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Final Report

VOL.3 SHORT-TERM DEVELOPMENT PLAN and FEASIBILITY STUDY

The Study on the Cebu Integrated Port Development Plan in the Republic of the Philippines

March 2002

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The Overseas Coastal Area Development Institute of Japan (OCDI)
Pacific Consultants International (PCI)

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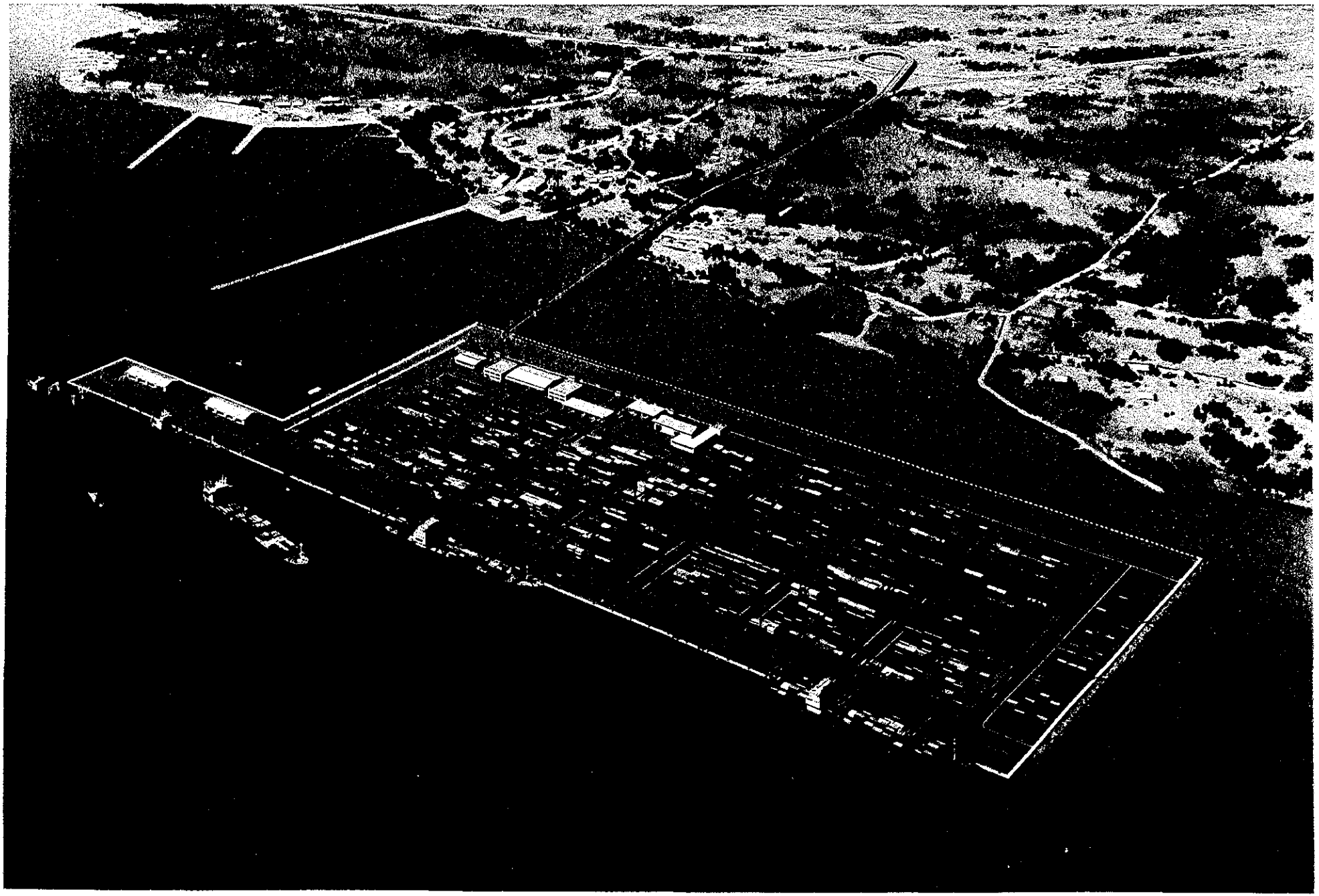
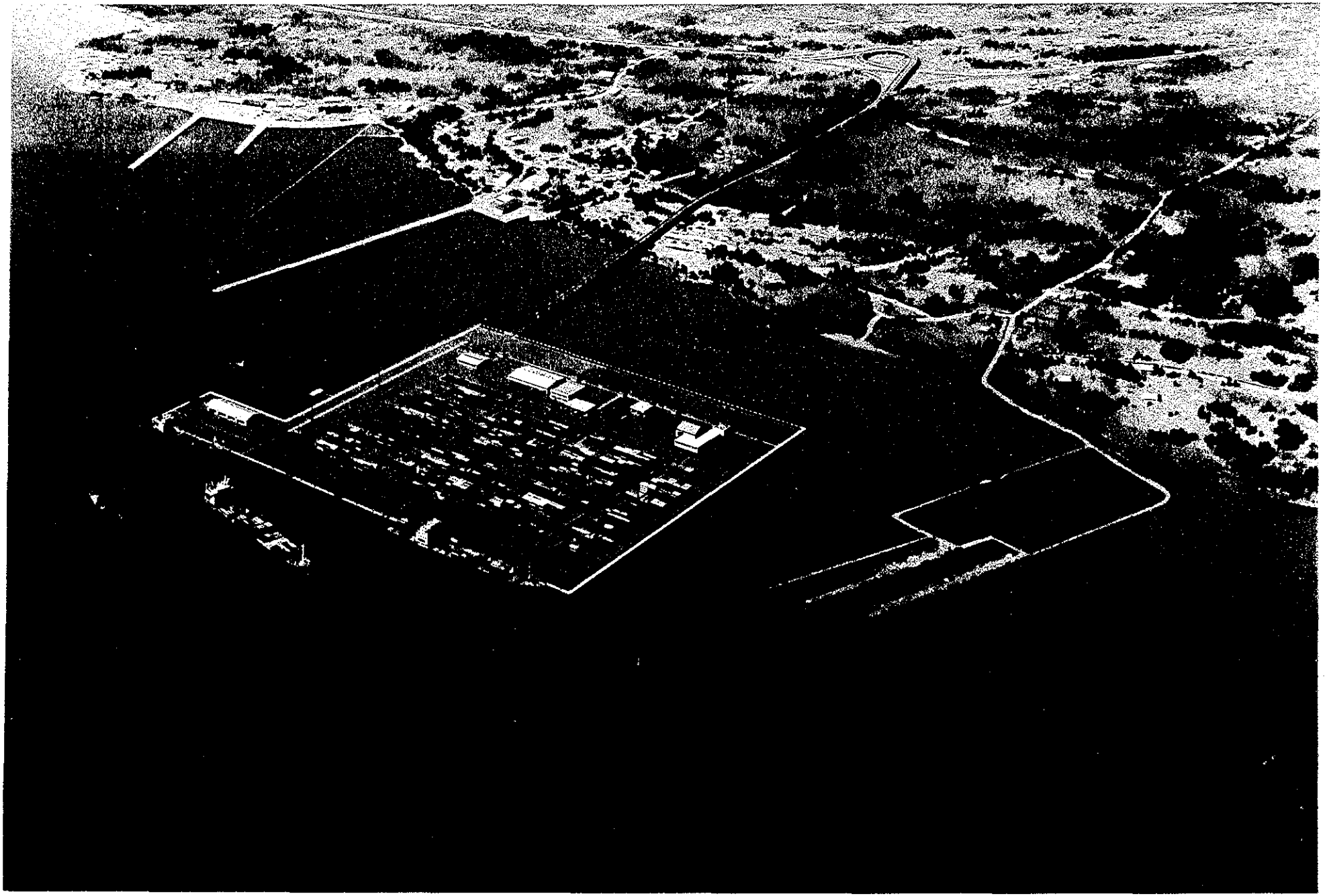


