based on 1992 Port Statistics provided by PPA. Average staying time of vessels at the South Harbor, MICT, and the North Harbor is 78.88 hours, 26.35 hours, and 76.75 hours, respectively. Average staying time is, therefore, shortest at MICT. The reason is simple, because MICT is the most advanced container terminal in the Philippines established to handle international container cargo only. Average waiting time is shortest at the North Harbor, although average service time at the same harbor is longer than three (3) full days.

7.5.2 Efficiency of Cargo Handling

Table 7-7 also shows the average cargo handling volume per operating hour at each port. Efficiency of cargo handling depends on plenty of factors, thus it is not necessarily appropriate to conduct the simple comparison of that with another. The best way to evaluate the efficiency is to look at the past trend carefully over the considerable period of time.

The following analysis is based on data for 1992 only. According to Table 7-7, MICT shows the best efficiency among the three (3) ports, because MICT is a specialized port in terms of handling international containers only. On the other hand, the South and North Harbor handle international and domestic containers, respectively, but data on Table 7-7 shows total cargo volume per operating hour, including breakbulk cargoes. This results in showing the low efficiency at both harbors. According to the Study Team's hearing, the low efficiency of cargo handling at the South and North Harbor is due to lack of cargo handling space, not due to cargo handling operations.

Table 7-8 shows the result of container handling productivity at the South Harbor and MICT. The average net productivity of container handling is 21 units per hour at the South Harbor and 20 units per hour at MICT. These figures are thought to be relatively good comparing those with the efficiency at typical world container ports. The key factor which makes each port's productivity high is their systematized container operation.

Table 7-7 Average Cargo Handling Volume at Each Port (1992)

NAME OF PORT	NUMBER OF VESSELS	CARGO VOLUME HANDLED (METRIC TON)	CARGO VOLUME PER VESSEL (METRIC TON)	AVERAGE STAYING TIME (HOURS)	AVERAGE SERVICE TIME (HOURS)	CARGO VOLUME/HOUR (STAYING TIME)	CARGO VOLUME/HOUR (SERVICE TIME)	REMARKS
SOUTH HARBOR	1,321	3,343,306	2,531	78.88	75.20	32	34	
MICT	1,156	4,826,756	4,175	76.35	17.96	158	232	Foreign Cargo only
NORTH HARBOR	5,416	10,731,700	1,981	76.75	76.00	26	26	

SOURCE: PPA

Table 7-8 Productivity of Container handling at South Harbor and MICT

DATE	(1) NUMBER OF VESSELS	(2) AVERAGE STAYING TIME (HRS)	(3) AVERAGE SERVICE TIME (HRS)	CONTAINER THROUGHPUT		GROSS PRODUCTIVITY (5)/(1) x (2)	NET PRODUCTIVITY (5)/(1) x (3)
				(4) TEU	(5) UNIT		
Nov. 1992	34	12.70	10.47	10,889	7,522	17.42	21.13
Nov. 1990	100	14.22	12.99	36,382	26,382	18.55	20.31
Dec. 1990	101	15.07	13.95	38,781	27,356	17.97	19.42

MARINA CO., LTD, and ICTSI

Table 7-9 Productivity of Container handling at South Harbour (Nov. 1992)

NAME OF VESSEL	ESTIMATED ARRIVAL		ESTIMATED DEPARTURE		1 STAYING TIME (HRS)	2 SERVICE TIME (HRS)	CONTAINER TRROUGHPUT		GROSS PRODUCTIVITY (4 UNIT/3 TEU)	NET PRODUCTIVITY (4 UNIT/3 TEU)
	TIME	DATE	TIME	DATE			3 TEU	4 UNIT		
APL										
EAGLE COMET	1900	06 Nov.	1705	07 Nov.	14.00	12.50	571.00	312	22.29	24.96
EAGLE SUN	1300	09 Nov.	0630	10 Nov.	13.17	12.08	445.75	258	19.59	21.36
EAGLE BAY	1300	12 Nov.	1550	13 Nov.	22.92	18.50	702.75	393	17.15	21.24
EAGLE COMENT	1900	19 Nov.	1820	20 Nov.	18.92	17.67	746.50	415	21.93	23.49
EAGLE BYA	1900	26 Nov.	1800	27 Nov.	19.92	17.58	746.00	412	20.68	23.44
FIL-JAPAN										
ACX RUBY	0700	05 Nov.	2315	05 Nov.	11.25	6.58	112.00	80	7.11	12.16
ACX RUBY	0700	12 Nov.	0005	13 Nov.	14.58	11.08	217.25	130	8.92	11.73
ACX RUBY	0700	19 Nov.	2405	19 Nov.	12.75	10.42	186.75	109	8.55	10.46
ACX RUBY	1900	26 Nov.	0525	27 Nov.	9.00	7.67	244.00	141	15.67	18.36
MDP SHIPPING										
XING BAO	0700	01 Nov.	1935	01 Nov.	8.67	7.08	212.00	161	18.57	22.74
LIAN BAO	1900	05 Nov.	1255	06 Nov.	10.00	5.33	169.00	112	11.20	21.01
LIU BAO	0700	07 Nov.	1630	07 Nov.	6.50	5.42	126.00	89	13.69	16.42
LIAN BAO	0700	15 Nov.	1075	15 Nov.	6.75	17.08	170.00	107	15.85	6.26
LIU BAO	0700	14 Nov.	2220	14 Nov.	12.00	8.92	193.00	139	11.58	15.58
LIU BAO	0700	21 Nov.	0240	22 Nov.	13.42	9.33	190.00	131	9.76	14.04
LIAN BAO	0835	25 Nov.	1740	26 Nov.	8.83	5.42	183.00	139	15.74	25.65
LIU BAO	1300	28 Nov.	1505	30 Nov.	6.17	4.67	135.00	91	14.75	19.49
OVERSEAS FREIGHTERS										
ZIM MANILA	0700	03 Nov.	2120	03 Nov.	8.92	6.42	317.00	249	27.91	38.79
ZIM MANILA	1300	13 Nov.	0750	14 Nov.	16.33	12.25	421.00	289	17.70	23.59
ZIM MANILA	1300	23 Nov.	0240	24 Nov.	7.83	5.58	211.00	132	16.86	23.66
NEDDLOYD SHIPPING										
THALASSINI AXIA	0700	09 Nov.	1510	09 Nov.	3.42	2.25	104.00	78	22.81	34.67
ZHEN YANG	1820	06 Nov.	0625	07 Nov.	10.50	8.25	173.00	126	12.00	15.27
ANCHOR INT'L										
VIGOUR PACIFIC	1900	14 Nov.	2315	14 Nov.	0.58	0.25	10.00	7	12.07	28.00
VIGOUR LUZON	1800	07 Nov.	1845	07 Nov.	1.75	0.75	31.00	18	10.29	24.00
VIGOUR SINGAPORE	1900	21 Nov.	2340	21 Nov.	13.0	0.45	9.00	6	4.62	13.33
COSCO										
JIAN HE	1800	05 Nov.	1550	06 Nov.	22.00	19.75	396.00	337	15.232	17.06
TUO HE	1900	07 Nov.	0335	09 Nov.	23.83	21.92	750.00	625	26.23	28.51
SEA DRAGON	1900	09 Nov.	1530	10 Nov.	11.00	8.33	279.00	214	19.45	25.69
XING HAI HE	1900	13 Nov.	1645	14 Nov.	14.58	9.42	365.00	268	18.38	28.45
HWANYUNG NANJIN	1840	17 Nov.	0630	18 Nov.	8.50	6.50	261.00	143	16.82	22.00
WEI HE	1900	20 Nov.	2125	22 Nov.	42.92	35.67	1,067.00	913	21.27	25.60
SEA DRAGON	0700	20 Nov.	2215	20 Nov.	12.75	9.83	239.00	188	14.75	19.13
SHUN HE	1300	25 Nov.	1810	26 Nov.	24.08	21.17	608.00	497	20.64	23.58
SEA DRAGON	1900	29 Nov.	0850	30 Nov.	12.50	9.83	298.00	213	17.04	21.67
TOTAL					431.64	355.95	10,899.00	7,522	17.43	21.13

CHAPTER 8 PRESENT PORT MANAGEMENT AND OPERATION

8.1 Outline of Port Management and Operation in the Philippines

8.1.1 Kinds of Ports

Ports in the Philippines are classified into public ports built and managed by public sectors and private ports built and managed by private sectors. Public ports are classified into two categories; those under the jurisdiction of PPA port system and others.

(1) Public Ports under Control of PPA Port System

There are 109 ports at present which are designated as part of the PPA port system by the Management-Exective Committee of the PPA. These ports consist of 19 Base Ports (including South and North Harbor of Manila and Batangas Port), which function as hub ports both in foreign and domestic trade, and 90 Terminal Ports as shown in Table 8-1. There are Port Management Offices at each Base Port. The Management-Exective Committee is now considering a reduction in the number of the ports under the jurisdiction of PPA port system from the viewpoint of enhancing competitiveness with neighboring foreign countries' ports and its financial autonomy. Cebu Authority was established this year, but its jurisdiction has not yet been declared.

(2) Public Ports except those under Control of PPA Port System

As for small ports, following decisions were made according to the approval of the NEDA Board which was held in September 1990.

1) DOTC shall coordinate the programming and implementation of future municipal/tertiary/feeder port projects while actual implementation and maintenance of these projects shall be devolved to the local government unit, with DOTC providing technical supervision and engineering design standards.

2) DPWH shall complete all ongoing municipal/tertiary/feeder port projects. Future projects shall be the responsibility of DOTC.

Actual construction and rehabilitation of these ports is carried out by Project Management Service of DOTC at national government's expense, while maintenance and operation is carried out by local governments. However, local governments do not have enough funds and technical skill at present.

Table 8-1 Public Ports under Control of the PPA Port System

①	BATANGAS	32	DUMAGUEIE	㊷	MANILA-NORTH	㊽	TACLOBAN
2	Calapan	33	San Carlos	63	Romblon	89	Ormos
3	San Jose, Mindoro Occ	34	Danao(Escalanlo)	64	Podoy	90	Catbalogan
4	Hondagun	35	Larena	-	-	91	Calbayog
5	Balanacun	36	Tandayag	㊺	MANILA-SOUTH	92	Massin
7	Colla	-	-	66	Pasig	93	San Jose Caraingan
8	Dapahcan	㊲	GENERAL SANTOS	67	MICT	94	San Isidro Ferry
9	Sta, Cruz	-	-	-	MANILA INTERNATIONAL	95	Baybay
10	Mamburao	㊳	ILIGAN	-	CONTENER TERMINAL	96	Palompon
-	-	39	Ozamis	-	-	97	Liloan Ferry
⑪	CAGAYAN DE ORO	40	Jimenez	㊽	NASIPIT	98	Ililongos
12	Benoni	41	Tubod	69	Masao	99	Bato
13	Ballngoan	42	Kolambugan	70	Butuan	100	Borangan
-	-	-	-	-	-	101	Guiuan
⑭	CEBU	㊸	ILOILO	㊼	POLLOC	102	Naval
15	Tagbilaran	44	Pulupandan	72	Colabato	103	Calubian
16	Talibon	45	Culasi	73	Kalamansig	-	-
17	Tuburan	46	San Jose Bucnavista	-	-	㊾	ZAMBOANGA
18	Tuburan	47	Dumaguil	㊹	PUERTO princesa	105	Busilan
19	Jagna	48	Bucnavista(Gulmaras)	75	Brooke's Point	106	Pulatmn
20	Argno	49	Estanda	76	Coron	107	Pagadian
21	Calagbucan	-	-	77	Cuyo	108	Lamisan
22	Toledo	㊿	JOLO	-	-	109	Malangab
23	Sta, Fe	51	Bongao	㊻	SAN FERNANDO		
24	Hagnaya	52	Sinsi	79	Irene		
25	Ubay	53	Sitangkai	80	Currimao		
26	Opon	-	-	81	Aparri		
27	Samboan	㊿	LEGASPI	-	-		
-	-	55	Matnog	㊽	SURIGAO		
㉘	DAVAO	56	Masbale	83	Lipala		
29	Sta, Ana	57	Tabaco	84	Dapa		
30	Malilag	58	Virac	85	Tandag		
31	Mail	59	Bulan	86	Sun jose, Dinagal		
		60	Pasacao	87	Cantilan		
		61	San Jose Panganiban				

Note: "○" indicates Base Ports including newly established Cebu Port Authority (CPA) which is an autonomous body.

(3) Private Ports

366 private ports are registered in the PPA according to the Port Inventory Project Report '91, PPA (Including 55 ports in Manila South Harbor, 8 in North Harbor and 24 in Port of Batangas). There are also a lot of ports those are not registered in PPA. These private ports handle their own cargo, however, there are two private ports which handle commercial cargo.

A private company that wants to build port facilities has to get permission of the Bureau of Land, the Department of Natural Resources and the PPA.

First they have to get a shore lease from the Bureau of Land, since shore of the Philippines is under jurisdiction of the Bureau. The Bureau gives permission and leases the shore for 25 years after consulting the PPA. After that they have to get a permission of the PPA as follows;

(a) Submit a Clearance of Development, including a feasibility study on the proposed port facility project, to the Commercial Department of the PPA and get approval.

(b) Obtain a Construction Permit from the office of the AGM for Engineering of the PPA. Pay Application Fee which is 0.1% of the construction cost.

(c) Submit a Project Completion Report to the PPA.

(d) Obtain a Certificate of Registration of Port Facilities and Permit to Operate. Normally the operation period is 25 years, the same as a shore lease of the Bureau of the Land, and it can be renewed.

Private port operators have to submit statistics as well as management, operation and finance reports to the PPA, which audits them and can make necessary recommendations.

8.1.2 Functions and Organization of the DOTC

The Department of Transportation and Communications has responsibility for maintenance and expansion of viable, efficient and dependable transportation and communications systems as effective instruments for national recovery and economic progress. It exercises general supervision over air, land and water transportation, postal service and telecommunications.

Water Transportation Planning & Project Development Division of Transportation Planning Service is in charge of port related activities. Main functions of Water Transportation Planning & Project Development Division are as follows:

(1) Coordinates with Marine Industry Authority and the Philippine Ports Authority with regards to the plans and programs for the development of water transportation to draw up the integrated maritime transportation master plan for the country;
(2) Identifies and /or rationalizes water transportation needs and facilities in the country including maritime navigational facilities;
(3) Maintains liaison with other government and private offices/organizations related to water transportation particularly the local shipping firms to know their requirements and needs with regards to safety at the ports and waterways;
(4) Performs such other functions as may be assigned from time to time.

This division is a relatively new organization established in 1988 and has only around 10 staffs at present.

8.1.3 Functions and Organization of the PPA

In the past, port administration in the Philippines was merged with the traditional

functions of revenue collection of the Bureau of Customs and ports and harbors maintenance and construction was done by the Bureau of Public Works. However, according to the following needs, the Philippine Ports Authority was created in July 1974 under Presidential Decree (P.D.) No.505, subsequently amended by P.D.857 (Charter) on December 23, 1975:

(1) There was a need to integrate and coordinate port planning, development, control and operations at the national level.

(2) Regional port bodies that are responsive to the needs of their individual localities must be established.

(3) The peculiar potentials of harbors and their tributary areas have to be considered in port planning and development.

There was also additional background, namely,

(1) The Bureau of Customs proposed the creation of a separate government agency to integrate the functions of port operations and development/maintenance to enable the Bureau to concentrate on tax and customs duties collection.