New Cebu Port (2020)



New Cebu Port (2010)

Cebu Baseport (2020)

Cebu Baseport (2010)

LIST OF ABBREVIATIONS

A	AADT	: Average Annual Daily Traffic
	AAGR	: Average Annual Growth Rate
	A&D	: Alienable and Disposable
	ADB	: Asian Development Bank
	AFC	: Atlas Fertilizer Corporation
	AIP	: Air-mans Information Publication
	ARMM	: Autonomous Region of Muslim Mindanao
	ASEAN	: Association of South East Asian Nations
	ATI	: Asian Terminal Incorporated
B	B	: Berth
	B/C	: Cost Benefit Ratio
	BFAR	: Bureau of Fisheries and Aquatic Resources
	BOD	: Biochemical Oxygen Demand
	BOO	: Build, Operate and Own
	BOR	: Berth Occupancy Ratio
	BOT	: Build, Operate and Transfer
	BOC	: Bureau of Customs
C	CAR	: Cordillera Administrative Region
	CARP	: Comprehensive Agrarian Reform Program
	CASSCOR	: Cebu Arrastre & Stevedoring Service Corporation
	CBD	: Commercial Business District
	CCWP	: Cebu City Waterfront Development Project
	CDC	: Construction Development Corporation of the Philippines
	CDO	: Cagayan de Oro
	CDS	: City Development Strategy
	CENRO	: Community Environmental and Natural Resources Office
	CFS	: Container Freight Station
	CIADMPS	: Cebu Integrated Area Development Master Plan
	CIP	: Cebu International Port
	CIPDI	: Cebu Industrial Park Developers, Inc.
	CLIP	: Cebu Light Industrial Park
	CLUP	: Comprehensive Land Use Plan
	COD	: Chemical Oxygen Demand
	CPA	: Cebu Port Authority
	CRC	: Cargo Release Control
	CVMTPD	: Cebu Visayas Medium-Term Development
	CVWSP	: Central Visayas Water and Sanitation Project

D	D	: Depth
	DA	: Department of Agriculture
	DAO	: DENR Administrative Order
	DENR	: Department of Environment and National Resources
	DO	: Dissolved Oxygen
	DOTC	: Department of Transportation and Communication
	DTI	: Department of Trade and Industry
	DPWH	:Department of Public Works and Highways
	DR	: Delivery Record
	DW	: Department Weight
	DWT	: Deadweight Tonnage
E	EDI	: Electrical Data Interchange
	ECC	: Environmental Compliance Certificate
	ECP	: Environmental Critical Projects
	EGR	: Employment Annual Growth Rate
	EIA	: Environmental Impact Assessment
	EIP	: Environmental Impact Statement System
	EIRR	: Economic Internal Rate of Return
	EIS	: Environmental Impact Study
	EMaP	: Environmental Management Plan
	EMoP	: Environmental Monitoring Plan
	EMB	: Environmental Management Bureau
	EPZ	: Export Processing Zone
	ETA	: Estimated Time of Arrival
	ETD	: Estimated Time of Departure
F	FIRR	: Financial Internal Rate of Return
	FOB	: Free On Board
	FSDC	: Farm System Development Corporation
G	GDP	: Gross Domestic Product
	GLC	: Ground Level Concentration
	GNP	: Gross National Product
	GOP	: Government of the Philippines
	GPS	: Global Positioning System
	GRDP	: Gross Regional Domestic Product
	GRT	: Gross Tonnage
H	hpa	: hectopascal

	HTCI	: Herminio Teves Company
	HWL	: High Water Level
I	IBRD	: International Bank for Reconstruction and Development
	IEE	: Initial Environmental Examination
	IFM	: Inward Foreign Manifest
	ICAO	International Civil Avitation Organization
	IMO	: International Maritime Organization
	IPHO	: Integrated Provincial Health
J	JBIC	: Japan Bank for International Cooperation
	JICA	: Japan International Cooperation Agency
K	KVA	: Kilo Volt Ampere
L	LCT	: Loading Craft Transport
	LCL	: Less Than Container Load
	LDP	: Local Development Plan
	LGU	: Local Government Unit
	LLC	: Level Lifting Cranes
	LLW	: Lowest Low Water Level
	LOA	: Length of Overall
	LTO	: Land Transportation Office
	LUWA	: Local Unit Water Authority
	LW	: Low Water
	LWL	: Low Water Level
M	MCCU	: Monitoring Cargo Control Unit
	MCDP	: Mactan Cebu Development Project
	MCDPO	: Mactan Cebu Development Project Office
	MCIA	: Mactan Cebu International Airport
	MCIAA	: Mactan Cebu International Airport Authority
	MCWWD	: Metro Cebu Water Works Department
	MECASSI	: Metro Cebu Arrastre & Stevedoring Service
	MEZ	: Mactan Economic Zone
	MICT	: Mindanao International Container Terminal
	MICT	: Manila International Container Terminal
	MLLW	: Mean Lower Low Water
	MRT	: Mass Rail Transit
	MSL	: Mean Sea-Water Level
	MT	: Metric Ton

	MTPDP	: Medium-Term Philippine Development Plan
	MTS	: Mass Transit System
N	NAMRIA	: National Mapping Resource Information Authority
	NCR	: National Capital Region
	NCTO	: New Cebu Township One
	NEDA	: National Economic and Development Authority
	NEPC	: National Environmental Protection Council
	NIA	: National Irrigation Administration
	NOPEMCO	: The Negros Oriental Provincial Employees Multi-Purpose Cooperative
	Nox	: Nitrogen Oxides
	NPC	: National Power Corporation
	NSCB	: National Statistical Coordination Board
	NSO	: National Statistics Office
	NVOCC	: Non Vessel Operate Common Carrier
O	ODA	: Official Development Assistance
	OECD	: Organization for Economic Cooperation and Development
	OECF	: Overseas Economic Cooperation Fund (Currently JBIC)
	O-D	: Origin and Destination
	OFM	: Outward Foreign Manifest
	OPASCOR	: Oriental Port & Allied Service Corporation
P	PACD	: Presidential Arm on Community Development
	PAGASA	: Philippine Atmospheric, Geophysical and Astronomical Services Administration
	PC	: Prestressed Concrete
	P/C	: Passenger Cargo
	PCI	: Pacific Consultants International
	PCO	: Pollution Control Officer
	PCU	: Passenger Car Unit
	PD	: Presidential Decrees
	PENRO	: Provincial Environment and Natural Resources Offices
	PEZA	: Philippine Economic Zone Authority
	PHILVOLCS	: Philippine Institute of Volcanology and Seismology
	Php	: Philippine pesos
	PIC	: Provincial urban/Industrial Center
	PIE	: People's Industrial Estate
	PIE-MO	: PHIVIDEC Industrial Estate-Misamis Oriental
	PMO	: Port Management Office
	POPCEN	: POPulation CENsus
	PPA	: Philippine Ports Authority

Q	QGC	: Quay Gantry Crane
R	R.C.	: Reinforced Concrete
	RDC	: Regional Development Council
	RDP	: Regional Development Plan
	RIC	: Regional Industrial Center
	RORO	: Roll on Roll off
	RPFP	: Regional Physical Framework Plan
	RTGs	: Rubber Tier Mounted Gantry Crane
S	SCF	: Standard Conversion Factor
	SEI(s)	: Significant Environmental Impact(s)
	SEZ	: Special Economic Zone
	SPM	: Suspended Particulate Matter
	SPSP	: Steel Pipe Sheet Pile
	SPT	: Standard Penetration Test
	SS	: Suspended Solid
	SWIP	: Small Water Impounding Project
T	TEU	: Twenty-foot Equipment Unit
	THI	: Tsuneishi Heavy Industry
	TPC	: Toledo Power Company
	TSMC	: Tolong Sugar Mill Company
U	URSUMCO	: Universal Robina Sugar Milling Corporation
	USDI	: United South Dock-Handlers Inc,
V	VAT	: Value Added Tax
	VECO	: Visayas Electric Cooperation
	VTMS	: Vessel Traffic Management System
W	WCIP	: West Cebu Industrial Park

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Volume 3

1. Introduction

This report proposes the short-term development plan up to 2010 of the New Cebu Port and Cebu Baseport within the framework of the master plan (long-term plan), which, as described in the Volume two of this report, was identified to be most recommendable.

The feasibility of the proposed short-term plan was evaluated from various viewpoints. The feasibility study covered the following work items:

(1) Formulation of suitable phasing plan and the short-term plan in line with the long-term plan
(2) Review of the cargo and passenger volume forecast which was carried out for the economic and the financial analysis in the short-term plan.
(3) Careful examination of the construction schedule, engineering soundness of the structural design, the implementation plan, and the construction cost for the short-term plan
(4) Proposals of adequate systems of port development, management, and operation
(5) Evaluation of both the economic and the financial feasivility
(6) Environmental Impact Assessment for the potential impacts caused by the projects

Main points of the master plans of the New Cebu Port and Cebu Baseport are as follows:

(Allocation of Future Demand between Cebu Baseport and the New Cebu Port)
The cargo and passenger volume of the New Cebu port and Cebu Baseport is shown in the following table.

Future Demand of Cebu Baseport and the New Cebu Port

		Foreign Container (1,000TEU)	Foreign Conventional (1000ton)	Domestic Container (1,000TEU)	Domestic Conventional (1,000ton)	Passengers (1,000person)
New Cebu Port	2010	445	477	57*	--	--
	2020	1,198	756	120*	--	--
Cebu Baseport	2010	--	--	508	5,597	15,820
	2020	--	--	1,083	6,905	20,462

Note: * 10% of total domestic container cargoes, carried by domestic container vessels

(The New Cebu Port)
The required major facilities in 2020 are as follows.
(1) Foreign container terminal
Quay length 1200m and berth depth 13m (four (4) berths)
Gantry cranes (articulated crane type) 10
(2) Foreign multi-purpose terminal
Quay length 380m and berth depth 10m (two (2) berths)
(3) Access road from the new port to the Cebu North Coastal Road

(Stage Development Plan of the New Cebu Port)

It is recommended that the new Cebu port be constructed in the following plan.

1st Phase: 2006-2008 Tow (2) container berths and one (1) multi-purpose berth

2nd Phase: 2011-2014 Tow (2) container berths and one (1) multi-purpose berth
(One (1) container berth will be operational in 2013)

(Cebu Baseport)

The proposed projects in master plan (2020) are as follows.

(1) Expansion (30m off-shore) of the backyard of conventional cargo berth (B21-22, 24-25, 28-30)

(2) Renovation of pier1-3, including expansion of width of pier1 and 2 for large vessels

(3) Construction of passenger terminal buildings with boarding bridge and elevated catwalks for RORO ferries