(2) The World Bank, as a condition for the granting of a ports development loan in 1973, stipulated the creation of a Port Authority for their project ports.

The general objective of the Authority is to implement the State policy for the planning, development, financing, operation and maintenance of ports or port districts for the entire country. According to the Charter (P.D.857), the PPA has the following functions:

(1) To formulate in coordination with the National Economic and Development Authority (NEDA) a comprehensive and practicable Port Development Plan for the State and to administer its implementation, renew and update the same annually in coordination with other national agencies.

(2) To supervise, control, regulate, construct, maintain, operate and provide such facilities or services as are necessary in the ports vested in, or belonging to the Authority.

(3) To prescribe rules and regulations, procedures, and guidelines governing the establishment, construction, maintenance and operation of all other ports, including private ports in the country.

(4) To license, control, regulate, supervise any construction or structure within any Port District.

(5) To provide services (whether on its own, by contract, or otherwise) within the Port District and the approaches thereof, including but not limited to-

- berthing, towing, mooring, moving, slipping, or docking any vessel;
- loading or discharging any vessel;
- sorting, weighing, measuring, warehousing, or otherwise, handling goods.

(6) To exercise control or administer any foreshore rights or leases which may be vested in the Authority from time to time.

(7) To coordinate with the Bureau of Lands or any other government agency or corporation, in the development of any foreshore area.

(8) To control, regulate, and supervise pilotage and the conduct of pilots in any Port District.

(9) To provide or assist in the provision of training programs and training facilities for its staff, or staff of port operators and users for the efficient discharge of its functions, duties and responsibilities.

(10) To perform such acts or provide such services as may be deemed proper or necessary to carry out and implement the provisions of this decree, including the adoption of necessary measures to remedy congestion in any government port, and in coordination with the Bureau of Customs in the case of ports of entry.

The policy formation level is the PPA Board of Directors. The Board consists of the Secretary of Transportation and Communications as the Chairman and the PPA General Manager as Vice-Chairman. The other members are the Director-General of the National Economic and Development Authority, the Secretaries of Public Works of Highways, Finance, Trade and Industry, Natural Resources, the Administrator of MARINA and a representative of the private sector. The term of the Director from the private sector is three years and at present it is selected from a Philippine shipping line.

Policies are implemented by the General Manager as the Chief Executive Officer, assisted by three Offices, namely; Operations, Engineering and Finance, Legal Administration and Management, each headed by an Assistant Manager. (Figure 8-1 shows the Organization Chart of the PPA.) The General Manager and Assistant Managers are appointed by the President of the Philippines.

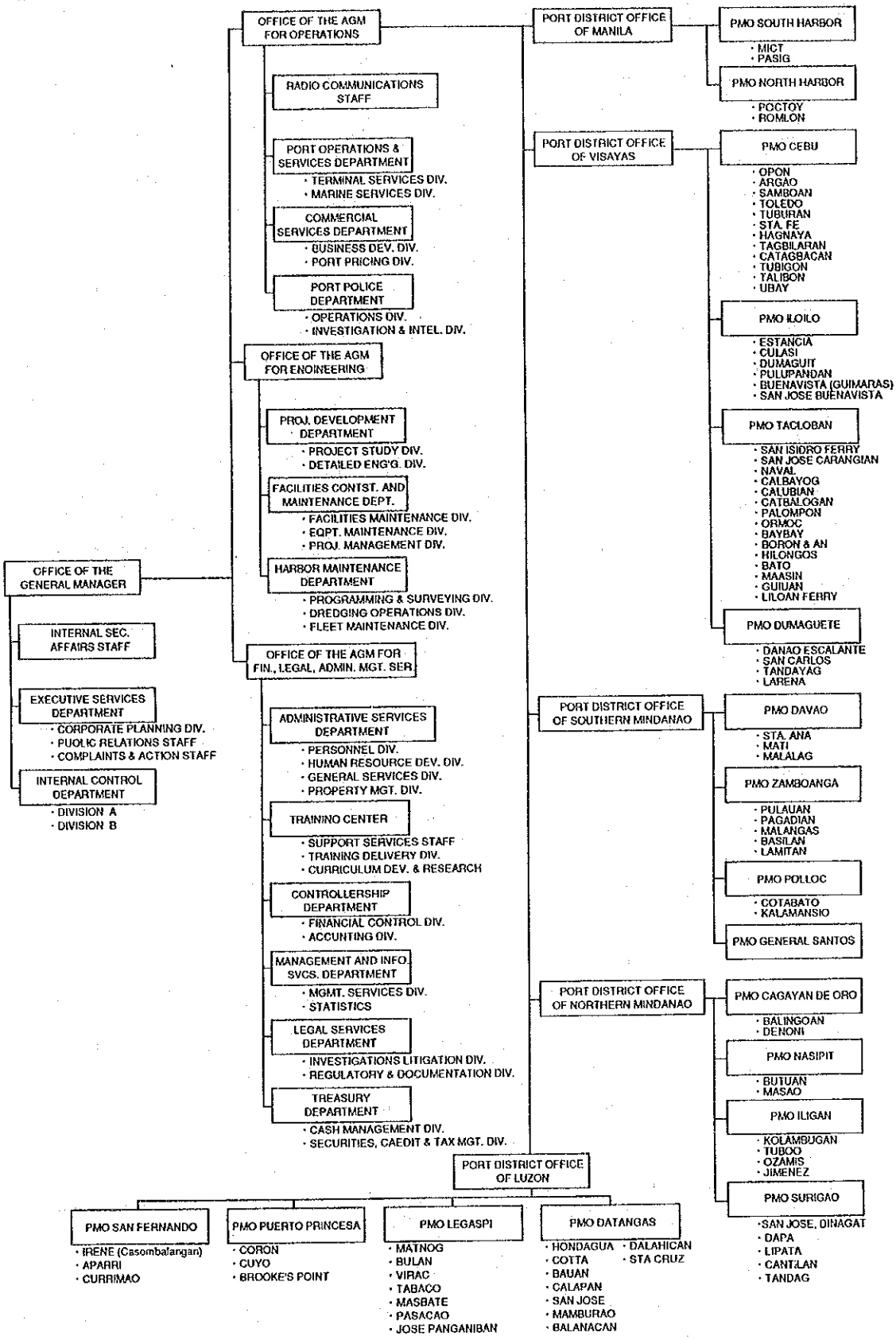
Under the office of the Assistant General Manager for Operations there are five Port District Offices (PDO). Under PDO there are 19 Port Management Offices (PMO). PMOs are established in each Base Port. They manage and operate the Base Port as well as control Terminal Ports and private ports under its jurisdiction.

As of April 20, 1994, the total number of PPA employees is 2311 which consists of 476 employees in the head office and 1835 employees in Port District Offices as

shown in Table 8-2.

Table 8-2 Number of Staff of the PPA as of April 1994

	Number
Head Office	
Office of the Corporate Board Secretary	4
Office of the General Manager	9
Executive Services Department	19
Internal Control Department	15
Office of the AGM-Operation (Proper)	11
Port Operations & Services Department	26
Commercial Services Department	27
Port Police Department	21
Office of the AGM-Eng'g Services (Proper)	6
Project Development Department	28
Facilities Construction & Maintenance Dep't	32
Harbor Maintenance Department	57
Office of the AGM-FLAMS (Proper)	6
Administrative Services Department	72
PPA Training Center	28
Controllership Department	41
Management & Information Services Department	35
Legal Services Department	20
Treasury Department	19
TOTAL Head Office Personnel	476
Port District Office-Luzon	36
PMOs San Fernando	58
Batangas	68
Legazpi	50
Puerto Prencesa	35
TOTAL Port District of Luzon	247
Port District Office-Manila	86
PMOs South Harbor	260
North Harbor	278
TOTAL Port District of Manila	624
TOTAL Port District of Visayas	406
TOTAL Port District of Northern Mindanao	229
TOTAL Port District of Southern Mindanao	329
TOTAL Port District Personnel	1,835
Grand Total	2,311



Note: This Chart is to be renewed after CPA's jurisdiction will be clarified.

Figure 8-1 Organization Chart of the PPA

8.2 Port Operations in Port of Manila

8.2.1 Manila South Harbor

(1) Vessel's Navigation

The navigation of vessels is under control of the Philippine Coast Guard (PCG), which was formerly an affiliate agency of the Department of National Defense (now it is in the process of becoming an affiliate of the DOTC). Pilotage service is compulsory in government and private wharves or piers except domestic vessels less than 100 GRT (It is now under examination to change compulsory piloting to vessels less than 500GRT). The PPA designates pilots from among those who pass a test of the PCG. The pilotage service is provided by Manila Harbor Pilots Association, which has about 30 pilots. Pilots embark outside the breakwater. Tugboat service is also compulsory for vessels more than 100GRT, which is provided by two private companies. Line handling service is provided by the cargo handling contractor. All these services are available around-the clock through the year.

(2) Berth Allocation

Berth allocation by the PPA is made on a public-use principle, basically, that is, a "first-come, first-served" basis. The PPA gives priority use as follows;

Priority 1: Passenger vessels and cargo vessels with perishable cargo

Priority 2: Naval vessels of foreign countries

Priority 3: Container vessels and general cargo vessels

The following guideline is used at present for berthing allotment in South Harbor taking into consideration the characteristics of each berth;

1) Pier 3 is mainly allotted to non-sustaining vessels such as container vessels.

2) Pier 5 is mainly allotted to general cargo vessels (after rehabilitation it is planned to be used for container vessels).

3) Pier 9 is mainly allotted to bulk cargo vessels (after rehabilitation it is planned to be used for general cargo vessels).

4) Pier 13 is mainly allotted to self-sustaining container vessels.

5) Pier 15 is mainly allotted to passenger and foreign naval vessels.

The port service division of the Port Management Office (PMO) of South Harbor, which consists of the terminal section and the marine section, is responsible for the actual port operations. The Harbor Master, the chief of the marine section, determines

where incoming vessels are to be docked. The terminal section supervises and coordinates the planning of vessel reception and all cargo handling operations.

The berthing procedures are as follows;

(Pre-arrival)

1) Shipping agent files Notice of Arrival and Application for Berth to the Harbor Master 48 hours in advance.

2) The Harbor Master conducts a Berthing Meeting with representatives of shipping agents, the cargo handling contractor to arrange daily berthing order. The meeting is held at 2:00 p.m. (at 10:00 a.m. on Sundays and Holidays) the day before the berths are used.

3) After consultations, the Harbor Master determines berth assignments including anchorages based on the estimated time of arrival, priorities, type of cargo and vessel characteristics.

4) The results are informed to Manila Harbor Pilots Association and the two private companies who provide tugboat service.

5) The cargo handling contractor prepares an integrated operations gang and equipment order by consulting the terminal section including preparation of storage space.

(Arrival)

6) The vessel stays at Quarantine for Quarantine clearance. After clearance from Quarantine, other parties board the vessel to finish formalities.

7) The pilot boards the vessel to guide the vessel to its designated berth with tugboat assistance.

8) Vessel docking under PPA supervision

(3) Cargo Handling

1) Operator

Cargo handling is operated by a private contractor based on a contract with the PPA. Until recently, stevedoring, arrastre and storage was performed by different companies based on each contract, that is, stevedoring was conducted by Ocean Terminal Services, Inc, arrastre by Marina Port Services,Inc and storage by 7-R Port Services,Inc. But since 1992, these three kinds of cargo handling services have been integrated by one contractor (Asian Terminals, INC.(ATI), formaly Marina Port Services,Inc). The contract term is 15 years. The contractor provides cargo handling operation and it can collect cargo handling charges based on the tariff rates provided by the contract. The contractor has to pay a fixed fee and variable fee (some fixed share of total gross

income). Cargo handling equipment is provided by the contractor. As for cargo handling efficiency, minimum production rates are determined in the contract.

2) Working Time

The working holidays of the Port are three days a year, Good Friday, Christmas and New Year's.

Cargo handling in South Harbor is carried out in two shifts; the day shift (from 7 a.m. to 7 p.m.) and the night shift (from 7 p.m. to 7 a.m.).

3) Operations

The existing stevedoring work is ordinarily conducted using ship gear in South Harbor except container handling at Pier 3 where two gantry cranes (tango crane) are used for loading and unloading. The present situation of the shore side cargo operations at South Harbor is as follows:

-General Cargo-

Mainly, imported general cargo is transferred using forklifts from the apron to transit sheds or open storage areas at the same pier (free storage period for import cargo is six days). After clearance of customs inception and completion of necessary formalities, the cargo is transferred outside the port area. Usually exported cargo does not use transit sheds, that is, it is stacked into containers in the CFS or other cargo such as steel or marble is once stacked in an open storage area (Free storage period for export cargo is five days).

-Container-

Imported containers are carried from the apron to the container yard by container chassis with prime movers. In the container yard top loader and tire-mounted transfer crane are used for handling containers and they are stacked 3-high and in two rows. Imported 20-foot containers and 40-foot containers have a separate container yard. Exported containers and empty containers are stacked on San Francisco Street and in Piers 3 and 5.

8.2.2 Manila North Harbor

(1) Vessel's Navigation

Vessel's navigation is the same as the South Harbor including pilotage service, tugboat service and line handling.

(2) Berth Allocation

In North Harbor each pier is mainly used by a specific shipping line, which runs regular domestic service for passenger/cargo connecting such as Cebu, Iloilo, Masbate and Cagayan de Oro. Therefore, as for berth allocation, it is based on a first-come first-served basis, however, vessels operated by specific shipping lines have priority to use their respective piers.

Shipping lines have to submit an application for berthing to the Harbor Master, the chief of marine section, 24 hours before arrival; the Harbor Master allocates the berth. There is no berthing meeting with shipping lines because each shipping line has priority to use the pier.

(3) Cargo Handling

1) Operators

Cargo handling is operated by three private contractors based on contracts with the PPA. Pier 2, 4 and 10 are operated by North Star Port Development Corp., pier 6, 12, 14 and 16 are by United Dockhandlers, Inc. and pier 8 is by Pier 8 Arrastre and Stevedoring Services. The contract period is 5 years (1992-1997). It is decided taking into consideration the privatization scheme of the terminal after the rehabilitation program will be completed. The contractors provide cargo handling operation using their equipment and they can collect cargo handling charges based on the tariff rates provided by the contract. They have to pay a fixed share of gross revenue to the PPA based on the contract.

2) Working Time

The working holidays and shifts of cargo handling are same as at South Harbor.

3) Operations

The existing stevedoring work is ordinarily conducted using ship gear. Though some part of cargo is directly brought into/taken out by consignees, most conventional cargo is once stored in a transit shed located in the same pier (free storage period is

two days). Most containers are once stacked in open storage areas and mainly carried to/from the apron by forklifts.

There are a lot of passenger ships and most passenger ships also carry containers and breakbulk cargo. Passengers, often heavily laden with baggage, arrive in taxis, jeepneys and private vehicles. The large number of passengers and vehicles cause considerable congestion which disrupts cargo handling operations.

8.2.3 Manila International Container Terminal

(1) Establishment of MICT

The Manila International Container Terminal (MICT) was opened in 1978 to cope with increasing containers. In pursuit of a more aggressive and innovative policy to implement free enterprise in the Port of Manila, the Board of Directors of the PPA approved in principle MICT's privatization in 1987. Prior to this, the role of the private sector in the ports was mainly relegated to cargo handling and other related services.