(4) Expansion of back-up area for RORO ferries in port zone

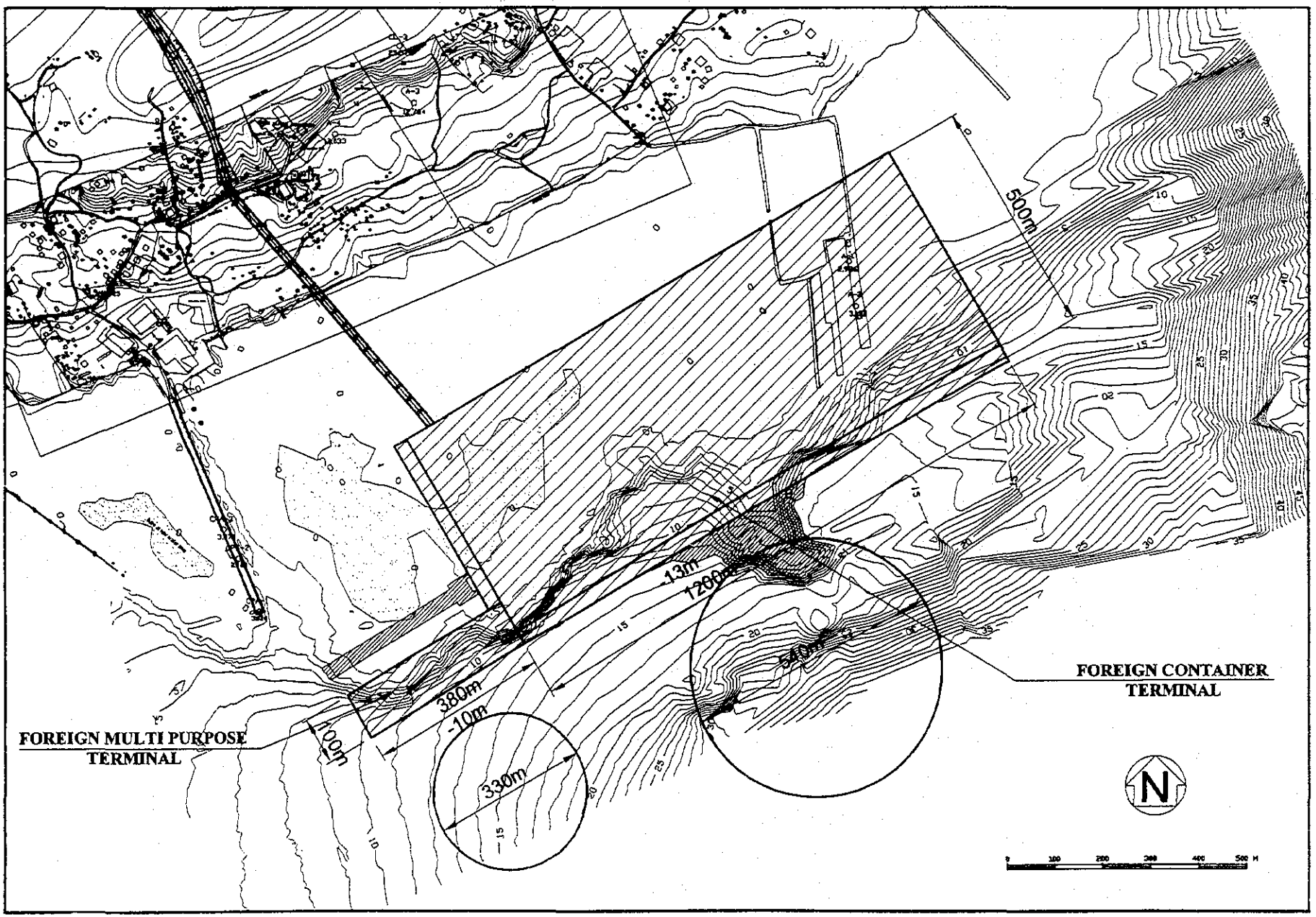
(Stage Development Plan of Cebu Baseport)

The renovation work should be conducted part by part in order to maintain required quay length and overall capacity. It is recommended that the renovation works basically be conducted in the following plan.

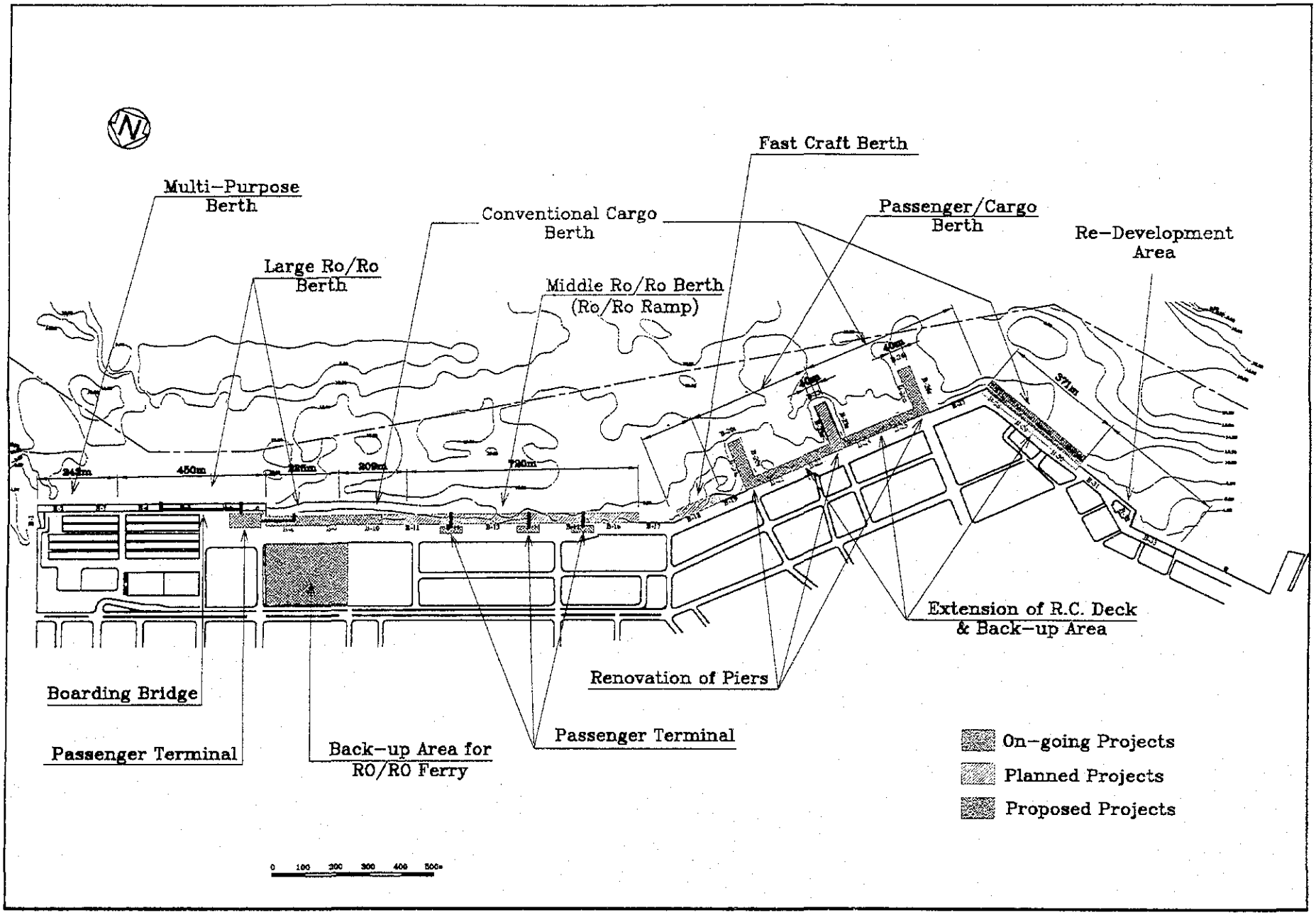
2000-2005 Renovation work at PMO 2

2006-2010 Renovation work at PMO 3 & 4

2011-2020 Renovation work at PMO 5 and Pier 2



Master Plan of the New Cebu Port (2020)



Master Plan of Cebu Baseport (2020)

2. Short-term Development Plans for Cebu Baseport and the New Cebu Port

2.1 Traffic Demand Forecast for the Short-term Development Plan

2.1.1 Demand Forecast of Cebu Baseport

(1) Macro Forecast of Cargo for Short Term Plan

The traffic forecast of the Cebu Base port for the long-term development plan is carried out in the following three cases.

Case 1: The macro cargo forecast of domestic and foreign cargoes is carried out by correlative analysis between GRDP of the Region 7 and cargo handling volume at Cebu Baseport in low growth rate of GRDP, medium and high cases. Based on the result, the medium case is found reasonable.

Case 2: The total cargo demand as forecasted in the above is classified by conventional and containerized cargo volume of inbound/outbound of domestic and import/export of foreign trades by setting up the future containerized ratio of respective type of cargo trade and the following impacts "with project" are considered to generate cargo traffic.

- Bulk cargo volume has been small quantity, tentatively it is included as parts of the conventional cargo
- Diversion of Manila transit cargo
- Diversion of traffic from Visayas Region
- Influence of development of the new San Remigio port and Toledo port

Case 3: On commodity basis, 18 commodities for domestic trade and 12 commodities for foreign trade out of 35 classified commodity items are selected to forecast the total cargo throughput the Cebu Baseport. The total forecast cargo volume is calculated similarly with case 2, by adjusting the volume of cargo listed in the other commodities.

The details of the forecast cargo volume of each commodity and the rest of domestic and foreign trades are listed in the Appendix Tables 2.1.3-2 (1) and (2).

The summary of the above forecast is compared in Table 2.1.1-1.

Table 2.1.1-1 Comparison of Cargo Forecast by Macro Analysis and Commodity Basis

Domestic/Foreign Cargo	Macro Forecast (tons/year)		Micro Basis	
	Case 1	Case 2	Commodity Basis	Rest Items
Domestic Cargo Volume				
Year 2010	11,194,000	10,976,650	9,901,778	1,074,872
Foreign Cargo Volume				
Year 2010	2,726,247	3,140,099	2,698,617	441,482

The yearly cargo forecast of domestic and foreign trades are listed in the following table (as Case 1).

Table 2.1.1-2 Yearly Cargo Forecast for Short-term Plan, Cebu Baseport

Unit: Metric Tons

Year	GRDP	Domestic	Foreign	Total
1990	47,193	3,572,696	550,872	4,123,568
1991	46,971	4,214,747	262,921	4,477,668
1992	47,086	4,160,424	487,843	4,648,267
1993	47,757	4,073,895	351,669	4,425,564
1994	49,663	4,320,846	491,737	4,812,583
1995	52,327	3,998,244	801,336	4,799,580
1996	56,615	4,468,156	747,829	5,215,985
1997	59,926	4,755,554	683,188	5,438,742
1998	60,771	5,821,570	853,290	6,674,860
1999	63,101	5,690,476	863,023	6,553,499
2000	65,031	5,515,566	1,144,631	6,660,198
2001	69,063	6,482,887	1,133,351	7,616,238
2002	73,345	6,889,517	1,270,825	8,160,342
2003	77,892	7,321,359	1,416,823	8,738,182
2004	82,722	7,779,975	1,571,873	9,351,848
2005	87,850	8,268,050	1,736,536	10,004,586
2006	93,297	8,810,138	1,911,407	10,721,545
2007	99,081	9,333,590	2,097,121	11,430,711
2008	105,224	9,881,834	2,316,422	12,198,256
2009	111,748	10,409,464	2,722,990	13,132,454
2010	118,677	10,976,650	3,140,099	14,116,749

The growth rate of the future GRDP from year 2000 to 2010 is assumed as follows:

	Growth Rate of GRDP
Year 2000-2010	6.2 %

Appendix Table A2.4.3-1 and A2.4.3-2 in Volume 2 show yearly inbound and outbound of domestic cargo and import and export of foreign cargo for year 2000 to 2010.

2.1.2 Demand Forecast of Containerized Cargo Volume

(1) Forecast of Containerized Cargo Volume

Estimate of containerized cargo volume of the long-term plan under the conditions of "with project" is carried out at low, medium and high growth cases of GRDP by setting up the containerization ratios of inbound/outbound of domestic cargo and import/export of foreign cargo for 2010. The result of medium case thereof is considered reasonable, which is proposed for use in the short-term plan, because the forecast cargo volume is considered more realistically obtainable and reflective based on the past growth rates trend.

The forecast of cargo for short-term plan were worked out by applying the same methodology and the components in the long-term plan:

1) Diversion of Manila transit cargo "With project",
2) Estimation of diverted traffic from Visayas Region, and
3) Influence of the new San Remigio and Toledo ports development

The forecast is carried out for inbound/outbound of domestic trade and import/export of foreign trade based on the estimated containerized ratio of respective mode of transport thereof. Table 2.1.2-1 shows the total cargo forecast volume by the medium case of domestic and foreign cargoes. Table 2.1.2-2 shows the details of inbound/outbound of domestic and import/export of foreign cargo.

The yearly forecast of domestic and foreign cargo volume for 2000 to 2010 is shown in Appendix Table A2.4.3-1 and 2.4.3-2 respectively in the Volume 2.