The PPA then publicized the Invitation to Bid and bids were subsequently submitted by seven groups. After thorough evaluation of the bids, the PPA Bidding Committee judged the International Container Terminal Services, Inc. (ICTSI) to be technically and financially the best. The PPA and ICTSI concluded a contract on 19 May 1988. The PPA turned over to ICTSI on 12 June 1988 the management and operations of MICT under a 25-year contract.

ICTSI is a consortium of Anscor Container Corporation (Anscorcon), E.Razon, Inc. (ERI), Sea-Land Orient Ltd.(SLO) and the Philippine Long Term Equity Fund. Anscorcon is a wholly-owned subsidiary of A. Soriano Corporation. The Soriano Group is one of the most prestigious business groups. ERI is also a domestic corporation organized primarily to engage in port terminal operation, stevedoring, container maintenance and general port management. SLO is a Hong Kong registered corporation involved in providing container terminal and marine operation service. It is a subsidiary of Sea-Land Services, Inc., a company registered in the United States of America.

(2) Outline of the contract between the PPA and ICTSI

1) Terms of Contract and Renewal

The terms of the contract is 25 years and it can be renewed or extend with approval by the Board of Directors of the PPA and the President of the Philippines.

2) Responsibility for Future Development and Maintenance of the Terminal

(a) ICTSI has to expand and develop the MICT, both on the land side and the harbor basin, on the basis of its submitted port development program at its own expense and account. The PPA controls and supervises the development.

(b) ICTSI has to undertake all maintenance dredging works necessary to ensure safe passage and berthing of vessels at the MICT berths, including harbor basin. Capital dredging activities has to be undertaken with prior approval of the PPA.

(c) ICTSI has to maintain the MICT at its own expense and account.

3) Fee

ICTSI has to pay fixed fee and variable fee. Variable fee is based on some percentage of gross revenue based on the contract.

4) Port Charges

ICTSI can collect harbor fees, berthing fees, wharfage, cargo handling charge and other related charges.

The rates of charges has to accord with the price policy and rate setting mechanism adopted by the PPA. ICTSI has to obtain permission in case of increase of tariff. At present, tariff rates of MICT are the same as the South Harbor.

5) Container Handling Productivity

ICTSI has to keep a minimum handling productivity of 25 containers per hour per crane during vessel operation.

(3) Vessel's Navigation

Pilotage service is provided by ICTSI directly, which has 10 pilots at present. Tugboat service (which is entrusted to a private company) and line handling service are also provided by ICTSI. These services are available around-the-clock throughout the year.

(4) Berth Allocation

Berth allocation by the ICTSI is also made on a public-use principle, that is, a "first-come, first-served" basis. ICTSI gives priority use to vessels which provide weekly regular service.

ICTSI holds a berthing meeting to arrange daily berthing allotment, including making arrangements for gangs and handling equipment at 14:00 on Mondays,

Wednesdays and Fridays. The members of the meeting are Harbor Master of MICT, planning officer of MICT and a representative of shipping agents.

(5) Cargo Handling

ICTSI carries out cargo handling directly.

1) Working Time

The working holidays are three days a year, Good Friday, Christmas and New Years.

Cargo handling is carried out in two shifts; the day shift (from 7 a.m. to 7 p.m.) and the night shift (from 7 p.m. to 7 a.m.). These are the same as South and North Harbor.

2) Formation of Gang

Boss	1
Wintchman	2
Laborers	11
Total	14

3) Operations

(a) Imported Containers

Discharging containers from vessels to chassis at apron is carried out using gantry cranes or ship gear. FCL containers are carried to stacking area (container yard) which is designated for each shipping line by using prime movers (6 prime movers are allotted per gang). Yard transfer cranes are used for operation in stacking yard. Some containers are carried to examination area to be examined by customs. After once being stacked in the stacking yard, they are carried to delivery area. Consignees receive containers at the delivery area. LCL containers are carried from apron to stacking yard near CFS (Container Freight Station) for stripping at CFS.

(b) Exported Containers

Exported containers are carried into export container yard which is designated for each shipping line and stacked. Upon a vessel's berthing, they are carried to apron by using chassis and prime movers. LCL containers are stacked at CFS and near CFS.

At present container operations are computerized.

8.3 Finances of the PPA

8.3.1 Tariffs of the PPA

The PPA charges on use of ports and port facilities.

Former port tariffs of the PPA were approved by the President of the Philippines on June 27, 1983. This amendment accompanied approval of port tariff increases by a total of 135% in 6 steps from August 1983 to October, 1985.

The two steps increases in port charge has bee approved last 2 March 1994. Tariffs of the PPA are classified into two categories : charges on vessels and charges on cargoes. These tariffs are shown in Table 8-3.

(1) Charges on Vessels

1) International Trade Vessels

Vessels engaged in foreign/international trade are charged harbor fee, berthing fee and anchorage fee.

A harbor fee is charged when they enter any port whether private or government based on GRT(a maximum of 50,000GRT is used). A berthing fee is charged when they berth at any port (at a private port the fee is one-half of the government one). An anchorage fee is charged when they do not berth but drop anchorage. It is one-half of the corresponding berthing fee.

2) Coastal Trade Vessels

Vessels engaged in coastal (domestic) trade that berth or drop anchor at any port whether government or private-owned are charged a port usage fee based on GRT. A lay up fee is charged when they lay up and anchor at any port. It is one-half of the applicable usage fee.

(2) Charges on cargoes

1) Wharfage

All cargoes coming from, going out or transshipped at a wharf are charged a wharfage fee for the use of facilities on the basis of Metric Ton or the total revenue tonnage (in case of containers it is based on size of containers). The wharfage at a private-owned wharf or at an anchorage area is one-half of the corresponding charge.

Table 8-3 Tariffs of the PPA

(1) Charges on Vessels

(Effective April 3, 1995)

	Kind of Charge	Tariff
1 International Trade Vessels		
(1) Entering Port	Port Dues	$0.074/GRT, Day (0.081)
(2) Use of Berth	Berthing Fee (Max.50,000GRT)	Government Port $0.036/GRT, Day (0.039) Private Port $0.018/GRT, Day (0.020)
(3) Drop of Anchor	Anchorage Fee (Max.50,000GRT)	$0.018/GRT, Day (0.020)
2 Coastal Trade Vessels		
(1) Berth or Drop Anchor	Port Usage Fee	Up to 6GRT: No Charge Up to 100GRT: P26.3/Day (30.10) Over 100GRT P0.263/GRT, Day (0.301)
(2) Lay up Fee	Lay up Fee	Up to 6GRT: No Charge Up to 100GRT: P13.15/Day (15.05) Over 100GRT: P0.132/GRT, Day (0.150)

(2) Charges on Cargo

		Wharfge Fee	Storage Fee
Foreign Cargo at Government Wharf	Non-Containerized		
	Import(1)Metric Ton	P33.85 (36.65)	
	(2)Revenue Ton	P28.20 (30.55)	P7.50/T, DAY
	Export(1)Metric Ton	P16.90 (18.35)	
	(2)Revenue Ton	P14.10 (15.25)	3.75/T, DAY
	Transhipment(1)Metric Ton	US$0.769 (0.833)	
	(2)Revenue Ton	US$0.641 (0.694)	US$0.171/T, DAY
	Containerized		
	Import 20ft	P479.40 (519.35)	P240.65/BOX, DAY
	Import 35ft	P606.30 (656.85)	P421.10/BOX, DAY
	Import 40ft	P719.10 (779.50)	P481.30/BOX, DAY
	Import 45ft	P846.00 (916.50)	P541.45/BOX, DAY
	Export 20ft	P239.70 (259.70)	P60.15/BOX, DAY
	Export 35ft	P304.55 (329.95)	P105.30/BOX, DAY
	Export 40ft	P360.95 (391.05)	P120.30/BOX, DAY
	Export 45ft	P423.00 (458.25)	P134.40/BOX, DAY
	Transhipment 20ft	US$11.02 (11.93)	US$5,47/BOX, DAY
	Transhipment 35ft	US$13.84 (14.99)	US$9.57/BOX, DAY
	Transhipment 40ft	US$16.40 (17.77)	US$10.94/BOX, DAY
	Transhipment 45ft	US$19.22 (20.83)	US$12.22/BOX, DAY
	Empty Containers	No Wharfage Fee	Same as Laden
Domestic Cargo at Government Wharf	Non-Containerized(1)Metric Ton	P2.75 (3.15)	
	(2)Revenue Ton	P2.30 (2.65)	P5.65/T, DAY
	Containerized		
	10ft or shorter	P18.40 (21.05)	P63.45/BOX, DAY
	20ft	P36.85 (42.10)	P180.50/BOX, DAY
	35ft	P46.05 (52.65)	P314.90/BOX, DAY
	40ft	P55.25 (63.15)	P360.95/BOX, DAY
	45ft	P64.50 (73.70)	
	Empty Containers	No Wharfage Fee	Same as Laden
Domestic/Foreign Handled at Private Wharf, Anchorage		1/2 of applicable Rates for Government Ports	

2) Storage Fee

A storage fee is charged on cargoes that remain in any government-owned port beyond the free storage period. The free storage period is as follows:

Imported Cargo:	6 days
Export Cargo:	5 days
Foreign Transshipment Cargo:	15 days
Domestic Cargo:	2 days

For those ports declared to be congested by the PPA Board of Directors, the storage fee after free storage period is escalated, though there is no port declared to be congested by the Board at present.

(3) Tariff revising

When the PPA would like to revise its tariff, the PPA has to obtain permission of the office of the President through the DOTC.

The Philippine Ports Authority implements starting April 3 this year the first of two steps of increases in port charges.

8.3.2 Finances of the PPA

(1) Profit and Loss Statements of the PPA

The Profit and Loss Statements of the PPA between 1988-1993 are shown in Table 8-4. As for revenues, share of wharfage revenue is over 30% of total port revenue; second largest revenue is fee from ICTSI. It grows rapidly year by year as container handling volume in the MICT is increasing. The revenue from ICTSI contributes to the financial statement of the PPA.

On the other hand, the individual PMOs also make financial reports such as Profit and Loss Statements and Balance Sheets, though the PMOs are not financially independent.

PMO South Harbor makes income of around 300 million pesos per year and the other two make around 100 million pesos. It can be said that these three ports and MICT account for almost all income of the PPA, though in calculation of these statements overhead costs of the PPA such as costs of head office are not included.

Table 8-4 Profit and Loss Statement of the PPA

(Unit Million Pesos)

	1988	1989	1990	1991	1992	1993
Port revenue						
Harbor Fee	64.65	79.57	77.83	83.47	85.59	97.93
Berthing Fee	80.77	96.33	105.96	96.63	98.62	107.43
Anchorage Fee	26.80	27.88	50.75	37.94	43.80	47.54
Port Usage Fee	43.53	51.26	54.19	54.75	54.10	58.30
Lay-up Fee	0.99	0.89	0.74	0.50	0.22	0.26
Wharfage	434.62	549.61	530.41	474.40	552.26	584.11
Storage Charges	9.64	11.60	53.67	57.53	68.55	78.58
Share on Arrastre/Stevedoring Income	231.47	247.87	286.34	271.54	323.81	358.39
Fee-ICTSI	120.43	141.81	280.81	377.12	399.88	436.40
Other Income	91.99	103.20	83.09	110.70	140.04	142.84
Total Operating Revenue	1104.89	1310.02	1523.79	1564.58	1766.87	1911.78
Operating Expenses						
Personnel Services	154.40	207.10	229.77	279.02	279.48	279.45
Rpair & Maintenance	57.15	87.72	100.27	119.84	95.86	92.58
Depreciation	252.12	253.53	282.47	337.69	429.95	437.02
Dredging Expenses	24.55	47.34	43.25	91.93	61.62	70.77
Other Administration Costs	69.80	104.14	121.82	182.92	269.64	256.65
Total Operating Expenditure	558.02	699.83	777.58	1011.40	1136.55	1136.47
Net Operating Income	546.87	610.19	746.21	553.18	630.32	775.31
Fund Management Income	73.86	96.46	133.81	167.26	170.61	130.39
Non Operating Expenses						
Interest on Loans	301.23	320.34	327.15	301.32	378.59	413.44
Other Expenses	5.87	5.31	195.03	164.02	26.70	74.17
Total Non Operating Exppenses	307.10	325.65	522.18	465.34	405.29	487.61
Net Income	313.63	381.00	357.84	255.10	395.64	418.09

(2) Balance Sheets of the PPA

The Balance Sheets of the PPA between 1988-1993 are shown in Table 8-5. Fixed assets increased by about 163% over the past 6 years. On the other hand, Long-Term Liabilities increased by only 34% over the same period. As a result total net worth increased about 208%.

Table 8-5 Balance Sheet of the PPA

(Unit Million Pesos)

	1988	1989	1990	1991	1992	1993
(ASSETS)						
Current Assets	1380.22	1604.18	1884.53	1965.17	2090.80	2138.43
Fixed Assets						
Land	1290.81	1500.89	2496.06	5763.18	9016.43	9021.87
Construction in Progress	1064.59	1096.06	1259.10	1548.21	1838.51	2270.35
Depreciable Assets	7958.26	8129.16	9124.33	12927.46	13510.10	14234.25
Less: Accum. Depreciation	2880.89	3138.27	3408.15	5048.43	5492.36	5945.22
Total Fixed Assets	7432.77	7587.84	9471.34	15190.42	18872.68	19581.25
Other Assets	77.17	92.73	493.10	353.97	396.75	435.16
Total Assets	8890.16	9284.75	11848.97	17509.56	21360.23	22154.84
(LIABILITIES & NE WORTH)						
Current Liabilities	268.22	354.16	454.58	750.08	1103.44	1363.13
Long-Term Liabilities	3295.55	3407.98	4329.53	4163.13	3932.52	4406.90
Total Liabilities	3563.77	3762.14	4784.11	4913.21	5035.96	5770.03
Net Worth						
Retained Earnings	1509.74	1888.17	2183.85	2454.92	2742.98	2958.21
Other Net Worth	3816.65	3634.44	4881.01	10141.43	13581.29	13426.60
Total Net Worth	5326.39	5522.61	7064.86	12596.35	16324.27	16384.81
TOTALS LIABILITIES & NET WORTH	8890.16	9284.75	11848.97	17509.56	21360.23	22154.84

Long-Term Liabilities from foreign banks at the end of 1993 are as follows:

	(Mil.Pesos)
ADB-126-PHI	62.72
ADB-412-ICT/DCT	307.00
ADB-875	604.21
IBRD-1855	695.59
IBRD-2823	696.78
IBRD-939	59.95
IBRD-1048	56.11
OECF-PH-P20	454.00
OECF-PH-P20-2	798.73
OECF-PH-P40	304.92
OECF-PH-P61	40.51
OECF-PH-P91	41.97
OECF-PH-P84	15.23
OECF-PH-P122	1.48
KFW AL-644	76.13
KFW 1 & 2	191.57
Total	4,406.90

(3) Financial Situation of the PPA

1) Profitability

Rate on Return on Net Fixed Assets

$$\frac{\text{Net Income}}{\text{Net Fixed Assets}} \times 100\%$$

The rate on fixed assets shows the profitability from fixed assets invested. The rate must exceed the average interest rate of the funds at least. It is desirable that they exceed 7%.

2) Operational Efficiency

Operating Ratio

$$\frac{\text{Operating Expense}}{\text{Operating Revenue}} \times 100\%$$

Working Ratio

$$\frac{\text{Operating Expense} - \text{Depreciation}}{\text{Operating Revenue}} \times 100\%$$

The operating ratio shows the operational efficiency of the organization as an enterprise, and the working ratio shows the efficiency of the routine operations of the port. When the calculated operating ratios are less than 70-75%, and the working ratios are less than 50-60%, the operations can be judged efficient.

These financial indicators of the PPA between 1988 and 1993 are shown in Table 8-6. The rates of return on net fixed assets do not reach the preferable level. On the other hand, both the operating ratio and the working ratio reach the preferable level during these 6 years.

Table 8-6 Financial Indicators of the PPA

(Unit Million Pesos)

	1988	1989	1990	1991	1992	1993
Rate of Return on Net Fixed Assets	4.22%	5.02%	3.78%	1.68%	2.10%	2.14%
Operating Ratio	50.50%	53.42%	51.03%	64.64%	64.33%	59.45%
Working Ratio	27.69%	34.07%	32.49%	43.06%	39.99%	36.59%

CHAPTER 9 ENVIRONMENTAL CONDITIONS

9.1 Rules and Regulations on Environmental Preservation in the Philippines

9.1.1 Organization

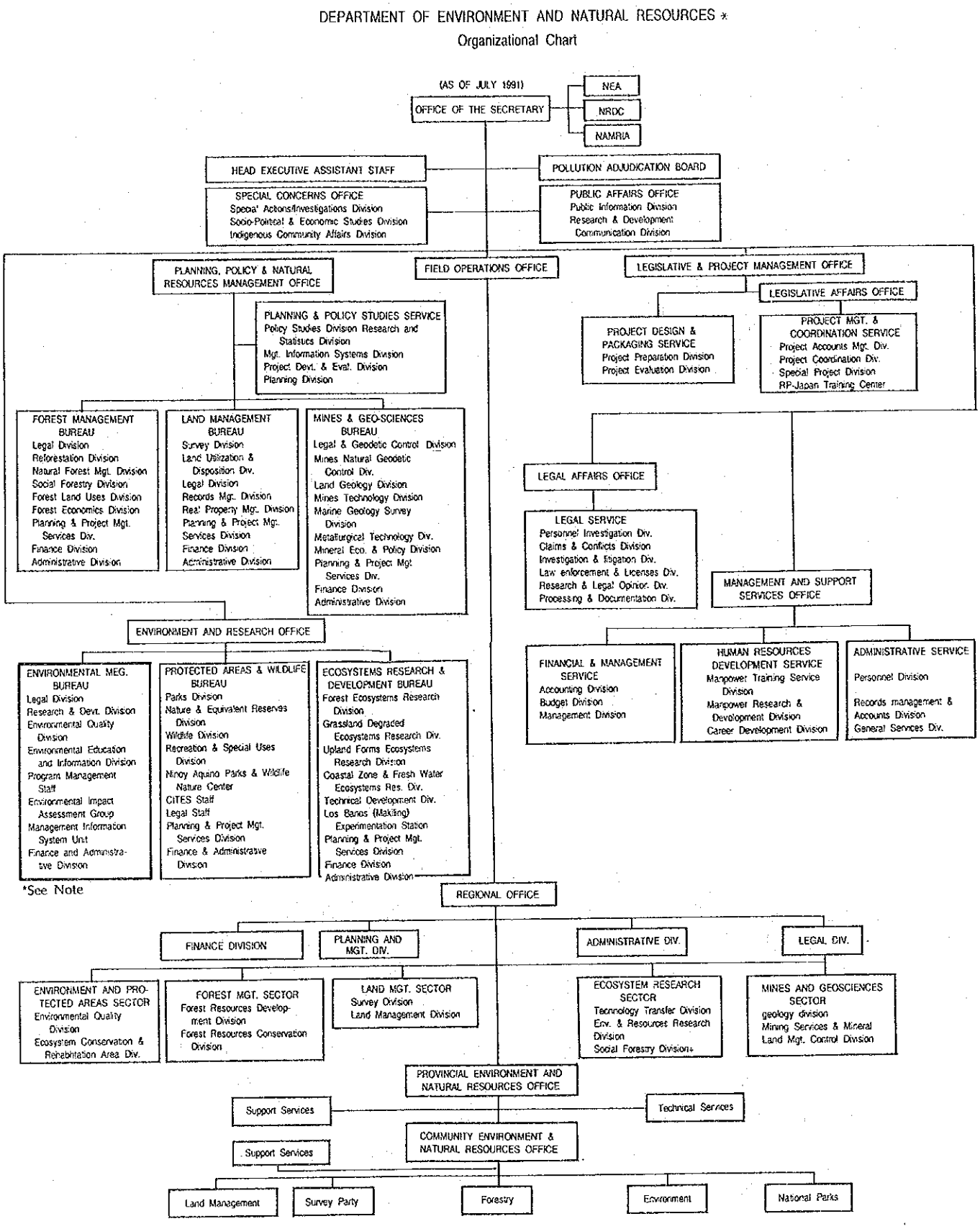
In the Philippines, the issues of Environmental Assessment are conducted by the Environmental Management Bureau (EMB) of the Department of Environment and Natural Resources (DENR) and DENR Regional Office. This organization checks the significance of the effects of physical developments on the quality of the environment. First determination is whether the project is within the purview of the Environmental Impact Statement (EIS) System. After that they start conducting the review and evaluation of the EIS or the Project Description (PD) submitted by the project proponent, and they are also responsible for processing EIS documents. If necessary, they hold the EIS Review Committee or Public Hearing. Finally they approve or deny issuance of the Environmental Compliance Certificate (ECC) for EIS or PD documents.

Therefore the project proponent cannot commence construction-work without the ECC under the EIS System.

The EMB consists of four (4) divisions with one hundred and sixty (160) personnel. Each division has several sections such as Environmental Assessment Section, Air Quality Section, Water Quality Section, etc. belonging to the Environment Quality Division. The EMB also has a Hearing Section.

The organizational chart of DENR is shown in Figure 9-1, while the organizational chart of the EMB is shown in Figure 9-2. And the procedural flow of EIS System is shown in Figure 9-3.

According to the DENR Administrative Order No 21, the definition of the EIS System is that the entire process of organization, administration and procedure is institutionalized for the purpose of assessing the significance of the effects of physical developments on the quality of the environment.



Note: The detailed organization of EMB is shown in Figure 9.2.

Figure 9-1 Organization Chart of DENR

EMB Organizational Structure

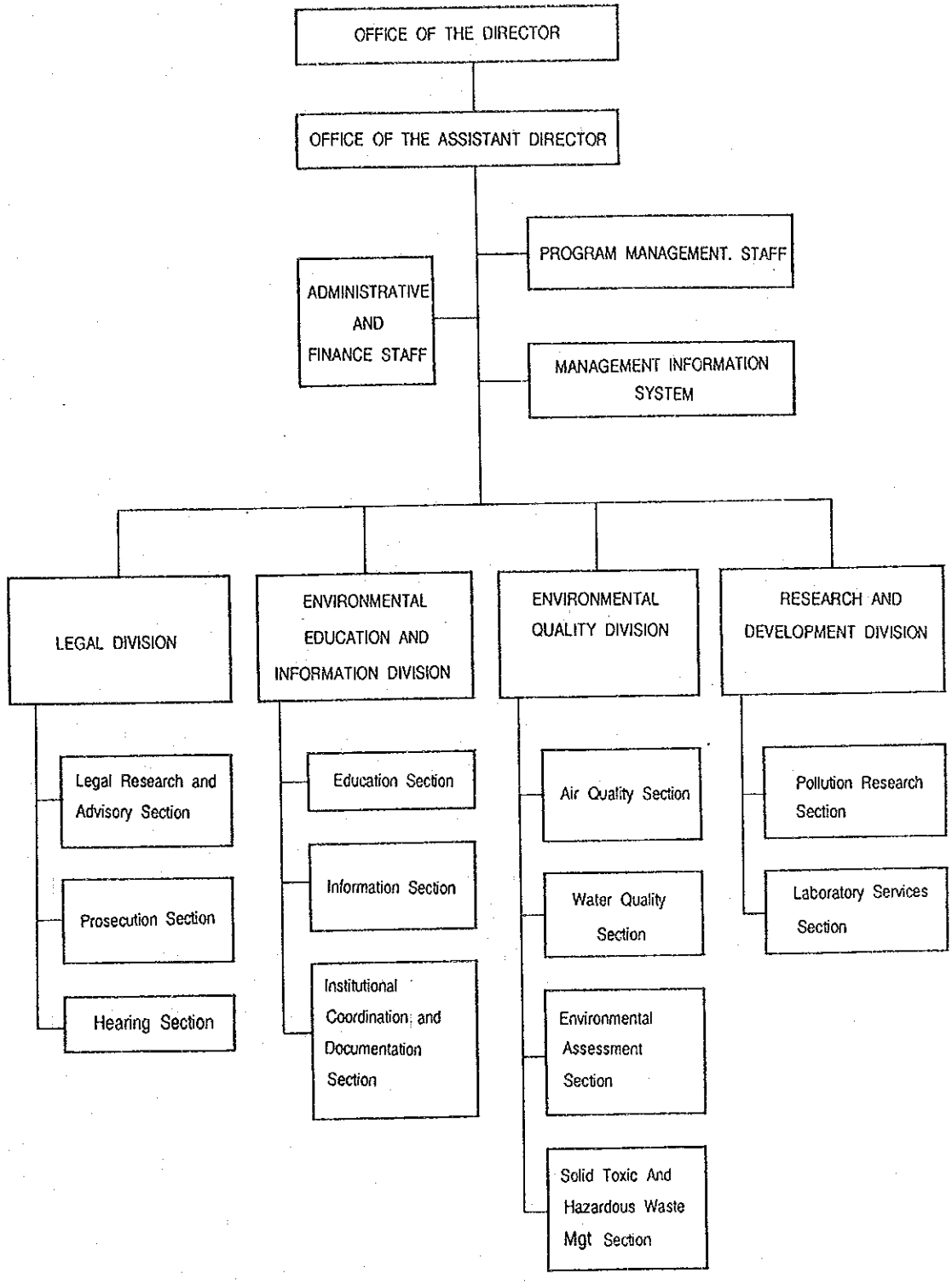


Figure 9-2 Organization Structure of EMB

Environmental Impact Statement System

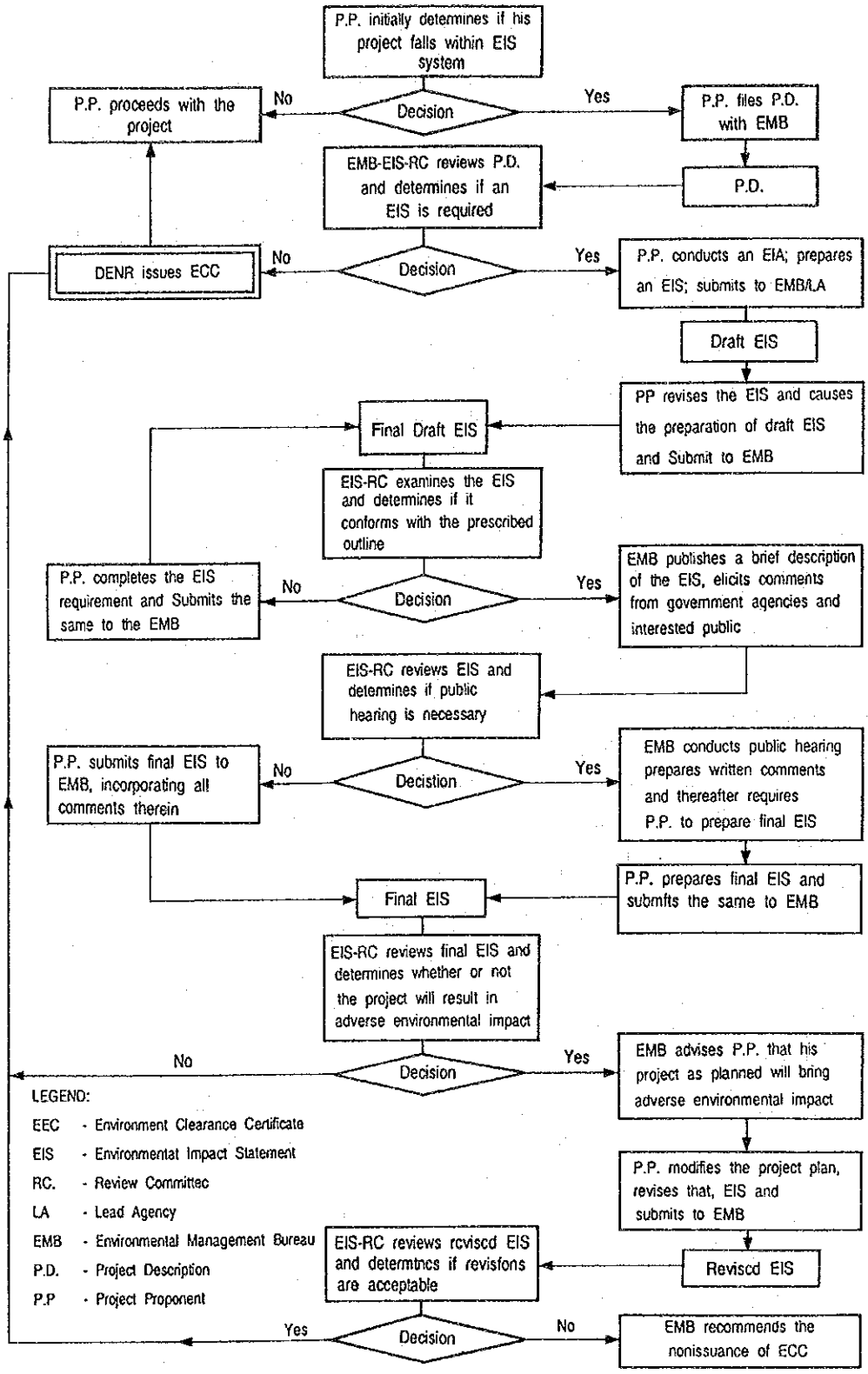


Figure 9-3 Procedural Flow

9.1.2 Screening of Projects

In the Philippines, the Environmental Impact Assessment (EIA) is legally based on Presidential Decree No. 1151 issued in 1977. This Decree No.1151 mandates all agencies and instrumentalities of the national government, including government-owned or controlled corporations, as well as private corporations, firms and entities to prepare environmental impact assessments for any project or undertaking which significantly affects the quality of the environment.

Presidential Decree 1586, issued in 1978, established the EIS System and defines its scope which covers environmentally critical projects (ECP) and environmentally critical areas (ECA).

According to the amendment to the Revised Rules and Regulations Implementing P.D. 1586 (DENR Administrative Order No.21, Series of 1992), the projects that fall within the purview of the EIS System are as follows:

(1) Environmentally Critical Project (ECP)
   a. Heavy Industry
   b. Resource Extractive Industries
   c. Infrastructure Project
      Dam
      Power Plant
      Reclamation
      Road/Bridges

(2) Environmentally Critical Areas (ECA)
   a. National Park
   b. Tourist Park
   c. Area with threatened species/indigenous wildlife
   d. Historic/Scientific Area
   e. Areas Occupied by Cultural Communities
   f. Areas Hard-hit by Natural Calamities
   g. Areas with Critical Slop
   h. Areas classified as Prime Agricultural Land
   i. Recharged areas of Aquifers
   j. Waterbodies (declared area by appropriate authorities like marine turtle

and fish sanctuaries)

k. Mangrove areas

l. Coral Reefs

If the proposed project falls within above ECP or ECA, the proponent must submit an Environmental Impact Statement (EIS) to EMB or Project Description (PD) to DENR Regional Office respectively.