Table 2.1.2-1 Summary of Containerized and Conventional Cargo Projection, Cebu Baseport

Unit: Metric Tons

Case	Domestic Cargo			Foreign Cargo		
	Conventional	Containerized	Total	Conventional	Containerized	Total
2005	4,295,514	3,972,536	8,268,050	511,687	1,224,848	1,736,535
2010	5,597,231	5,379,419	10,976,650	477,024	2,663,075	3,140,099

Table 2.1.2-2 Detailed Projection of Containerized and Conventional Cargo, Cebu Baseport

Unit: Metric Tons

Year and Cases		Domestic Cargo			Foreign Cargo		
		Inbound	Outbound	Total	Import	Export	Total
2005	Conventional	1,764,058	2,531,455	4,295,513	488,780	22,907	511,687
	Containerized	1,760,518	2,212,019	3,972,537	910,887	313,961	1,224,848
2010	Conventional	2,217,807	3,379,424	5,597,231	441,877	35,147	477,024
	Containerized	2,131,503	3,247,916	5,379,419	2,092,727	570,348	2,663,075

(1) Forecast of Number of Container

The estimated number of container in TEU is worked out by applying the following factors:

1) Containerization Ratio of inbound/outbound of domestic trade and import/export of foreign trade,
2) Cargo Volume per TEU,

The cargo volume per TEU (ton/TEU) of domestic and foreign container is set as Table 2.1.2-3

Table 2.1.2-3 Cargo Volume per TEU (unit: ton/TEU)

	Domestic		Foreign	
	Inbound	Outbound	Import	Export
1997-2000 (actual)	11.2	13.8	11.4	5.6
2000-2010	11.2	13.8	11.4	5.6

3) Estimated ratio of "full" and "empty" containers in future based on the actual trends of the Cebu Baseport during 1998 to 2000.

Based on the ratio of full containers at Cebu Baseport during 1998 to 2000, the ratio of full container for 2005 and 2010 are set as Table 2.1.2-4

Table 2.1.2-4 Ratio of Full Containers

	Domestic (%)		Foreign (%)	
	Inbound	Outbound	Import	Export
1998-2000(actual)	84.3	56	76.6	80.8
In 2005	78.4	80.0	81.3	57.1
In 2010	67.0	83.3	82.5	45.9

The Table 2.1.2-5 shows the forecast number of full/empty containers of domestic and foreign trades and Table 2.1.2-6 shows the number of inbound/outbound of domestic and import/export of foreign trades in full and empty containers up to 2010.

Table 2.1.2-5 Number of Full/Empty Container of Domestic and Foreign Trades, Cebu Baseport Unit: TEU

Case	Domestic Cargo			Foreign Cargo		
	Full	Empty	Total	Full	Empty	Total
2000	210,891	89,427	300,318	81,854	22,089	103,943
2005	317,480	83,248	400,728	135,967	60,716	196,683
2010	425,669	139,186	564,855	285,420	159,604	445,024

Table 2.1.2-6 Number of Inbound/outbound of Domestic and Import/Export of Foreign Containers at Cebu Baseport

Unit; TEU

Domestic Cargo						
Year	Inbound			Outbound		
	Full	Empties	% of Full	Full	Empties	% of Full
2000	127,660	23,751	84%	83,231	65,676	56%
2005	157,189	43,175	78.5%	160,291	40,073	80%
2010	190,313	92,115	67.4%	235,356	47,071	83.3%
Foreign Cargo						
Year	Import			Export		
	Full	Empties	% of Full	Full	Empties	% of Full
2000	39,095	11,922	77%	42,759	10,167	81%
2005	79,902	18,439	81.2%	56,064	42,277	57%
2010	183,573	38,940	82.5%	101,848	120,664	45.8%

Source: CPA Data

Note: Total for years 2000 are summed up of 1-12 months of original data.

2.1.3 Demand Forecast of Cargo Volume by Commodity Basis

(1) Correlation Coefficient for Commodity Projection:

The commodity forecast is worked out by the regression formula established from the correlation coefficient of the economic index, like sector GRDP, manufacturing, construction and industry sectors of each commodity. The details of growth rate, subject of correlation, correlation coefficient, regression formula, and applicable growth rate of selected commodities items during 2000 - 2010 is shown in Appendix Table A.2.1.3-1. The commodities having the high correlation to their selected economic index of each commodity are selected for forecast.

(2) Demand Forecast of Cargo Volume by Commodity Basis

The cargo forecast by commodity basis with project is made of 18 items for domestic cargo and 12 items of foreign cargo selected out of 35 handling commodities as classified by CPA. The result is summarized in Table 2.1.3-1.

The detail of inbound/outbound of domestic and import/export of foreign cargo of each commodity is shown in the Appendix Table 2.1.3-2 (1) and (2) respectively.

Table 2.1.3-1 Summary of Domestic and Foreign Cargo Forecast by Commodity Basis at Cebu Base port

unit: M. ton

Year	Domestic			Foreign		
	Inbound	Outbound	Total	Import	Export	Total
2005	3,524,576	4,743,474	8,268,050	1,399,668	336,868	1,736,536
2010	4,349,310	6,627,340	10,976,650	2,534,604	605,495	3,140,099

(3) Sensitivity

The difference of forecast volume between the Commodity basis and Macro GRDP basis of domestic cargo are found very minimal, but for the foreign cargo there are some as shown in the Table 2.1.3-2.

Table 2.1.3-2 Comparison of Cargo forecast between Commodity Basis and Macro Basis

Method	Domestic in 2010		Foreign in 2010	
	Inbound	Outbound	Import	Export
By Commodity basis	4,349,310	6,627,340	2,534,604	605,495
By Macro basis	4,435,615	6,758,848	2,209,387	516,861
Rate of C/M	98.0%	98.1%	115%	117%

(C/M): Commodity basis by Macro GRDP basis

In general, projection by commodity can be obtained from production trend, consumption trend, and supply and demand trend of each commodity.

Analysis based upon sector correlation and elasticity between cargo and indicators as undertaken in this study can make more correct projection of the volume. The cargo demand forecast derived from the commodities basis will be more accurate and the projected trends of cargo and economic activities, which such volume thus are taken for planning the project.

(4) Demand Forecast of Cargo Traffic for the Short-term Plan

After the planned project is implemented, it is anticipated that foreign container cargo will be directly delivered/collected from the New Cebu Port which at present are treated as domestic cargo through the Manila (North Harbor) port for transshipment. Such domestic containerized cargo transshipment is converted into the foreign containerized cargo and subtracted from the domestic cargo. The demand forecast of cargo volume is worked out based on the trends of the major commodities selected to cover nearly 91% of the total cargo volume. It is considered that the forecast by commodities basis will be more realistically projecting the actual cargo movement through the port. The demands forecast of domestic and foreign cargo for the short-term plan of the project is therefore proposed to be taken from the commodity basis and shown below.