9.1.3 Items of Prediction and Assessment of Environmental Impact

According to the outline of the Environmental Impact Statement (EIS), the prediction and assessment of impacts is required at all stages of the project cycle; pre-construction, construction, operation and abandonment phases. Further more, the future environmental conditions in the case that the project would not be implemented must be ascertained (five(5) year projection, on average).

While the outline of Project Description (PD) is needed to be filled up the Environmental Impact Matrix instead of prediction and assessment of environmental impacts.

The items of the future environmental conditions without the project are levels of atmospheric pollutants, quality and quantity of water, and socio-economic conditions etc.

On the other hand, the environment-related items must be examined for EIS are as follows:

(1) Physical/Chemical Effects

a. Water

Surface Water

Ground Water

b. Atmosphere

Air Characteristic

Wind

Inversion

(2) Ecological Effects

a. Terrestrial Species

Vegetation

Wildlife

b. Aquatic Species and Habitats

(3) Aesthetic Effects

a. Land

b. Atmosphere

c. Water

d. Flora and Fauna

e. Man-made Object

f. Composition

(4) Socio-economic Effects

a. Demography

b. Manpower

c. Transportation

d. Housing and Community Infrastructure

e. Education, Health and Safety and Social Services

f. Lifestyle

On the other hand, the Scoping Guideline for the Environmental Impact Assessment at Ports and Harbors has been examined in the Philippines. This Draft Guideline describes several items of environmental impacts of construction and operation at the port and harbor. The items of environmental impacts are as follows:

(1) Impacts on Coastal Marine Ecology

a. Loss of Fisheries Resources
by removal, dredging spoil dumping, oil spills, leakages within harbors

b. Damage to Marine Corals etc.

c. Displacement of Fishermen Families

(2) Impacts on Coastal Hydrology

a. Erosion of Nearby Beaches and Coastal Areas

b. Deposition on Nearby Beaches and Coastal Areas

(3) Impacts on Sanitation Conditions within Harbor

a. Insanitary or Unacceptable Harbor Environment

b. Floatables, Oil Defouling, Bilge or Other Discharges from Ships and Harbor Facilities

c. Dust Emissions

(4) Impacts on Recreational/Resort/Beach Use
   a. Increase in Visible Turbidity or Discoloration
   b. Silt Deposition along Shoreline
   c. Visible Floatable Wastes
   d. Oil Film on Water or Beach
   e. Pathogen Contamination of Beach Waters

(5) Impacts on Land Use and Infrastructure
   a. Displacement of Villages and Agriculture Land Uses
   b. Intensification of Urbanization
   c. Traffic Congestion and Related Pollution
   d. Increased Noise from Harbor Activities, especially at night
   e. Demands on Water Supply and Liquid and Solid Waste Disposal

(6) Impacts on Health and Socio-economic Aspects
   a. Hazardous Material Spills, Fires and Explosions
   b. Inadequate Housing for New Population
   c. Inadequate Water Supply and Sanitation for Workers
   d. Potential for Creating Slums
   e. Changes in Land Values

9.1.4 Standards of Water and Air Quality

There are many excellent shore lines, landscapes, national parks, mangroves and others in the Philippines. Thus, the Study Team must take into consideration environmental aspects under the EIS system of the Philippines.

It is necessary to grasp the standards of environmental items in order to conduct an Initial Environmental Examination (IEE) and Environmental Impact Assessment (EIA) for a port development plan in the future stage.

The air quality and the water quality are described in the Environmental Impact Assessment Handbook (November 1983) and in Revised Water Usage and Classification Water Quality Criteria Amending Section Nos:68 and 69, Chapter III of the 1978 NPCC Rules and Regulations (DENR ADMINISTRATIVE ORDER NO. 34) respectively. Quality standards are shown in Table 9-1 and 9-2 (a), (b).

Table 9-1 National Ambient Air Quality Standards

Pollutant Total	Concentration Micrograms/scm	PPM	Exposure Time Hours
Suspended Particulate matter	180	-	24
	250	-	1
Sulfur Dioxide	369	0.14	24
	850	0.30	1
Photochemical Oxidants	120	0.06	1
Nitrogen Dioxide	190	0.10	1
Carbon Monoxide	10	9.00	8
	35	30.00	1

Source: Rules & Regulations of the National Pollution Control Commission (1973), Section 62, Table 2 - National Ambient Air Quality Standards (maximum limiting levels not to be exceeded more than once a year).

Table 9-2(a) Water Quality Criteria For Conventional And Other Pollutant Affecting Aesthetics And Exerting Oxygen Demand For Coastal And Marine Waters.

PARAMETER	UNIT	CLASS SA	CLASS SB	CLASS SC	CLASS SD
Color	PCU	(c)	(c)	(c)	(c)
Temperature[d] (max. rise in degree Celsius)	℃ nise	3	3	3	3
pH(range)		6.5-8.5	6.0-8.5	6.0-8.5	6.0-9.0
Dissolved Oxygen[e] (Minimum)	% satn	70	70	70	50
	mg/L	5.0	5.0	5.0	
5-Day 20℃ BOD	mg/L	3	5	7(10)	--
Total Suspended Solids	mg/L	(f)	(g)	(g)	(h)
Surfactants (MBAS)	mg/L	0.2	0.3	0.5	--
Oil/Grease (Petroleum Ether Extract)	mg/L	1	2	3	5
Phenolic Substances as Phenols	mg/L	nil	0.01	(l)	--
Total Coliforms	MPN/ 100mL	70[m]	1,000[m]	5,000[m]	--
Fecal Coliforms	MPN/ 100mL	nil	200[m]	--	--
Copper:	mg/L	--	0.02[n][o]	0.05[o]	--

Source: DENR ADMINISTRATIVE ORDER NO.34

Table 9-2(b) Water Quality Criteria For Toxic And Other Deleterious Substances For Coastal And Marine Waters (For the protection of Public Health)

PARAMETER	UNIT	CLASS SA	CLASS SB	CLASS SC	CLASS SD
Arsenic[i]	mg/L	0.05	0.05	0.05	--
Cadmium[i]	mg/L	0.01	0.01	0.01	--
Chromium[i] (hexavalent)	mg/L	0.05	0.1	0.1	--
Cyanide	mg/L	0.05	0.05	0.05	--
Lead[i]	mg/L	0.05	0.05	0.05	--
Total Mercury[i]	mg/L	0.002	0.002	0.002	--
Organophosphate	mg/L	nil	nil	nil	--
Aldrin	mg/L	0.001	--	--	--
DDT	mg/L	0.05	--	--	--
Dieldrin	mg/L	0.001	--	--	--
Heptachlor	mg/L	nil	--	--	--
Lindane	mg/L	0.004	--	--	--
Toxaphanc	mg/L	0.005	--	--	--
Methoxychlor	mg/L	0.10	--	--	--
Chlordane	mg/L	0.003	--	--	--
Endrin	mg/L	nil	--	--	--
PCB	mg/L	0.001	--	--	--

Source: DENR ADMINISTRATIVE ORDER NO.34

Remarks:

Class SA
1) Waters suitable for the propagation, survival and harvesting of shellfish for commercial purposes;
2) Tourist zones and national marine parks and reserves established under Presidential Proclamation No. 1301; existing laws and/or declared as such by appropriate government agency.
3) Coral reef parks and reserves designated by law and concerned authorities.

Class SB
1) Recreational Water Class I (Areas regularly used by the public for bathing, swimming, skin diving, etc.;
2) Fishery Water Class I (Spawning areas for Chanos changos or "Bangus" and similar species).

Class SC
1) Recreational Water Class II (e.g. boating, etc.);
2) Fishery Water Class II (Commercial and sustenance fishing);
3) Marshy and/or mangrove areas declared as fish and wildlife sanctuaries;

Class SD
1) Industrial Water Supply Class II (e.g. cooling, etc.);
2) Other coastal and marine waters, by their quality, belong to this classification.

9.2 Present Environmental Condition

In the Philippines, the environmental problem is one of the most serious issues such as the increasing number of vehicles, sewage from houses and factories which contribute to air pollution, the water pollution and the noise problem. For example, the offensive odor around the Smokey Mountain nearby North Harbor which is a disposal site for the Metro Manila's waste is considerably strong.

9.2.1 Seawater Quality

According to the report of the Manila Bay Monitoring Program Part II (Final Report, 1991, EMB), the seawater quality had been investigated annually from 1984 to 1991 at ten (10) points in the Manila Bay. (However, the report says that the available data is only from July 1989 to February 1991.)

The Dissolved Oxygen (DO) at Point Nos. 3, 5 and 6 satisfy the Water Quality Criteria (Minimum 5.0 mg/1). But the DO at Point No. 1 does not meet the said Criteria. On the other hand, the PH generally satisfies the Water Quality Criteria (Class SB, SC 6.0 ~ 8.5) at all Points. (see Table 9-3)

Table 9-4 shows the result of the test of PH and DO at the Port of Manila (North Harbor, MICT, South Harbor) and offshore of Maragondon Point (Naic/Cavite) conducted by the Study Team, December 1993.

The PH and DO at all Points (8 Points) satisfy the Water Quality Criteria. But the water quality outside of the break water is clearly better than inside at North Harbor because there is more dissolved oxygen. The water quality of Maragondon Point is best because there is approximately two(2) times more dissolved oxygen.

Table 9-3 Present Seawater Quality of Manila Bay

		Point									
		1	2	3	4	5	6	7	8	9	10
Dissolved Oxygen (mg/l)	Upper	3.5	11.0	9.5	7.6	10.0	8.2	7.2	7.5	7.9	7.1
	Middle	3.0	5.5	---	---	7.3	6.7	5.3	---	6.6	4.9
	Lower	2.5	1.9	5.3	4.8	5.0	5.2	4.8	3.4	1.8	5.1
PH		8.8	8.8	8.7	8.7	8.7	8.7	8.7	8.6	8.6	8.6

Source: EMB, February 1991
Note : The location of sampling station is shown in Fig. 9-4

Table 9-4 Present Seawater Quality of Port of Manila and Maragondon Point

		Point							
		Port of Manila							Marag-ondon
		South Harbor			North Harbor			MICT	
		1	2	3	4	5	6	7	8
Dissolved Oxygen (mg/l)	Upper	7.4	9.9	11.3	8.0	9.0	10.9	10.2	26.0
	Middle	10.1	6.6	14.4	9.0	8.8	8.2	10.1	---
	Lower	8.3	8.9	30.5	9.6	8.4	---	11.2	---
PH		8.2	8.1	7.8	7.8	7.8	7.8	7.9	8.2

Source: The Study Team, December 1993
Note : The location of sampling station is shown in Fig. 9-5

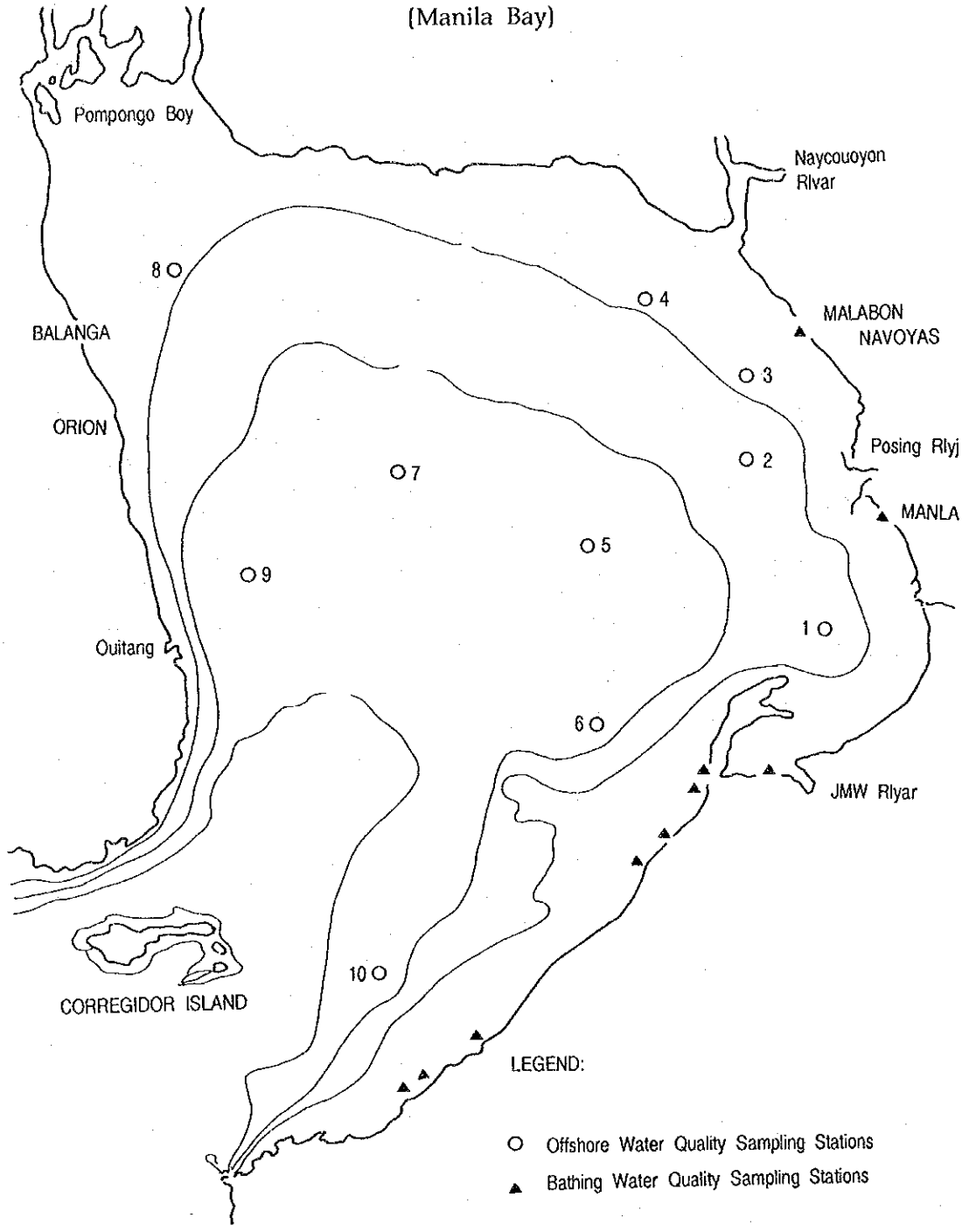


Figure 9-4 Location of Sampling Stations (Manila Bay)

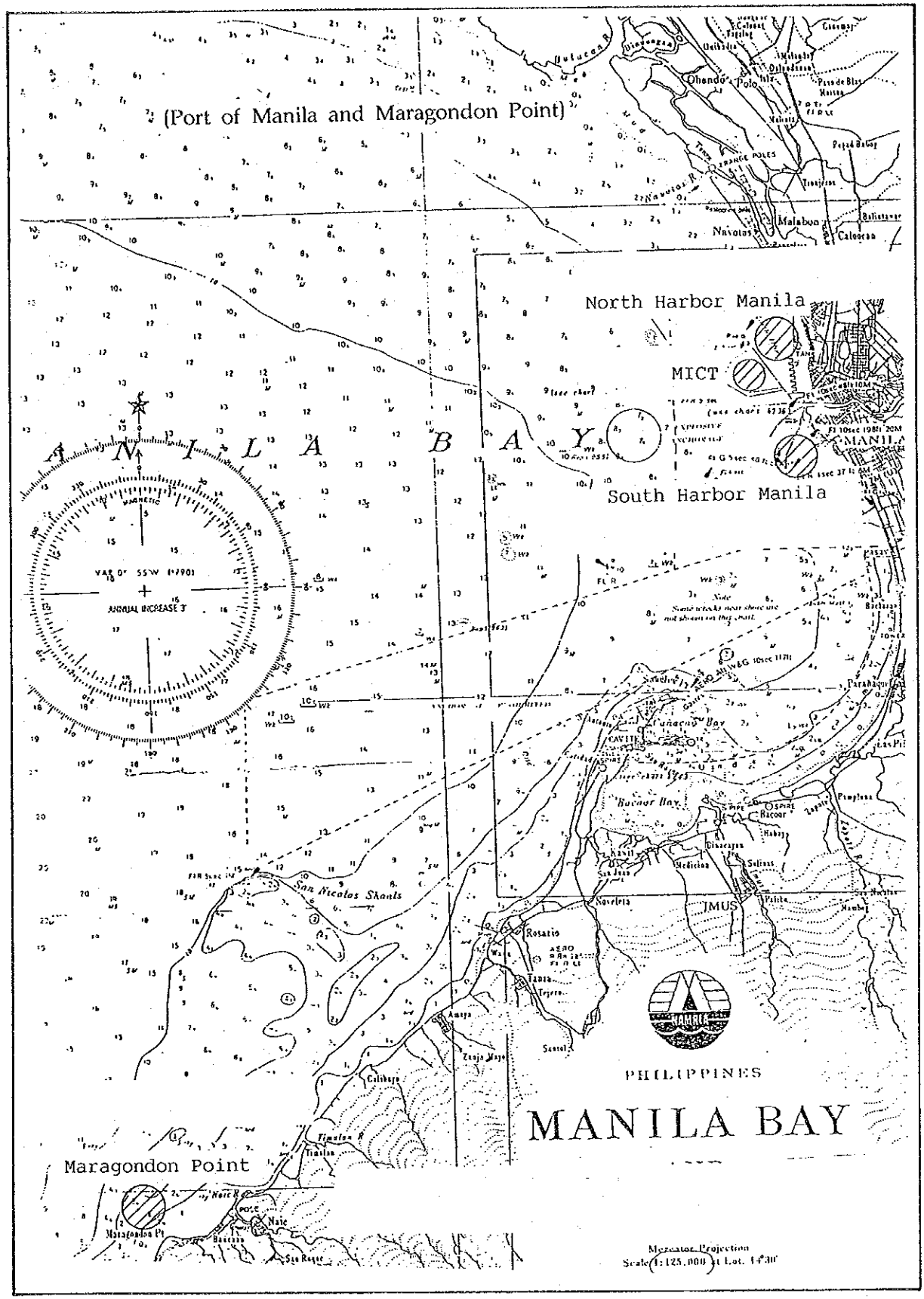


Figure 9-5 Location of Sampling Station (Port of Manila and Maragondon Point)

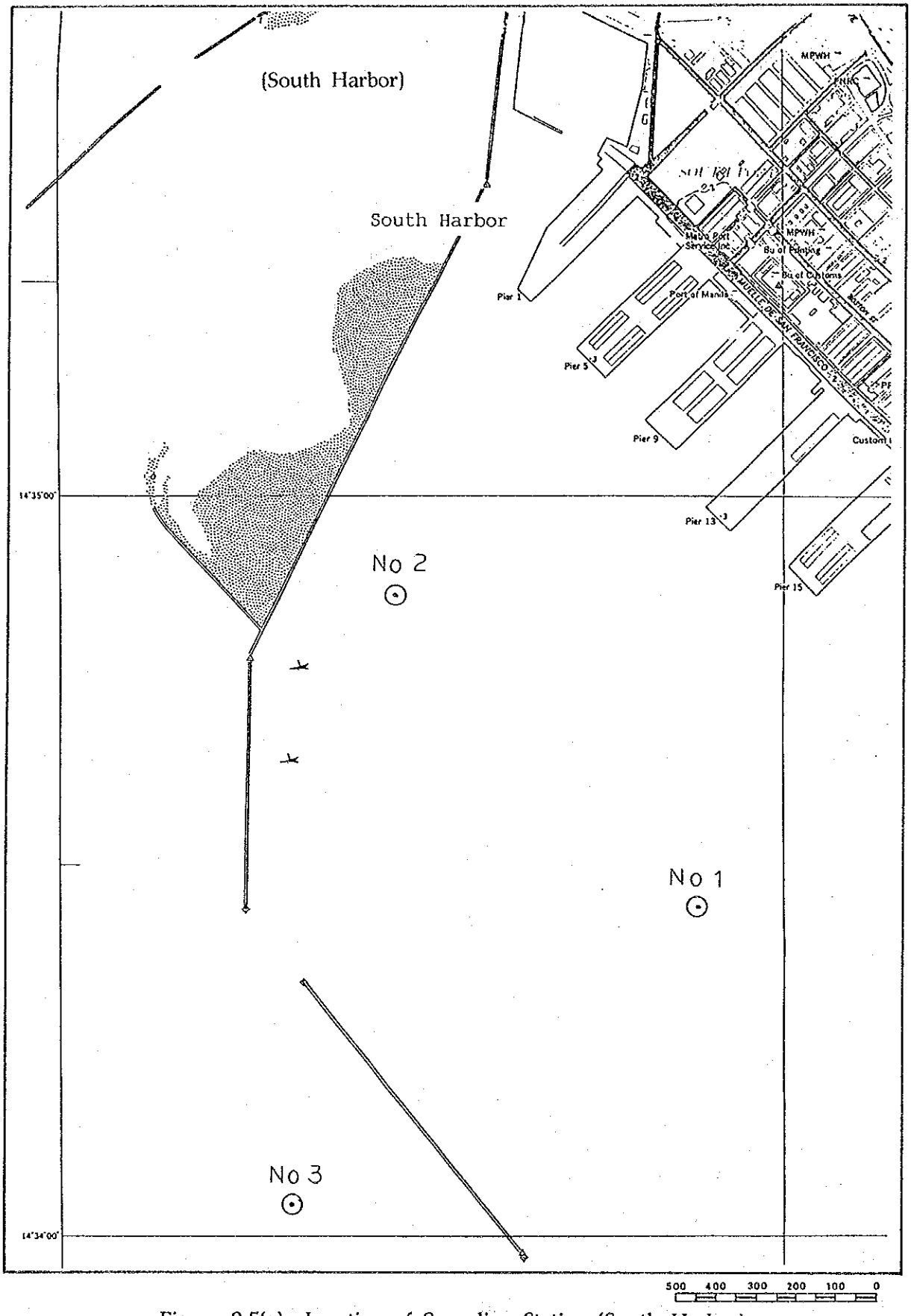


Figure 9-5(a) Location of Sampling Station (South Harbor)

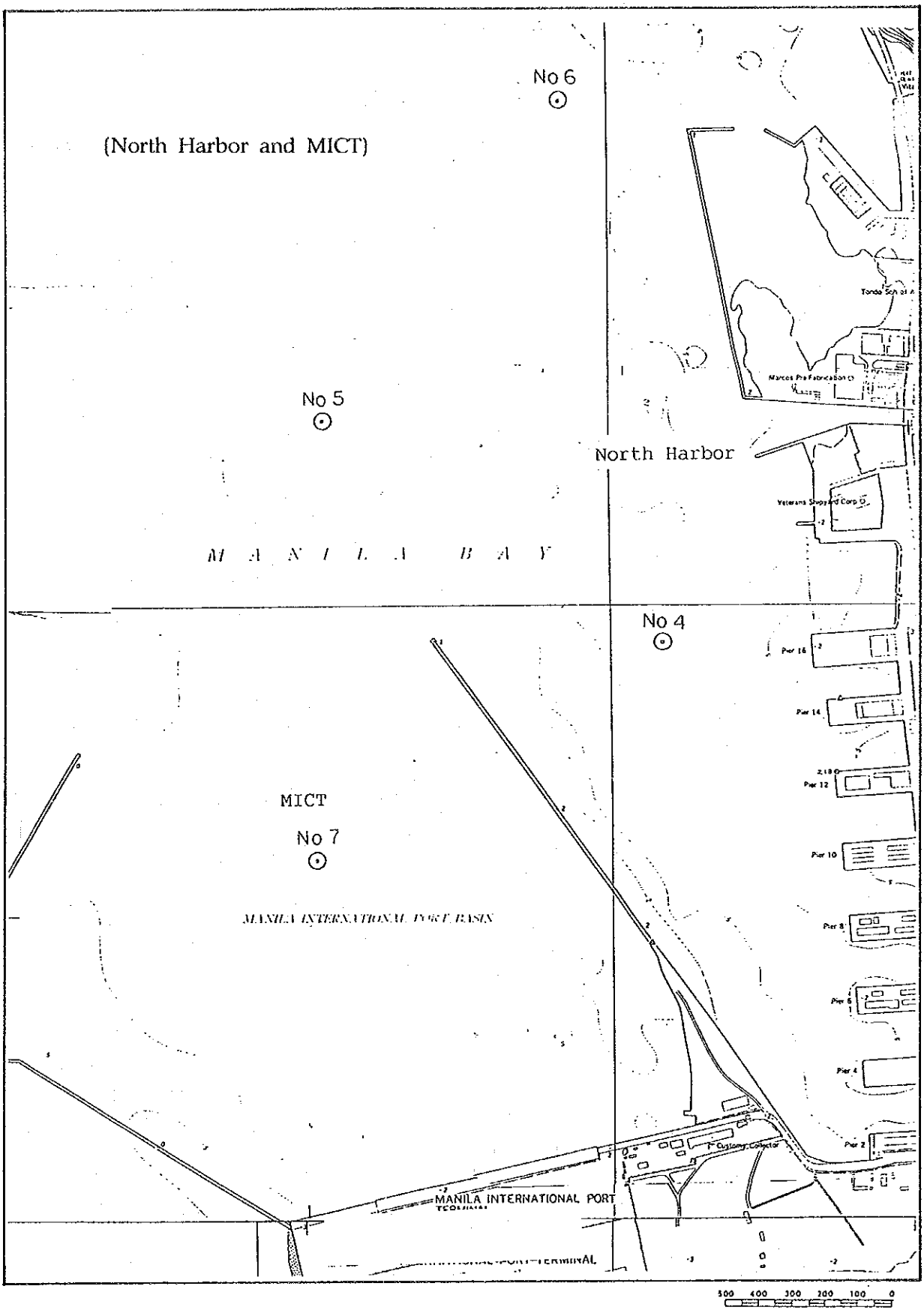


Figure 9-5(b) Location of Sampling Station (North Harbor and MICT)

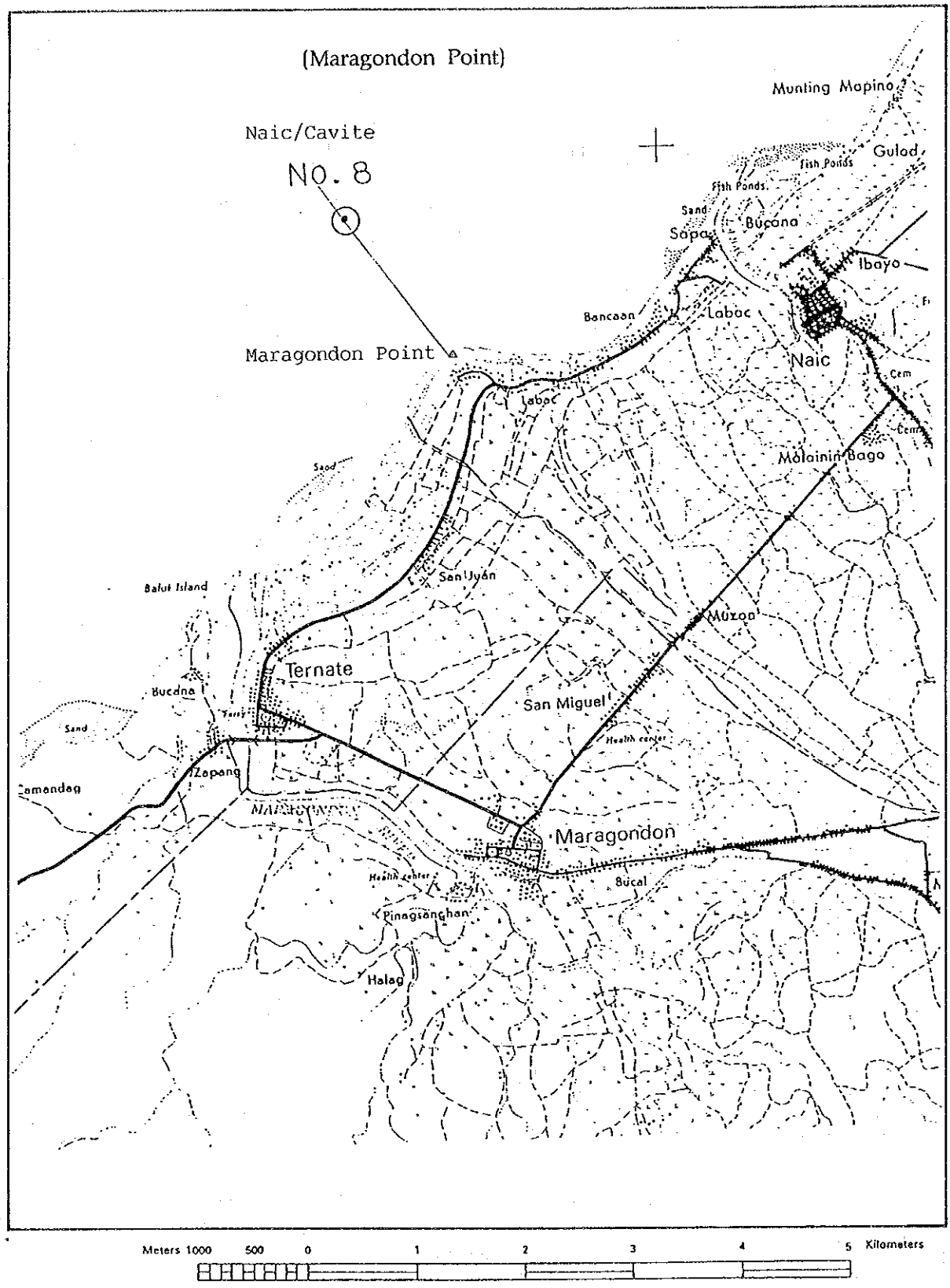


Figure 9-5(c) Location of Sampling Station (Maragondon Point)

9.2.2 Air Quality

According to the Annual Report in 1992 (Air Quality Monitoring Section, D.E.N.R. Region Office IV), the air quality has been investigated from 1988 at eight (8) points in Metro Manila.

Figure 9-6 shows that the highest SO2 average concentration is in Ermita (0.013 ppm) and the lowest is in Quezon City (0.006 ppm). (The location of monitoring stations is shown in Figure 9-7)

All of the monitored values at these eight (8) points in Metro Manila satisfy the air quality standards (0.14 ppm per 24 hrs.)