Table 2.1.3-3 Demand Forecast of Cargo Volume for the Short-term Development Plan

Domestic Cargo (1,000 tons)							
Year	Non-Containerized Cargo			Containerized Cargo			Total
	Inbound	Outbound	Total	Inbound	Outbound	Total	
2000	1,435	1,506	2,941	1,426	1,148	2,574	5,515
2010	2,218	3,379	5,597	2,132	3,248	5,380	10,977
Foreign Cargo (1,000 tons)							
Year	Non-Containerized Cargo			Containerized Cargo			Total
	Import	Export	Total	Import	Export	Total	
2000	442	17	459	446	239	685	1,144
2010	442	35	477	2,093	570	2,663	3,140

2.1.4 Demand Forecast of Passenger Traffic

(1) Macro Forecast of Passenger Traffic

The forecast of passenger traffic was carried out based on the correlation of population in the direct hinterland, region 7 and passenger traffic through the port as in Case 1 and based on the population in the 10 indirect hinterlands as in Case 2. Table 2.1.4-1 shows the estimation result thereby.

Table 2.1.4-1 Forecast of Passenger Traffic at Cebu Baseport Unit: No. of Passenger

Year	Case I (Direct Hinterland)		Case 2(Indirect Hinterland)		
	Population	Passenger	Population		Passenger
	Region 7	(Actual)	Share of Indirect Hinterland		(Actual)
2000	5,701,064	10,059,048	100.0%		10,059,048
Projected population					
2005	6,245,222	14,513,871			13,053,783
2010	6,757,759	18,463,944			17,220,944

Ten Regions as hinterland for case 2 were selected according to Origin-Destination survey. Passenger traffic for each region for target year 2010 was estimated based on the result of the elasticity figure. The population projection for each of the 10 regions is listed in Appendix Table A2.4.3-20 'Estimation of Population Growth Rate by Region, 1990 - 2020' in the Volume 2.

(2) Indicators for Forecast of Passenger Traffic by Vessel Types through the Cebu Baseport

By the micro analysis of the passenger traffic forecast is estimated based on the traffic trends by type of vessels calling to the Cebu Baseport.

Table 2.1.4-2 shows the future share of each type of vessel, growth rate of passenger traffic, and elasticity of passenger traffic and population in the concerned regions for estimation of passenger traffic up to 2010 by vessel types. These indicators are derived from the latest number of population in 2000 and its growth rate in the regions concerned.

Table 2.1.4-2 Indicators for Estimation of Passenger by Vessel, Cebu Baseport

Year	Macro Estimation		Estimation Indicator by Vessel Types					
	Case 1	Case 2	Super Ferry	Fast Craft	Conventional	Metro Bus	Small Craft	Total
1) Share								
2000			7%	18%	52%	23%	0.8%	100%
2010			8%	21%	56%	14%	0.4%	100%
2) Growth Rate:								
1996-2000	7.6%	7.6%	15.8%	5.8%	12.9%	-1.1%	-0.2%	7.6%
2000-2010	6.3%	5.5%	6.3%	6.3%	5.5%	0.0%	-2.0%	4.6%
3) Passenger traffic Elasticity to Population								
1990-2000	3.5	3.5	7.2	2.7	5.9			3.5
2000-2010	4.5	4.0	4.5	4.5	4.0			3.3

Case 1: Direct hinterland population basis
Case 2: Indirect hinterland population basis

(3) Forecast of Passenger Traffic

The passenger traffic forecast by type of vessel is worked out by applying the share of each traffic per vessels, growth rate of each passenger traffic and elasticity of passenger traffic and population as shown in Table 2.1.4-2. The yearly passengers traffic forecast by types of vessels is shown in Volume 2, Appendix Table A2.4.3-23.

Table 2.1.4-2 Summary of Passenger Traffic Forecast by Types of Vessel, Cebu Baseport

Unit: No. of Passenger

Year	Large RORO	Fast Craft	Conventional	Metro Bus	Small Craft	Total
2000	668,575	1,799,617	5,217,768	2,288,979	84,109	10,059,048
2005	905,803	2,438,169	6,827,077	2,288,979	76,028	12,536,057
2010	1,227,207	3,303,298	8,932,743	2,288,979	68,723	15,820,949

(4) Sensitivity

Passenger traffic volume will be affected by characteristics of types of vessel depending on the purpose of trips of passengers and by quality of service during the journey. Consequently, the projection by vessel types does not agree with the macro analysis estimate derived from regression analysis based on population and passenger traffic.

Table 2.1.4-3 Comparison of Passenger Forecast

Year	Macro Projection Case 1 (Direct hinterland)	Macro Projection Case 2 (Indirect hinterland)	Micro Projection (By Vessel types)
2010	14,513,871	13,053,783	12,536,057
2010	18,463,944	17,220,944	15,820,949

Considering the passenger traffic to be sensitive to characteristics of vessel types and to quality of service, the conservative passenger traffic forecast as estimated in the micro projection above is suggested for the short-term plan.

2.1.5 Forecast of Vessel Size and Vessel Calls of the New Cebu Port and Cebu Baseport

Future vessel sizes and vessel calls have been estimated as enumerated in Volume I. In Cebu, new foreign terminals are planned to be operational in 2010. Based on the world trend of foreign vessels, the maximum vessel sizes of container and conventional vessels in 2010 are estimated at 40,000 DWT and 18,000 DWT respectively. Considering that the New Cebu Port becomes the Visayas container hub port, the number of calls of foreign container vessels will be almost quadrupled. As for domestic vessels, ratio of passenger/cargo vessel will decrease and ratios of large RORO, middle RORO, and conventional vessels will increase. Consequently the total number of domestic vessels will increase by about 5 % from 2000 to 2010. The summaries are shown in Tables 2.1.5-1 through 4 and Figs 2.1.5-1 and 2.

Table 2.1.5-1 Forecasted Vessel Size and Vessel Calls (Foreign Vessels)

Year	Container				Conventional			
	Cargo Throughput (TEU)	Max (DWT)	Average Load Volume (TEU/vessel)	Vessel call	Cargo Throughput (ton)	Max (DWT)	Average Load Volume (ton/vessel)	Vessel call
1998	62,000	23,508	268	231	416,000	26,605	2,521	165
1999	79,000	29,213	361	219	314,000	18,693	1,880	167
2000	104,000	29,213	362	287	459,000	45,222	2,961	155
2005	197,000	-	385	510	518,000	-	5,400	95
2008	298,000	20,000	400	750	512,000	15,000	7,000	73
2010	502,000	40,000	450	1,120	477,000	18,000	8,400	57

Table 2.1.5-2 Forecasted Vessel Size and Vessel Calls (Domestic Vessels -1)

Year	Large RORO				Meddle RORO			
	Cargo Throughput by L. RORO (TEU)	Max GRT)	Average Load Volume (TEU/vessel)	Vessel call	Cargo Throughput by M. RORO (ton)	Average (GRT)	Average Load Volume (ton/vessel)	Vessel call
1998	91,000	-	119	766	2,057,000	-	343	6,004
1999	131,000	-	156	841	1,735,000	-	305	5,681
2000	113,000	15,223	138	816	1,783,000	2,022	502	3,553
2005	178,000	-	181	985	2,782,000	-	384	7,240
2008	240,000	-	204	1,178	3,410,000	-	448	7,620
2010	283,000	18,000	219	1,292	3,853,000	4,000	490	7,860