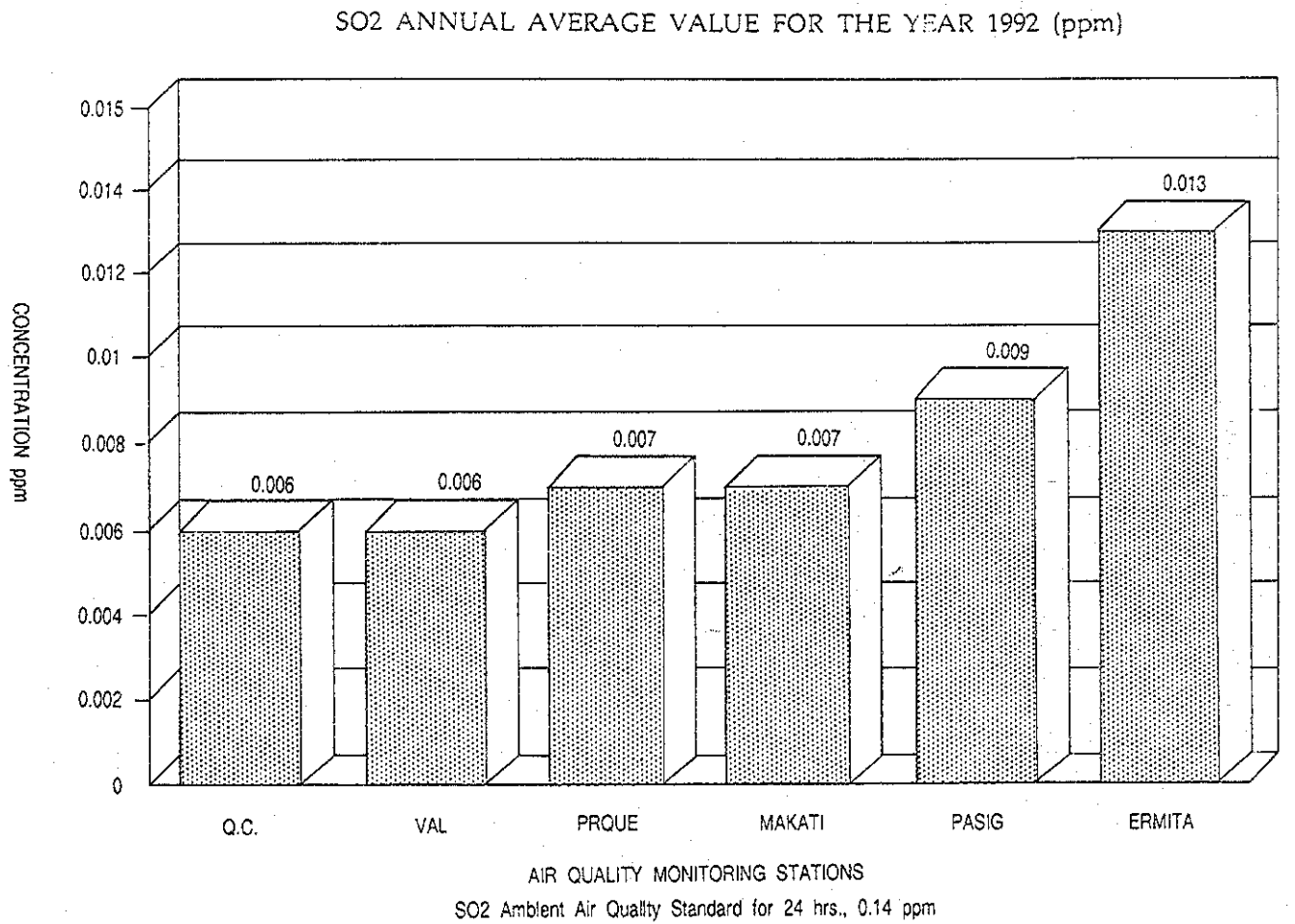
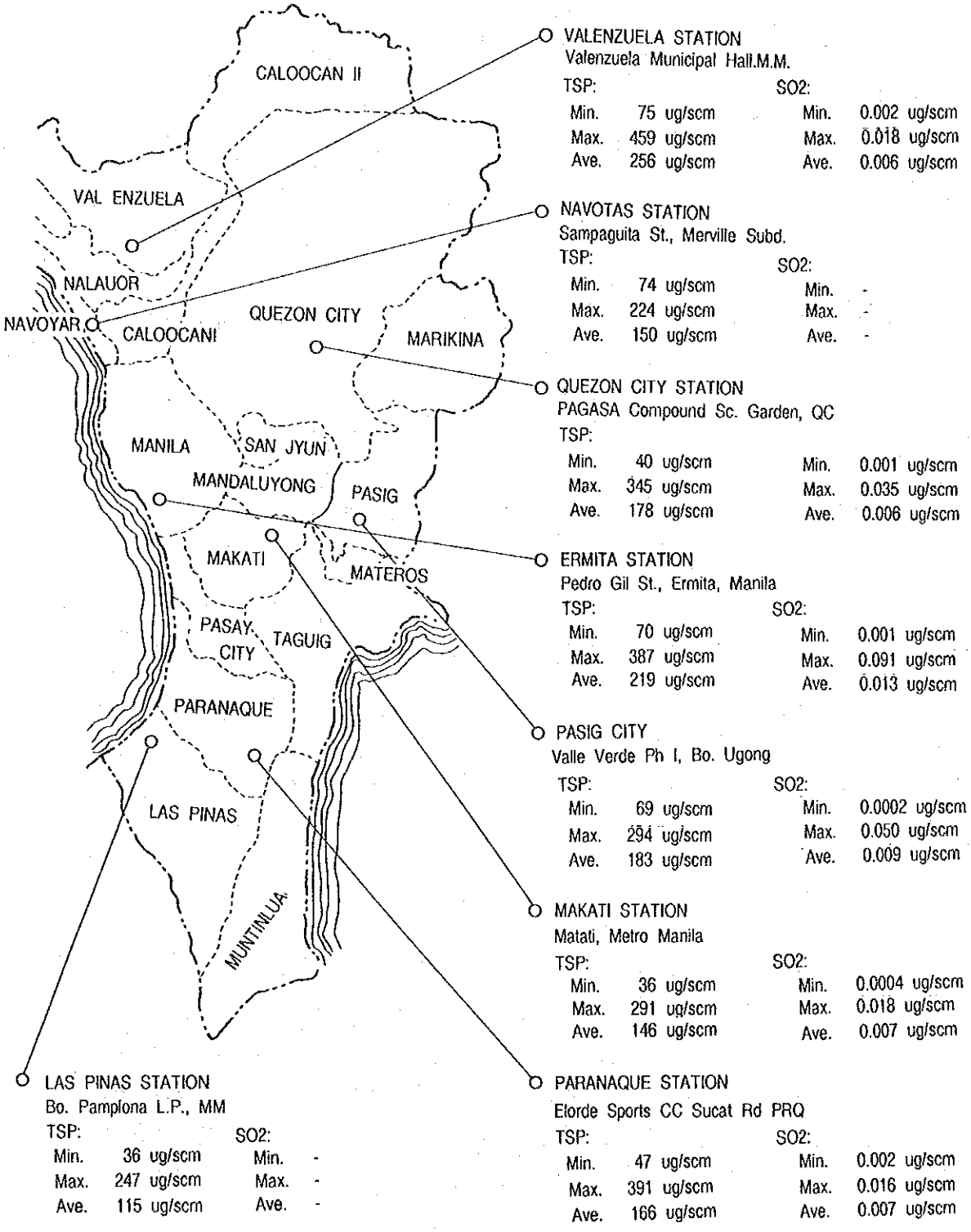


Figure 9-6 SO_2 Annual Average Value

1992 MINIMUM. MAXIMUM. AVERAGE CONCENTRATION OF TSP & SO2 IN AIR MONITORING STATIONS IN METRO MANILA



NOTE: Navoyas AQM Station, sample from January-March only

Figure 9-7 Location of Air Monitoring Stations

CHAPTER 10 ORIGIN AND DESTINATION SURVEY

10.1 Outline of OD survey

10.1.1 Objectives of Survey

For the purpose of establishing a port-hinterland, grasping movement pattern of cargoes and passengers, and formulating a development strategy for the major ports in the CALABARZON, it is necessary to identify the characteristics of cargo and passenger movement and also to quantify the cargo volumes for the ports of Manila.

The survey is conducted to estimate the origin and destination of the current cargoes and passenger at the port of Manila.

10.1.2 Survey Schedule

Surveys were conducted for each harbor on the following dates:

North Harbor : JUNE 1st-8th
South Harbor : JUNE 9th-16th
MICT : JUNE 9th-16th

There are two factors that should be noted in this period. One is that congestion caused by passengers at the North Harbor is at its peak at this time of the year because June 7th is the starting day of a new school term. Another is that vehicle traffic was slightly influenced by the Philippine Independence Celebration at Rizal Park on June 12th.

10.1.3 Survey Stations

The areas covered by the survey are the ports of Manila which include Manila North Harbor, Manila South Harbor and Manila International Container Terminal as shown in Figure 10-1. At the North Harbor, there were 8 survey stations, namely, Piers 2, 4, 6, 8, 10, 12, 14 and 16. In the South Harbor, gates 1, 4, 6 and 7 were the survey stations while in MICT survey station was at the access road entrance(Refer to Table 10-1).

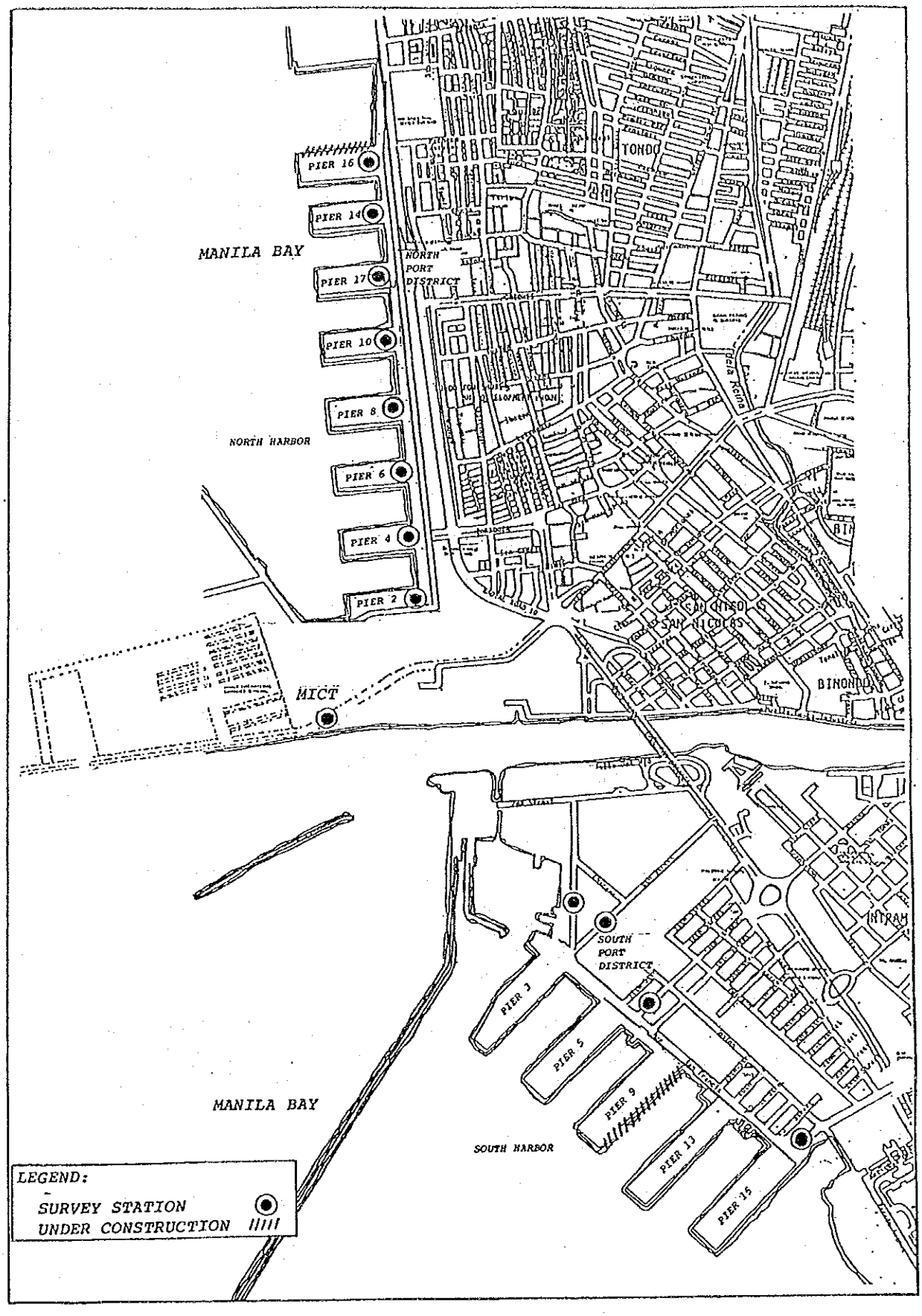


Figure 10-1 Survey Station

Table 10-1 Survey Stations

Harbor	Location
North Harbor	Pier 2 gate
	Pier 4 gate
	Pier 6 gate
	Pier 8 gate
	Pier 10 gate
	Pier 12 gate
	Pier 14 gate
	Pier 16 gate
South Harbor	Gate 1
	Gate 4*
	Gate 6*
	Gate 7*
MICT	MICT Access Road

Note: * Gates are opened between 8 am and 5 pm only.

10.2 Methodology of OD Survey

The following types of surveys were conducted at ports of Manila (See Table 10-2):

Table 10-2 Survey Items

Item	North Harbor	South Harbor	MICT
Vehicle traffic count	Cargo vehicle count at Pier	Cargo vehicle count at Port gates	Cargo vehicle count at access road entrance
Passenger traffic count	Vessel passenger at Pier (Boarding /alighting)	-	-
Cargo OD	Cargo OD interview at Pier	Cargo OD interview at Port gates	Cargo OD interview at terminal entrance
Passenger OD	Vessel passenger OD interview at Pier	-	-

1) Vehicle traffic count survey: Surveyors were positioned at the gate of each port and pier, counting all incoming and outgoing vehicles by type for 24 hours for seven consecutive days except for gates 4 to 7 at the South Harbor wherein counts were done from 8 am to 5 pm only. A 24-hour count was conducted at piers 2, 12, 14 of the North Harbor and from 8 am to 5 pm for piers 6 and 16. Survey schedule for piers 4, 8 and 10 of the North Harbor were dependent on the vessels' schedules.

2) Passenger traffic count survey: Passenger count survey was undertaken at the North Harbor only. Surveyors were assigned at all piers to record all passengers that boarded or alighted the vessels. A 24-hour monitoring of vessels' arrivals and departures was done at piers 2, 12 and 14 for seven consecutive days. As for the other piers, monitoring of vessels' arrivals and departures depended on the daily schedules of the shipping lines concerned except for piers 6 and 16 where no passenger count was made because these piers catered to cargo vessels only.

3) Cargo OD interview survey: Assigned interviewers conducted interviews with drivers of cargo vehicles randomly at the port gates or cargo handling areas of the South Harbor and MICT and at the pier for the North Harbor. Survey schedule was from 8 to 5 pm for gates 4, 6 and a 24-hour survey was done at gate 1 for 7 days at the South Harbor and also at the access road of MICT. At the North Harbor, meanwhile interviews were conducted at the cargo handling area of each pier. At piers 6 and 16 survey was from 8 am to 5 pm daily for 7 days and survey schedule of other piers was dependent on the vessels' schedules of arrival and departure.