Table 2.1.5-3 Forecasted Vessel Size and Vessel Calls (Domestic Vessels -2)

Year	Container				Conventional			
	Cargo Throughput by Container Vessel (TEU)	Max (DWT)	Average Load Volume (TEU/vessel)	Vessel call	Cargo Throughput by Conventional Vessel (ton)	Average (DWT)	Average Load Volume (ton/vessel)	Vessel call
1998	66,000	-	201	328	1,372,000	-	1,067	1,286
1999	95,000	-	198	480	1,160,000	-	797	1,455
2000	82,000	7,276	238	344	1,177,000	847	789	1,492
2005	91,000	-	233	390	1,909,000	-	812	2,350
2008	106,000	-	243	436	2,407,000	-	844	2,850
2010	57,000	7,000	250	228	2,799,000	1,200	865	3,240

Table 2.1.5-4 Forecasted Vessel Size and Vessel Calls (Domestic Vessels -3)

Year	Fast Craft			Metro Bus Ferry			Passenger/Cargo		
	Passenger by FC (passenger)	Average Load (pass/vessel)	Vessel call	Passenger by MBF (passenger)	Average Load (pass/vessel)	Vessel call	Passenger by P/C (passenger)	Average Load (pass/vessel)	Vessel call
1998	2,093,966	216	9,704	2,752,978	133	20,667	2,890,954	233	12,423
1999	2,010,671	270	7,448	2,934,141	112	26,269	2,890,747	206	14,020
2000	1,799,617	295	6,099	2,288,979	134	17,122	3,181,126	218	14,559
2005	2,438,169	344	7,080	2,288,979	134	17,122	3,835,000	264	14,502
2008	2,925,460	378	7,740	2,288,979	134	17,122	4,226,656	298	14,194
2010	3,303,298	400	8,260	2,288,979	134	17,122	4,500,733	320	14,065

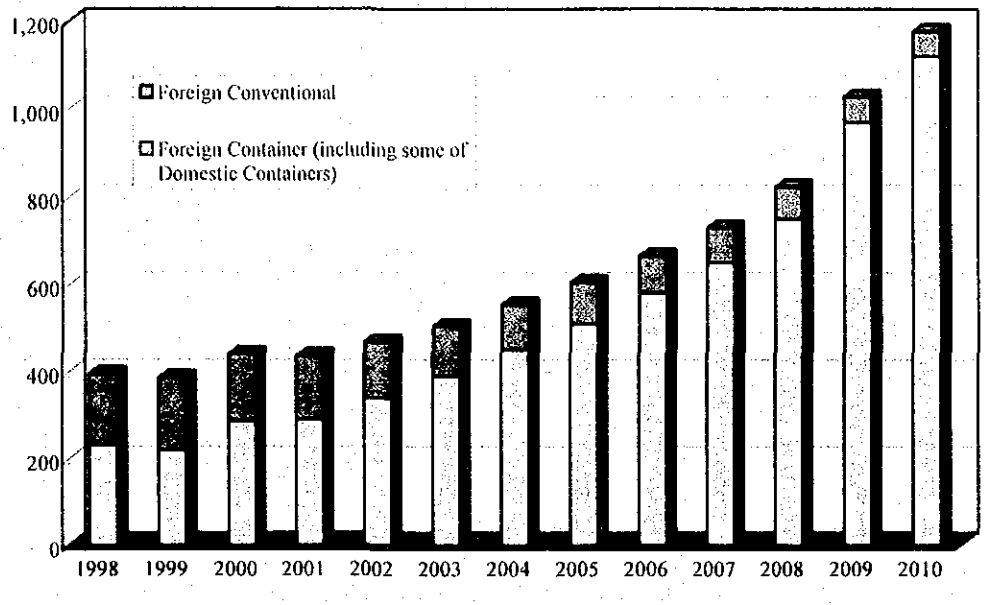


Fig. 2.1.5-1Vessel Call of Foreign Vessels

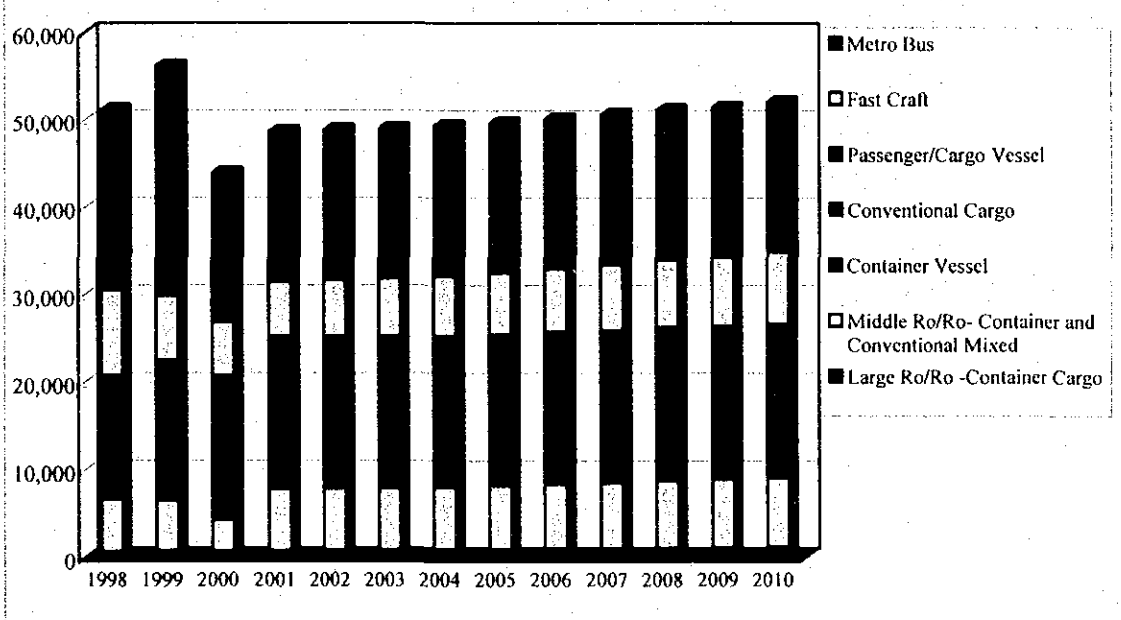


Fig. 2.1.5-2 Vessel Call of Domestic Vessels