4) Passenger OD interview survey: Passenger OD interview survey was undertaken only at the North Harbor. Interviewers were assigned at the piers to interview passengers boarding and alighting the vessels. A 24-hour survey was conducted at piers 2, 12 and 14 for 7 consecutive days and for the other piers, daily survey schedules were dependent on the vessels' arrival and departure schedules for 7 days.

10.3 Result of Vehicle Traffic Survey

For the vehicular traffic flow of the Port of Manila, Appendix A-1 presents the incoming and outgoing hourly traffic coded by vehicle type as presented on the form(i.e., 1-van, 2-light cargo vehicle, 3-truck w/2 axles, 4-dump truck, 5-truck w/3 axles, 6-trailer w/container, 7-trailer head only, 8-tank/lorry, 9-crane, 10-others). It should be pointed out that the vehicles classified under the code 10 covers passenger cars, motorcycles, bicycles, pedicabs, taxis, etc. which account for most of the volume or 58% at the North Harbor, 60% at the South Harbor, and 50% at MICT. Table 10-3 shows the vehicular traffic composition by harbor.

10.4 Result of Passenger Traffic Survey

Each vessel that arrived or departed from the North Harbor piers was recorded by day. Passengers alighting or boarding the vessels were counted. Except for pier 4, figures of all other piers do not reflect the actual number of passengers a vessel carries as people are allowed to come and go as they please. Example: a vessel arriving at Pier 2 reflects both boarding and alighting person counts, although the number of alighting is definitely more than that of boarding. As such, to get an indicative volume of vessel passengers, the number of boarding persons should be deducted from the number of alighting persons for vessels that arrived and vice-versa for vessels that departed. Table 10-4 gives the vessel passenger counts by vessel and by pier for the North Harbor. The South Harbor and MICT do not usually have passenger vessels berthing at their piers.

10.5 Result of Port Cargo OD Survey

The cargo OD survey was carried out for the North Harbor, the South Harbor, and MICT. The number of cargo vehicles actually surveyed for the cargo OD is 6,358 which constitutes approximately about 12% of the average number of vehicles counted entering/leaving the piers at the North Harbor(cumulatively computed at an average of 53,255 for the entire survey duration). Table 10-5 gives the actual number of samples surveyed in the cargo OD.

The cargo OD survey captured both the OD of the commodities and the OD of the vehicles carrying/transporting the cargo/commodities to/from the ports.

Based on the PPA reported volume of commodity for 1991, the survey captured approximately 1.1% of the total for the North Harbor, 1.7% for MICT, and 1.4% for the South Harbor as shown in Appendix A-2, respectively. For the commodity codes referred to in these tables, Appendix A-3 provides a description of these commodities. To narrow the commodity classification, these codes have been reclassified to 8 commodity groups as shown in Table 10-6.

Table 10-3

Traffic Composition by Port

(entire survey period of 7 days)

North Harbor

Vehicle Type	Total Volume/Pier								TOTALS
	2	4	6	8	10	12	14	16	
1 VAN	1727	569	116	986	466	954	3674	77	8569
2 LIGHT TRU	1049	127	46	509	296	987	1542	75	4631
3 TRUCK2	658	78	36	298	415	350	1279	91	3205
4 DUMP	6	4	3	115	0	70	11	1	210
5 TRUCK3	299	87	513	519	621	468	1021	159	3687
6 TRAILER1	445	292	7	268	449	1182	1573	52	4268
7 TRAILER2	61	272	150	47	519	587	560	62	2258
8 TANK	4	8	13	35	30	24	80	2	196
9 CRANE	46	14	72	51	9	22	110	3	327
10 OTHERS	2867	1455	473	3476	1814	4169	11543	107	25904
Total	7162	2906	1429	6304	4619	8813	21393	629	53255

South Harbor

Vehicle Total	Total Volume/Day							Total
	1	2	3	4	5	6	7	
1 VAN	1367	1348	1441	374	310	1429	1532	7801
2 LIGHT	197	189	227	58	11	174	225	1081
3 TRUCK2	109	116	139	15	12	109	158	658
4 DUMP	44	31	98	106	228	208	253	968
5 TRUCK3	474	472	554	221	187	500	641	3049
6 TRAILER1	1229	1435	1317	389	316	1166	952	6804
7 TRAILER2	234	144	140	70	41	156	124	909
8 TANK	24	18	4	7	5	24	6	88
9 CRANE	0	22	8	3	2	18	16	69
10 OTHERS	5695	5925	6353	1783	1167	5644	6434	33001
Total	9373	9700	10281	3026	2279	9428	10341	54428

MICT

Vehicle Type	Total Volume/Day							Total
	1	2	3	4	5	6	7	
1 VAN	1092	1200	1414	561	281	1235	1381	7164
2 LIGHT	408	431	658	269	36	391	447	2640
3 TRUCK2	195	212	249	81	3	150	164	1054
4 DUMP	134	123	172	94	3	231	306	1063
5 TRUCK3	625	672	693	111	39	599	647	3386
6 TRAILER1	2467	3143	3328	1546	216	2235	2738	15673
7 TRAILER2	600	517	521	300	86	390	519	2933
8 TANK	13	30	24	10	2	15	37	131
9 CRANE	24	204	71	280	23	207	305	1114
10 OTHERS	6323	5879	7249	1834	1054	5758	6902	34999
Total	11806	12226	14128	4947	1708	11141	13390	70157

Table 10-4
Passenger Count by Pier of North Harbor
(entire survey period)

pier No,: 2

Date	Shift No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-1-93	1	Sta Ana	6:00	6:05	Arrival	1289	5288
6-1-93	1	Sta Ana	14:00	14:05	Departure	3527	1112
6-1-93	1	Don Julio	10:00	10:05	Departure	3028	645
6-3-93	1	Don Julio	12:00	12:10	Arrival	878	2723
6-4-93	1	Don Julio	9:00	9:05	Departure	1968	926
6-6-93	1	Don Julio	11:00	11:20	Arrival	285	1050
6-2-93	2	Sta Florentina	14:00	14:10	Arrival	1739	4552
6-3-93	1	Sta Florentina	8:00	8:03	Departure	4953	1555
6-5-93	2	Sta Florentina	16:00	16:35	Arrival	459	1392
6-6-93	1	Sta Florentina	8:00	8:05	Departure	3154	1273
6-2-93	1	Don Claudio	12:00	12:50	Arrival	690	1915
6-4-93	1	Don Claudio	14:00	13:55	Departure	1374	570
6-6-93	1	Don Claudio	8:00	7:55	Arrival	1617	3019
6-7-93	1	Don Claudio	11:00	11:00	Departure	1258	415
6-4-93	1	Sta Ana	6:00	5:50	Arrival	4041	6726
6-4-93	2	Sta Ana	17:00	17:00	Departure	3133	462
6-4-93	1	Princess of Negros	10:00	10:10	Arrival	455	1879
6-4-93	2	Princess of Negros	17:00	17:05	Departure	3162	1559
6-7-93	1	Princess of Negros	8:00	8:15	Arrival	389	2226
6-7-93	1	Princess of Negros	13:00	14:00	Departure	1382	517

Pier No,: 4

Date	Shift No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-2-93	2	MV Legaspi	14:00	15:00	Departure	905	-
6-6-93	2	MV Legaspi	17:00	16:30	Arrival	887	2127
6-7-93	1	MV Legaspi	12:00	12:10	Departure	1890	785
6-1-93	1	Super Ferry 1	13:00	13:15	Arrival	-	1135
6-3-93	3	Super Ferry 1	6:00	6:00	Departure	3004	-
6-5-93	2	Super Ferry 1	19:00	20:00	Arrival	487	2215
6-6-93	2	Super Ferry 1	16:00	16:00	Departure	2315	898
6-3-93	1	Super Ferry 2	10:00	10:45	Arrival	-	2896
6-3-93	2	Super Ferry 2	20:00	20:05	Departure	2735	-
6-6-93	1	Super Ferry 2	6:00	6:05	Arrival	-	3239
6-7-93	2	Super Ferry 2	18:00	18:05	Departure	815	-
6-1-93	1	Super Ferry 3	8:00	8:45	Arrival	-	1095
6-1-93	2	Super Ferry 3	14:00	15:00	Departure	1595	-
6-4-93	1	Super Ferry 3	8:45	8:45	Arrival	778	3039
6-4-93	2	Super Ferry 3	21:00	21:00	Departure	2311	419

Pier No,: 8

Date	Shift No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-1-93		2 Salve Juliana	15:00	15:00	Departure	1313	714
6-3-93		1 Salve Juliana	10:00	10:07	Arrival	324	887
6-3-93		2 Salve Juliana	15:00	15:35	Departure	975	237
6-7-93		1 Salve Juliana	6:00	6:00	Arrival	656	1533
6-1-93		1 Kimelody Cristy	8:00	11:50	Arrival	412	1918
6-1-93		3 Kimelody Cristy	24:00	24:00	Departure	1676	726
6-3-93		2 Kimelody Cristy	16:00	16:18	Arrival	240	1100
6-3-93		3 Kimelody Cristy	24:00	24:15	Departure	2012	1226
6-6-93		1 Kimelody Cristy	8:00	8:18	Arrival	1306	3233
6-6-93		2 Kimelody Cristy	18:00	18:00	Departure	1895	956
6-1-93		1 Our Lady of Fatima	12:00	14:00	Departure	3289	1739

Pier No,: 10

Date	No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-2-93		1 Our Lady of Sacred Heart	14:00	14:15	Arrival	1566	4184
6-2-93		2 Our Lady of Sacred Heart	18:00	18:00	Departure	4912	2324
6-4-93		1 Our Lady of Sacred Heart	12:00	12:20	Arrival	1597	3381
6-5-93		3 Our Lady of Sacred Heart	12:00	12:05	Departure	3859	1729

Pier No,: 12

Date	Shift No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-1-93		1 Dipolog Princess	10:00	12:00	Departure	1936	698
6-2-93		2 Palawan Princess	16:00	18:00	Arrival	766	2682
6-2-93		3 Palawan Princess	24:00	24:00	Departure	2451	1971
6-2-93		1 Tacloban Princess	8:30	9:00	Arrival	1230	1503
6-2-93		1 Tacloban Princess	14:00	14:00	Departure	1262	606
6-5-93		1 Tacloban Princess	12:00	1:00	Arrival	1012	1766
6-6-93		1 Tacloban Princess	9:00	10:10	Departure	2555	1205
6-3-93		2 Cebu Princess	16:30	17:00	Arrival	1226	3181
6-4-93		1 Cebu Princess	10:00	11:55	Departure	1170	100
6-4-93		2 Cotabato Princess	15:30	17:05	Arrival	1065	3174
6-5-93		1 Cotabato Princess	13:00	14:00	Departure	4352	2901
6-3-93		3 Surigao Princess	21:00	22:00	Arrival	861	1763
6-4-93		2 Surigao Princess	15:00	17:00	Departure	1078	146
6-4-93		2 Philippine Princess	19:00	19:15	Departure	1455	756
6-7-93		1 Philippine Princess	11:00	10:25	Arrival	371	2801
6-5-93		1 Manila Princess	13:00	14:00	Arrival	935	3061
6-6-93		1 Manila Princess	10:00	12:00	Departure	3094	1105

Pier No,: 14

Date	Shift No,	Vessel Name	Arr/Dep Schedule	Actual Time of Arr/Dep	Vessel Status	No, of Boarding	No, of Alighting
6-1-93	1	Dona Virginia	7:00	7:30	Departure	2522	259
6-4-93	1	Dona Virginia	7:00	7:00	Arrival	1172	3208
6-4-93	2	Dona Virginia	19:00	19:30	Departure	4005	1964
6-7-93	1	Dona Virginia	7:00	7:00	Arrival	866	2350
6-7-93	2	Dona Virginia	19:00	19:00	Departure	1084	444
6-1-93	1	MV Cebu	14:00	14:00	Departure	2013	605
6-4-93	2	MV Cebu	4:00	5:00	Arrival	1210	4593
6-5-93	1	MV Cebu	7:00	7:00	Departure	5425	2580
6-7-93	2	MV Cebu	16:00	16:50	Arrival	919	2149
6-1-93	1	MV Sugbu	8:30	8:15	Arrival	1452	6257
6-2-93	2	MV Sugbu	17:00	17:00	Departure	5954	2230
6-4-93	1	MV Sugbu	8:00	8:00	Arrival	380	1503
6-4-93	3	MV Sugbu	22:00	22:00	Departure	4593	1196
6-6-93	3	MV Sugbu	22:00	23:00	Arrival	652	1796
6-7-93	1	MV Sugbu	8:00	8:00	Departure	2726	1157
6-2-93	2	MV Zamboanga	16:00	15:10	Arrival	2228	4400
6-3-93	1	MV Zamboanga	9:00	9:45	Departure	2185	298
6-5-93	1	MV Zamboanga	11:00	11:00	Arrival	1305	705
6-2-93	1	MV Tacloban	5:00	5:30	Arrival	1584	4059
6-2-93	2	MV Tacloban	19:00	19:00	Departure	4706	2277
6-2-93	2	MV Maynilad	15:00	15:15	Arrival	1857	3737
6-3-93	1	MV Maynilad	7:00	7:15	Departure	2109	853
6-6-93	2	MV Masbate 1	6:00	7:20	Arrival	2619	4644
6-6-93	3	MV Masbate 1	24:00	1:00	Departure	3745	2056
6-1-93	1	MV Misamis	7:00	7:10	Departure	3633	1470
6-7-93	1	MV Misamis	9:00	9:00	Arrival		420

Table 10-5 Number of Cargo Vehicle Drivers Interviewed. (North Harbor)

PIER NO.	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	TOTAL
2	81	192	125	137	165	71	169	940
4	69	101	41	98	74	0	58	441
6	27	51	61	58	61	37	57	352
8	48	17	76	39	14	77	98	369
10	77	129	94	128	87	61	69	645
12	199	220	201	229	236	100	188	1373
14	295	291	391	343	346	85	284	2035
16	31	30	33	48	34	3	24	203
TOTAL	827	1031	1022	1080	1017	434	947	6358

Table 10-6 Details 8 Commodity Groups

Product Classification		PPA Code	Description
I	Agricultural-based Aquacultural-based Products	1	Live Animals
		3	Fish & Fish Prep.
		4	Palay & Rice
		5	Corn
		6	Wheat
		7	Fruits & Vegetables
		10	Animal Feeds
		21	Copra
		25	Abaca
II	Manufactures of Food, Beverage & Tobacco	2	Diary Rpduct
		8	Sugar
		9	Molasses
		11	Bottled Cargo
		12	Tobacco & Manufactures
III	Metal, Metal Products, Machineries, & Eqpt,	29	Metalli. ores & Metals
		65	Manufactures of Metal
		64	Iron and Steel
		71	Ma chinery & Electrical
		72	Transprot Eqpt.
IV	Wood & Wood products	22	Logs
		23	Lumber
		24	Paper & Pulp
		61	Plywood & Veneer
		81	Furniture
V	Fuels, Chemicals, & Related Products	31	Curde Petroleum
		32	Refined Petroleum
		33	Mineral Fuels
		51	Chemicals
		27	Fertilizer
VI	Non-metallic Mineral Products	63	Cement
		28	Crude Minerals
VII	Textile & Textile Manufactures	26	Textile Fiber
		62	Textile & Garments
VIII	Other Cargo	41	Coconut Oil
		91	Others